THE LEXICAL SEMANTICS OF GRADABLE NOUNS IN ENGLISH

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Contents

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Abstract

This thesis discusses the semantics of gradability in English nouns, focusing on their modification by adjectives of size (*big*, *colossal*, *enormous*, *huge*, etc.) and maximality (*absolute*, *complete*, *total*, *utter*, etc.) when such modifiers are used as intensifiers of nominal degree, rather than with their ordinary literal meanings.

As adnominal intensifiers the *big*-type adjectives indicate that the referent of the resulting noun phrase is in some sense 'more of an N' than the contextual norm for the unmodified base noun. A *big smoker* might smoke more frequently, copiously or enthusiastically than the average smoker. In contrast, the *utter*-type modifiers convey a sense of maximality or totality. A *complete idiot* is someone who perhaps 'could not be more of an idiot', or who is 'an idiot in every respect'.

My investigation builds on the seminal work by Morzycki (2005, 2009, 2012b) and proposes new solutions to some of the main puzzles he addresses, in particular (i) Why are the *utter*-type modifiers systematically infelicitous with nouns like *smoker*, when they combine freely with nouns like *idiot*? (ii) How can the intuitive 'maximality' interpretation of the *utter*-type modifiers be explained compositionally, given that the nouns they collocate with are typically unbounded?

I propose that nouns like *smoker* reject attempts to impose an upper bound because they entail participation in events, and events can always be extended by factors such as frequency, duration, quantity and enthusiasm, any of which can cause the agent to be objectively construed as a 'bigger N'. In contrast, nouns like *idiot* are systematically stative and evaluative, and can acquire maxima via two complementary mechanisms. First, speakers can impose a subjective upper limit on an otherwise unbounded scale by treating all degrees above a certain level as if they were a single degree, i.e. as an equivalence class (cf. Morzycki's 2012a analysis of extreme adjectives). In this sense, an *utter idiot* really is at the top of the scale of *idiocy*. Second, a phrase like *complete idiot* can be interpreted as quantification over dimensions, paraphrasable perhaps as *idiot in every respect* (cf. Sassoon's 2007, 2013a, 2013b work on multi-dimensional adjectives). On one interpretation, expressions like *complete and utter idiot* combine both readings.

The core of the thesis is a new semantic proposal which uniformly treats both classes of gradable nouns as kind-denoting predicates (cf. Constantinescu 2011, 2013), extending Gehrke & McNally's (2015) kind-based analysis of *frequent sailor* from frequency adjectives to size and maximality modifiers, and from eventive predicates to stative ones. The proposal effectively reverses the dimensionality constraints suggested by Morzycki (2012b), as the unique ability of nouns like *idiot* to accept universal quantification over 'respects' of idiocy requires them to be inherently multi-dimensional (as de Vries 2010 suggests), while nouns like *smoker* are one-dimensional.

Declaration

(i) This thesis builds upon preliminary investigations documented in the author's MA dissertation (Rutland 2017), which was submitted to this university in partial satisfaction of the requirements for the degree of Master of Arts in Linguistics in September 2017. All references to that work are cited appropriately.

(ii) With the exception of the material mentioned in item (i), no portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

Copyright Statement

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Being given the opportunity to undertake a PhD is a privilege in many ways. Perhaps the most valuable and unique aspect is that it gives the student direct access to acknowledged experts who are actively pushing forward the boundaries in their fields. The doctoral process has been described in terms of a developing 'master/apprentice' relationship, and I could not have wished for a better team to guide me on that journey than Martina, Andrew and John.

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Finally, I would like to thank my wife Alison for supporting me throughout my recent studies from MA to PhD, not to mention all my earlier changes in career direction. Alison has had to put up with a reclusive and often uncommunicative husband, especially during the writing up period. I dedicate this thesis to her.

Chapter 1

Introduction

1.1 Scope

This thesis discusses the semantics of gradability in English nouns, focusing in particular on their modification by adjectives of size (*big*, *colossal*, *enormous*, *huge*, etc.) and maximality (*absolute*, *complete*, *total*, *utter*, etc.) when such modifiers are used as intensifiers of degree, rather than with their ordinary adjectival meanings.[1] The investigation builds on the seminal work by Morzycki (2005, 2009, 2012b), who defines the overall area of interest as follows.

> a variety of non-adjectival degree modification in which the gradable predicate is provided by a noun, and an adjective serves only to characterize the degree to which the gradable predicate holds
>
> (Morzycki 2005: 116)

The point of departure is that certain nouns can be considered to be gradable in the sense that they can apply to their subject to a greater or lesser extent, in a similar way to gradable adjectives like *tall* or *intelligent*. A *big idiot* is somehow more of an idiot than the average idiot, just as *very idiotic* represents a higher degree of idiocy than does plain *idiotic*. A *complete idiot* similarly exceeds the expected norm for idiots and – in some sense relevant to the speaker – maximally so. Again, there is a direct parallel with adjectival gradability: a *complete idiot* is one who is *completely idiotic*.

[1] An intensifier is 'any device that scales a quality, whether up or down or somewhere between the two' (Bolinger 1972: 17).

The primary aim of the project is provide a representative mathematical model for adnominal gradability in the form of denotations for the various syntactic components involved,[2] and to explain how these basic building blocks combine compositionally to generate the variations in meaning observed in actual language use. While owing much to Morzycki's earlier analyses, my proposed solution adopts a kind-based approach to degree modification (cf. Landman & Morzycki 2003, Gehrke & McNally 2011, 2015), which gives great expressive power at the expense of a slightly more complex syntactic and semantic structure.

My analysis is supported by a wide variety of linguistic evidence, including examples cited in previous research and search results from Sketch Engine, a large electronic corpus of English text collected from the web.[3] However, in practice the variations in meaning I am interested in can be illustrated with simple adjective + noun combinations, such as Morzycki's canonical examples *big smoker* and *utter idiot*. The additional complexities present in phrasal structures such as *very big smoker of Cuban cigars* are interesting, but mostly irrelevant for my purposes.

While other lexemes have been argued to act as nominal intensifiers,[4] this thesis concentrates specifically on degree modifiers of the *big* and *utter* types, seeking to explain the apparently systematic variation in distribution and meaning that obtains between them, despite their common function of intensification.

1.2 The phenomena under investigation

The use of adjectives as nominal intensifiers is a very common device in English. With size adjectives, the effect is to indicate that the subject is in some sense 'more of an N' than the contextual norm for the unmodified noun or noun phrase.

(1) a. George is an *enormous idiot*.
b. Gladys is a *big beer-drinker*.
c. Three *huge goat-cheese enthusiasts* were arguing in the corner.
d. Most *really colossal curling fans* are difficult to understand.

(Morzycki 2005: 116)

[2]Primarily nouns and adjectives functioning as degree modifiers, but also theory-dependent ancillary morphemes such as POS, and structures necessary to represent kinds and non-kinds.

[3]https://www.sketchengine.eu/ententen-english-corpus/

[4]Morzycki also investigates prototypicality modifiers like *real* and *true*. Other mechanisms include exclamatives such as *Charlie is* ***such*** *an idiot!* and ***What*** *a gem this restaurant is!*

While each of the sentences in (1) is potentially ambiguous between size and degree readings,[5] a likely interpretation of (1-a) is that George is a very idiotic person, someone who is 'more of an idiot than the average idiot', not a physically enormous idiot. Similarly, Gladys (1-b) perhaps consumes beer more frequently or copiously than does the average beer-drinker, or is more than ordinarily enthusiastic about beer-drinking. Any of these attributes could make her 'more of a beer-drinker than the average beer-drinker', depending on context. The ordinary literal-size reading of 'physically big beer-drinker' is, however, still available (although marked), and might be deployed for humorous purposes or to insult.[6]

Not all examples have default interpretations that are as clear cut as those in (1-a) and (1-b). In (2) below the size and degree readings are equally likely (and hence semantically unmarked), and the resulting ambiguity can only be resolved by context. Without further information it is impossible to ascertain whether the speaker intends to convey that Alex is physically big (as many rugby players are, given the nature of the sport),[7] or that he is an individual who plays rugby frequently or enthusiastically.

(2) Alex is a big rugby player.

In contrast to size adjectives, degree modifiers such as *absolute*, *complete*, *total* and *utter* carry meanings of maximality and totality. Likely interpretations are that the subject 'could not be more of an N', 'is an N in every respect', or perhaps a combination of such readings. Many of the examples uncovered during my research have a subjective and evaluative flavour similar to the following.

(3) a. Sam is an utter genius.
b. Charlie behaved like a complete idiot last night.
c. This restaurant is an absolute gem!
d. That project has always been a total and utter disaster.

[5]Degree in this sense means the extent to which the gradable concept represented by the noun applies to the individual in question. Later chapters will refer to so-called *degree semantics*, a theory which assumes that 'degrees' (points or extents on abstract scales) are fully-fledged members of the ontologies of languages such as English whose grammars support gradation (Cresswell 1976, Kennedy 1997 and many others).

[6]Perhaps: *Gladys has put on a lot of weight; she really is a BIG beer-drinker now!*

[7]As *big* is a relative adjective, it needs to be interpreted with respect to a comparison class of other individuals. Here, the speaker might wish to convey that Alex is big **for a rugby player**, or perhaps that he is big **for a person of his sex and age** in the general population.

With this class of adjectives the opportunity for ambiguity is somewhat reduced due to the comparatively restricted distribution of the ordinary readings. Whereas size adjectives like *big* are ubiquitous, and can apply to just about any entity that has the property of physical or abstract size, the distribution of *complete* in its ordinary sense ('having all its parts', Paradis 2000) is necessarily limited to entities that can be *incomplete*, such as a chess set or a stamp collection, but not normally a human individual. For this reason, expressions such as *complete idiot* in (3-b) typically refer to the 'completeness' of the subject's idiocy, rather than that of the subject themselves. *Utter* is unique among the modifiers under investigation, as it (almost) always has an intensifying function in modern English (Bolinger 1972: 147, Paradis 2000: 233), meaning that the ordinary/degree ambiguity does not arise.

The fact that many of the expressions under consideration can take degree readings as well as (or instead of) ordinary readings leads to the first research question addressed in this thesis. If (as Frege's Principle suggests[8]) the meaning of a complex expression can be derived compositionally from the meaning of its constituent parts, then in the case of (say) *big rugby player* it is necessary to explain what it is about *big* and *rugby player* and how they combine functionally that gives rise to two perfectly felicitous, but semantically distinct, meanings. This leads to the first research question to be addressed by this thesis.

> **Research Question 1:** How can the ordinary and degree readings that arise under adnominal modification by size adjectives like *big* and maximizers like *complete* be explained compositionally?

A key generalization observed by Morzycki is that, based on their distributions, the two classes of degree modifiers appear to partition gradable nouns into distinct semantic classes. Whereas nouns like *idiot* and *dork* combine freely with both the *big*- and *utter*-type (represented by *complete* in (4)), nouns like *smoker* are only felicitous with the *big*-type.[9,10]

[8] As expressed by Partee (2011: 16), the Principle of Compositionality states that 'The meaning of a complex expression is a function of the meanings of its parts and of the way they are syntactically combined'. The Principle is credited to the German philosopher Gottlob Frege (1848–1925). Although he does not appear to have stated it in the above form, the idea is implicit in his work (Frege 1923 [in German]).

[9] Although Morzycki cites *enthusiast* as an example that is infelicitous with *complete*, corpus evidence presented in chapter 4 demonstrates that it does combine with *utter*-type modifiers, albeit relatively rarely, e.g. *complete cat enthusiast*.

[10] Throughout this thesis the # symbol indicates that the following expression, although

(4) a. $\left\{\begin{matrix}\text{big}\\ \text{complete}\end{matrix}\right\}\left\{\begin{matrix}\text{idiot}\\ \text{dork}\\ \text{fascist}\end{matrix}\right\}$

b. $\left\{\begin{matrix}\text{big}\\ \text{\#complete}\end{matrix}\right\}\left\{\begin{matrix}\text{smoker}\\ \text{goat cheese enthusiast}\\ \text{fan of curling}\end{matrix}\right\}$ (Morzycki 2009: 190)

As Morzycki (2009: 190) observes, the restricted distribution of modifiers like *complete* leads to the somewhat surprising conclusion that while the scale of a gradable noun like *smoker* is unbounded – as might be expected, given that one can always smoke more frequently, copiously or enthusiastically – the scale of *idiot* appears to have a lexical maximum, despite there being no obvious limit to idiocy in practice.

I will henceforth refer to nouns that behave like *smoker* under adnominal modification as [+big −utter] nouns, and those that behave like *idiot* as [+big +utter] nouns.

An initial observation is that the [+big −utter] nouns typically relate to characterizing actions that the subject performs on a frequent or habitual basis (*big guitarist*, *enormous eater*), or objective properties that are perhaps also based on an assessment of habitual behaviour of some kind (*big vegetarian*, *huge philanthropist*). Categorization under a [+big −utter] noun seems always to entail the presence of an event, more usually a series of related events. The event may be explicit, as with deverbal nouns like *drinker*, or implied, as with *big violinist* where there is an inference that the subject *plays* the violin.

In contrast, the [+big +utter] nouns seem to reflect subjective evaluations, often at the extremes of being either complimentary (*absolute genius*) or insulting (*total moron*).[11]

My remaining research questions seek to put such intuitions onto a firm theoretical footing.

> **Research Question 2:** Why are the degree readings of size adjectives like *big* and *huge* possible both with nouns like *smoker* and with

syntactically valid, is infelicitous on a degree reading. This is the notation adopted in Morzycki's most recent (2012b) paper, and examples cited from other papers and authors have been modified where appropriate for consistency.

[11]Bolinger (1972: 283) notes that 'epithetical' degree nouns such as *idiot*, *rascal* and *pigsty* (describing a house) are by their nature extreme predicates, and as such require correspondingly extreme intensifiers.

nouns like *idiot*?

Research Question 3: Why are the degree readings of maximizers like *utter* and *complete* possible with nouns like *idiot*, but not with nouns like *smoker*?

1.3 Summary of research questions

The Research Questions introduced in this chapter are summarised below.

(i) **Research Question 1:** How can the ordinary and degree readings that arise under adnominal modification by size adjectives like *big* and maximizers like *complete* be explained compositionally?

(ii) **Research Question 2:** Why are the degree readings of size adjectives like *big* and *huge* possible both with nouns like *smoker* and with nouns like *idiot*?

(iii) **Research Question 3:** Why are the degree readings of maximizers like *utter* and *complete* possible with nouns like *idiot*, but not with nouns like *smoker*?

My suggested solutions are presented in chapter 5. In brief, I propose that the overall compositional mechanism by which nominal gradability is introduced (Research Question 1) is fundamentally based on the presence of modifiable kinds in the language. Informally, an *idiot* can be thought of as a kind of person, and a *big idiot* as a subkind of *idiot* defined by the possession of a high level of idiocy (Constantinescu 2011). Technically, my approach follows the kind-based analysis of *frequent sailor* from Gehrke & McNally (2015).

More specifically, I propose that at a certain syntactic level the gradable nouns under investigation denote eventuality-kinds,[12] either event-kinds in the case of event-entailing nouns like *smoker* and *violinist*, or state-kinds with state-entailing nouns like *idiot*. The two cases are distinguished by their felicity with attributive adjectives. The inherent extensibility of events (for example, by repetition or increased duration) enables modification by size adjectives, but blocks attempts to impose upper bounds with maximizers (Research Question 2). In contrast,

[12]Strictly speaking, *sets* of kinds.

although stative qualities like *idiocy* are conceptually unlimited, the desire of speakers to stress the extreme nature of the holders of such qualities leads to the imposition of subjective lexical maxima, as with *utter idiot* etc. (Research Question 3).

1.4 The structure of this thesis

Following this introduction, chapter 2 presents detailed examples of the phenomena under investigation. Much of the chapter is taken up by Morzycki's foundational evidence which suggests that degree modifiers of the *real*, *big* and *utter* types partition nouns into three distinct classes, exemplified by *sportscar*, *smoker* and *idiot*. Although I include the *real*-type data for completeness (as it forms an important part of Morzycki's overall argument), this project focuses on the behaviour of the *big* and *utter* types, and I set aside detailed investigation of the *real* type modifiers for future research.

Chapter 3 presents the research context for this project, critically reviewing relevant literature on nominal gradability. To date relatively few authors have written in detail on the subject, and many of the most significant theoretical contributions come from Morzycki himself. While I share Morzycki's belief that nominal gradability is a linguistic phenomenon that is just as real as its adjectival cousin, not all authors are of the same opinion. Indeed, Constantinescu (2011, 2013) is highly critical of the concept of nominal gradability, which she dismisses as 'an illusion rather than a grammatical reality' (Constantinescu 2011: 46).

While Morzycki makes some convincing arguments across the three key papers in which he develops his theory of nominal gradability (Morzycki 2005, 2009, 2012b), his evidence consists of a relatively small set of data, around 24 nouns and 13 adjectives in total. Chapter 4 documents the results of an exploratory corpus investigation, one of whose aims was to establish whether his conclusions extend to the much larger (and arguably more representative) body of evidence contained in a modern web-sourced database.

In general, the results confirm Morzycki's intuitions, although they uncover some possible caveats to his suggested division of gradable nouns into a strict inclusion hierarchy. The study additionally investigates several phenomena outside of Morzycki's claims (but relevant to the research questions posed above), including the apparent partitioning of morphologically deverbal *-er* suffix nouns

into [+big −utter] ones like *drinker* and *spender*, and [+big +utter] ones such as *stunner*, *sucker* and *tosser*.

Chapter 5 proposes solutions to the research questions set out in section 1.3. I present a novel semantic analysis of the [+big −utter] and [+big +utter] classes of nouns that explains the existence of both ordinary and degree readings by extending Gehrke & McNally's (2015) kind-based treatment of *frequent sailor* from frequency adjectives to degree modifiers of size and maximality, and from events to states.

Chapter 6 concludes the technical part of the thesis with a brief summary of what has been achieved, highlighting issues of interest that have been set aside for future research.

Finally, in order to allow interested researchers to reproduce my corpus results, the Sketch Engine queries and WordNet script used to generate the evidence in chapter 4 are set out in appendices A and B respectively.

Chapter 2

Three Classes of Gradable Nouns

2.1 Introduction

This chapter presents evidence relating to the proposal by Morzycki (2005, 2009, 2012b) that English nouns can be partitioned into classes based on their ability to be intensified by prototypicality modifiers (*real*, *true*, etc.), size adjectives (*big*, *enormous*, *huge*, etc.) and maximizers (*complete*, *total*, *utter*, etc.).

This is a relatively short chapter, as the main structures of interest can be illustrated with simple examples, many of which are taken from Morzycki's own work. The fundamental pattern on which his analysis is based is shown in (5). Examples such as these suggest that the three types of modifiers induce an increasingly restrictive inclusion hierarchy, where the set of gradable nouns that can intensified by *real*-type degree modifiers (henceforth the [+real] nouns) form a proper superset of nouns intensifiable by *big*-type modifiers ([+big] nouns), which themselves form a proper superset of those that can be intensified by *utter*-type modifiers ([+utter] nouns).[13,14]

(5) a. real $\left\{\begin{array}{l}\text{idiot}\\ \text{smoker}\\ \text{sportscar}\end{array}\right\}$ b. big $\left\{\begin{array}{l}\text{idiot}\\ \text{smoker}\\ \text{\#sportscar}\end{array}\right\}$ c. utter $\left\{\begin{array}{l}\text{idiot}\\ \text{\#smoker}\\ \text{\#sportscar}\end{array}\right\}$

(Morzycki 2012b: 187)

[13] Although Morzycki (2012b: 194) proposes that [+utter] $\subset$ [+big], he makes no explicit claim regarding the relationship between [+big] and [+real].

[14] While generally confirming Morzycki's intuitions, the corpus study in chapter 4 suggests that certain nouns (mostly abstract mass nouns, or concrete nouns used in an abstract sense) are felicitous with *utter*-type modifiers, but avoid the *big*-type, casting doubt on the claim that [+utter] $\subset$ [+big].

As well as the striking difference in distribution evident in (5), evidence is adduced below in relation to two further claims by Morzycki: first, that degree modification by the *real-*, *big-* and *utter*-type adjectives only occurs when the adjective is in attributive position, i.e. before the noun in English (the *Position Generalization*); and second, that size-related modifiers can only take an intensifying reading if they predicate 'bigness', never if they predicate 'smallness' (the *Bigness Generalization*).

Although I cite examples of modification by *real*-type adjectives for completeness, as this category forms an important part of Morzycki's overall investigation, my own research focuses specifically on nominal intensity and the behaviour of the *big* and *utter* types. In their roles as degree modifiers, *real* and *true* appear to relate to degrees on scales of prototypicality, rather than those of nominal intensity (Morzycki 2012b: 190, Francez & Koontz-Garboden 2017: 126).[15] The *real*-type modifiers are therefore not directly relevant to the aims of this project, and I make only limited reference to them in subsequent chapters.

A basic example of the difference in meaning and distribution between the *big* and *utter* type modifiers is given in (6) below. As intensifiers in pre-nominal position, the *big*-type (size) adjectives indicate that the referent of the resulting noun phrase is in some sense 'more of an N' than the contextual norm for the unmodified base noun N. A likely reading of (6a) is therefore that Anne is a person who smokes more frequently, copiously or enthusiastically than the average smoker. Similarly, (6b) asserts that Bertie is somehow 'more of an idiot' than the ordinary idiot; in other words, he is very idiotic. Although both examples could also be given a size interpretation ('physically large smoker/idiot'), with nouns like *smoker* and *idiot* this alternative is much less likely than the degree (intensity) reading.

(6) a. Anne is a big smoker. (Subject of Research Question 2)
b. Bertie is a big idiot.

(7) a. #Christine is an utter smoker. (Subject of Research Question 3)
b. Donald is an utter idiot.

In contrast, the *utter*-type modifiers have a stronger meaning that conveys a

[15]The possibility that the *real*-type modifiers operate on different scales to the *big-* and *utter*-types is a good reason to be cautious regarding suggestions that [+big] ⊂ [+real] – although I offer no direct evidence that this conjecture is false.

sense of maximality or totality. In (7b), Donald is not simply an above-average idiot, but is in some sense as idiotic as he could possibly be – at least from the speaker's perspective. Crucially for the purposes of this thesis, the *utter*-type modifiers have a restricted distribution compared to the *big*-type, as (7a) demonstrates. For reasons that I set out in my technical proposal in chapter 5, *utter* and the other modifiers in its class are normally unacceptable with nouns like *smoker* (in my terminology [+big −utter] nouns), although they are perfectly felicitous with nouns like *idiot* ([+big +utter] nouns).[16]

2.2 Degree modification by *real*-, *big*- and *utter*-type modifiers

With the exception of *utter* itself, which in modern English is almost always an intensifier (Bolinger 1972: 147, Paradis 2000: 233),[17] all the modifiers in the *real*, *big* and *utter* groups are systematically polysemous between an ordinary meaning and an intensifying (degree) interpretation, although any potential ambiguity can often be resolved by the context of the discourse.

While Morzycki uses *real*, *big* and *utter* as exemplars of their respective types, his full evidence demonstrates that the paradigms in (5) obtain more generally with the wider sets of adjectives in (8).

(8) Adjectives cited in Morzycki (2005, 2009, 2012b)

real type:	real, true
big type:	big, colossal, enormous, gargantuan, huge, mammoth
utter type:	absolute, complete, outright, total, utter

Morzycki's selection is representative, although presumably not intended to be exhaustive as, for example, ***proper*** *sportscar*, ***massive*** *smoker* and ***perfect*** *idiot* would also fit the paradigms in (5), and exhibit the same potential for ambiguity between ordinary and degree readings.

The following sections examine the effects of modification by the three classes

[16] Creative language users are quite able to deploy ad hoc modifier/noun combinations that would normally be infelicitous for their conversational impact, e.g. the example *You absolute coat hanger!* discussed in section 2.4.

[17] Corpus searches reveal an extant fossilised usage of *utter* in its original sense of 'outer': *utter barrister* ('barrister of the outer bar'), a junior advocate of the English courts who is required to sit one row behind more senior lawyers who have attained Queen's Counsel status.

of adjective in more detail, and introduce two further parts of the overall puzzle I am investigating, which Morzycki (2005, 2009) terms the *Position Generalization* and the *Bigness Generalization*.

The behaviour of the *big-* and *utter*-type modifiers is the subject of Research Questions 2 and 3 from section 1.3. Technical solutions to the issues raised are proposed in section 5.4 and section 5.5 respectively. As previously mentioned, no new analysis will be provided for the *real*-type modifiers.

2.2.1 The *real* class

The *real*-type modifiers form an important part of Morzycki's overall proposal and I review them here for completeness.

Adjectives in the *real* class (*real*, *true*, *proper*, *pukka*, etc.) have a variety of ordinary meanings broadly associated with the assertion of the authenticity, veracity or existence of the referent of the following nominal.

(9) a. That's the real Picasso; the other one is a fake.
b. The witness gave a true account of the events in question; the defendant's account was false.
c. I saw a real ghost last night! It wasn't an illusion.

On the ordinary readings in (9), the modifiers combine intersectively with the following noun:[18] a *real painting* is a painting that is real (not fake); a *true account* is an account that is true (not false); and a *real ghost* is a ghost that is real (not illusory).

But with a very wide range of nouns – not just those which some linguists consider to be 'gradable' such as *smoker* and *idiot*, but also normally non-gradable predicates like *American* and *sportscar* (10) – the modifiers in this class can take an additional sense which seems to express the extent to which the subject exhibits the characteristics one would expect a typical (perhaps stereotyped) instance of the nominal concept to have. As Morzycki (2012b: 190) puts it, 'A *real idiot* is one that is closer to the idiot prototype than a regular idiot, and likewise for sportscars and smokers'.

[18] An adjective A and noun N combine intersectively if the meaning of the modified noun $[_{\text{NP}}$ A N] is the intersection of the meanings (extensions) of A and N.

Louise McNally (p.c.) observes that this definition is probably not adequate for *real*-type modification as, for example, 'a fake gun could be a real toy, and on some analyses could be considered a gun, but is not a real gun'.

(10) $\left\{\begin{matrix}\text{real}\\ \text{true}\end{matrix}\right\}\left\{\begin{matrix}\text{disaster/idiot}\\ \text{smoker/basketball fan/}\\ \text{American/sportscar}\end{matrix}\right\}$. (Morzycki 2012b: 190, amended)

In contrast to (9), on their expected readings the examples in (10) do not entail authenticity, veracity or existence. On its degree reading, a *real sportscar* does not stand in contrast to a *fake sportscar*; rather, it denotes a vehicle which exhibits the characteristics one would typically expect of a sportscar, perhaps a high top speed, a sporty exhaust note and an exotic or streamlined shape. Such interpretations thus denote prototypical or exemplary subsets of *idiots*, *smokers*, *sportscars*, etc., and not entities which are in any sense *real* or *true* in an ordinary sense. Morzycki further cites the humorous examples of *true bullshit*, which, as he notes, would be something of a contradiction on an ordinary reading, and (quoting Daniel Dennett[19]) '*real magic* is the kind that isn't real, and *fake magic* is the kind that is'.

As with all the degree modifiers under discussion, the *real*-type adjectives are non-intersective. The extension of *real sportscar* is a subset of that of *sportscar* (with a characteristic function based on closeness to some prototype/exemplar vehicle), but it is not the intersection of the extensions of *real* and *sportscar*.[20]

While *real* and *true* can function as degree modifiers (as (10) illustrates), on Morzycki's account the degrees they manipulate do not relate to nominal intensity, but are measures of similarity to a prototype or exemplar (Morzycki 2012b: 191). This means that they do not only select for gradable nouns, but for a much wider class of nominals.[21]

> These modifiers don't impose particularly stringent requirements on the nouns they combine with, so they are relatively promiscuous. A noun need not be in any sense scalar or inherently gradable to support these modifiers. (Morzycki 2012b: 191)

[19] In a TED talk: http://www.ted.com/talks/dan_dennett_on_our_consciousness.html.

[20] On this basis, the degree usage of *real* in *real sportscar* appears to be subsective. An adjective A and noun N combine subsectively if the meaning of the modified noun $[_{\text{NP}}\ \text{A N}]$ is a subset of the meaning (extension) of N. 'Subsective' is usually taken to mean 'subsective, but not intersective'.

However, it is not obvious that the term 'subsective' can correctly be applied to all of the degree modifiers investigated in this thesis, and I will avoid using the term, preferring instead 'non-intersective' or 'degree reading'.

[21] As I explain in chapter 3, Morzycki proposes that the denotation of a noun like *sportscar* does not project a degree argument, although it does make a prototype available.

Although the [+real] class appears to be very large, an interesting question is whether there are any nouns which do not permit this kind of modification. On the theory that *real*-type modification is accounted for by prototypicality, Morzycki proposes that the reason for the infelicities in the following examples are due to the NPs in question lacking prototypes. In other words, there is no 'best example' that captures the essential nature of the concept in question in the way that *robin* arguably does for the concept *bird* (but flightless birds such as *emu* or *penguin* do not).[22,23]

(11) Floyd is a $\left\{\begin{matrix}\text{real}\\\text{true}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{??male nurse}\\\text{\#non-Methodist}\\\text{\#resident}\\\text{\#person here now}\end{matrix}\right\}$. (Morzycki 2012b: 191)

The important point for the purposes of this thesis is that if the *real*-type modifiers operate on different scales to the *big*- and *utter*-types (i.e. prototypicality vs. nominal intensity) as Morzycki suggests, then it is necessary to explain why the evidence appears to support the existence of an inclusion hierarchy [+big] $\subset$ [+real].[24]

Overall, it is not obvious how (or even if) nominal intensity relates to scales of prototypicality. To be a *big smoker* simply requires one to smoke noticeably more than that contextual average, for example, or be more than usually enthusiastic about smoking; there is no obvious relationship to any 'prototypical smoker'. And as de Vries (2010: 48) comments, although Albert Einstein may be a good *exemplar* of a genius, this does not necessarily make him *prototypical* of that kind of individual.

I do not attempt to address these issues in this thesis, and reserve the matter for future research.

[22]Not all nominal concepts necessarily have prototypes (Kamp & Partee 1995: 172, Sassoon 2007: 91). Negated concepts often seem to lack a clear prototype (*not a bird*, *non-apple*), although this is not universally the case (*non-athlete* Kamp & Partee 1995: 177 fn.).

[23]Morzycki's inclusion of *male nurse* contradicts (Kamp & Partee 1995: 168), who suggest that speakers have individual prototypes for the concept of a male nurse based on their own personal experiences (in real life or on TV etc.). However, whatever the contextual prototype may be, it does not determine the extension of the predicate *male nurse*, which is derived compositionally by the intersection of its parts (Kamp & Partee 1995: 168, Sassoon 2007: 91).

[24]Louise McNally (p.c.) notes that the inclusion constraint would make sense if being associated with an intensity scale entails being associated with a prototypicality scale.

2.2.2 The *big* class

The use of size adjectives as degree modifiers of nouns was noted in the literature as least as early as Bolinger (1972).[25]

(12) a. He is a big fool. (degree)
'he is very foolish'
b. He is a big lad. (non-degree)
'he is large in size'
c. He is a big lawyer. (non-degree[26])
'he is well known as a lawyer'

(Bolinger 1972: 146)

The existence of two readings is apparent from examples such as the following. Mary in (13-a) is acting like a physically larger (and by implication older and more mature) girl than herself. In contrast, (13-b) suggests that John is behaving in the manner of someone who is 'more of a girl than the average girl', i.e. childishly.

(13) a. Mary was acting like a big girl.
b. John was acting like a big girl.

(de Vries 2018: 137)

As Morzycki's evidence demonstrates, the distribution of the *big*-type modifiers on their degree readings is more restrictive than the *real*-type.

(14) $\left\{\begin{matrix}\text{big}\\ \text{huge}\\ \text{major}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{disaster/idiot/}\\ \text{smoker/basketball fan/}\\ \text{\#American/\#sportscar}\end{matrix}\right\}$. (Morzycki 2012b: 192)

A *big disaster* is significantly 'more of a disaster' than a standard disaster,[27] and a *big basketball fan* is 'more of a fan' than the ordinary basketball fan, perhaps in terms of the number of matches watched, enthusiasm or knowledge of the sport. In contrast, a *big sportscar* is simply a large sportscar. There is no inference that it is in any sense 'more of a sportscar' than a smaller vehicle of its class, and the

[25] More recent research on nominal gradability includes Morzycki (2005, 2009, 2012b), Sassoon (2007), Constantinescu (2011, 2013), Sassoon (2013b), de Vries (2010), Wellwood (2019), Xie (2010) and other references cited in this thesis.

[26] Bolinger's reasoning for classifying *big lawyer* as 'non-degree' is explained in connection with a similar example in (15) below.

[27] Although of course *disaster* can be used metaphorically for less serious eventualities.

phrase is therefore infelicitous on a degree reading.[28]

On their ordinary readings, adjectives in the *big*-class, such as *big* itself, *huge* and *enormous*, are modifiers that indicate the relative size of the referent along some physical or abstract dimension of the following noun.

(15) a. The children lived in an enormous house.
b. Mr Smith is a big lawyer in the city. (significance reading)
c. Elizabeth owns a huge plot of land.

The nominal concepts in (15) are not gradable: an entity is either a *house*, *lawyer* or *plot of land* or it is not. While an *enormous house* might rank significantly above average in terms of physical dimensions such as height, floor area, number of bedrooms, etc., there is no implication that it is in any sense 'more of a house' than a smaller house. Similarly, someone may be regarded as a *big lawyer* on abstract size dimensions such as importance, influence or renown, but without being 'more of a lawyer' than a less prominent but equally qualified legal professional.[29]

In contrast, it is always possible to be more of an *idiot* (be more idiotic), *stamp collector* (e.g. collect more stamps), *goat cheese enthusiast* (be more enthusiastic about goat cheese) or *curling fan* (e.g. watch more curling matches).

(16) a. George is an *enormous idiot*.
b. Gladys is a *big stamp-collector*.
c. Three *huge goat cheese enthusiasts* were arguing in the corner.
d. Most *really colossal curling fans* are difficult to understand
(Morzycki 2005: 116)

The difference between (15) and (16) is that the adjective does not measure the size (whether physical or abstract) of the NP referent (*George*, *Gladys*, etc.) but the degree to which the nominal concept applies to that referent, for example the extent of George's idiocy, or the magnitude of Gladys's commitment to stamp collecting. For Morzycki (2009: 193), the ability to measure degrees, as well as properties of entities, is the defining characteristic of size adjectives. On this

[28]Morzycki considers that importance readings exhibit a different phenomenon to true nominal gradability. In *The Countach was a big sportscar for Lamborghini in the 1970s* (my example), the model in question was perhaps a 'big seller', and very important to the manufacturer for that reason.

[29]'A man either is or is not a lawyer; he may be a good lawyer or a bad one, but his being good does not make him more a lawyer, nor his being bad, less' (Bolinger 1972: 15).

basis, #*tall idiot* and #*large idiot* are infelicitous on a degree reading because *tall* and *large* do not have degrees in their domains, and are therefore unable to modify the degree argument of *idiot*.[30]

The intensifying effects in (16) disappear if the NPs are replaced by ungradable nouns. An *enormous rugby forward* (17-a) is simply a physically large rugby player, and in no sense 'more of a rugby forward' than other rugby forwards. Although in some contexts *big girl* can have a degree meaning of 'childish' (as in (13b)), on the intended reading in (17-b) it refers to Gladys being physically larger than the average girl of her age.

(17) a. #George is an *enormous rugby forward*.
b. #Gladys is a *big girl for her age*.
c. #Three *huge Hungarians* were arguing in the corner.
d. #Most *really colossal semantics papers* are difficult to understand.
(Rutland 2017: 9, slightly modified)

As with the *real*-type modifiers, in their ordinary literal-size senses *enormous*, *big* and *huge* combine intersectively with the following noun (phrase), albeit subject to a noun-influenced comparison class, as size adjectives are vague predicates with relative standards: an *enormous mouse* is a mouse that is enormous as mice go.[31] In contrast, in their roles as degree modifiers they combine with the nouns in a strictly non-intersective manner: *big smoker* denotes the subset of the set of smokers who 'smoke big', e.g. frequently, copiously or enthusiastically, not the intersection of smokers and individuals who are big (for smokers).

The existence of two readings for *big*, *huge*, etc. can be demonstrated by constructing felicitous sentences that would be contradictory if both readings had the same interpretation. In (18) a size reading and a degree reading can happily coexist, whereas a combination of two conflicting size readings is unacceptable due to a $P \wedge \neg P$ contradiction (19).[32]

[30] *Large* therefore does not count as a size adjective for current purposes (Morzycki 2009: 193 fn.).

[31] I.e. it is enormous relative to other mice or some other contextually-salient comparison class (Morzycki 2009: 182 fn.). See Kennedy (2007b) for discussion of the applicability of comparison classes in general and McNally (2016: 449) for arguments that gradable adjectives should be analyzed intersectively once the contextual comparison class has been established.

[32] To be watertight, these constructions should specify the comparison class e.g. *Gladys isn't very big* ***for a stamp-collector****, but she is a very big stamp-collector* (Morzycki 2009: 182 fn., Kennedy 2007b).

(18) a. Gladys isn't very big, but she is a very big stamp-collector.
b. Harry isn't enormous, but he is an enormous idiot.

(19) a. #This chair isn't very big, but it is a very big chair.
b. #That building isn't enormous, but it is an enormous building.
(Morzycki 2009: 182)

The behaviour of the *big*-type modifiers is the subject of Research Question 2 from section 1.3. My proposed technical solution is presented in section 5.4.

2.2.3 The *utter* class

In an influential study of gradable words in general, Bolinger (1972) observed that certain adjectives (including Morzycki's *utter*-class modifiers *absolute* and *utter*) can produce an intensifying effect with what he termed 'predicative degree nouns' (Bolinger 1972: 84–85).

(20) a. He's an utter villain.
'he's extremely villainous'.
b. *He's an utter lad. (Bolinger 1972: 146)

(21) a. It was absolute hell.
b. It was utter heaven.
c. It was pure Elysium.
d. It was sheer paradise. (Bolinger 1972: 151)

The term 'predicative' refers to the notional presence of an adjective-like semantic feature within the gradable noun that is understood to apply to an implied non-degree (i.e. lexically ungradable) noun.[33] The gradable noun *villain* in (20-a) can thus be paraphrased as 'person [ungradable] who is villainous', and *heaven* in (21-b) as 'place/event/thing [ungradable] that was heavenly'.[34] Continuing the analogy, an *utter villain* is a 'person who is utterly villainous' or an 'utterly villainous person'; the gradable modifier thus applies to an adjective-like semantic component equivalent to *villainous*, rather than to the (ungradable) implied noun *person*.

[33]Bolinger (1972: 84) refers to a 'semantic feature' incorporated within the gradable noun; he does not make the morphological claim that there is actually an (unpronounced) adjective.
[34]Or more simply as just *villainous person* and *heavenly place/event/thing* respectively.

At first sight, Bolinger's predicative degree nouns appear to correspond roughly to Morzycki's *idiot*-class ([+big +utter]) nouns, an *idiot* being a 'person who is idiotic' and an *utter idiot* 'a person who is utterly idiotic'. Although I make no claim that the two classes are truly equivalent, in chapter 5 I will rely on the presence of an 'adjective-like' semantic component in the [+big +utter] nouns to formulate a state-based analysis that differentiates them from (event-based) [+big −utter] nouns like *smoker* and *guitarist*.

Morzycki's evidence suggests that the *utter*-type modifiers are the most restrictive, and are only able to combine felicitously with nouns like *idiot* and *dork*.[35]

(22) a. complete {idiot / dork / fascist}

b. #complete {smoker / goat cheese enthusiast / fan of curling} (Morzycki 2009: 190)

(23) {utter / complete / absolute / outright} {disaster/idiot/ / #smoker/#basketball fan/ / #American/#sportscar}. (Morzycki 2012b: 194)

With their ordinary meanings, the modifiers in the *utter* group (*utter*, *complete*, *absolute*, *total* etc.) are modifiers of maximality. If one has read the *complete works* of an author, then there are no more works remaining to be read.

(24) I have read the complete works of Shakespeare.

As such, the scales of the nouns they combine with must have upper bounds, and attempts to pair them with open-scale nominal predicates like *improver* on a maximality reading are likely to be infelicitous.

[35] I question the categorization of *goat cheese enthusiast* as a [+big −utter] noun. As documented in chapter 4, my corpus research uncovered felicitous instances of *enthusiast* combining with *utter*-class degree modifiers. The phrase *complete cat enthusiast* (enTenTen15 corpus reference [#8388745974]) can surely only have a degree interpretation, for example.

(25) Alice is a(n) $\left\{\begin{matrix}\text{absolute}\\ \text{complete}\\ \text{total}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{beginner}\\ \#\text{improver}\end{matrix}\right\}$ at chess.

A person who is a *beginner* at an activity is someone with little or no experience who is just starting out. The effect of adding modifiers such as *absolute*, *complete* or *total* is to restrict the extension of the predicate to individuals who are maximally (or at least extremely) inexperienced. If one is an *absolute beginner* at something, then on a literal interpretation it is not possible to find someone less experienced.[36] But there is no obvious limit to the capacity to improve at an activity like chess; the scale of *improver* is correspondingly unbounded and there is no maximum to target with modifiers like *absolute* or *total*.

In contrast, a distinguishing feature of Morzycki's *utter*-class nouns is that they do not have obvious endpoints.

(26) a. The referee is an absolute idiot!
b. This pub is a complete dump.
c. My brother is a total geek.
d. Albert Einstein was an utter genius.

There is no limit to being an *idiot*, *dump*, *geek* or *genius*, and yet with a degree reading these nouns pattern felicitously with *utter*-type modifiers. The intention is perhaps to convey a very high degree of the property in question, rather than to (falsely) assert the attainment of an absolute endpoint on a nominal scale that clearly does not have one. On one interpretation, maximizing modifiers can act as subjective markers that reinforce the speaker's commitment to the proposition in question (cf. *totally*, Beltrama 2015). From another (quite different) viewpoint, Kennedy & McNally (2005: 354 fn. 9) observe that certain uses of the adverbs *completely* and *totally* are 'roughly synonymous with *very*'. Examples such as those in (26) suggest that this principle also extends to the corresponding adjectival variants (*complete*, *total*, etc.), a *total geek* being a person who is 'very (or

[36]Speakers will, of course, use phrases such as *absolute beginner* in a non-literal sense to reinforce that they have some limited experience. This is perhaps a form of slack regulation (Lasersohn 1999). The scale of *beginner* has a lower bound of experience, and *absolute*, *complete*, etc. can be seen as setting a fairly tight 'pragmatic halo' around that point, rather than requiring the subject to have precisely zero experience.

See McNally (2011) on the interpretation of expressions such as *completely full wine glass*, where convention dictates that attainment of the true scale endpoint is not always required.

extremely) geekish'.

The technical proposal in chapter 5 attempts to capture the essence of these suggestions in one analysis. While the underlying scales of predicates like *idiot* are naturally unbounded, they are treated as having lexical maxima representing either equivalence classes of degrees or universal quantification over dimension sets, depending on the reading adopted.

The behaviour of the *utter*-type modifiers is the subject of Research Question 3 from section 1.3. My proposed technical solution is presented in section 5.5.

2.3 Empirical generalizations

Morzycki (2005, 2009) proposes two overall empirical generalizations, the Position Generalization (which applies to all degree modifiers), and the Bigness Generalization which, as its name suggests, is specific to (positive) size adjectives.

2.3.1 The Position Generalization

A key piece of evidence in support of Morzycki's conjecture that there is a separate grammatical category of 'adnominal degree morphemes' is the general inability of the *real*, *big* or *utter*-type adjectives to appear in predicate position when they take a degree reading.[37] Morzycki calls the principle that degree readings can only obtain attributively the *Position Generalization*.[38]

(27) **The Position Generalization:** Degree readings of size adjectives are possible only in attributive positions (in English, prenominally).
(Morzycki 2009: 179)

The following examples illustrate the principle.

(28) a. that big beer-drinker
b. #That beer-drinker is big.

(29) a. George is an enormous idiot.
b. #George is an idiot, and he is enormous. (Morzycki 2005: 117)

[37]This restriction applies in any case to the pure intensifier *utter*.

[38]The Position Generalization is not a diagnostic for degree modifiers; it is a necessary condition, rather than a sufficient one (Louise McNally p.c.). Some adjectives cannot appear in predicate position anyway, e.g. *main*, *initial*, *mere* (Siegel 1976: 180).

Although phrased in terms of size adjectives (the main focus of the 2005 and 2009 papers), the Position Generalization in fact applies uniformly to all of the degree modifiers under consideration.

(30) #That $\left\{\begin{array}{l}\text{disaster}\\ \text{idiot}\\ \text{magic}\\ \text{bullshit}\end{array}\right\}$ is $\left\{\begin{array}{l}\text{true/real/}\\ \text{slight/total/}\\ \text{utter/absolute/}\\ \text{outright/straight-up}\end{array}\right\}$. (Morzycki 2012b: 188)

The existence of a separate degree reading distinct from the ordinary meaning of the adjectives can be demonstrated by asserting the truth of one modifier and the falsehood of the other (Morzycki 2009: 182). No contradictions occur in (31) because the two adjectives have different meanings, the first being a degree morpheme and the (negated) second an ordinary adjective. If the two modifiers had the same meaning, a logical contradiction would result ($P \wedge \neg P$).

(31) a. The Ferrari I dream about is a **real** sports car, but it isn't **real**.
b. My grandfather is a **big** smoker, but he isn't **big** (for a smoker).[39]
c. My one-legged uncle is a **complete** idiot, but he isn't **complete**!
d. That antique chess set is a **complete** gem, but it isn't **complete**.
(my examples using the principle from Morzycki 2009: 182)

A consequence of giving the modifiers their degree interpretations is that the usual intersective entailments do not obtain. A *real sports car* in (32-a) is not a 'sports car that is real', which explains why the phrase can be felicitously conjoined with a negation such as *but it isn't real* as in (31-a).

(32) a. That Ferrari is a **real** sports car.
$\not\models$ 'f is a sports car and f is real'
b. My grandfather was a **big** smoker.
$\not\models$ 'g was a smoker and g was big (for a smoker)'
c. Anyone who drives like that is a **complete** idiot!
$\not\models \forall x \in D$ ['x is an idiot and x is complete']

[39] A comparison class such as *for a smoker* is necessary to avoid perfectly felicitous size/size interpretations like *Mickey is a big mouse, but he's not big.* (Morzycki 2009: 182 fn., Kennedy 2007b).

Morzycki's technical explanation of the Position Generalization requires the presence of a special degree morpheme (which he terms Deg_{NOM} or Deg_{N}) grammatically distinct from the extended adjectival degree head Deg, whose distribution is syntactically restricted to adnominal position. This move is based on a number of assumptions, which are discussed in more detail in chapter 3.

The Position Generalization makes intuitive sense in a compositional model of language meaning, as if both modifier and noun denote mathematical functions, they would normally have to be syntactically adjacent (and type-compatible) for function application to be possible, so as to enable the modifier to access the meaning of the noun.

While the Position Generalization applies to a wide range of situations, there are exceptions. Morzycki identifies two kinds of modification where adjectives do not obey the restriction to adnominal position, namely readings that represent 'abstract size' and those that relate to 'significance'. These are explained in section 2.3.3 below. Constantinescu (2011, 2013) is generally critical of the notion of gradability in nouns, and she identifies some further possible exceptions to the Position Generalization, in particular those mentioned in Constantinescu (2011: 170–174) which I include in my review of previous research in chapter 3.

2.3.2 The Bigness Generalization

The second empirical generalization proposed by Morzycki is that not all size adjectives can take degree readings, only those like *big* and *huge* which predicate positive size ('bigness').

(33) **The Bigness Generalization.** Adjectives that predicate bigness systematically license degree readings. Adjectives that predicate smallness do not. (Morzycki 2009: 181)

As observed in previous examples, where a degree reading is available, a positive size adjective can predicate 'bigness' of either the referent of the NP (*George* in (34)) or the nominal concept encapsulated by the NP (in this case George's idiocy).

(34) George is a { big / enormous / huge / colossal / mammoth / gargantuan } idiot. (Morzycki 2009: 179)

In contrast, size modifiers that predicate 'smallness' can only take an ordinary adjectival meaning, and cannot function as (negative) intensifiers of degree.

(35) George is a { #small / #tiny / #minuscule / #microscopic / #diminutive / #minute } idiot. (Morzycki 2009: 179)

In (35), where George is described as a *small idiot*, *small* can only refer to the of George's physical 'smallness', not to the extent of his idiocy. It is curious that the adjectives in (34) can elicit degree readings while those in (35) cannot, given that both sets are fundamentally measures of (relative) size, the difference being that the two sets in question are antonymous (*big*/*small*, *enormous*/*tiny*, etc.).

The Bigness Generalization is specific to what Morzycki considers to be 'true size adjectives', which on his account are those that express 'generalized size', rather than properties such as slenderness or insignificance that, while related to size, are not identical to it. This rather weakens the scope of the claim, as apparently smallness-predicating modifiers such as *slight* and *little* are excluded (Morzycki 2005: 119, Morzycki 2009: 183–184,180 fn.). On this basis, although the most natural interpretation of *slight* in (36) is a degree reading,[40] it does not count as a true size adjective for the purposes of the Bigness Generalization.[41]

(36) George is a slight idiot. (Morzycki 2005: 119)

A further exception noted by Morzycki relates to readings which arguably relate

[40] I.e. George is 'slightly idiotic', rather than 'slight in stature'.

[41] Another apparent exception relates to non-adjectival modification that predicates smallness, such as *a bit of an idiot*. As with *slight*, *bit* has a meaning related to size (as a bit of something is necessarily less than the whole entity), but not identical to it.

to scales of 'significance' independent of the meaning of the head noun itself. In (37), Floyd is perhaps an insignificant person who is a scoundrel, rather than a person who is a scoundrel to a small degree.[42]

(37) Floyd is a little scoundrel.[43] (Morzycki 2009: 180 fn.)

Unlike the Position Generalization, there is no obvious syntactic restriction against degree modification based on 'smallness', suggesting that it is instead a semantic constraint. Morzycki (2005: 125–127), Morzycki (2009: 194–198) and de Vries (2010: 55) construct explanations of the Bigness Generalization based on scale polarity and monotonicity of the predicates in question. These are discused in detail in chapter 3.

Constantinescu (2011, 2013) questions the generality of the Bigness Generalization, claiming that it does not cleanly separate what Morzycki regards as degree and non-degree uses. She offers some counterexamples where it does not seem to apply (despite the Position Generalization holding in those cases), such as *small eater* and *small stamp-collector*. More apparent counterexamples are presented in section 2.3.3 below. Constantinescu's overall criticism of the Position- and Bigness Generalizations, and of nominal gradability in general, is discussed in chapter 3.

2.3.3 Exceptions to the generalizations

In order to sustain the Position and Bigness Generalizations, Morzycki has to exclude two phenomena that, on his arguments, do not constitute true degree modification, namely 'abstract size readings' (e.g. *That was an enormous mistake*) and 'significance readings' (*Baby potbellied pigs used to be huge*). The issue is that such readings can appear felicitously out of prenominal position (*That was a mistake, and it was enormous*), and also with adjectives predicating 'smallness' (*That was a small mistake*). These exceptions are discussed in more detail below.

[42] I do not find this argument totally convincing.

[43] Morzycki (2009: 180 fn.) notes that a degree reading may be possible for the German equivalent *Floyd ist ein kleiner Halunke*. Vera Hohaus (p.c.) offers the further examples *ein kleiner Pedant/Bürokrat/Nazi*.

Abstract size readings

Morzycki (2005: 121) notes that size adjectives can elicit a 'roughly degree-like flavor' from certain types of nouns under adnominal modification. The readings in (38) do not relate to physical size, but involve some abstract quantity, such as the seriousness of a catastrophe, rather than its spatial extent.

(38) a. an enormous mistake
b. a huge snowstorm
c. a big catastrophe
d. a huge problem (Morzycki 2005: 121)

But in contrast to what would be expected from true degree modification, the same degree-like meaning persists when the adjective appears outside prenominal position, an apparent breach of Morzycki's Position Generalization.

(39) a. That was a mistake, and it was enormous.
b. That was a snowstorm, and it was huge.
c. a catastrophe bigger than any other
d. a problem too huge to fully comprehend (Morzycki 2005: 121)

The absence of a second reading in predicate position can be diagnosed by attempting to conjoin the negation of the predicative form with the (positive) attributive form (40). The attributive and predicative forms cannot be interpreted differently, as the attributive form does not display the usual ordinary/degree ambiguity, and therefore a $\neg P \wedge P$ contradiction obtains in each case.

(40) a. #That mistake wasn't enormous, but it was an enormous mistake.
b. #That snowstorm wasn't huge, but it was a huge snowstorm.
c. #That catastrophe wasn't big, but it was a big catastrophe.
d. #That problem wasn't huge, but it was a huge problem.
(Morzycki 2009: 183)

The same nouns also elicit an apparent breach of the Bigness Generalization, as they produce the same kind of degree-like readings with modifiers denoting 'smallness' (42) as they do with ones denoting 'bigness' (41).

(41) That was a { big, enormous, huge, colossal, mammoth, gargantuan } mistake.

(42) That was a { small, tiny, minuscule, microscopic, diminutive, minute } mistake. (Morzycki 2009: 183)

Morzycki concludes that the interpretations that obtain with nouns like *mistake* and *catastrophe* are 'not true degree readings' (Morzycki 2005: 121), and assigns them to a separate category of 'abstract size'.

> These are not genuine degree readings. Rather, they are size readings that make reference to size along a possibly abstract dimension – one that may correlate with some intuitive sense of extremeness or severity. That is, these readings, unlike true degree readings, *do* seem to be in some important sense genuinely metaphorical.
>
> (Morzycki 2009: 183)

Morzycki suggests that this kind of abstract reading appears to be 'genuinely metaphorical'. This comment perhaps accords with the notion that importance can be metaphorically related to size, and significance to bigness (Lakoff & Johnson 1980, Lakoff et al. 1991).

(43) a. Importance is size. ('That's a big discovery')
b. Significant is big. ('He's a big man in the garment industry')
(Lakoff et al. 1991: 13, Lakoff & Johnson 1980: 50)

Constantinescu (2013: 186) makes the interesting suggestion that Morzycki's analysis is not necessarily correct. While it is obvious that there are two readings of *big idiot* (which Constantinescu classifies as a 'type A noun'), on her account it is also reasonable to conjecture that there are also two different interpretations of

(say) *enormous generosity.*[44] The difference is simply that with nouns like *generosity* ('type B nouns') the degree and non-degree readings could be still present, but are 'virtually indistinguishable'. Constantinescu's arguments are discussed in more detail in the literature review in chapter 3.

Significance readings

Further apparent exceptions to the Bigness and Position Generalizations are encountered with readings that broadly denote 'significance' (or 'insignificance').[45]

The examples in (44) include structures that involve both positive (44-a,b) and negative (44-c,d) size adjectives in what appears at first sight to be degree modification, save that on that interpretation the felicity with adjectives like *small* and *puny* would be direct breaches of Morzycki's Bigness Generalization.[46]

(44) a. the big political figures of the 20th century
b. a huge corporate mucky-muck
c. a small little man
d. some puny judge somewhere (Morzycki 2009: 184)

Nor do readings of significance or importance follow the Position Generalization.

(45) a. I'm big in Japan.
b. Baby potbellied pigs used to be huge. (Morzycki 2009: 184)

(46) You'll be *huge* in Bolivia! The biggest! (Morzycki 2009: 184)

(47) Make no mistake about it, Led Zeppelin were massive during the seventies in Britain.[47]

Morzycki distinguishes this phenomenon from true nominal gradability, as on his view the modifier operates on a scale of significance separate from the intensity

[44] And also presumably with the examples I cite such as *enormous mistake* and *big catastrophe*.

[45] Although characterised as 'exceptions' by Morzycki, Vera Hohaus (p.c.) questions whether these examples are in fact genuine exceptions, or simply due to the underspecification of the dimensions that the respective adjectives encode.

[46] A *mucky-muck* (or *muckety-muck*) is US slang for 'an important and often arrogant person': https://www.merriam-webster.com/dictionary/muckety-muck accessed on 11/08/2021. *Puny judge* is possibly a rendering of the English 'Law French' term *puisne judge* (pronounced 'puny'), denoting a low-ranking (and hence relatively insignificant and unimportant) judge: https://en.wikipedia.org/wiki/Puisne_judge accessed on 11/08/2021.

[47] https://forums.ledzeppelin.com/topic/6504-how-big-wereare-led-zeppelin/page/5/ accessed on 10/08/2021.

scale projected by the noun itself.

> Unlike degree readings, significance readings don't involve degrees on a scale provided by the head noun (degrees of idiocy, of stamp-collector-hood, etc.). Rather, they always involve degrees of (something like) significance, irrespective of the noun.
>
> (Morzycki 2009: 184)

However, whether significance readings are truly distinct from the abstract size readings discussed in section 2.3.3 is unclear. Even Morzycki (2009: 184) finds their precise meanings hard to articulate beyond a general flavour of subjective evaluativity.

> [The size adjective often] expresses the speaker's estimation of the importance of the modified NP's referent, as worthy of regard, consideration, admiration, scorn, or dismissal.
>
> (Morzycki 2009: 184)

2.4 Ad hoc gradable nouns

So far I have used the term 'gradable noun' as if there is a relatively fixed category of such nominals in English, i.e. as if there is a lexical property of 'gradability' which some nouns have, but others do not. The empirical data demonstrates that this is far from being the case. As the following blog post illustrates, nominal gradability appears to include a productive process whereby otherwise ungradable nominals such as *coat hanger* are able combine felicitously with modifiers like *absolute* that in context can only take a degree interpretation.

> you can make nearly any object into a good insult if you put 'you absolute' in front of it
> example: you absolute coat hanger
>
> (asexualbrittaperry, blog post[48])

Subsequent contributors to that blog proposed further (apparently ad hoc) examples of this phenomenon, as follows.

[48]The original blog has since been deleted. Archives are available at https://thewaltzy.tumblr.com/post/184782985098/you-can-make-nearly-any-object-into-a-good-insult/amp and https://www.facebook.com/photo.php?fbid=1958388977513940 both accessed on 08/07/2021. Thanks to Martina Faller for bringing this example to my attention.

(48) a. You absolute floorboard.
b. You absolute cereal bowl.
c. You are an absolute stop sign.
d. You are a complete and utter coffee cup.

Some of the examples in (48) are possibly metaphorical. A person described as a *floorboard* might perhaps be susceptible to being (metaphorically) 'trodden on' (i.e. being treated badly without complaint, cf. *doormat*), although it is not clear what the author intended in this case. Alternatively, phrases like *absolute cereal bowl* and *complete and utter coffee cup* could simply be vehicles to express that the speaker has reached the limit of their available lexical choices to describe the subject's (presumably excessive) behaviour at that point in time.

2.5 Summary

This chapter has presented outline empirical evidence that supports the existence of the phenomenon that my research project attempts to explain, namely that English nouns can be partitioned into distinct sets according to their distribution and behaviour under pre-modification by certain adjectives acting as degree modifiers.

On balance, although a limited amount of data was presented, it substantiates the conjecture that such a partitioning of nouns is a genuine phenomenon of modern English, and that it broadly follows the *real/big/utter* divisions proposed by Morzycki.

Further, Morzycki's evidence supports claims that degree modification only occurs in attributive adnominal modification, not in predicate position (the Position Generalization), and that degree modification by size adjectives only obtains where the modifier in question predicates 'bigness', not 'smallness' (the Bigness Generalization), although neither Generalization applies to nouns that elicit abstract size readings (e.g. *big mistake*, *huge catastrophe*), or to expressions denoting significance or importance (e.g. *Led Zeppelin were massive in the 1970s*).

While the Position and Bigness Generalizations somewhat restrict what is meant by gradability in nouns, and exclude some interesting cases, they delimit a manageable set of phenomena that allows Morzycki to develop the series of technical analyses presented in chapter 3. On the other hand, the very existence

of such exceptions provides fuel for Constantinescu's scepticism of the whole enterprise of 'nominal gradability', which she dismisses as 'an illusion rather than a grammatical reality' (Constantinescu 2011: 46). Her main criticisms are discussed further in chapter 3.

Finally, although Morzycki's evidence is compelling, it is supported by a relatively small amount of evidence, consisting of 24 nouns and 13 adjectives across the papers cited. The selection also includes some unusual compound nouns which, while presumably chosen to be illustrative, are low frequency and arguably not particularly representative of gradable nouns in general (*mafia goon*, *warmonger*, *goat cheese enthusiast*). In an attempt to remedy these shortcomings, the exploratory corpus study documented in chapter 4 investigates the extent to which these paradigms are sustained across the full set of evidence contained in a very large online database of English.

Chapter 3

The Research Context

> [N]ominal gradability is an illusion rather than a grammatical reality.
>
> (Constantinescu 2011: 46)

> Adnominal degree morphemes: they exist.
>
> (Morzycki 2012b: 187)

3.1 Introduction

This chapter critically reviews key contributions from the literature relating to the phenomena investigated in this thesis, namely the differences in distribution and meaning that occur between adnominally modified noun phrases of the *big smoker* and *utter idiot* kinds. Its main purpose is to inform the technical analysis in chapter 5, by establishing to what extent existing accounts adequately address the research questions from section 1.3, and to identify elements of theory that could plausibly support an improved proposal.

Most research published to date on gradability in English has focused on adjectives, and a rich and developing literature has become established in that field.[49] But since at least Sapir (1944) and Bolinger (1972), authors have proposed that other categories are subject to gradation in broadly similar ways. Indeed,

[49]Significant contributions on the semantics of adjectival gradability and modification in English include Lewis (1970), Wheeler (1972), Kamp (1975), Fine (1975), Cresswell (1976), Klein (1980, 1982), von Stechow (1984a,b), Cresswell (1984), Hellan (1984), Hoeksema (1984), Seuren (1984), Stassen (1984), Klein (1991), Kennedy (1999), Heim (2000), Rotstein & Winter (2004), Kennedy & McNally (2005), Kennedy (2007b), Doetjes et al. (2011), Kennedy (2011), van Rooij (2011), McNally (2011), Kennedy (2012), Morzycki (2012a), Rett (2015), Beltrama (2016), Burnett (2017), Wellwood (2014, 2015, 2019), among many others.

for Sapir gradability is an inherent feature of all the major lexical categories, i.e. nouns, verbs, adjectives and adverbs.

> Every quantifiable, whether existent (say *house*) or occurrent (say *run*) or quality of existent (say *red*) or quality of occurrent (say *gracefully*), is intrinsically gradable.
>
> (Sapir 1944: 94)

It is certainly possible to consider nouns like Sapir's example *house* as gradable concepts based on the similarity of instances to a contextual prototype or exemplar, and to construct a defensible linguistic theory for nominal gradability on that basis (as does Sassoon 2007, 2013b, 2017a). However, I will follow Morzycki (2012b: 190) and Francez & Koontz-Garboden (2017: 126) in treating prototypicality as a phenomenon distinct from true nominal intensification. In this thesis, the scope of 'nominal gradability' will be mostly limited to [+big −utter] nouns like *smoker* and [+big +utter] nouns like *idiot*.

As the quotes at the head of this chapter suggest, not all researchers accept that the modificational behaviour of English nouns amounts to 'gradability' in the same way that the term is used with adjectives. For the purposes of this thesis, I will define gradability informally as 'the ordering of entities along dimensions' (Sassoon 2007: 1), as evidenced in particular by felicitous participation in comparative structures appropriate to the category in question. More formally, I will regard a lexical item as gradable if and only if it introduces degree arguments (Beck et al. 2009: 19, de Vries 2010: 44–45).[50]

In contrast to the adjectival domain, the circumstances in which nouns can be understood to exhibit gradable behaviour is severely restricted. As Sassoon (2017a) observes, nouns fail to combine with many of the degree morphemes commonly associated with a canonical gradable adjective like *tall*.[51]

[50] On Beck et al.'s account, this requires the language's Degree Semantics Parameter [± DSP] to be set to [+DSP], as is the case in English. For further discussion on the variation in cross-linguistic support for gradability support see, for example, Bochnak (2013), Hohaus (2018). Hohaus (2018: 107) distinguishes elements of functional degree morphology that are merely *indicative* of degree semantics (but could be implemented by other linguistic mechanisms), from those that *require* a degree-based analysis, giving examples in English.

[51] Some of these examples perhaps reflect noun-specific semantic restrictions (rather than category-specific morphosyntactic ones). On my intuition, *Is Kim* ***(wo)man enough*** *for the job?* is perfectly felicitous. Sassoon (2017b: 292) notes that certain constructs become more acceptable when interpreted in the context of toys or drawings of (for example) ducks, i.e. entities that are 'duck-like', rather than being actual ducks.

(49) taller, tallest, tall enough, too tall, very tall

(50) #ducker, #duckest, #duck enough, #too duck, #very duck

(Sassoon 2017b: 154)

Despite such categorial restrictions, a strong argument for the existence of nominal gradability is the participation of nouns in gradable structures outside of the morphological forms in (50). A key diagnostic for gradable predicates in general is their ability to participate in comparative constructions (Kennedy & McNally 2005: 347), of which the *more* morpheme is a fundamental component in English (e.g. Wellwood 2019). As Morzycki demonstrates, there are various scenarios in which nouns are capable of being explicitly pre-modified by *more* and variants such as *more* (*of*) *a*,[52] as well as by *-er* suffix adjectives that embed the meaning of *more*.

(51) a. Clyde is more phonologist than phonetician.[53]
b. Clyde is more of an idiot than Floyd.
c. Clyde is a bigger idiot than Floyd. (Morzycki 2012b: 189)

Morzycki (2012b) notes that while (51-a) could perhaps be interpreted as a metalinguistic comparison, i.e. an evaluation of alternative lexical choices for a given meaning,[54] this is not the case for (51-b) or (51-c), which appear to exhibit true nominal gradability, both expressing the relative extent to which Clyde is an idiot compared to Floyd.

For de Vries (2010) (who assumes a degree-theoretic analytic framework), true nominal gradability amounts to the presence of degree arguments in noun denotations.

> [T]he appearance of nouns in seemingly degree-related constructions does not necessarily provide evidence for their gradability. [...]

[52]Sassoon (2017a: 181) distinguishes between the meanings of structures like *more a table* and 'partitive comparisons' such as *more* ***of*** *a table*, claiming that the latter entails that the entity in question 'has some generic table properties', while the former does not. Wellwood (2019: 170–172) makes the interesting suggestion that the degree reading of *big idiot* is the spellout of the (ungrammatical if pronounced) prepositional construction **big* ***of an*** *idiot*.

[53]The metalinguistic nature of this form was noted at least as long ago as McCawley's (1968) example 'Your problems are more financial than legal'.

[54]Meaning something like '*Phonologist* is a more appropriate term for Clyde than *phonetician*'. Characteristically the construction can be reversed, here with the insertion of the indefinite article: *Clyde is a phonologist more than than a phonetician* (cf. McCawley 1968, 1998).

> In short, we have to distinguish carefully between actual linguistic gradability (the property of having a degree argument) and mere conceptual gradability. (de Vries 2010: 44–45)

De Vries regards the ability of size adjectives to modify gradable nouns as further evidence that they project degree arguments (de Vries 2010: 46 fn.).

As the quotes at the beginning of this chapter suggest, not all researchers accept that the phenomena Morzycki attributes to 'nominal gradability' are related to the kind of gradability exhibited by adjectives in English. Constantinescu (2011, 2013) in particular takes a highly critical view of the whole enterprise of nominal gradability. For her, *big idiot* is a 'sub-type of idiot as defined by a high degree of idiocy' (Constantinescu 2011: 228), and the process of adnominal modification involves selecting the sub-type in question, rather than the manipulation of the kind of structures commonly held to be responsible for gradability in adjectives. I consider Constantinescu's theory in section 3.6.

Although the technical proposal I present in chapter 5 is, like Morzycki's, firmly rooted in degree semantics, it follows Constantinescu (2011) to some extent in assuming that *big idiot* (and *utter idiot*, etc.) are salient subtypes of *idiot*, and more specifically subkinds in the sense of Gehrke & McNally's (2015) kind-based analysis of *frequent sailor*. The relevant theory of kinds is integral to my proposed solution, and as such is presented in chapter 5 as part of the development of that analysis, rather than in this literature review.

In summary, while it is straightforward to demonstrate that nouns pass the critical test of participation in comparative constructions, not all such cases would necessarily be classed as nominal gradability, in the sense that the comparison depends on the noun projecting a degree argument. Out of the extended set of examples of the use of the *more* morpheme below, only (52-d) and (52-e) exhibit the kinds of gradability that Morzycki investigates (similarity to a prototype and nominal intensity respectively), of which only (52-e) is covered in this thesis.

(52) a. Al drank more coffee than Bill did. (quantity; Wellwood 2019: 8)
b. Al drank more coffees than Bill did. (cardinality; Wellwood 2019: 8)
c. Your problems are more financial than legal.
(metalinguistic; McCawley 1968, 1998, Morzycki 2011: 42)
d. The rightmost bird is more of a duck than the leftmost bird.
(similarity; Sassoon 2017a: 154)

e. Clyde is more of an idiot than Floyd. (nominal intensity; Morzycki 2012b: 189)

The most striking observation is that essentially the same syntactic structure *more N than X* can elicit widely different meanings depending on the nature of the entities being compared, including comparisons of cardinality, quantity, metalinguistic appropriateness and conceptual similarity, in addition to the intensifying reading of most interest here. On this basis, if a wider view of nominal gradability is taken than than followed in this thesis, it is potentially a more diverse and complex phenomenon than its adjectival cousin.

3.2 Morzycki's three analyses

The most comprehensive analyses of adnominal degree modification published to date are those in the foundational series of papers by Morzycki (2005, 2009, 2012b). The seminal 2005 paper focuses on adnominal modification by size adjectives (*big*, *enormous*, *huge*, etc.), and is discussed in section 3.2.1. The 2009 and 2012b papers extend the initial theory to modifiers of prototypicality (*real*, *true*) and maximality (*complete*, *total*, *utter* etc.) and are discussed in sections 3.2.2 and 3.2.3 respectively.

A major point of variation is his account of how degrees are introduced into gradable expressions.

(i) In the 2005 theory, Morzycki assumes that gradable nouns do not project degree arguments. Their argument structure is the same as those of ungradable nouns (i.e. they are simple predicates of individuals), but internally their denotations are sensitive to degrees provided non-compositionally from context.

(ii) The 2009 theory adopts a more straightforward approach where both gradable nouns and gradable adjectives are analyzed uniformly as measure functions of degree (cf. Kennedy 1997). An individual qualifies as an *idiot* or as *tall* if the relevant measure exceeds the contextual standard for the predicate in question. The standard is assumed to be provided contextually via the unpronounced morpheme POS (Cresswell 1976, von Stechow 1984a and many others).

(iii) In contrast, the 2012b theory follows Bierwisch's (1989) division of gradable adjectives into those that are 'dimensional' (like *tall*) and those which are 'evaluative' (like *pretty*), of which only the dimensional ones are held to project degree arguments. On Morzycki's account, gradable nouns are evaluative predicates. As such, they do not denote measure functions or project degree arguments, meaning that degrees must be acquired indirectly.

3.2.1 Gradable nouns access contextual degrees (2005)

Acquisition of degrees from context

The 2005 paper defines the overall linguistic area of interest as

> a variety of non-adjectival degree modification in which the gradable predicate is provided by a noun, and an adjective serves only to characterize the degree to which the gradable predicate holds.
>
> (Morzycki 2005: 116)

Morzycki makes the theoretical assumption that gradable nouns differ fundamentally from gradable adjectives in that they do not project degree arguments or denote measure functions. Degrees are instead obtained indirectly from context.[55,56]

(53) $[\![\text{idiot}_d]\!] = \lambda x.x$ is d-idiotic (Morzycki 2005: 123)

In (53) the subscript in idiot_d indicates that variable d in the denotation of *idiot* is a free variable that is bound at a higher level of λ-abstraction, rather than being an explicit part of the argument structure of the noun.[57] This contrasts with

[55] He makes the comparison with the adjective *local*, which he understands to reference some contextually-supplied location in a 'pronoun-like' manner.

[56] Although he adopts a degree-based theory, Morzycki acknowledges that a model based on supervaluation (Kamp 1975, Fine 1975 and many others) could be at least as appropriate as a degree-theoretic approach.

Generally, his decision to use degrees across the three papers was to some extent influenced by personal analytic preferences.

> In large measure, this is due to an independent preference for a model that makes (explicit) use of degrees. (Morzycki 2009: 185)

[57] In Morzycki's theory, degrees are bound by a separate DEG-SIZE morpheme, and get passed into the noun denotation implicitly. '[...] degrees aren't arguments of nouns for compositional purposes, but are a kind of implicit argument that results in a pronoun-like dependence on a

the alternative of a straightforward extension of the common degree-to-entity relationship analysis of gradable adjectives to the nominal case (54).

(54) Alternative relational analysis not used in Morzycki (2005)
$[\![\text{idiot}]\!] = \lambda d \lambda x.x$ is d-idiotic (cf. Cresswell 1976 and many others)

The overall effect is similar, and the difference between (53) and (54) is due to Morzycki's philosophical desire to maintain a clear typal distinction between nouns and adjectives, on the basis that the 'locus of gradability' in English rests in adjectives, with nominal gradability being in some sense 'derived' or 'secondary' (Morzycki 2005: 123). While Morzycki's approach certainly works, modelling argument passing using free variables as in (53) comes at an analytical cost in terms of loss of compositionality. In general, transferring information outside of argument structure arguably makes a derivation harder to follow and more difficult to reason about.[58]

Explaining the Position Generalization

Morzycki's explanation of the Position Generalization depends on the presence of a syntactic constraint that restricts degree morphemes to positions where they operate as attributive modifiers, e.g. prenominally in English. Placing the locus of nominal gradability in a grammatical structure that can only occur directly adjacent to a noun phrase predicts the observed empirical fact that the degree readings of size adjectives (and indeed those of other morphemes of the *real* and *utter* types considered in the 2009 and 2012 papers) can never obtain in predicate position, such as following the copula.

Morzycki postulates a distinct syntactic category Deg_{NOM}P, the nominal parallel of the extended adjectival degree phrase DegP (Abney 1987, Corver 1990, Kennedy 1999) that provides the necessary semantic machinery to allow a noun like *idiot* (here treated as inherently ungradable) to participate in gradable structures in contexts where a degree reading is salient. He treats size adjectives not as degree heads themselves, but uniformly as predicates of entities (equivalent to *POS big* in theories that assume the POS morpheme), with the proviso that they

degree (much like e.g. the dependance of *local* on a contextually supplied place)' (Morzycki 2005: 123).

[58] A similar case for passing information via function arguments and avoiding global variables is commonly made in computer science (e.g. Wulf & Shaw 1973).

can accept both individual and degree arguments.[59]

On this analysis, when size adjectives act on degrees they occupy the specifier position of a Deg_{NOM}P projection headed by the covert Deg_{NOM} morpheme DEG-SIZE (not illustrated in figure 3.1). In non-degree senses, they are just ordinary gradable adjectives, and are presumably located in spec DegP on this theory. Although the 2005 paper does not discuss the *real-* and *utter*-type modifiers in detail, they are considered in contrast to be true degree morphemes that can appear in Deg_{NOM}, and (with the exception of *utter*) in Deg on their ordinary readings.

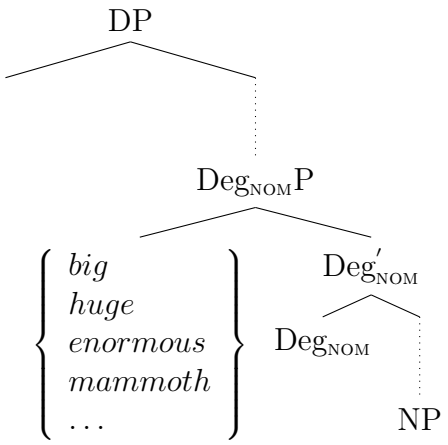


Figure 3.1: Size adjectives as specifiers of a degree head (Morzycki 2005: 127)

While no differences in surface structure are evident between (55-a) and (55-b) (although possibly in intonation), the syntactic ambiguity allows the intensifying and non-intensifying readings that can occur under attributive modification to be distinguished.[60]

(55) a. Felicity is a [$_{\text{DegP}}$ big idiot] (non-intensifying)
b. Gregory is a [$_{\text{Deg}_{\text{NOM}}\text{P}}$ big idiot] (intensifying)

(56) That idiot is [$_{\text{DegP}}$ big]. (non-intensifying only)

In contrast, an expression such as *That idiot is big* (56) unambiguously refers to the physical size of the referent. In predicate position without the mediation of

[59]On this view, the domain of degrees is a proper subset of the set of entities ($D_d \subset D_e$).

[60]I have omitted the internal structure of DegP/Deg_{NOM}P in the first example for simplicity. The second example assumes that adjective phrases are consistently DegPs, even if they occur in predicate position (Abney 1987: 192).

the degree head Deg_{NOM}, *big* can only function as a predicate of entities, not of degrees of idiocy. Alternatively, from a compositional viewpoint as the noun is not a sister of the adjective *big* (or of Deg_{NOM} in Morzycki's (2005) theory), its properties are functionally inaccessible to degree modification.[61]

The denotations of *big* and *idiot* are similar, in that both are comparisons with the contextual standard for *size* and *idiocy* respectively, i.e. they are roughly equivalent to *POS big* and *POS idiocy* in a theory encompassing the POS morpheme. Importantly factors for Morzycki's explanation of the Size Generalization below are (i) the adjectival and nominal scales are assumed to have polarity ($\pm$) (cf. 'extents' in Kennedy 1999), of which positivity is predicated in both cases; and (ii) the implicit degree variable is bound from the DEG-SIZE morpheme, rather than (say) being passed in as a formal argument.

(57) $[\![\text{big}_{s_{+size}}]\!] = \lambda x.\mathbf{dim}_{+size}(x) > s_{+size}$

(58) $[\![\text{idiot}_{d,s_{+idiocy}}]\!] = \lambda x.\mathbf{dim}_{+idiocy}(x) = d \wedge d > s_{+idiocy}$

Crucially, the denotation of *idiot* implements the generalization that, unlike gradable adjectives, 'gradable nominals *always* involve exceeding their standard, even in comparative contexts' (Morzycki 2005: 130 fn. 8). For example *Floyd is a bigger idiot than Clyde* entails that Floyd is an *idiot*, whereas *Floyd is bigger than Clyde* does not entail that Floyd is *big*.

DEG-SIZE is a relatively complex function that binds the implicit degree variable of gradable nouns by extracting the degree value from the enclosing context. DEG-SIZE just finds the degree; it does not introduce the standard for the noun which is understood to be established from context.

(59) $[\![\text{DEG-SIZE}]\!] = \lambda N_{\langle d,et\rangle}\lambda A_{\langle e,t\rangle}\lambda x.A(\iota d[N(d)(x)])$

(60) $[\![\text{DEG-SIZE}_d\ \text{idiot}_{d,s_{+idiocy}}]\!]$
$= [\![\text{DEG-SIZE}]\!]([\![d\ \text{idiot}_{d,s_{+idiocy}}]\!])$
$= \lambda A_{\langle e,t\rangle}\lambda x.A(\iota d[\mathbf{dim}_{+idiocy}(x) = d \wedge d > s_{+idiocy}])$

[61] Some authors including Montague (1970) (reproduced in Thomason 1974: 203) assume that predicative adjectives always refer to some covert, perhaps semantically-bleached, nominal like *entity*, *thing*, *person* or *stuff*. If this is true, then Morzycki's argument is incorrect, as a compositional analysis could be constructed. See the discussions on this point in Kennedy (2012) and Morzycki (2016: 29–30).

(61) $[\![\text{big}_{s_{+size}}\ \text{DEG-SIZE}_d\ \text{idiot}_{d,s_{+idiocy}}]\!]$
$= [\![\text{DEG-SIZE}_d\ \text{idiot}_{d,s_{+idiocy}}]\!]([\![\text{big}_{+size}]\!])$
$= \lambda x.\mathbf{dim}_{+size}(\iota d[\mathbf{dim}_{+idiocy}(x) = d \wedge d > s_{+idiocy}]) > s_{+size}$
(Morzycki 2005: 130)

Perhaps the most interesting part of Morzycki's proposal for *big idiot* in (61) is that it involves a double mapping, whereby an individual is mapped first onto the scale of *idiocy*, and the resulting degree is then mapped onto a separate scale of *bigness*.

This mechanism appears at first sight somewhat over-engineered, as it involves two scales where one would apparently suffice, and it also (somewhat unexpectedly) requires size adjectives to be analysed sometimes as predicates of degrees (here of *idiocy*), and sometimes as predicates of individuals (e.g. *tall*). A more obvious solution would have been for *big* to simply map individuals to degrees, with *big idiot* having an appropriately high contextual standard compared to the baseline standard for *idiot*. However, this 'two-scale' solution is also the key to Morzycki's explanation of the Bigness Generalization, as described in the next section.

I accept the core notion of Morzycki's explanation for the Position Generalization, namely that nominal degree modification is constrained to occur in specific syntactic structures where the modifying adjective has access to the meaning of the base NP. On this basis, it must occur within NP (or an extended projection such as DegP or Morzycki's proposed Deg_NP). Degree modification is impossible in predicative structures such as *That idiot is big*, as on standard syntactic assumptions the noun merges first with a determiner to form an individual-referring DP before combining with the copula and adjective, at which point the nominal meaning is no longer available for modification.

Unlike Morzycki, however, my proposal in chapter 5 does not need to posit a novel nominal category such as his Deg_NOM/Deg_N to explain the Position Generalization, although this is a side-effect of adopting a certain theoretical path involving the presence of kinds in the ontology, rather than a conscious analytical choice. This is explained in detail in chapter 5.

Explaining the Bigness Generalization

Despite the reservations about Morzycki's 'two-scale' denotation for *big idiot* expressed in the previous section, a major advantage of this kind of construction is that it supports a cogent explanation of the Bigness Generalization, and specifically of the infelicity of degree readings with phrases like *small idiot*. In a two-scale analysis, the size measure can potentially be oriented either in the same direction as the nominal intensity, or in the opposite direction, which results in a kind of cross-polar anomaly (cf. Kennedy 1997, 2001).

Morzycki adopts what is essentially a much-simplified version of Vector Space Semantics (see, for example, Faller 2000), whereby degrees are conceived not as dimensionless points, or intervals on a scale, but as vectors, i.e. objects that encode both magnitude and direction. His proposal relies on gradable nouns and their degree modifiers exhibiting certain key characteristics: (i) the scales of gradable nouns always have positive polarity; and (ii) for a size adjective to act as a degree modifier, its scale must always measure in the same direction as the nominal scale, i.e. it must also have positive polarity. Given these stipulations, the following principle applies.

(62) **Polarity Preservation Principle**
For any scale S and degree d of the same polarity, $\mathbf{dim}_{+S}(-d)$ and $\mathbf{dim}_{-S}(+d)$ are both undefined.

(Morzycki 2005: 127)

The difference in acceptability of *big idiot* vs. *#small idiot* on a degree reading can then be explained as a breach of the Polarity Preservation Principle. In (63-a) both the *idiocy* and *size* ('bigness') scales have the same (positive) polarity, as the unit vectors on both scales point in the same direction. In contrast, in (63-a) the adjectival and nominal scales have opposite polarity, a breach of the Polarity Preservation Principle resulting in infelicity on a degree reading.

(63) a. $[\![\text{big idiot}]\!]$
$= \lambda x.\mathbf{dim}_{+idiocy}(x) > s_{+idiocy} \wedge \mathbf{dim}_{+size}(\mathbf{dim}_{+idiocy}(x)) > s_{+size}$

b. $[\![\text{small idiot}]\!]$
$= \lambda x.\mathbf{dim}_{+idiocy}(x) > s_{+idiocy} \wedge \mathbf{dim}_{-size}(\mathbf{dim}_{+idiocy}(x)) > s_{-size}$

(Morzycki 2005: 126)

In contrast, *big idiot* and *small idiot* are perfectly felicitous on a size reading, as only one scale is involved in each case and therefore no incompatibility with respect to polarity can possibly arise, irrespective of whether the scale is positive ('bigness') or negative ('smallness'). Although not depicting exactly the same scenario, Morzycki's example in (64) would be equally felicitous with *tall* replaced by *short* (65), as two degrees on a scale of negative height are just as comparable as two degrees on the positive scale.

(64) $[\![\text{Mary is tall}]\!] = \mathbf{dim}_{+height}(\mathbf{Mary}) > s_{+height}$ (Morzycki 2005: 126)

(65) $[\![\text{Mary is short}]\!] = \mathbf{dim}_{-height}(\mathbf{Mary}) > s_{-height}$ (my example)

Morzycki (2009) and de Vries (2010) construct more sophisticated justifications of the Position Generalization based on monotonicity. Despite some technical differences in their proposals, the overall principle is the same: both degree modifiers and nouns are assumed to have simple directional polarity (+/-), and their scales must be codirectional for degree readings to obtain. In the case of *small idiot*, because the adjectival and nominal predicates are both monotone, but their scales run in opposite directions, every individual on the *idiot* scale is guaranteed to possess a degree of idiocy that meets the contextual standard on the *small* scale.[62] *Small* therefore has no effect on the semantics of an expression such as *small idiot*, causing such phrases to be pragmatically excluded for uninformativity (cf. Stalnaker 1968).

3.2.2 Gradable nouns are measure functions (2009)

The 2009 paper introduces a clear typal distinction between gradable and non-gradable nouns, in that gradable nouns are treated as measure functions of type $\langle e, d\rangle$, while non-gradable nouns are analysed conventionally as simple predicates of type $\langle e, t\rangle$. The measure function analysis is in line with Kennedy's (1999) account of gradable adjectives, and reflects the intuition that evaluative nouns like *idiot* and *genius* are semantically more adjective-like than ordinary nouns.

While nominals like *smoker* and *stamp collector* do not obviously have adjectival meanings, phrases such as *big smoker* and *huge stamp collector* also elicit scalar meanings where the individual in question is construed as 'more

[62] Irrespective of where the standard for *small* is on the *idiot* scale, monotonicity guarantees that every lower degree on the scale corresponds to a higher degree of smallness, because the scales run in opposite directions. A very clear explanation is given in de Vries (2010: 55).

of a smoker' or '(much) more of a stamp collector' than the average, and on this basis can also be given a measure function analysis.

On the analysis that they are both measure functions of individuals, the denotations for *tall* and *idiot* are almost identical, save that one measures on a scale of tallness and the other on a scale of idiocy (66).

(66) a. $[\![\text{tall}]\!] = \lambda x.\iota d[x \text{ is } d\text{-tall}]$
b. $[\![\text{idiot}]\!] = \lambda x.\iota d[x \text{ is } d\text{-idiotic}]$ (Morzycki 2009: 185)

The nominal and adjectival versions work identically, returning the unique (i.e. maximum) degree of height or idiocy that the individual in question possesses. The measure function theory works under the assumption that all gradable nouns are effectively one-dimensional, in that they allow just one dominant dimension to be selected in gradable contexts.[63] Morzycki in fact uses one-dimensionality as a defining quality of gradable nouns.

> [G]radable nouns are those for which a single criterion can be distinguished from the others as the most salient [...]. It is this ability to identify a single scale that distinguishes nouns that admit degree readings of size adjectives from those that don't.
>
> (Morzycki 2009: 186)

As with Kennedy's analysis of gradable adjectives, the value of the measure function denoted by a gradable noun must be evaluated against the relevant contextual standard in order for the resulting phrase (in the 2009 theory a $\text{Deg}_{\text{N}}\text{P}$) to denote a predicate of individuals, i.e. a function with the conventional $\langle e, t\rangle$ type signature expected of a nominal NP/DegP. In unmodified nominal expressions the standard is introduced by a version of the covert morpheme POS.

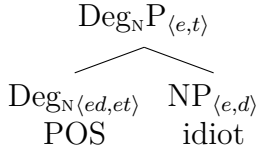


Figure 3.2: *POS idiot* (Morzycki 2009: 188)

[63] This assumption that is dropped in the 2012 theory where one- vs. multi-dimensionality is held to be the distinguishing factor between gradable nouns like *idiot* and those like *smoker* respectively.

In both the 2005 and 2009 papers Morzycki assumes that gradable nouns like *idiot* mirror gradable adjectives like *tall* in having relative standards, a position that he abandons (with some caveats) in the 2012b paper, where all nouns (including gradable ones) are analyzed as having minimum standards, meaning that the POS morpheme is no longer required (Morzycki 2012b: 190).[64]

(67)

$$[\![\text{POS}]\!] = \lambda g_{\langle e,d\rangle}\lambda x.\mathbf{standard}(g) \leq g(x)$$

$$[\![\text{POS}]\!]([\![\text{idiot}]\!]) = \lambda x.\mathbf{standard}(\mathbf{idiot}) \leq \mathbf{idiot}(x) \quad \text{(Morzycki 2009: 188)}$$

Size adjectives as measure phrases

Morzycki (2009) analyses size adjectives acting as adnominal degree modifiers in a similar way to measure phrases in the adjectival domain (cf. Svenonius & Kennedy 2006).[65] On this account, the $\text{Deg}_{\text{N}}\text{P}$ *big idiot* can be understood as having a similar syntactic and semantic structure to a conventional DegP such as *six feet tall*. The revised analysis allows for a more satisfactory (albeit more complex) explanation of the Bigness Generalization than the simple polarity-based argument in the 2005 paper.

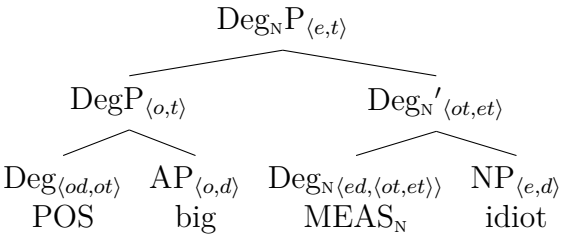


Figure 3.3: *POS big MEAS idiot* (Morzycki 2009: 195)

A feature of this analysis is that size adjectives are held to be capable of measuring both entities and degrees; there is no requirement to have distinct categories for gradable and ungradable scenarios.[66] Expressions take degree readings

[64] Arguably, any discernible amount of a hyperbolic evaluative quality such as *idiocy* qualifies an individual as an idiot from the subjective viewpoint of the speaker (Wellwood 2019: 170), a principle which I adopt in my own theory in chapter 5.

[65] See Champollion (2010), Umbach & Gust (2014), Hohaus & Zimmermann (2020) for recent relevant research. I was not aware of these works at the time of writing this thesis, but they (and the references therein) should be taken into account when considering future developments of the proposal presented in chapter 5.

[66] Morzycki defines a size adjective as 'any adjective sufficiently indeterminate to have degrees

not because they use different versions of *big*, but due to their syntactic category, i.e. Deg_NP rather than DegP.

Morzycki introduces the type union $D_o = D_e \cup D_d$ to illustrate that *big* can measure both entities (e) and degrees (d).[67] The type signatures of the denotations of *big* and POS are amended accordingly in (68).

(68)

$$[\![\text{POS}]\!] = \lambda g_{\langle o,d\rangle} \lambda o_o.\mathbf{standard}(g) \leq g(o)$$
$$[\![\text{POS big}]\!] = \lambda o_o.\mathbf{standard}(\mathbf{big}) \leq \mathbf{big}(o)$$

The MEAS_N morpheme introduces nominal measure phrases. It creates a semantic relationship between degrees on the scale of the nominal predicate (e.g. degrees of idiocy) and those on the scale of the size adjective (degrees of 'bigness').

(69) $[\![\text{MEAS}_\text{N}]\!]$

$$= \lambda g_{\langle e,d\rangle} \lambda m_{\langle o,t\rangle} \lambda x. \left[\begin{array}{l} min\{d : d \in \mathbf{scale}(g) \wedge m(d)\} \leq g(x) \wedge \\ \mathbf{standard}(g) \leq g(x) \end{array} \right]$$

(Morzycki 2009: 195)

The denotation of MEAS_N is engineered to be meaningful only with positive size adjectives like *big*.

(70) $[\![[_{\text{DegP}}$ POS big] MEAS_N idiot$]\!]$

$$= \lambda x. \left[\begin{array}{l} min \left\{ d : \begin{array}{l} d \in \mathbf{scale}(\mathbf{idiot}) \wedge \\ [\![\text{POS big}]\!](d) \end{array} \right\} \leq \mathbf{idiot}(x) \wedge \\ \mathbf{standard}(\mathbf{idiot}) \leq \mathbf{idiot}(x) \end{array} \right]$$

$$= \lambda x. \left[\begin{array}{l} min \left\{ d : \begin{array}{l} d \in \mathbf{scale}(\mathbf{idiot}) \wedge \\ \mathbf{standard}(\mathbf{big}) \leq \mathbf{big}(d) \end{array} \right\} \leq \mathbf{idiot}(x) \wedge \\ \mathbf{standard}(\mathbf{idiot}) \leq \mathbf{idiot}(x) \end{array} \right]$$

(Morzycki 2009: 196)

Morzycki paraphrases the denotation of *big idiot* in (70) as follows.

> The result, then, is that *big idiot* will be true of an individual x iff the degree of x's idiocy is at least as great as the smallest degree that

themselves in its domain' (Morzycki 2009: 193), a requirement that excludes adjectives like *tall* and (probably) *large* (#*tall idiot*, #?*large idiot*).

[67] D_o is the domain of 'objects'.

meets the bigness standard, and x meets the idiot standard.

(Morzycki 2009: 197)

The mechanism thus works as expected for *big idiot*. However, when MEAS_{N} is applied in the corresponding denotation for *small idiot* in (71), the minimum scale constraint in the above quote becomes

> [...] if the degree of x's idiocy is at least as great as the **smallest** degree that meets the **smallness** standard [...]

Such a degree is, of course, the minimum point on the scale of idiocy, which is by definition trivially exceeded by all idiots, as this theory treats *idiot* as a minimum standard predicate.

(71) $[\![\text{POS small}]\!] = \lambda o_o.\mathbf{standard}(\mathbf{small}) \leq \mathbf{small}(o)$

(Morzycki 2009: 196)

(72) $[\![[_{\text{DegP}}\ \text{POS small}]\ \text{MEAS}_{\text{N}}\ \text{idiot}]\!]$

$$= \lambda x. \left[\begin{array}{l} min \left\{ d : \begin{array}{l} d \in \mathbf{scale}(\mathbf{idiot}) \wedge \\ \mathbf{standard}(\mathbf{small}) \leq \mathbf{small}(d) \end{array} \right\} \leq \mathbf{idiot}(x) \wedge \\ \mathbf{standard}(\mathbf{idiot}) \leq \mathbf{idiot}(x) \end{array} \right]$$

(Morzycki 2009: 197)

Negative size adjectives like *small* therefore have no effect on the corresponding denotation for *small idiot*, and the degree reading is excluded for uninformativity, leaving just the literal size interpretation available. Morzycki's theory thus explains why *small idiot* can only felicitously refer to a physically small idiot, and not to someone who exhibits a small amount of idiocy.

Modifiers of maximality

Modifiers of maximality are mentioned only briefly in the 2009 paper. An obvious solution – although it counterintuitively requires the scales of predicates like *idiot* to have maxima – is presented in (73).[68]

(73) $[\![[_{\text{Deg}_{\text{N}}}\ \textit{complete}]]\!] = [\![[_{\text{Deg}}\ \textit{completely}]]\!]$

$$= \lambda g_{\langle e,d\rangle} \lambda x.\mathbf{max}(\mathbf{scale}(g)) = g(x)$$

[68] An equivalence class-based analysis such as that presented in chapter 5 can, however, overcome this apparent objection.

(Morzycki 2009: 189)

Gradable nouns are thus subcategorized by whether their scales have maxima (*complete idiot*), or do not have maxima (*#complete smoker*).[69]

Although Morzycki doesn't provide the final denotation for *complete idiot*, the derivation is straightforward using (73) and his analysis of *idiot* as a measure function of individuals (74).

(74) $[\![\text{idiot}]\!] = \lambda x.\iota d[x \text{ is } d\text{-idiotic}]$ (Morzycki 2009: 185)

(75) $[\![\text{complete idiot}]\!] = [\![\text{complete}]\!]([\![\text{idiot}]\!])$
$= \lambda x.\mathbf{max}(\mathbf{scale}(\mathbf{idiot})) = \iota d[x \text{ is } d\text{-idiotic}]$

As Morzycki notes, it is somewhat surprising that a noun like *idiot* appears to have a lexical maximum, when everyday experience suggests that there is no limit to idiocy. In contrast, my proposal in chapter 5 suggests that such nouns *do* have genuine maxima, albeit of a contextually-imposed rather than lexically-specified kind: a *complete* idiot is 'as much of an idiot as he or she can be', or perhaps 'an idiot in all salient respects'.

3.2.3 Gradable nouns as defined by dimensionality (2012)

In contrast to Morzycki (2009), the main theoretical assumption in Morzycki (2012b) is that nouns are not inherently gradable, in the sense that they do not denote measure functions, project degree arguments, or acquire degrees from context. All nouns, whether notionally 'gradable' or not, have the standard nominal type $\langle e, t\rangle$. An entity qualifies as a *sportscar*, *smoker* or *idiot* simply by virtue of being in the extension of the predicate in question.

(76) $[\![\text{sportscar}]\!]^c = \lambda x.\mathbf{sportscar}(x)$ (Morzycki 2012b: 191)

Instead, degrees are acquired from the relationships that instances of a given noun can enter into, such as establishing an entity's similarity to a prototype of that noun (*real*-type modifiers), or measuring its position on a dimensional scale projected by the noun, such as *frequency of smoking* or *idiocy* (*big*- and *utter*-types). What distinguishes nouns of the *sportscar*, *smoker* and *idiot* classes from each other is not the presence or absence of degree arguments, but whether

[69] As with *completely full* vs. *#completely tall* in the adjectival domain (cf. Kennedy & McNally 2005).

a given noun has a prototype (as most appear to), what nominal dimensions it projects, and the scale structure and other attributes of those dimensions.

For Morzycki, the crucial distinction between the [+real −big −utter], [+big −utter] and [+big +utter] nouns is the cardinality of their dimension sets.

(77) **dimensions**(**sportscar**) = (not defined)

(78) a. $\textbf{dimensions}(\textbf{smoker}) = \left\{ \begin{array}{l} \textbf{frequency-of-smoking}, \\ \textbf{enthusiasm-for-smoking} \end{array} \right\}$

b. $\textbf{dimensions}(\textbf{basketball-fan}) = \left\{ \begin{array}{l} \textbf{attention-devoted-to-basketball} \\ \textbf{enthusiasm-for-basketball} \\ \textbf{knowledge-about-basketball} \end{array} \right\}$

(79) a. $\textbf{dimensions}(\textbf{idiot}) = \{\textbf{idiocy}\}$

b. $\textbf{dimensions}(\textbf{disaster}) = \{\textbf{disastrousness}\}$

(Morzycki 2012b: 193–194)

[+real −big −utter] nouns like *sportscar* are not gradable nouns, and consequently do not have a dimension set. They do, however, have prototypes, which explains their felicity with *real*-type modifiers. More importantly for the purposes of this thesis, Morzycki proposes that the single difference between [+big +utter] nouns like *idiot* and [+big −utter] nouns like *smoker* is that the [+big +utter] nouns are systematically one-dimensional (79) and the [+big −utter] nouns are systematically multi-dimensional (78).

The truth conditions of each degree modifier depends on the entity in question achieving a contextually-large measurement on the relevant scale projected by the noun, either a scale of similarity or a dimensional scale.

- *real* N: similarity to the prototype N entity
- *big* N: the most salient (or only) dimension associated with the nominal concept N
- *utter* N: the unique dimension associated with the nominal concept N

The revised 2012b theory addresses all three classes of modifier under consideration, and provides outline semantics for each case as set out below. In particular, compared to the earlier theories it provides a fuller account of the

meaning and distribution of the *utter* type degree modifiers and the nouns they are associated with.

Gradable nouns are like Bierwisch (1989) 'evaluative' adjectives

Morzycki defends his proposal that nouns do not have degree arguments using Bierwisch's (1989) division of gradable adjectives into 'dimensional', which Bierwisch claims have degree arguments (e.g. *long*, *short*, *old*, *young*) and 'evaluative', which do not (e.g. *lazy*, *industrious*, *pretty*, *ugly*).[70]

Bierwisch's classification is based on the principle that the presence of degrees necessarily relates to a comparison of some kind (Bierwisch 1989: 112).[71] He identifies a clear behavioural subdivision between gradable adjectives like *tall*/*groß* in (80-a) and those like *industrious*/*fleißig* in (80-b).

(80) a. *Alle Schüler dieser Schule sind groß.*
'All the pupils at this school are tall'
b. *Alle Schüler dieser Schule sind fleißig.*
'All the pupils at this school are industrious' (Bierwisch 1989: 89)

With a relative adjective like *tall*, the context must supply some norm as a basis for comparison, otherwise the predicate is meaningless: the pupils might be tall for their age, tall in relation to the population at large, etc. But on Bierwisch's account, *industrious* makes sense in isolation; it is not necessary to make a comparison with third parties to establish whether individuals are industrious.

Such constructions lead Bierwisch to conclude that the denotations of evaluative adjectives like *industrious*, *lazy*, *pretty* and *ugly* do not have inherent degree arguments.

Morzycki claims that nouns fit Bierwisch's model of evaluative adjectives as (in general) they define scales with endpoints made up of multiple broadly synonymous antonyms, rather than clear positive/negative pairs, and they create similar inferences in the comparative. By extension, if evaluative adjectives do not have degree arguments, then gradable nouns (which, on Morzycki's argument, are inherently evaluative) also do not.

[70] Morzycki (2012b) uses the term 'non-dimensional', to avoid confusion with other meanings of 'evaluative'.

[71] According to (Bierwisch 1989: 112), 'there is no degree without comparison and no comparison without degree'.

(i) **Antonym behaviour.** Dimensional adjectives nearly always have a unique antonym at the opposite end of a well-defined linear scale.

(81) a. tall ⟷ short
b. high ⟷ low
c. hot ⟷ cold (Morzycki 2012b: 189)

In contrast, evaluative adjectives typically have 'bundles' of roughly synonymous antonyms, or none at all.[72]

(82) a. brave, bold, courageous ⟷ cowardly, timid, fearful
b. clever, bright, shrewd, intelligent, brilliant ⟷ stupid, idiotic, foolish, bone-headed
c. pretty, beautiful, gorgeous, handsome ⟷ ugly, hideous, repellant, grotesque
d. lazy, indolent, unproductive ⟷ hard-working, industrious, workaholic (Morzycki 2012b: 189)

Morzycki observes that, just like evaluative adjectives, gradable nouns appear to inhabit scales delimited by bundles of antonyms, rather than simple pairs.

(83) a. idiot, moron, cretin, halfwit, imbecile ⟷ genius, prodigy, mastermind
b. disaster, catastrophe, calamity ⟷ triumph, stroke of luck, godsend, boon
c. sportscar, race car, roadster ⟷ jalopy, clunker, lemon
(Morzycki 2012b: 190)

(ii) **Inferences in the comparative.** Morzycki (2012b) claims that Bierwisch's evaluative adjectives exhibit 'minimal standards' in the sense of Kennedy & McNally (2005), and should therefore trigger the same kinds of inferences, that is inferences towards the positive form as with the minimum standard *wet* (84-a), but not the maximum standard *dry* (84-b).[73]

[72] Bierwisch (1989: 90) suggests *shy*, *jolly* and *frightened* as examples of the latter.
[73] A diagnostic to distinguish minimum from maximum standards is that a floor can be *slightly*

(84) a. The floor is wetter than the countertop ⊨ The floor is wet.
b. The floor is drier than the countertop ⊨ The countertop is not dry.

(Kennedy & McNally 2005: 360)

In contrast, dimensional adjectives such as *tall*, *short* and *good* do not license any inferences in the comparative. No contradictions obtain in the examples in (85).

(85) a. Kim is taller than Sandy, but neither is tall.
b. Sandy is shorter than Kim, but neither is short.
c. This croissant is better than that one is, but neither is good.

(Andrew Koontz-Garboden p.c.)

Morzycki claims that, based on inference patterns like the following, nouns also exhibit minimal standards, and he takes this as further evidence that nouns can be considered to be 'evaluative' predicates.

(86) a. Clyde is a bigger idiot than Floyd. ⊨ Clyde is an idiot.
b. This is a bigger disaster than that is. ⊨ That is a disaster.

(Morzycki 2012b: 190)

Morzycki's alignment with Bierwisch's theory of evaluative adjectives is interesting, but not totally convincing. In terms of scale structure, the distinction between *tall* (dimensional) and *idiot* (evaluative) is similar to the one that Kennedy & McNally (2005) make between relative and minimum standard absolute adjectives (cf. Morzycki 2012b: 189), and yet their analysis treats both classes of modifier as having degree arguments. In a theory such as that in Morzycki (2012b) which assumes that comparisons with a relative standard involve degrees, it seems reasonable to further assume that degrees are involved in establishing whether a scale endpoint has been exceeded (minimum standard) or met (maximum standard).

wet (but not *slightly dry*) and *totally dry* (but not *totally wet*) (cf. Rotstein & Winter 2004, Kennedy & McNally 2005).

The semantics of *real*-type modifiers

On Morzycki's analysis, *real*, *true*, *proper* and similar modifiers reflect an aggregate judgement of similarity to the contextual prototype instance of a noun (perhaps its 'most prototypical exemplar' Morzycki 2012b: 190). With a complex noun like *sportscar*, this assessment could be based on many dimensions of measurement, such as having an aerodynamic shape, rapid acceleration and a loud, sporty exhaust note.

> A *real idiot* is one that is closer to the idiot prototype than a regular idiot, and likewise for sportscars and smokers. (Morzycki 2012b: 190)

Morzycki's outline denotations essentially just state that to be a *real N* requires the individual in question to exhibit a large degree of similarity to N's prototype.[74]

(87) $[\![real]\!]^c = \lambda f_{<e,t>} \lambda x.f(x) \wedge \mathbf{large}_c(\mathbf{similar}_c(x, \mathbf{prototype}(f)))$

(88) a. $[\![\text{sportscar}]\!]^c = \lambda x.\mathbf{sportscar}(x)$

b. $[\![\text{real sportscar}]\!]^c$
$= \lambda x.\mathbf{sportscar}(x) \wedge \mathbf{large}_c(\mathbf{similar}_c(x, \mathbf{prototype}(\mathbf{sportscar})))$
(Morzycki 2012b: 191)

While the value returned from the measure function $\mathbf{similar}_c$ is a degree, it is a degree of the strength of the *similarity* relation, not a degree of nominal intensity. Felicity with *real* does not entail true nominal gradability.

> These modifiers don't impose particularly stringent requirements on the nouns they combine with, so they are relatively promiscuous. A noun need not be in any sense scalar or inherently gradable to support these modifiers. (Morzycki 2012b: 191)

The semantics of *big*-type modifiers

In contrast to *real*, both *big*- and *utter*-type modifiers are treated as operating along a single dimension of measurement associated with a given noun, the distinction (according to Morzycki) being that *big*-type modifiers are able to select

[74] Although Morzycki does not elaborate on the meaning of the $\mathbf{similar}_c()$ function, a multidimensional inverse-distance metric such as that proposed by Sassoon (2007, 2013b, 2017a) might be a good candidate.

a salient dimension from potentially many that are available in a given context, whereas the *utter*-type modifiers are strictly one-dimensional and can only operate with nouns that project a single unique dimension of measurement.

An individual counts as being a *big smoker* if the contextual standard for size (modelled as $\mathbf{large}_c()$) on any one of the available dimensions is achieved.

(89) $$\mathbf{dimensions}(\mathbf{smoker}) = \left\{ \begin{array}{l} \mathbf{frequency\text{-}of\text{-}smoking}, \\ \mathbf{enthusiasm\text{-}for\text{-}smoking} \end{array} \right\}$$

(90) a. $$[\![[_{\mathrm{Deg_N}} \text{ big}]]\!]^c = \lambda f_{\langle e,t\rangle} \lambda x. \exists D \left[\begin{array}{l} D \in \mathbf{dimensions}(f) \wedge \\ \mathbf{large}_c(\mu(D)(x)) \end{array} \right]$$

b. $$[\![\text{Clyde is a big smoker}]\!]^c = \exists D \left[\begin{array}{l} D \in \mathbf{dimensions}(\mathbf{smoker}) \wedge \\ \mathbf{large}_c(\mu(D)(\mathbf{Clyde})) \end{array} \right]$$

(Morzycki 2012b: 193)

While this denotation appears feasible at first sight, existentially quantifying over dimensions doesn't quite represent my understanding of what it entails to be a *big smoker*. In contexts where a single dimension is chosen from many, *big* presumably always selects the most contextually-salient one. But existential quantification as phrased in (90) does not express the notion of salience. Size adjectives like *big* are semantically underspecified, and in this case it might have been better to model D as a bound variable, perhaps supplied as an argument to *big* to resolve its inherent ambiguity.[75]

That aside, it is still hard to say if the denotation in (90) is correct without more detailed evidence. To count as a *big smoker* might conceivably require the contextual norm to be exceeded on multiple dimensions simultaneously, e.g. for the individual to be simultaneously an *enthusiastic*, *frequent* and *copious* smoker, for example.

The semantics of *utter*-type modifiers

With their adjectival meanings, the modifiers in the *utter* group (*utter*, *complete*, *absolute*, *total* etc.) are modifiers of maximality. As such, their scales have fixed endpoints, and attempts to pair them with open-scale predicates such as *improver* under a maximality reading are infelicitous.

[75] Alternatively the notion of salience could be modelled using a choice function, rather than existential quantification (von Heusinger 1997, von Heusinger & Kempson 2004).

(91) Nigel is a(n) $\left\{\begin{matrix}\text{absolute}\\\text{complete}\\\text{total}\end{matrix}\right\}$ $\left\{\begin{matrix}\text{beginner}\\\#\text{improver}\end{matrix}\right\}$ at chess.

In contrast, the distinguishing feature of the [+big +utter] nouns under degree modification is that they do not have obvious endpoints. There is no limit to being a *genius* or to the possession of *delight*, and yet with a degree reading these nouns pattern felicitously with *utter*-type modifiers.

(92) a. Simon is a complete genius, but Mary is even more of a genius.
b. *South Pacific* is an utter delight, but *West Side Story* is even more delightful.

Morzycki steps away from the endpoint question, and assigns an apparently straightforward extension of the *big N* semantics to explain *utter*-type modifiers.

(93) $\mathbf{dimensions}(\mathbf{idiot}) = \{\mathbf{idiocy}\}$

(94) a. $[\![\text{utter}]\!]^c = \lambda f_{<e,t>}\lambda x.\mathbf{large}_c(\mu(\iota D[D \in \mathbf{dimensions}(f)])(x))$
b. $[\![\text{Clyde is an utter idiot}]\!]^c$
$= \mathbf{large}_c(\mu(\iota D[D \in \mathbf{dimensions}(\mathbf{idiot})])(\mathbf{Clyde}))$
$= \mathbf{large}_c(\mu(\mathbf{idiocity})(\mathbf{Clyde}))$
(Morzycki 2012b: 194)

The intention, presumably, is to convey a high degree of the property in question, rather than to assert the attainment of an endpoint on a scale, as with (say) *complete chess set*.

Morzycki's account of the semantics of *utter*-type modifiers rests mainly on the claim that all nouns in the [+big +utter] category are one-dimensional. Although he does not make the connection explicitly, one-dimensionality does perhaps accord with the suggestion that this kind of noun is semantically more 'adjective-like' than other nouns. If that is true, then it might be expected that [+big +utter] nouns would have the property to 'single out one quality' as Jespersen (1924) suggests.

> [O]n the whole, substantives are more special than adjectives, in the parlance of logicians, the extension of a substantive is less, and its

> intension is greater than that of an adjective. The adjective indicates and singles out one quality, one distinguishing mark, but each substantive suggests, to whoever understands it, many distinguishing features by which he recognizes the person or the thing in question.
>
> (Jespersen 1924: 75)

However, overall this argument is unconvincing. As noted by both de Vries (2010) and Rutland (2017), nouns like *genius*, *idiot* and *nerd* are complex, aggregate concepts with multiple dimensions.[76] De Vries suggests that the following aspects could be part of the dimension set of *genius*.

> high IQ, natural talent for a particular art or science, excellence at a very young age, representing a turning point in the history of their field
>
> (de Vries 2010: 47–48)

Notably, nouns of the [+big +utter] type pass cross-categorial diagnostics for multi-dimensionality from the literature, such as those in Sassoon (2013a).[77]

(95) a. a genius in respect of creativity
b. an idiot in all respects

Further examples of Sassoon's diagnostics applied to the nominal case are given in section 3.5.

Another issue is that, apart from the dimensionality constraint, Morzycki's denotations for *big idiot* and *utter* idiot have identical truth conditions, in both cases simply predicating a contextually-large degree of idiocy of the subject. But it cannot be the case that *big* and *utter* have identical extensions, as this does not take the maximality semantics of the *utter*-type modifiers into account. The

[76] Francez & Koontz-Garboden (2017: 127) are also sceptical of Morzycki's claim that nouns like *idiot* are multidimensional.

[77] Sassoon proposes that the denotations of multidimensional adjectives project an optional *respect* argument that (if present) must refer to one of the dimensions in the current context. one-dimensional adjectives reject attempts to saturate this argument.

(i) a. The boxes are identical in all respects.
b. #The table is long in all respects.

(Adapted from Sassoon 2013a: 337)

This kind of test is cross-categorial and therefore available as a diagnostic for multidimensionality in nouns.

truth conditions of a maximizing modifier must somehow entail that there is a certain degree on the scale of the predicate in question that cannot be exceeded.

3.3 Gradable [+big −utter] nouns like *smoker*

Although not all [+big −utter] nouns have *-er* morphology, eventive deverbal nouns like *smoker* form a significant subset of them. There is a substantial body of literature on *-er* suffix nouns,[78] and as discussed below, some of the key theoretical results apply to [+big −utter] nouns in general, irrespective of their internal morphology.

3.3.1 The eventive nature of [+big −utter] nouns

All instances of [+big −utter] nouns that I am aware of entail the presence of an event in which the noun's individual argument is a participant.[79] More specifically, they require that such an event (usually a plurality) must already have occurred by the evaluation time. A (*big*) *violinist* must actually have played the violin, for example, not merely have the training, interest or potential to do so. The eventive nature of the [+big −utter] nouns is central to the theory developed in chapter 5, as on my account it is the major factor that distinguishes them from the [+big +utter] nouns.[80]

A number of diagnostics exist for events, not all of which are applicable to nominal phrases.[81] Stump (1981: 221) notes that explicit frequency adjectives such as *annual*, *frequent*, *hourly*, *monthly*, *occasional*, *periodic* and *sporadic* 'intuitively specify the frequency of some event'.[82] Such modifiers can therefore be used as probes for the existence of eventive meanings in nouns, although some caution is necessary, as not all readings refer to the noun-internal events of interest to this thesis. The much-studied expression *An occasional sailor strolled by*

[78]Levin & Rappaport (1988), Rappaport Hovav & Levin (1992), Alexiadou & Schäfer (2008, 2010), McIntyre (2014), among many others.

[79]I am open to the possibility that there are non-eventive nouns that share the [+big −utter] distribution, but which were not uncovered by my research. In that case, the proposal in chapter 5 would constitute only a partial solution.

[80]The entailment of events with the degree readings of [+big −utter] nouns is key to the resolution of Research Question 2 from section 1.3.

[81]See Maienborn (2019) for a handbook level overview of events and states, with diagnostics for the major categories.

[82]Other commonly-cited examples include *constant*, *daily* and *regular*.

can, for example, refer to a sailor who strolled by occasionally (adverbial meaning), rather than a person who sails occasionally (noun-internal meaning) (Stump 1981: 221 and many others). The latter is the only interpretation relevant to this thesis.

Depending on context, a frequency adjective can sometimes be substituted for a degree-modifying size adjective without loss of meaning, thus providing indirect evidence of the presence of an event. This is particularly evident with *-er* suffix deverbal nouns, where in context a *big smoker* might equate to a *frequent smoker*, and a *big swimmer* perhaps to a *regular* or *daily swimmer*. The proposal in chapter 5 assumes that substitutions of this kind can occur through context to give a temporal interpretation to size adjectives on their degree readings.

Comprehensive studies of frequency adjectives can be found in Stump (1981), Schäfer (2007), Zimmermann (2003), Gehrke & McNally (2011, 2015).

3.3.2 (Neo-) Davidsonian event modification

A well-known ambiguity noted at least as early as Siegel (1976: 2) is that the expression *Olga is a beautiful dancer* has two meanings, predicating either that Olga herself is beautiful, or that Olga's dancing is beautiful, irrespective of her own beauty.[83] The version proposed by Larson (1998) is as follows.

(96) a. Olga is a beautiful dancer.
b. 'Olga is a dancer and Olga is beautiful'
c. 'Olga is beautiful as a dancer'/'Olga dances beautifully'
(Larson 1998)

A key insight from Davidson (1967) is that action verbs like *dance* are not one-place predicates of individuals, but rather relationships between individuals and events.[84] As such, they project an additional argument that allows the properties of the event to be manipulated, as well as those of the individual. Larson's interpretation of *Olga danced/sang beautifully* on this basis is given in (97).

(97) Olga danced/sang beautifully.
a. $\textbf{dancing}(e, x)$
b. $\textbf{singing}(e, x)$

[83] Siegel's original example was *Marya is a beautiful dancer*, but most authors refer to *Olga*.
[84] I.e. they do not denote functions of type $\langle e, t\rangle$, but some higher type such as $\langle e, \langle v, t\rangle\rangle$.

c. $\exists e[\textbf{dancing}(\textbf{olga}, e)\ \&\ \textbf{beautiful}(e)]$
d. $\exists e[\textbf{singing}(\textbf{olga}, e)\ \&\ \textbf{beautiful}(e)]$

(Larson 1998)

In (97) the actions of singing and dancing are expressed directly by the tensed verb in each sentence. In contrast, the original *Olga* sentence in (96) encodes the action inside the deverbal noun *dancer*, with the inference on the eventive reading that Olga is characterised by her dancing, for example by dancing habitually. This is the same episodic meaning that arises with [+big −utter] nouns embedded in the adnominally modified phrases of interest to this thesis such as *huge smoker*, *big guitarist* or *massive vegetarian*. The latter two cases, while not morphologically deverbal, nevertheless imply habitual actions of *playing* guitar and (perhaps) *practising* vegetarianism.

Larson represents the general nominal case below, intentionally suppressing the quantifier (as Q) and logical connective (as ...) to focus on the predicative relation between individual and event. The two options in (98) represent the fundamental intersective/non-intersective ambiguity, where *beautiful* functions either as a semantic adjective modifying *Olga* (98-a), or a semantic adverb modifying the event of dancing (98-b).

(98) Olga is a beautiful dancer.

a. $Qe[\textbf{dancing}(e, \textbf{olga}) \ldots \textbf{beautiful}(\textbf{olga}, C)]$
('Olga is beautiful')
b. $Qe[\textbf{dancing}(e, \textbf{olga}) \ldots \textbf{beautiful}(e, C)]$
('[Olga's] dancing is beautiful')

(Larson 1998)

I adopt essentially the same structures in chapter 5 to explain how ordinary and degree readings can arise compositionally with the *big smoker* and *complete idiot* forms, save that I require that degree modification is further distinguished by manipulating kinds (event-kinds or state-kinds), rather than tokens.[85]

There is also an analytical choice to be made between the two-place Davidsonian argument structure adopted by Larson, and a one-place Neo-Davidsonian representation (e.g. Carlson 1984, Dowty 1989, Parsons 1990, Winter & Zwarts 2012b). My denotations adopt the one-place option similar to that in Winter

[85]Larson's work is therefore a key factor in addressing Research Question 1 from section 1.3.

& Zwarts (2012b) (99-b), which (among other advantages noted by the authors cited) makes the thematic role explicit.[86]

(99) a. dance-er: $\lambda x.\exists e[\mathbf{dance}_2(e, x)]$
b. dance-er: $\lambda x.\exists e[\mathbf{dance}_1(e) \wedge \mathbf{Ag}(e) = x]$
(Winter & Zwarts 2012b: 642)

Following Chierchia (1995), Larson adopts the generic quantifier (Γ) as a potential candidate for Q in (98).[87] Generic quantification allows Olga's habitual dancing to be represented as in (100-c), which Larson glosses as 'in general, for eventualities of the contextually relevant kind (**Con**) containing Olga, those eventualities are dancings by Olga'.

(100) a. Olga is a dancer.
b. Olga dances.
c. $\Gamma e[\mathbf{Con}(e, \mathbf{olga})][\mathbf{dancing}(e, \mathbf{olga})]$ (Larson 1998)

Larson's interpretation of the non-intersective reading of *beautiful dancer* is shown in (101-c), where *beautiful* acts adverbially to modify the event of *dancing*. This can be paraphrased as 'in general, for eventualities of the contextually relevant kind that are dancings by Olga, those eventualities are beautiful'.

(101) a. Olga is a beautiful dancer
b. Olga dances beautifully.
c. $\Gamma e[\mathbf{Con}(e, \mathbf{olga}) \,\&\, \mathbf{dancing}(e, \mathbf{olga})][\mathbf{beautiful}(e, C)]$
(Larson 1998)

My proposal does not model habituality with generic quantification, preferring instead a kind-based solution that involves quantification over the event-tokens that realise a particular event-kind. In this solution the degree reading of a phrase such as *big dancer* does not involve manner modification of single events (as Larson suggests for *beautiful dancer* in (101-c)), but inferences of above-average frequency, duration or quantity, metrics that must be calculated across a plurality of related events.

The use of kinds is, however, a personal analytical choice. Larson briefly

[86] I will claim that the [+big +utter] nouns involve a different thematic role to the [+big −utter] ones. This is a further contribution to the resolution of Research Question 2.
[87] Γ ('gamma') corresponds to Chierchia's generic quantifier **Gen**.

suggests using an (in)frequency-based pair quantifier *INFREQ* $\langle e, x \rangle$ for roughly similar purposes, a technique that could offer an alternative explanation to my own of the frequency readings of *big* etc. that obtain with eventive nouns like *dancer*.[88]

(102) a. [$_{\text{DP}}$ An occasional customer] strolled by.
b. **INFREQ** $\langle e, x \rangle$ [$\Pi(e, e*)$ & **customer**(x)][**strolling-by**(e, x)]
(Larson 1998)

3.3.3 Bracketing ambiguities

Various authors have suggested that the ambiguities that arise with *Olga*-type sentences can be attributed to so-called 'bracketing ambiguities', where an utterance can be understood in different ways due to the existence of than one interpretable morphosyntactic structure (Williams 2003, Egg 2004, Winter & Zwarts 2012a,b among many others).

On the morphology-based analysis in Winter & Zwarts (2012b: 641), the two readings of the *Olga* sentence can be explained by splitting the nominal predicate *dancer* into the verb *dance* and the nominalizing suffix *-er* (103).[89] Depending on the enclosing syntactic structure selected, the adjective *beautiful* can then either apply to the individual (103-a), or as a manner adverbial to the event of dancing (103-b). As the authors point out, this approach has the advantage of explaining ambiguity, while maintaining the view that the denotations of nouns and verbs project a single semantic argument for modification.[90]

(103) a. beautiful [-er dance]]
(the person who dances is beautiful)
b. [-er [beautiful dance]]
(the dancing of the person is beautiful)
(Winter & Zwarts 2012b: 641)

[88]Larson paraphrases the proposed denotation as 'for few pairs $\langle e, x \rangle$ such that e is a part of some larger contextually given event $e*$ and x is a customer, e is a strolling-by by x'.
See Gehrke & McNally (2015) for a more recent kind-based analysis of the range of meanings that arise with frequency adjectives like *occasional*.

[89]The same would appear to be true with *-ist* suffix denominal constructions like *saxophonist* where the stem denotes a theme, rather than an agent, although I reserve such an investigation for future research.

[90]Cf. Larson's (1998) relational analysis, which requires nouns like *dancer* to introduce two modifiable arguments.

Winter & Zwarts note that morphological bracketing can also explain why event readings are blocked by the presence of an intervening non-event adjective. In a phrase like *beautiful blond dancer* (104-a), *beautiful* cannot take an event reading, because the following non-eventive adjective *blond* selects only for a noun, never a verb. Once the nominalizing *-er* suffix has been applied to form *dancer* the event argument projected by the verb *dance* is closed off, and no longer available for modification by *beautiful*. In contrast, on Winter & Zwarts's intuition *blond beautiful dancer* can take both readings, depending on whether *beautiful* attaches to *dancer* (104-b) or *dance* (104-c).[91]

(104) a. beautiful [blond [-er [dance]]]
b. blond [beautiful [-er [dance]]]
c. blond [-er [beautiful [dance]]] (Winter & Zwarts 2012b: 641)

Based on such arguments, Winter & Zwarts make the following prediction, while noting that further research would be necessary to back up such a claim.

> If this is the correct way to derive event readings, then the prediction is that only deverbal nouns allow event modification, since an explicit verb is necessary to provide the event.
>
> Winter & Zwarts (2012b: 642)

On my account, this cannot be correct. The existence of manner readings for *beautiful violinist* and frequency readings for *occasional violinist* demonstrates conclusively that the noun is eventive, while not being morphologically deverbal. Also, while Winter & Zwarts's theory could certainly be extended to allow for implicit verbs (of violin-playing, etc.), it is still firmly rooted in morphology. It is not obvious that [+big −utter] nouns necessarily contain morphological nominalizers, although admittedly my research has not uncovered a convincing example of one that does not.

A possible resolution is contained in a further proposal (Winter & Zwarts 2012a), in which the same authors suggest an alternative analysis whereby the verb and nominalizing *-er* suffix combine at a fixed position very low in the syntactic derivation. The nominalization process converts a verb into a special

[91] I do not find Winter & Zwarts's (b) and (c) examples very natural, perhaps because the preferred order of adjectives in English places the evaluation *beautiful* before the colour *blond*. However, a point-of-attachment argument of this kind offers a potential explanation for the apparent lack of a degree interpretation for (say) *big blond dancer*.

kind of noun that retains the the verb's event argument as its own referential argument. This creates a two-place predicate similar in spirit to Larson's (1998) analysis of *dancer*, the difference being that *dancer* has a morphosyntactic existence in the sentence, unlike Larson's eventive element *dancing* which does not occur in surface form and has to be inferred.

The authors' explanation relies on their 'One-Argument Hypothesis', which argues that although a noun (or other category) may have more than one argument, it can only project one *referential* argument at any stage of the derivation. Thus *dancer* 'behaves syntactically like a special noun but semantically like a verb (with respect to its referential argument)' (Winter & Zwarts 2012a: 9). Such nouns are 'special' in the sense that they cannot act as ordinary NPs until their event argument has been saturated, at which point the remaining (individual) argument becomes the new referential argument.

An example derivation of *the beautiful dancer* based on these principles is shown in figure 3.4. Depending on where the adjective appears in the derivation, it will either modify the individual (agent) argument (higher position) or the event argument (lower position). Following the One-Argument Hypothesis, only one of these options is available at any level of the derivation. The referential argument of each nominal or verbal node is underlined, and marked as either $\underline{a}$ for the agent of the event, or $\underline{e}$ for the event itself. The *er* suffix marks the special status of the noun, indicating that it cannot act as an NP until its event argument $\underline{e}$ has been saturated.

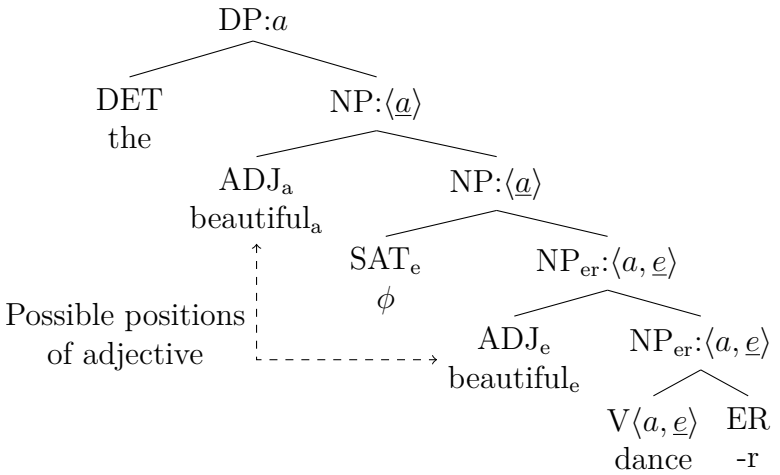


Figure 3.4: *the beautiful dancer* (Winter & Zwarts 2012a: 9; my annotation)

The structure in figure 3.4 explains the ambiguity of phrases like *beautiful*

dancer without requiring the nominalizer *-er* to attach at different syntactic positions. It could also easily be extended to accommodate other morphology, such as the *-ist* suffix nominal *fast typist*, albeit an example that is still deverbal. The analytical cost of this solution is that an unpronounced operator (SAT) must be present in the sentence to saturate the event argument of the 'special noun' NP_{er}, and thus promote it to an ordinary individual-denoting NP.[92]

A major advantage of this proposal for my purposes is that the observed ambiguity does not actually depend on the deverbal nature of the noun in question. As long as the noun is 'special' enough to project an additional event argument it can fill the position of Winter & Zwarts's N_{er}, irrespective of its morphology. Although this solution still exploits a bracketing ambiguity,[93] in contrast to the authors' alternative 'floating nominalizer' analysis in (103), there is no obvious need to appeal to internal structure.

(105) a. beautiful [SAT dancer]]
(the dancer is beautiful)
b. [SAT [beautiful dancer]]
(the dancing of the dancer is beautiful) (cf. (103))

Winter & Zwarts's analysis contributes to the resolution of both Research Question 1 and Research Question 2. My solution in chapter 5 adopts a syntactic explanation for the ordinary vs. degree reading ambiguity observed with both the [+big −utter] and [+big +utter] nouns that is very similar to the analysis in Winter & Zwarts (2012a), in that gradable nouns of both types are assumed to project two arguments at a low position in the derivation, but only one argument at a higher position. The authors' proposal thus makes a substantial contribution to the resolution of Research Question 1. It also offers a plausible explanation of the behaviour of (in particular) *-er* suffix deverbal nouns, which form a major subset of the [+big −utter] nouns, the subject of Research Question 2.

3.3.4 Eventive vs. non-eventive *-er* nominals

Although *-er* suffix deverbal nouns are a very productive source of [+big −utter] nominals, not all readings of such nouns are [+big −utter]. Various mechanisms

[92]The proposal in Gehrke & McNally (2015) achieves a similar effect without needing to posit a separate SAT operator. This is discussed in chapter 5.

[93]Albeit with an unpronounced 'bracket' (SAT).

can cause the eventive nature of the verbal stem to become backgrounded or suppressed entirely, as described below.

A large number of *-er* nominalizations, while potentially being interpretable as [+big −utter] nouns, more usually take [+big +utter] meanings. Where they exist, such readings are often idiosyncratic, and (at best) only loosely connected with the meaning of the verbal stem, for example *howler* in the sense of a stupid or glaring mistake, and *tosser* as a stupid or unpleasant person. No events of 'howling' or 'tossing' are entailed by these readings. Nouns of this type typically share the evaluative/hyperbolic flavour of classic [+big +utter] nouns like *buffoon* and *geek*.[94]

A more systematic source of ambiguity arises from the potential of many *-er* nominals to be interpreted either as participants in events (often, but not always, as agents) or as instruments (tools, machines, etc.). Levin & Rappaport (1988: 1068–1069) note that the derivation of instrumental *-er* nouns is a productive process, where the meaning of the nominalization transparently references the embedded verb.[95] Examples they cite include household appliances (*washer*, *dryer*, *toaster*, *broiler*, *blender*) and technical IT terms (*compiler*, *debugger*, *file server*, *processor*), some of which, as the authors observe, occur more commonly as instruments than agents. Despite my adopting *big smoker* as a canonical [+big −utter] nominal, 50% of the corpus matches for the phrase reported in chapter 4 are size readings relating to cooking appliances, i.e. instruments rather than agents.

As Levin & Rappaport (1988: 1069–1070) observe, an instrument such as a *coffee-grinder* (106-a) may never have actually ground coffee, and could indeed be employed for other purposes, such as grinding spices. No event of 'grinding coffee' is entailed when the phrase takes an instrumental meaning. Similarly, while the holder of a professional role such as *lifesaver* (= lifeguard) (106-b) may have been trained to save lives, they might never have done so in practice.

(106) Agentive or instrumental readings

a. (coffee) grinder
someone/something intended for grinding (coffee)

b. lifesaver
someone/something intended for saving lives

[94] More examples of this phenomenon are presented in chapter 4.

[95] In contrast to the semantically opaque [+big +utter] readings of *howler* and *tosser*.

c. (windshield) wiper
someone/something intended for wiping (windshields)

d. destroyer
someone/something intended for destroying, e.g. a type of warship

(adapted from Levin & Rappaport 1988: 1069–1070)

In contrast, nobody can be called a *grinder of fine coffees* or a *saver of lives* unless they have actively participated in events of 'grinding fine coffees' or 'saving lives' respectively (Levin & Rappaport 1988: 1070).

(107) Agentive readings only

a. a grinder of fine coffees
someone who has ground fine coffees

b. a saver of lives
someone who has saved lives

c. a wiper of windshields
someone who has wiped windshields

d. the destroyer of the city
someone who has participated in destroying the city

(adapted from Levin & Rappaport 1988: 1069–1070)

The examples in (107) illustrate the general principle that the presence of a nominal *of* complement corresponding to the embedded verb's internal argument signifies an event reading. More formally:

> -*er* nominals that inherit argument structure receive an event interpretation, while those that do not inherit argument structure receive a nonevent interpretation
>
> (Levin & Rappaport 1988: 1069).

An eventive expression such as *saver of lives* thus contrasts with the alternative compound construction in (106) (*life* + *saver*), which may or may not involve an actual event. This principle predicts that 'N of an N' complemented forms such as those in the (b) examples in (108) and (109) should be more reliable indicators of degree readings with size adjectives than the corresponding compound noun constructions in the (a) examples. On my intuition, this is correct, although further research would be necessary to confirm this with a wider selection of expressions.

(108) a. a big rugby player (degree or non-degree)
b. a big player of rugby (degree only)

(109) a. a big stamp collector (degree or non-degree)
b. a big collector of stamps (degree only)

Not all [+big −utter] nominals are compound constructions. Single word *-er* nouns such as *eater*, *drinker* and *smoker* contain no overt morphology that can be mapped to the object of a transitive verb in this way. However, Levin & Rappaport (1988: 1068 fn. 2) argue that the meaning of such nouns instead depends on the presence of implicit indefinite objects.[96] On this assumption, the transitivity of the underlying verb is maintained, together with the authors' hypothesis that eventive meaning relies on the inheritance of argument structure.

While this argument can be supported for *eater* (of food), *drinker* (of alcohol), and *smoker* (of tobacco),[97] it seems less convincing with (say) *talker* and *worker*. While these are both indisputably [+big −utter] nouns, they are derived from unergative intransitive verbs with no object position.[98]

Finally, Levin & Rappaport predict that, by their nature, certain (intransitive) verbs cannot be the stems of eventive *-er* nouns. They are therefore precluded from forming [+big −utter] nouns through a process of *-er* nominalization, if not entirely.

> *-er* nominals are only derived from verbs that have external arguments, and they always refer to the external argument (typically an agent).
>
> (Levin & Rappaport 1988: 1068)

If this generalization is true, then for an intransitive verb to form the derivational stem of an *-er* nominal, it must be unergative (e.g. *talk*, *work*), rather than unaccusative (*die*, *explode*).[99] It is impossible for *-er* nominals to be derived from unaccusative verbs, because the single argument of such verbs is an internal argument, referring typically to the receiver of the action (theme or patient

[96] See Martí (2011) for a study of verbs with indefinite objects.

[97] Levin & Rappaport's original examples were *writer* (*She writes books*/*She writes*) and *reader* (*He reads books*/*He reads*).

[98] Perlmutter (1978: 162) lists *work* and *talk* among the 'initially unergative' intransitive verbs.

[99] See Perlmutter (1978), Levin & Rappaport Hovav (1995) regarding unaccusative and unergative verbs.

role), rather than the entity responsible (usually an agent) as is the case with unergatives.[100,101]

Therefore, we would expect to find [+big −utter] nominals such as *big talker* and *big worker*, as *talk* and *run* are unergative verbs (the subject is the semantic agent), but not (*big*) **dier* or (*big*) **exploder*, which (if they existed) would be derived from unaccusative verbs where the subject has the thematic role of patient.

3.4 Gradable [+big +utter] nouns like *idiot*

A key step in the technical analysis in chapter 5 is to interpret gradable nouns of the [+big +utter] category as having an adjectival semantic function, despite their being unequivocally nominal in syntactic category. This reflects the empirical fact, observed by several authors cited below, that their contribution to sentence meaning is inevitably more descriptive than referential.

The adjectival nature of the [+big +utter] nouns, together with the additional move of modelling gradable adjectives with states (Wellwood 2014, 2015, 2019), are key features of my proposed resolution of Research Question 3 from section 1.3. These aspects clearly distinguish [+big +utter] nouns like *idiot* from [+big −utter] like *smoker* that lack the adjectival/stative component.

3.4.1 Predicative degree nouns (Bolinger)

Bolinger (1972) presents an in-depth survey of gradable words in general. As part of this study he identifies a subcategory of nouns ('predicative degree nouns') that appears to correspond broadly to Morzycki's (2012b) *idiot* class, in my terminology the [+big +utter] nouns.

> The predicative degree noun incorporates a semantic feature that can be paraphrased by one or more degree adjectives, while the nondegree noun is either semantically primitive or incorporates some equivalent

[100]Unaccusative verbs are so called because the argument representing the patient role takes nominative case, rather than the usual accusative case (*he dies*, rather than **him dies*).

[101]Levin & Rappaport (1988: 1075) give the following examples of impossible eventive *-er* nominals derived from unaccusative verbs: **disappearer*, **appearer*, **dier*, **laster*, **ender*, **transpirer*, **waner*, **exister*, **happener*, **occurrer*, **emanator*, **collapser*, **wilter*. None of these should be capable of being interpreted as [+big −utter] nouns.

of a nondegree adjective.

(Bolinger 1972: 84–85)

The term 'predicative' refers to the notional presence of a predicate in which the degree noun (or a paraphrasing adjective) serves as the complement to an implied non-degree noun. An *idiot* is thus a 'person who is idiotic', and a *quack* is a 'doctor (or other professional) who is fraudulent or incompetent'.

On Bolinger's assessment, the 'degree only' nouns in column 3 of figure 3.5 are inherently predicative, while those in column 2 can be coerced into being predicative when given a degree interpretation.

Non-degree	Degree or non-degree	Degree only
award	prize	boon
attorney	lawyer	shyster
doctor		quack
house, dwelling	hut, palace, mansion	hovel
informant	informer	blabbermouth
individual, person	man, woman	scoundrel, genius, angel
young 'un, lad, lass	baby, child, infant	brat
purchase, sale, transaction	deal, bargain	gyp (= swindle)

Figure 3.5: Categories of degree nouns (Bolinger 1972: 86)

As indicated by the progressively evaluative columns in figure 3.5, a speaker may describe an ordinary residential building neutrally as a *house*, positively as a *palace* or *mansion*, or with a strongly subjective (in this case negative) flavour as a *hovel*.[102] For Bolinger, the existence of these three levels of expressivity in the lexicon constitutes

> a kind of gross system [that enables speakers] not only to name entities but to pass value judgments on them, and provides a wide though necessarily imperfect selection of degree synonyms for nondegree entities.
>
> (Bolinger 1972: 85)

The inherently predicative nouns in column 3 of figure 3.5 such as *scoundrel* and *genius* are typical Morzycki nouns of the [+big +utter] class, and usually

[102]Vera Hohaus (p.c.) notes that this system constitutes an underlying scale of alternatives.

convey a strong positive or negative evaluation. As Bolinger notes, by their nature such 'epithetical' nouns do not simply denote a descriptive (adjective-like) property, but one which is already intensified above the level of the corresponding nouns in column 2.[103]

> Epithetical degree nouns, which are by definition predicative (and hence like adjectives to begin with), are in their nature 'extreme'.
>
> (Bolinger 1972: 283)

The notion that [+big +utter] nouns, while unambiguously nominal in category, contain an inherent adjective-like 'semantic feature' that both references an entity and also conveys the speaker's (typically hyperbolic) subjective appraisal of that entity is key to the technical proposal in chapter 5. The [+big +utter] nouns behave the way they do because they already embody an intensification of the quality in question, prior to any further modification by maximizers such as *total* and *utter*.

Bolinger's distinction between inherently predicative ('degree only') and sometimes predicative nouns ('degree or non-degree') is useful, although it is unsurprisingly not an exact match with Morzycki's classification. While the 'degree only' nouns in column 3 of figure 3.5 are immediately recognizable as members of the [+big +utter] class (*utter blabbermouth*, *absolute quack*, *complete scoundrel* etc.), whether some of the 'degree or non-degree' nouns in column 2 (such as *lawyer* and *deal*) can be coerced to the predicative status of column 3 as Bolinger suggests is less certain from the point of view of the [+big ±utter] distinction.

We can refer to a favourable purchase as an *absolute bargain*, and a badly-behaving adult as an *utter child*; but #*utter deal* and #*utter lawyer* are (at least on my intuition) completely unacceptable.[104,105] Both *deal* and *lawyer* appear to elicit what Morzycki calls 'significance readings' with size adjectives. Characteristically, they fail Morzycki's Position Generalization, which perhaps indicates the lack of an underlying semantic connection between modifier and noun.

(110) a. She is a big lawyer in the City. (attributive position)

[103]Cf. extreme adjectives such as *gigantic*, *gorgeous* and *fantastic* which similarly entail an intensification (Morzycki 2012a).

[104]The Sketch Engine CQL query `[word="utter"][word="deal|lawyer"]` produces no results in enTenTen15 corpus. See chapter 4 for instructions on how to execute this query and more information about the use of corpus techniques on this research project.

[105]Bolinger (1972: 86) concedes that *lawyer* 'would only rarely be used as a predicative degree word, in the sense "litigious person"'.

b. My lawyer is big in the City. (predicative position)

(111) a. It was a big deal. (attributive position)
b. That deal was big! (predicative position)

Their inherently adjectival nature means that a predicative degree noun is generally able to describe a non-degree noun relating to the same entity, but not always the other way around (Bolinger 1972: 85).

(112) a. That purchase was a bargain.
b. #That bargain was a purchase. (Bolinger 1972: 85)

(113) a. That person is an idiot.
b. #That idiot is a person. (my example)

In (112-b) and (113-b) no additional information is supplied by the complement, and the expressions fail for uninformativity. A bargain is always a purchase (one that returns high value), and an idiot is always a person.

Bolinger takes as additional evidence for the adjective-like nature of inherently predicative degree nouns the fact that they can sometimes appear as prenominal modifiers in the position where a true adjective would be located. I include these examples for interest only, and reserve investigation of the phenomenon for future research.

(114) a. a quack doctor
b. a shyster lawyer
c. a hick farmer
d. that fool brother of yours (Bolinger 1972: 86–87)

Bolinger (1972: 85) claims that most predicative degree nouns have a 'metaphorical source'.

(115) a. What a child!
b. 'That child is surprisingly X' (non-degree reading)
c. 'That person is surprisingly childish' (degree reading)
(Bolinger 1972: 85, reformatted)

The non-degree reading of (115-a) requires that the referent is literally a *child* (115-b). For the expression to take a degree reading, *child* must be interpreted as

a metaphor for a person who exhibits childish behaviour (115-c). Other examples cited by Bolinger (1972: i)nclude *What a baby!* and *What a headache* [*this job is*]*!*

Morzycki (2005: 121) considers metaphor as a potential source of nominal gradability, but discounts the possibility for the following reasons.

(i) Why would metaphor be constrained by syntactic position (Position Generalization)?

(ii) Why would metaphor be restricted to adjectives of positive size (Bigness Generalization)?

(iii) Why would such metaphors 'come for free', without speakers begin consciously aware of their metaphorical nature?

While Morzycki chooses to adopt a grammatical, rather than metaphorical, line of argument, it seems that evaluative gradable nouns of the [+big +utter] class are often metaphors (*a complete gem of a pub*, *an absolute peach of a goal*). The use of size adjectives as intensifiers of abstract size is also arguably metaphorical (Lakoff et al. 1991, Lakoff & Johnson 1980).

(116) a. Importance is size. ('That's a big discovery')
b. Significant is big. ('He's a big man in the garment industry')
(Lakoff et al. 1991: 13, Lakoff & Johnson 1980: 50)

The nouns in the N1 position of the binominal structures in (117) are all metaphors. Indeed, in (117-c), both the noun *water-melon* and the modifying adjective *flabby* are metaphorical, as shows are not fruit and water-melons do not have flab.

(117) a. a crescent-shaped jewel of an island
b. a curate's egg of a cast
c. this great flabby water-melon of a show
d. a dreadful ragbag of a British musical (Austin 1980: 357)

While I acknowledge Morzycki's objections on a technical level, given the high incidence of metaphorical nouns that appear to be in the [+big +utter] class (and particularly those of an evaluative and hyperbolic nature), I do not so readily discount the possibility that there is a connection between metaphor and nominal gradability. Indeed, as demonstrated by the examples in (117), the N1 position of the binominal 'N-of-an-N' construction appears to be a particularly fruitful location for [+big +utter] nouns, and metaphors in particular. This structure is

the subject of the following section.

3.4.2 The N-of-an-N binominal NP construction

Bolinger notes that the predication inherent in nouns of his 'degree only' category is made explicit when they are embedded in the 'N-of-an-N' (binominal NP) construction

(118) a. the haven of your arms = your arms are a haven
b. that fool of an engineer = that engineer is a fool
c. the folly of it = it was folly

Bolinger (1972: 75)

He further observes the 'inclusive synonymy' of the N-of-an-N construction. A *howler* is a *mistake* intensified and a *Judas* is an informer intensified, for example.

(119) a. a howler of a mistake
b. a Judas of an informer
c. a whopper of a lie (Bolinger 1972: 84)

The binominal NP structure is discussed in Austin (1980), Aarts (1998), den Dikken & Singhapreecha (2004), Khudyakova (2007), Villalba (2008), Champollion (2010) among others. Aarts (1998: 121) observes that the first noun in the binominal NP structure is 'invariably evaluative' and often used to convey insults.

(120) a. a hell of a problem
b. that plonker of a plumber
c. her nitwit of a husband
d. those fools of doctors
e. a wonder of a city
f. that idiot of a prime minister (Aarts 1998: 118)

Jenks et al. (2016) note the connection between the N1 position noun in the N-of-an-N construction and [+big +utter] Morzycki-nouns such as *idiot* and *disaster*.[106]

[106]The authors observe the similarity between the English N-of-an-N construction and the AN-of-N structure in the Basaá language (Bantu; Cameroon). Basaá ANs ('Adjectival Nouns': Ross 1972) are unequivocally nominal by virtue of their noun class, but can appear in predicate position following the copula *be* with a clear adjectival meaning, despite not following the adjectival rule of agreement with the class of the modified noun. ANs are also capable of acting

(121) a. that idiot of a doctor.
b. the disaster of an election (Jenks et al. 2016: 15)

The (relatively few) examples presented here appear to confirm the suspicion raised in the previous section that the N1 position of the N-of-an-N construction is frequently occupied by a [+big +utter] noun,[107] whether that noun is lexically gradable (*idiot* (121a)), gradable only as an established metaphor (*jewel* (117a)), or capable of exhibiting ad hoc gradability in context (*water melon* (117c)).[108]

3.4.3 Gradable nouns as property concepts

Paradis (2000) considers the development and function of two classes of intensifier that represent broad concepts of 'totality' and 'scalarity'. The totality set includes all of Morzycki's *utter*-class modifiers with the exception of *outright*, meaning that the nouns they combine with on degree readings are by definition either [+big +utter] or (possibly) [−big +utter]. As such, her research is directly relevant to Research Question 3 from section 1.3.

Totality	Scalarity
absolute bliss	an *awful* mess
a *complete* bitch	a *dreadful* coward
a *perfect* idiot	a *horrible* muddle
total crap	a *terrible* bore
utter nonsense	*extreme* pleasure

Figure 3.6: Modifiers of totality and scalarity (Paradis 2000: 233)

Paradis illustrates how both sets of modifiers are on a trajectory of grammaticalization and subjectification[109]from lexical words (ordinary descriptive adjectives) to function words (intensifying degree morphemes), although with the exception of *utter* they are at present still polysemous between ordinary and intensifying readings. The first recorded instances of intensifying uses of each modifier cited in the Oxford English Dictionary (OED) are shown in the following table.[110]

as gradable adjectives.

[107]Clearly this is not a watertight diagnostic, e.g. *the top of a mountain*.

[108]Ad hoc gradability in phrases such as *absolute coat hanger* is discussed in section 3.7.

[109]As defined by Traugott (1995: 31), subjectification is 'a pragmatic-semantic process whereby meanings become increasingly based in the speaker's subjective belief state/attitude towards the proposition'.

[110]The dates are approximate.

utter	1430	*perfect*	1611
horrible	1460	*complete*	1645
extreme	1460	*total*	1647
absolute	1574	*dreadful*	1700
terrible	1600	*awful*	1809

Figure 3.7: First appearance of intensifying uses in the OED (Paradis 2000: 235)

For Paradis, all the modifiers in figure 3.7 (with the exception of *utter*) have two distinct components of meaning, one of which addresses the 'content domain', i.e. ordinary meanings that describe the world, and the other the 'gradable mode of construal', either totality or scalarity. When the modifiers take their intensifying meanings, the content domain is backgrounded and the gradable mode of construal is brought to the foreground; the situation is reversed when the modifiers are used with their ordinary literal meanings (Paradis 2000: 251).

This kind of two-component model allows the modifiers to retain a vestige of their ordinary meanings when they are deployed as intensifiers, which could perhaps explain some of the patterns of lexical choice uncovered by my corpus searches.[111] Generally, however, the effect of backgrounding the 'concept domain' is to remove (almost) all of the modifiers' descriptive capabilities, so that they become subjective appraisals of the degree to which the nominal concept in question is realized, 'epistemic markers' in Paradis's terminology.

> In these phrases [in figure 3.6] the adjectives are specifiers of degree at the same time as they convey an evaluation of the reliability of the proposition, i.e. they are epistemic markers. They are expressive in nature rather than descriptive of the nouns they apply to.
>
> (Paradis 2000: 233)

Most of the example nouns that Paradis cites as being compatible with the intensifiers in figure 3.6 are canonical Morzycki *utter*-class nouns.[112]

(122) bargain, bastard, crap, contempt, darkness, despair, disaster, disgrace, failure, fool, heat, horror, idiot, mess, nonsense, poverty, purity, rubbish,

[111] For example, the striking affinity of *absolute* with deverbal [+big +utter] nouns reported in chapter 4 (*absolute banger*, *absolute howler*, *absolute stinker*, etc.).

[112] On my intuition *heat* is only felicitous with Paradis's 'scalarity' modifiers such as *awful* and *terrible*, not with the 'totality' ones (#*utter heat*).

shame, shit, wanker

(Paradis 2000: 241)

Degree nouns of this kind are atypical nouns, as they act not as references to identify entities, but instead as property concepts that describe entities. The property concepts in question are gradable, carry a positive or negative evaluation and are typically hyperbolic, i.e. they exaggerate or overstate the truth for conversational effect (Paradis 2000: 243–244). Paradis follows other authors cited in this chapter in considering degree nouns as a kind of semantic 'halfway house' between ordinary nouns and adjectives.[113]

> Degree nouns are rather more like adjectives than typical nouns in that they are property concepts, whose main function is to describe a referent. They might be described as adjectives dressed up as nouns.
>
> (Paradis 2000: 252)

Non-degree nouns in contrast appear to have a more complex, multi-dimensional structure. This is in line with Morzycki's (2012b) claim that gradable nouns are partitioned according to whether they are one-dimensional (like *idiot*) and multi-dimensional (like *smoker*).

> [Non-degree] [n]ouns designate complex entities or 'kinds of things', while adjectives designate properties. As Jespersen (1924: 75) points out, nouns tend to involve a large number of properties, whereas adjectives normally designate one property.
>
> (Paradis 2000: 244)

The contrast between the ordinary (Paradis's 'content domain') and degree ('gradable mode of construal') meanings is well-illustrated by the following examples from Athanasiadou (2007), who notes that the variation between the literal meanings of 'completeness', 'perfection', 'absoluteness' and 'totality' in the a. sentences below is completely lacking from the b. examples.

(123) a. The complete works of Shakespeare are on sale.
b. I felt a complete fool.

[113]The notion that [+big +utter] nouns contain an adjectival semantic component contributes to my proposal for resolving Research Question 3 set out in chapter 5.

(124) a. He is the perfect host.
b. He looked a perfect wreck.

(125) a. I have absolute confidence in her.
b. It is absolute rubbish.

(126) a. They advised a total ban on cigarette advertising.
b. He had total contempt for her.

(Athanasiadou 2007: 559)

For Athanasiadou (2007: 559–560), intensifiers are subjective markers that show the speaker's involvement, as well as being specifiers of degree. She makes the interesting observation that the nouns in the 'b' sentences above refer to 'arbitrarily chosen entities' selected for their ability to apply some gradable property to the subject. There is, of course, no inference that the intention was to literally identify the subject as a portion of *rubbish* or as a *wreck*, for example. The nouns are descriptive, rather than referential, and the speaker could have made alternative lexical choices without significantly changing the meaning of the expressions.

Although the origins of the common set of intensifiers studied by Paradis and Morzycki are firmly in the past, the creation of new degree modifiers is still a productive process, as Macaulay's (2006) study of the relatively recent adoption of *pure* as an intensifier by Glasgow adolescents demonstrates.[114] Over the period of the study, between 16% and 22% of the annually-collated examples of *pure* occurred with nouns as in (127), compared to 34% with adjectives.[115]

(127) a. Miss Thompson's a *pure* boot ain't she
b. she's a *pure* lesbian
c. it cost her *pure* a fortune
d. it's *pure* a mess innit
e. they're *pure* murder to get on your feet
f. fitba's *pure* shite man

(Macaulay 2006: 272)

Macaulay notes that (127-e) and (127-f) in particular appear to shift the associated nominals to an 'adjectival function', as do a very high proportion of

[114] Macaulay's data was recorded between 1997 and 2004.

[115] *Boot* in example a. is a derogatory term for a woman, cf. *old boot*. *Fitba* in example f. is a Scottish dialect word for association football/soccer.

occurrences with *shit*(e) and *crap*. While not all instances of *crap* are clearly adjectival, all of them (unsurprisingly) express 'subjective negative evaluations' (Macaulay 2006: 272).

The function of *pure* with compound nouns or NPs is to 'convert them, as it were, into adjectives' (Macaulay 2006: 272).

(128) a. pure pickle brain
b. pure best friends
c. pure smart arse
d. pure bully victim (Macaulay 2006: 272–273)

Of over 50 nouns in his study that collocate with *pure*, Macaulay notes that most are 'evaluative in the way that the adjectives [that collocate with *pure*] are' (Macaulay 2006: 273).

On my intuition, all of the NPs in (127) and (128) (with the possible exception of *best friends* in (128-b)) are [+big +utter] nouns, and as such *pure* could be replaced felicitously with any of Morzycki's *utter*-type or Paradis's 'totality' degree modifiers without substantially altering the meaning of the expressions.

3.4.4 Nouns like *idiot* denote holders of states (Wellwood)

Wellwood (2014, 2015, 2019) cleanly separates the denotations of the three major lexical categories by treating nouns as predicates of **entities**, verbs as predicates of **events** (cf. Davidson 1967, Parsons 1990, Larson 1998) and adjectives as predicates of **states** (cf. Landman 2000, Fults 2006).

While I do not fully adopt Wellwood's analysis, my technical proposal in chapter 5 assumes a similar tripartite classification for nouns, where ungradable nouns denote (sets of) individuals, gradable nouns like *smoker* denote agent relationships between individuals and events, and gradable nouns like *idiot* denote holder relationships between individuals and states. With the exception that my analysis of adnominally modified [+big +utter] noun phrases like *big idiot* is underpinned by the theory of kinds (cf. Gehrke & McNally 2015),[116] the resulting denotation is technically similar to the solution sketched in Wellwood (2019: 170–172).

On Wellwood's analysis, the domain of a gradable adjective like *hot* does not consist of individuals, but of states of heat (Wellwood 2019: 76).

[116]On my theory, a *big idiot* is the realization of a kind of idiot that is distinguished by being the holder of a particular kind of idiocy (cf. Constantinescu 2011: 16,228).

(129) $[\![\text{hot}]\!]^A = \lambda s.\mathbf{hot}(s)$ (Wellwood 2019: 78)

An individual entity is *hot* iff it is the holder of a state of heat. A measurement of temperature is thus not made directly of the individual, but of the embedded heat-state.

As adjectives denote sets of states in Wellwood's theory, additional machinery must be put in place to associate those states with their bearers. Wellwood models the state-holder association by θ-marking. While DPs such as Al (a human individual) are commonly denoted by entities (semantic type e) (130-a), when θ-marked with the *Holder* role they are type-shifted to become predicates of the states held by that individual (type $\langle v, t\rangle$) (130-b).

(130) a. $[\![\text{Al}]\!] = a$

b. $[\![\text{Al}_{[\theta_{Ho}]}]\!] = \lambda s.\text{Ho}(s)(a)$ (cf. Wellwood 2019: 78)

The following diagram illustrates how Wellwood's θ-marking mechanism is able to model the predication of a positive form adjective.[117] θ-marking causes the subject position DP (*Al*) to be type-shifted to fulfil the thematic role of holder (Ho), thus signposting its relationship to the predicate position AP (*hot*) which represents heat-states (St). This move ensures that both ends of the association have the same semantic type $\langle v, t\rangle$, representing sets of states.

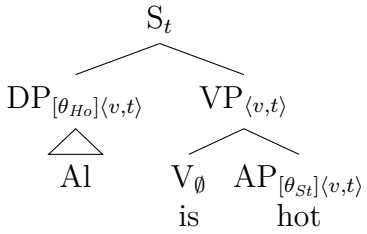


Figure 3.8: Al is hot (cf. Wellwood 2019: 78)

As both *Al* (129) and *hot* (130-b) denote sets of states, they can combine intersectively by Predicate Modification (Heim & Kratzer 1998: 65). A process of existential closure is then assumed to apply at the top of the clause to saturate the open state argument (Wellwood 2019: 24–25), reducing the denotation to the simple expression in (131).

[117] I have adapted the original diagram (Wellwood 2019: 78) as Wellwood's examples focus on explicit comparisons such as *hotter coffee* containing the MUCH$_\mu$ morpheme that introduces degrees in her theory, rather than bare positive form gradable adjectives like *hot*.

(131) Al is hot.
$\exists s(\text{Ho}(s)(a)\ \&\ \mathbf{hot}(s))$ (Wellwood 2019: 84, originally *tall*)

The denotation in (131) abstracts away from the application of the positive standard, which could be modelled using a covert morpheme like ABS or POS.[118]

On Wellwood's account, the measurement operation that underpins grammatical comparison (and hence gradability in general) is dependent on the subject possessing a non-trivial domain with a part/whole mereological structure. Measurement involves a mapping to degrees that is strictly monotonic to the part/whole structure of the entity in question (Wellwood 2019: 76–77), which explains why *hot* is a gradable adjective (*hotter*), but *atomic* is not (*#more atomic*). While there are infinitely many distinct states of heat, there is only a single state (or equivalence class) of 'atomicity', and no meaningful comparison with it is possible.

(132) a. $D_{hot} = \{s \mid s \text{ is a state of heat}\}$
b. $\preceq_{hot} = \{\langle s, s' \rangle \mid s \text{ is as much heat as } s'\}$
(Wellwood 2019: 76–77)

A similar argument can be made in the nominal case for *idiot*, if it is seen to denote the holder of a state of idiocy.

> [W]hat it means to be an idiot is, really, just to instantiate some non-zero amount of idiocy – i.e., to be in a certain sort of state.
> (Wellwood 2019: 170)

Wellwood suggests that the distinction between the size and idiocy readings of a phrase like *big idiot* have (covert) syntactic roots. She observes that while nouns like *idiot* do not combine with comparative morphology,[119] phrases such

[118] Wellwood (2019: 85) suggests that adjectives like *tall* (her original positive form example) may have 'exceedingly weak semantics', perhaps requiring 'pragmatic strengthening' of the kind proposed by Rett (2008) (i.e. Rett's EVAL morpheme).

[119] Cf. Sassoon's (2017a) claim that nominal comparatives require a partitive construction such as *more* ***of a*** *duck*. The adjectival-form comparative constructions are largely ungrammatical with nouns.

(i) #ducker, #duckest, #duck enough, #too duck, #very duck (Sassoon 2017a: 154)

The acceptability of such constructions appears to vary across languages. While the Hebrew equivalents of (i) are equally odd (Sassoon 2017a: 154), they work in Spanish (Louise McNally p.c.).

as *of an idiot* do. She postulates that *idiot* is the spellout of two underlying syntactic structures, plain *idiot* on the size reading (a predicate of individuals) and *of an idiot* on the idiocy reading (a predicate of states). The former denotes the set of individual holders of states of idiocy (133), and the latter the set of states of idiocy that are held by individuals in the evaluation world (134).[120]

(133) $[\![\text{idiot}]\!] = \lambda x_e : \text{Atom}(x).\exists s(\textbf{idiocy}(s)\ \&\ \text{Ho}(s)(x))$

(134) $[\![\text{of an idiot}]\!] = \lambda s_v.\exists x(\textbf{idiocy}(s)\ \&\ \text{Ho}(s)(x))$

(Wellwood 2019: 171)

With these definitions in place, Wellwood (2019: 170–172) is able to sketch out a proposal that distinguishes the semantics of the two phrases as required.

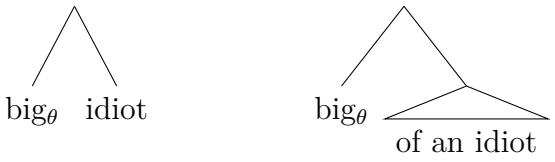


Figure 3.9: Size vs. idiocy readings of *big idiot* (Wellwood 2019: 171)

On the size reading in (135), a *big idiot* is simply an individual who participates in two simultaneous thematic relationships, one as the holder of a state of idiocy, and the other in an unnamed θ-relationship to a state of bigness. In Wellwood's theory, the positive standard is pragmatically assigned if required (Wellwood 2019: 85). We can therefore paraphrase the resulting denotation intersectively as 'x is thematically-related to a state of bigness and x holds a state of idiocy', or more simply as 'x is big and idiotic'.

(135) $[\![\text{big idiot}]\!]$
$= \lambda x.\exists s(\textbf{bigness}(s)\ \&\ \theta(s)(x))\ \&\ \exists s(\textbf{idiocy}(s)\ \&\ \text{Ho}(s)(x))$

In contrast, on the idiocy reading in (136) *big of an idiot* is not a predicate of individuals, but of states. It is an AP whose denotation can be paraphrased as 's' is state of idiocy held by some individual, and that state of idiocy is thematically-related to a state of bigness', or less clumsily as 's' is a state of "big idiocy" held by some individual'.

[120]The precondition : Atom(x) ensures that *idiot* is a count noun and blocks it from combining with *more* on a mass reading.

(136) $[\![\text{big of an idiot}]\!]$
$= \lambda s'.\exists s(\textbf{bigness}(s)\ \&\ \theta(s)(s'))\ \&\ \exists x(\textbf{idiocy}(s')\ \&\ \text{Ho}(s')(x))$
(Wellwood 2019: 171)

As well as the categorial NP/AP distinction, the key semantic difference is that in the second reading *big of an idiot*, the states of bigness are instantiated by states of idiocy (136), not by individual idiots as with the size reading *big idiot* (135), i.e. 'the bigness is about the idiocy, rather than the idiots' (Wellwood 2019: 171).

In summary, this is an interesting proposal that explains the size vs. idiocy (degree) readings of phrases like *big idiot*, and is in accordance with Wellwood's overall division of nouns, verbs and adjectives by virtue of what gets measured in gradable expressions, i.e. the extent of the individuals, events or states in question.

I am somewhat uncomfortable with the notion expressed in (136) that a state of idiocy (s') can enter into an (unspecified) thematic relationship (θ) with a separate state of bigness (s), although this may be a matter of personal analytical preference. In my own denotation of *big idiot* in chapter 5, 'bigness' and 'idiocy' are both predicated directly of a single state held by the individual in question, following the neo-Davidsonian tradition for eventive predicates (e.g. Parsons 1990, Larson 1998).

3.4.5 Extreme adjectives and scale maxima (Morzycki)

An important issue for my analysis is the empirical fact that although [+big +utter] nouns like *idiot*, *genius* and *gem* (as a metaphor) are systematically felicitous with scale maximizers like *complete* and *utter*, there are no obvious limits to the underlying concepts of idiocy, genius or the property of being metaphorically gem-like. As Morzycki (2009: 190) observes, in this aspect the lexical properties of nouns like *idiot* appear to diverge from everyday experience.

As discussed in section 3.2.2 above, Morzycki (2009: 189) proposes a denotation for *complete* that is identical to that for the adverb *completely* (reproduced in (73)), making the assumption that the scales of the predicates it combines with have absolute lexical upper bounds. On this basis, *complete idiot* straightforwardly denotes a maximally-idiotic person located at the very top of the scale of idiocy (75).[121]

[121] As described in section 3.2.3, Morzycki (2012b) replaces the scalar analysis of modifiers

This analysis, however, cannot be correct as stated. The examples in (137) and (138) suggest that the scales of [+big +utter] nouns do not have fixed maxima, otherwise it would not be possible for the individuals in question to become *more of an idiot/nerd* or *more idiotic/nerdy*.[122]

(137) Sam is an utter idiot, and she's becoming {more of an idiot / more idiotic} every day.

(138) Alex is a complete nerd, but Kim is {even more of a nerd / even more nerdy} than he is.

(my examples)

On the other hand, the presence of a maximizing modifier like *utter* or *total* appears to block (or at least hinder) such readings.

(139) a. #Tom is an utter fool, but Kim is even more of an utter fool.
b. ??Maria and John are both total idiots, but Maria even more so.

(Vera Hohaus p.c.)

An alternative approach which I pursue in chapter 5 is to assume that bounded linguistic scales can be subject to two distinct kinds of limit:[123]

(i) true upper and/or lower bounds (Rotstein & Winter 2004, Kennedy & McNally 2005), i.e. a hard objective limits that cannot be exceeded, corresponding to the highest (or lowest) possible degree on the scale for the predicate in question. Examples include a door that is *completely shut* (and cannot be closed any more), and a wine glass that is *totally full* (and would overflow if more wine were added);[124] and

(ii) contextually-imposed upper and lower bounds corresponding to meanings such as 'as idiotic as X can possibly be in the current situation' and 'as foolish as I can imagine X to be in the current situation'. This kind of scale

like *complete* with an argument based on dimensionality (which I also reject, for the reasons stated).

[122]The alleged felicity of both examples is based on my intuition alone.

[123]Vera Hohaus (p.c.) notes that recent literature on plurality could provide an alternative analysis, and in particular that the use of Schwarzschild's (1996) concept of 'minimum sum covers' might avoid having to assume that the underlying scale has an upper bound. See Nouwen (2016) for a handbook-level overview of work on plurality up to 2016.

[124]See McNally (2011) regarding the semantics of *completely full* applied to artefacts with conventional fill levels such as wine glasses.

allows endpoint-oriented modifiers such as *utter* and *complete* to combine felicitously with upper-open evaluative [+big +utter] predicates like *idiot* and *fool* that are not subject to the kind of hard limit referred to in (i).[125]

My analysis of the [+big +utter] nouns in chapter 5 assumes that the contextual readings described in item (ii) above arise because of the strong association between [+big +utter] nouns and *utter*-type modifiers (*utter idiot* etc.), which appears to mirror that between extreme adjectives (EAs) and the modifiers they combine with (*utterly idiotic* etc.). As such, my proposal broadly follows Morzycki's (2012a) treatment of the scalar behaviour of EAs such as *gorgeous* and *fantastic* described below, although it uses a different way of modelling the 'contextually imposed limits' referred to above, namely an equivalence class of maximal degrees, rather than distinct degrees greater than a salient maximum point.

As Morzycki notes, one aspect of EAs is that they do not readily combine with ordinary level modifiers of adjectives such as *very*, but require correspondingly extreme degree modifiers (EDMs) like *totally* and *completely*. A key insight is that EDMs provide open-ended scales with a 'kind of maxima' that 'might as well be a single degree'.

> [Maximizers like *totally* and *completely*] do not provide EAs with closed scales, but they do provide them with a kind of maximum. This is because all degrees beyond the perspective scale are, for the purposes of a discourse, undifferentiated. They might as well be a single degree. (Morzycki 2012a: 601)

Morzycki uses a speedometer metaphor to illustrate this concept, my interpretation of which is shown in figure 3.10. The gauge only indicates speeds that are relevant to the driver of such a vehicle, the 'perspective scale' mentioned in the above quote. Extreme speeds above the contextually salient range fall into a 'zone of indifference' that is simply not indicated on the gauge, and can be considered to be collapsed into a single off-the-dial 'way too fast' point.[126]

[125] Vera Hohaus (p.c.) suggests that the context-dependent limits might arise because of the ad hoc nature of the the scales involved, which do not have a standardised unit of measurement.

[126] The example vehicle (my VW Polo 1.2) would be incapable of reaching anything like the top marked speed of 160 MPH, even if it were lawful in this country! Speeds beyond this are clearly excessive and irrelevant to the ordinary motorist, which illustrates Morzycki's point.

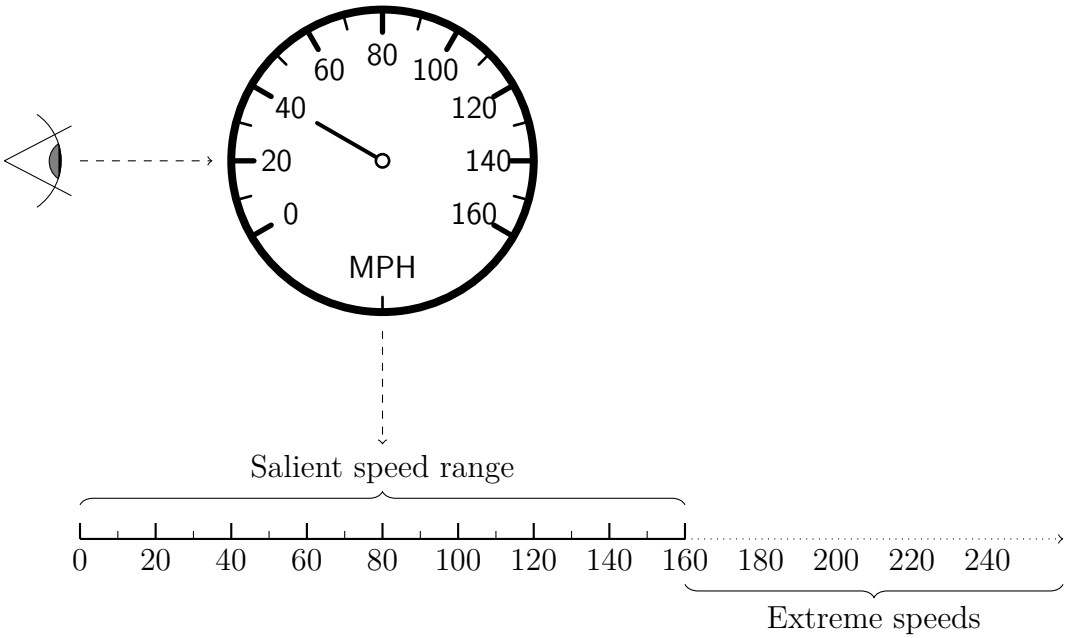


Figure 3.10: Vehicle speedometer as a metaphor for extreme degree modification

In my analysis of *utter*-type modification in chapter 5 I build on this concept by considering that [+big +utter] nouns have two scales, one an unbounded objective scale of degrees, and the other (corresponding to Morzycki's 'perspective scale') a scale of equivalence classes, whose maximum degree is the equivalence class of all degrees equal or higher than that point on the objective scale.

The full details of Morzycki's analysis are not relevant to my proposal, as it addresses issues that are out of the scope of this thesis. The key point, however, is that there are both ordinary level predicates restricted to contextually-salient degrees (his 'perspective scale') and also extreme predicates that target degrees in the (potentially unbounded) band above the contextually-salient range. The key concept I take from Morzycki (2012a) is that in contexts where we are unwilling or unable to distinguish degrees in that extreme range ('way too fast' on the speedometer metaphor), they can be treated as a single maximum point, and more specifically as an equivalence class of degrees.

According to Morzycki, ordinary gradable adjectives like *big* are subject to a domain condition restricting them to the contextually-salient range (supplied via variable C).[127]

[127]As Morzycki notes, the range restriction might be better modelled as a presupposition, that turns the denotations into partial functions. This could be achieved using the domain condition modelling technique from Heim & Kratzer (1998: 34).

(140) $[\![\text{big}_C]\!] = \lambda x \lambda d.d \in C \wedge x \text{ is } d\text{-big}$ Morzycki (2012a: 584)

Depending on the context, speakers may decide that *big* is not sufficiently expressive to refer to exceptionally high magnitudes of the predicate in question, in which case degrees above the salient band (those greater than $\mathbf{max}(C)$) must be referred to using an appropriate extreme adjective such as *gigantic*. Extreme adjectives like *gigantic* carry a domain restriction that limits them to this extreme range.

(141) $[\![\text{gigantic}_C]\!] = \lambda x \lambda d.d > \mathbf{max}(C) \wedge x \text{ is } d\text{-big}$
Morzycki (2012a: 584)

The reluctance to differentiate between the degrees represented by extreme predicates is illustrated by *very*, which is clearly felicitous with *big*, but less so with *gigantic* where an extreme degree modifier would normally be deployed, e.g. *utterly gigantic* in preference to ?*very gigantic*.

Although I do not use the above denotations in my own analysis, they embody Morzycki's principle that the (possibly unbounded) range of degrees above the salient band on a scale can be regarded as a 'kind of maximum [that] might as well be a single degree' (Morzycki 2012a: 601). This is precisely the approach I take with my equivalence-class based proposal in chapter 5.

3.5 Multi-dimensional predicates (Sassoon)

This section briefly reviews Sassoon's theory of multi-dimensional adjectives, (Sassoon 2007, 2013a,b, 2017b) with the principal aim of investigating how aspects of it can be applied to gradable nouns of the [+big +utter] class.

The essence of her proposal is that the truth conditions of multi-dimensional adjectives like *healthy* and *sick* involve combining dimensions by logical rules constructed from simple Boolean operations and quantifiers ($\wedge$, $\vee$, $\neg$, $\exists$, $\forall$, etc.). In contrast, she suggests that the dimensions of (most) nouns are bound by similarity-based distance calculations involving numeric, rather than logical, operations (Sassoon 2017a). The latter is a prototype-based theory in the tradition of cognitive psychology, where nouns are generally considered to be gradable, in the sense that an entity can be more or less typical of a given nominal concept (e.g. Rosch 1973, Wattenmaker 1995, Hampton 1998, Hampton et al. 2009).

The importance of Sassoon's adjectival theory to the nominal case considered in this thesis is her additional claim that the dimensions of some 'exceptional nouns' (including animate-evaluative 'social nouns' of the *idiot* and *bastard* variety) are also bound by logical rules in cases where categorization is not based on similarity to a prototype, but on dimension counting. This occurs where a noun's truth conditions amount to a simple unweighted 'check list' of properties, just as is the case with multi-dimensional adjectives like *healthy* and *sick*. Categorization under the noun will then depend on some kind of quantification over those properties, perhaps existential (∃), universal (∀), or a calculation such as 'many' or 'most'.

While Morzycki (2012b) contends that [+big +utter] nouns like *idiot* are one-dimensional, on Sassoon's diagnostics an individual can be shown to be an idiot in multiple 'respects' (de Vries 2010, Rutland 2017).[128] The intuition I wish to follow is that one interpretation of phrases like *complete idiot* is that they involve universal quantification over the salient set of dimensions, in a similar way that to be *completely healthy* is to be 'healthy in all respects' in the adjectival domain.

Sassoon's theory provides theoretical and diagnostic support for the intuition that gradable nouns like *idiot* and *genius* differ fundamentally not just from ordinary non-gradable nouns like *bird*, but also from gradable nouns of the *smoker* and *eater* variety. It also accords with the intuition (shared with several other authors cited in this chapter) that the [+big +utter] category of nouns is semantically more 'adjective-like' than ordinary nouns.

Crucially, as Sassoon's tests for multi-dimensionality in adjectives are semantically (rather than syntactically) based, they are cross-categorial and directly applicable to nominal cases (Rutland 2017: 52). In particular, her *with respect to* and *except* diagnostics appear to distinguish cleanly between Morzycki's *idiot* and *smoker* classes of nominal (de Vries 2010: 49–50). As explained in chapter 5, this leads to a plausible explanation of their respective felicity and infelicity with maximizing degree modifiers.

(142) a. idiot in every respect
b. #smoker in every respect

(143) a. idiot except for being brilliant at maths

[128] I treat Sassoon's use of 'respect' as being synonymous with Morzycki's 'dimension', although as Morzycki (2012b: 192) himself points out, it is not always clear what different authors mean by the term.

b. #smoker except for hating cigars

3.5.1 Multi-dimensionality and the *respect* argument

The empirical research documented in Sassoon (2013a) provides support for the hypothesis that the dimensions of multi-dimensional adjectives like *healthy* and *sick* are bound by Boolean operations and quantifiers, rather than (say) some kind of numerical averaging calculation.[129] On this hypothesis, to be *healthy* it is necessary to be 'healthy in every respect', i.e. to meet the standard for health on all contextually-salient dimensions. Conversely, to count as *sick* an individual need only reach the standard for sickness on a single dimension by being 'sick in some respect' (Sassoon 2013a: 339).

Sassoon proposes that the felicity of multi-dimensional adjectives with phrases such as *in every respect* is explained by the presence of an optional *respect* argument in their denotations. If present, this argument (Q in (144)) must correspond to a contextually-salient dimension of the adjective to ensure felicity, for example *blood pressure* in the context of *healthy* or *sick*.[130]

(144) $[\![\text{healthy with respect to}]\!]^c = \lambda Q \lambda x.\mathbf{healthy}(x, Q)$

where $Q \in \mathbf{DIM}(\mathbf{healthy}, c)$ (Sassoon 2013a: 337)

On this basis, the fact that there are many 'respects' (corresponding to conceptual dimensions) in which one entity can be *identical* to another, or in which an individual can be *intelligent* or *good*, is reflected in the availability of a *respect* argument in the predicates' denotations (145-a,b). The argument can be selected grammatically in various ways, for example by *with respect to* Q in (145-a) or by *in* Q in (145-b). In contrast, no *respect* argument is available to be saturated with a one-dimensional adjective like *long*, which explains the infelicity of (145-c) and (145-d).[131]

[129] A binding operation based on averaged similarity is one of the alternative hypotheses presented in Sassoon (2013a: 340) to explain the same phenomena.

[130] The dimension is represented by the full modified NP, e.g. *healthy with respect to blood pressure* or *sick with respect to blood pressure* (Sassoon 2007: 182). While it can be measured, by itself 'blood pressure' is not a dimension of health or sickness.

[131] *Long* in examples c and d can be understood to be either polysemous between distinct one-dimensional adjectives, or a single lexical entry that projects a temporal or spatial dimension depending on context. The latter appears to be Sassoon's interpretation (Sassoon 2013a: 336).

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

(Sassoon 2013a: 337, d. slightly altered)

Where a *respect* argument is available, it can be freely manipulated by quantifiers like *all*, *most*, *three*, *some*, etc. (146-a,b). As in (145), the infelicity of examples (146-c) and (146-d) is explained by the adjective *long* being one-dimensional; as such, there is no variable in scope for the quantifiers to bind.

(146) a. The boxes are identical in {all, most, three, some} respects.
b. Dan is {generally, otherwise, all in all} healthy.
c. #The table is long in {all, most, three, some} respects.
d. #The wedding/table is {generally, otherwise, all in all} long.

(Sassoon 2013a: 338)

3.5.2 Conjunctive and disjunctive dimension binding

In the absence of an explicit *respect*-manipulating phrase, the dimensions of bare forms of multi-dimensional adjectives are subject to a default binding operation (Sassoon 2013a: 338–339).

Following the hypothesis that dimensions are bound by logical rules, *healthy* and *sick* are canonical examples of multi-dimensional adjectives that are, respectively, *conjunctive* (bind their dimensions by universal quantification), and *disjunctive* (bind their dimensions by existential quantification). A third category of adjectives such as *intelligent* can behave conjunctively or disjunctively depending on context (Sassoon 2013a: 340).

The default interpretation of a conjunctive adjective like *healthy* involves an implicit universal quantifier e.g. x is healthy iff x is healthy in **every** respect. Sassoon's research supports the intuition that conjunctive adjectives are often positive antonyms and maximum-standard (total) predicates (Sassoon 2013a: 362, Sassoon 2013a: 373).[132]

[132]Adjectives that are 'clearly conjunctive' such as *normal*, *typical*, *healthy*, *familiar*, and

(147) **Conjunctive dimension binding** (e.g. *healthy*)
$P \iff \lambda x.\forall Q \in \mathbf{DIM}(P) : Q(x)$ (Sassoon 2013a: 339)

Conversely, the default interpretation of a disjunctive adjective like *sick* involves an implicit existential quantifier e.g. x is sick iff x is sick in **at least one** respect. Sassoon's research suggests that negative antonyms and minimum-standard (partial) predicates often default to disjunctive dimension binding (Sassoon 2013a: 373, Sassoon 2013a: 362).

(148) **Disjunctive dimension binding** (e.g. *sick*)
$P \iff \lambda x.\exists Q \in \mathbf{DIM}(P) : Q(x)$ (Sassoon 2013a: 339)

The alternation in binding logic is arguably a reflection of antonymic behaviour, as is intuitively the case with *healthy*/*sick*, *normal*/*abnormal*, *typical*/*atypical*, etc.

3.5.3 Multi-dimensionality in adjectives and nouns

Sassoon's (2013a) key empirical generalization is that prepositional phrases dependent on *respect* arguments are felicitous with multi-dimensional adjectives, but not with one-dimensional adjectives or (ordinary) nouns. The examples in (149) and (150) illustrate some typical multi-dimensional adjectival cases.

(149) a. healthy with respect to blood pressure
b. good in math
c. healthy in {some, most, every} respect(s)
d. different in three respects

(150) a. healthy except for high cholesterol
b. identical except in two respects, size and color
c. perfectly healthy
d. {mostly, completely, totally} different

(Sassoon 2017b: 296, reformatted)

healthier have positive polarity, whereas 'clearly disjunctive' adjectives like *bad*, *sick*, *atypical*, *abnormal*, and *different* are all negative (Sassoon 2013a: 362).

Modification by *perfectly* appears to be a reliable probe for both conjunctive dimension binding and maximum standard (total) scalar adjectives (Sassoon 2013a: 373, cf. Rotstein & Winter 2004, Kennedy & McNally 2005).

In contrast, respect phrases of the kinds in (150) and (149) are in general unacceptable with nominal predicates (151), (152). Such examples support Sassoon's generalization that (ordinary) nouns do not project *respect* arguments.

(151) a. #bird with respect to size
b. #dog in movement
c. #tiger in {some, most, every} respect(s)
d. #table in three respects

(152) a. #is a bird except for size
b. #is a snake except in two respects, length and color.
c. #perfectly (a) pine
d. #{mostly, completely, totally} a duck

(Sassoon 2017b: 296, reformatted)

The significance for my research is that while gradable nouns of the *smoker* type follow Sassoon's generalization for ordinary nouns as expected, gradable nouns of the *idiot* type appear to meet her criteria for 'exceptional nouns' (Sassoon 2007: 200, Sassoon 2017b: 313–314). Just as with multi-dimensional adjectives like *healthy* or *sick*, the application of a *with respect to* phrase to a noun like *idiot* produces a dimensionally-restricted nominal by selecting from the contextual set of dimensions projected by the base predicate (Sassoon 2013a: 338, see also de Vries 2010: 49).

(153) Dan is an idiot $\left\{\begin{array}{l}\text{with respect to money}\\ \text{in every respect}\\ \text{except with respect to money}\end{array}\right\}$.

(154) The conference was a success $\left\{\begin{array}{l}\text{with respect to the quality of the papers}\\ \text{in every respect}\\ \text{except for the papers}\end{array}\right\}$.

(Sassoon 2007: 200, reformatted)

Sassoon also notes that such 'exceptional nouns' accept *for* arguments.

(155) a. #Tweety is a bird for a water-bird.
b. The conference was a success for a student conference.

(Sassoon 2007: 200, reformatted)

At first sight the *for* diagnostic appears to follow the *with respect to* and *except* tests in separating the [+big −utter] and [+big +utter] classes of nouns, although I did not investigate this possibility further.

(156) a. #Sam is a smoker for such a young man.
b. Alex is a genius for such a young woman.

Gradable nouns in the *idiot* class tend to denote social concepts (rather than natural kinds), and typically express the speaker's evaluation of the individual, entity or event concerned (Sassoon 2017b: 314). Their exceptional behaviour can perhaps be explained by their close (semantic) similarity to adjectives.[133]

> In sum, nouns carrying expressive or evaluative components such as *idiot*, *coward*, *hero* or *child* in its metaphoric sense, get as close to gradable adjectives as nouns can (Constantinescu 2011: 49–96), perhaps because they have adjectival dimensions.
>
> (Sassoon 2017b: 314)

At a technical level, Sassoon suggests that such 'social nouns' represent the unique case where distance to the noun's prototype can be calculated by quantification / dimension counting (Sassoon 2017b: 298).

The close association between noun and adjective is obvious with morphologically-related pairs such as *idiot*/*idiotic* and *success*/*successful*.[134,135]

(157) Dan is $\left\{\begin{matrix}\text{an idiot}\\ \text{idiotic}\end{matrix}\right\}$ with respect to money.

[133]The apparent semantic relationship between *idiot*-type nouns and adjectives is noted by several authors cited in this chapter, including Bolinger (1972: 84–85,283), Paradis (2000: 241,252), Macaulay (2006: 273), Sassoon (2007: 200) and Sassoon (2017b: 313–314).

[134]The association does not have to be derivational. McCawley (1987) notes that evaluative nouns like *bitch* can mimic the semantic behaviour of an adjective like *tough* in the N-of-an-N structure.

(i) a. *Ulysses* is a tough book for freshmen to read.
b. *Ulysses* is a bitch of a book for freshmen to read.

(McCawley 1987: 461)

[135]Louise McNally (p.c.) notes the close association between adjective and noun in Spanish examples such as *es ignorante/un ignorante* and *una idea imbécil/un imbécil*.

(158) The conference was $\left\{\begin{matrix}\text{a success}\\\text{successful}\end{matrix}\right\}$ in every respect.

(cf. Sassoon 2007: 200, adjectives added)

Given that nouns like *idiot* appear to be semantically more adjectival than ordinary nouns, their felicity with *with respect to* phrases is perhaps not so surprising.[136] Applying her *with respect to* test to [+big +utter] nouns provides independent theoretical support for de Vries's and the writer's intuitions that (*contra* Morzycki) this class of noun is not one-dimensional.

(159) a. Maxwell is a nerd with respect to his computer skills.
b. Vernon is an idiot with respect to his political views.
c. #John is a goat cheese enthusiast in two respects.[137]

(Sassoon 2015: 5 based on de Vries 2010: 49)

In summary, Sassoon's diagnostics appear to distinguish cleanly between the [+big +utter] class and other nouns (including those in the [+big −utter] class), arguably because the *respect* argument binds the (multiple) dimensions of the embedded adjectival component within the 'exceptional noun' *idiot* (= *idiotic person*), which it cannot do so with a (one-dimensional) deverbal eventive noun like *smoker* (= *person who smokes*), or a completely ungradable noun like *house* which projects no dimensions at all.

I use this theoretical result in chapter 5 to construct a denotation for *complete idiot* based on existential quantification over dimensions that is roughly paraphrasable as 'idiot in every respect' (although I do not claim that the two expressions are equivalent). This contrasts with the alternative scalar denotation also presented in chapter 5 which interprets *complete idiot* as meaning (equally

[136] English is not the only language in which *idiot* and similar nouns are exceptional. Sassoon notes that in Hebrew, animate nouns like *idiot* behave like morphological adjectives by allowing the copula (*hu*/*hi*) to be omitted, and by requiring gender agreement with their subjects.

(i) a. Dan (hu) yarok [Dan is $\text{green}_{\text{MASC}}$]; Beth (hi) yeruka [Beth is $\text{green}_{\text{FEM}}$].
b. Dan #(hu) cipor [Dan is a bird]; Beth #(hi) cipor [Beth is a bird].
c. Dan (hu) idiot [Dan is an $\text{idiot}_{\text{MASC}}$]; Beth (hi) idiotit [Beth is an $\text{idiot}_{\text{FEM}}$].

(Sassoon 2007: 200)

[137] I do not find this example unacceptable. As previously noted, corpus evidence in chapter 4 suggests that *enthusiast* is a a [+big +utter] noun (e.g. *complete cat enthusiast*), and therefore it ought to project a *respect* argument.

roughly) 'as idiotic as he or she can be'.[138]

3.6 Does nominal gradability exist? (Constantinescu)

> [T]here is no conclusive evidence to support an analysis of size adjectives as degree modifiers.
>
> (Constantinescu 2011: 173)

While the point of departure of this thesis is that the empirical data presented in chapter 2 and chapter 4 provides convincing evidence of the existence of gradability in English nouns conceptually, there is an argument (most notably defended by Constantinescu 2011, 2013) that such examples can be adequately explained by existing well-established linguistic mechanisms, without the need to introduce additional theoretical machinery like scales and degrees into the semantics of nouns.

Constantinescu (2011: 46) claims that nominal gradability is 'an illusion, rather than a grammatical reality'. For her, the process of adnominal degree modification as proposed by Morzycki simply does not exist, and the phenomena purported to demonstrate it can instead be explained as kind-based effects. In essence, her suggestion is that possession of a high degree of the property lexically encoded in a noun's meaning creates 'salient sub-types that can be identified by natural consequences' (Constantinescu 2011: 228). On this basis, *big idiot* is 'a sub-type of idiot as defined by a high degree of idiocy' (Constantinescu 2011: 228).

A type/kind-based theory of nominal gradability such as she proposes has no need to involve the manipulation of the kinds of structures found in gradable adjectives (Constantinescu 2011: 142). With size adjectives like *big*, the observed phenomena of gradability result from subtype inclusion, not manipulation of degrees per se. 'Size adjectives are always size adjectives', and on their alleged 'degree' readings they act as modifiers of abstract size (Constantinescu 2011: 182).

Constantinescu investigates several distinct kinds of behaviour which previous authors have cited as examples of gradability in nouns. She focuses in particular

[138] See Umbach & Gust (2014) for an alternative approach to dimensionality in adjectives and nouns based on similarity and the generation of ad hoc kinds.

on nouns like *idiot* ('type A' nouns in the 2013 paper), which for her denote 'individuals characterized by an abstract property' and abstract mass nouns like *idiocy* which denote the properties held by such nouns ('type B' nouns).[139] The other category of primary interest to my own research consists of eventive nouns like *smoker*, which I have denoted as type D in figure 3.11.

Type	Meaning	Examples
A	Individuals characterized by an abstract property	idiot, coward, genius
B	Abstract mass nouns which denote properties	idiocy, courage, wisdom
(C)	Abstract objects characterized by a property	problem, failure, blunder
(D)	Nouns used with a figurative interpretation	palace, clown, gem
(E)	Individuals characterized by an event (typically holders of the Agent θ-role)	eater, smoker, drinker

Figure 3.11: Categories of gradable noun (Constantinescu 2011, 2013)

An important part of Constantinescu's dismissal of Morzycki's position is that there appear to be many exceptions to his key empirical generalizations which support his theory, namely the Position Generalization and the Bigness Generalization.

She notes that in the following examples the adjective appears in predicate position, grammatically separate from the noun whose properties it is claimed to modify. Despite this, the expressions appear to convey an intensifying sense of the kind held to indicate nominal gradability, suggesting a breach of Morzycki's Position Generalization.

(160) a. Harvey realized that the mistake was pretty big.
b. When I lived there over 5 years ago, the [stray and feral cat] problem was huge.
c. For Peter, that failure was big, maybe too big to overcome.
d. The success was huge.
e. The mess left behind was huge.

(161) a. His sorrow was enormous.

[139] Although Constantinescu does not explicitly label the other categories of noun she identifies, I have provisionally labelled them as types C–E in figure 3.11 for convenience.

b. Her generosity was great.

(Constantinescu 2011: 170–174)

The examples in (160) and (161) seem to fall into Morzycki's exceptional category of 'abstract size readings', and hence would probably not be considered to be 'true degree readings' on his theory (Morzycki 2005: 121). However, Constantinescu suggests that the situation is not quite so straightforward. The following examples (some of which have similar interpretations in English and French) illustrate situations where one (but not both) of the Position and Bigness Generalizations appears to hold. These facts are difficult to explain based on a single phenomenon of 'abstract size'.

With *courage* and *mess* (both 'type B' nouns in figure 3.11) the Bigness Generalization holds (resistance to degree modification by adjectives of 'smallness') (162), but the Position Generalization does not (degree modification by adjectives in predicate position) (163).

(162) a. un grand/ *petit courage
a big/ small courage
b. a huge/ *small mess[140]

(163) a. Son courage était grand.
his courage was big
b. The mess they left behind was huge.

(Constantinescu 2011: 180)

In contrast, with *eater* and *stamp-collector* (which I label as 'type (E)' in figure 3.11) the Bigness Generation does not hold (degree modification by adjectives of 'smallness' is possible), but the Position Generalization does (no degree modification occurs in predicate position).

(164) a. un grand/ petit mangeur
a big/ small eater
b. a big/ small stamp-collector

(165) a. Ce mangeur est grand/ petit.
this eater is big/ small
b. That stamp-collector is big/ small.

(Constantinescu 2011: 180)

[140] On my intuition ?*a small mess* is not obviously infelicitous, e.g. *The oil spill made a huge/small mess.*

Constantinescu (2013: 186) makes the interesting suggestion that Morzycki is not necessarily correct when he suggests that abstract readings take identical meanings in both attributive and predicate positions (and hence breach the Position Generalization). While it is obvious that there are two different interpretations of the attributive phrase *big idiot* (where Constantinescu classifies *idiot* as a 'type A' noun) corresponding to size and (degree of) idiocy, on her account it is also reasonable to conjecture that there are also two different interpretations with 'type B' nouns such as *generosity*.

The difference could simply be that with phrases such as *enormous generosity*, the degree and non-degree readings are still present, but are 'virtually indistinguishable' (Constantinescu 2013: 186), i.e. that the Position Generalization still holds, although we cannot readily detect it.

Constantinescu follows authors from Bolinger (1972) onwards in observing that certain words including *such* and exclamatives like *what* appear to elicit degree readings. She notes Bolinger's observation that the dimension of measurement in such cases may be *internal*, i.e. lexically specified by the noun as in (166-a) and (166-b), or *external* (specified by context).

(166) a. We cannot hire such an **idiot**! (internal: *idiocy*)
b. Such a **person** always frightens me!
(external: some contextually-relevant dimension)

(Constantinescu 2011: 25)

On Constantinescu's analysis, *such* is not a degree operator at all, but rather a selector of 'salient sub-types that can be identified by natural consequences' (Constantinescu 2011: 46). Example (166-a) thus refers to a specific subkind of idiot whose instances are deemed to be unemployable, rather than to the possession of an unemployable degree of idiocy. If, as claimed, (166-b) relates to a contextual dimension external to the noun's lexical specification, then it cannot represent nominal intensification, and is irrelevant to the current argument.

While admitting that *wh*-exclamatives such as *what* 'involve an operator that needs to apply to a gradable property' (Constantinescu 2011: 146), she contends that these operators bind to some 'contextually salient property' which may or may not be part of the denotation of the noun, i.e. they do not combine directly with the noun, which in consequence does not need to project a degree argument.

(167) a. What an idiot they hired!
b. What a genius he was! (Constantinescu 2011: 143)

Constantinescu (2011: 7-8) notes that in some circumstances adjectives like *Italian* (which is at first sight a binary predicate) can appear to be shifted into a gradable meaning.

(168) He is so Italian! (Constantinescu 2011: 7)

This process is what Matushansky (2002) refers to as 'scalarity coercion', where the presence of a degree operator like *so* forces a gradable interpretation on a predicate such as the adjective *wooden* in (169-b) that would normally not permit gradation.

(169) a. This house is so old/charming/red that every tourist photographs it.
b. #This house is so wooden that every tourist photographs it.
(Matushansky 2002: 235)

Scalarity coercion would seem at first sight to be a viable explanation for the acceptability of phrases such as *You absolute coat hanger!*, a possibility I investigate in section 3.7.

On Constantinescu's (2011) account, the truth conditions of nouns that denote individuals characterized by a multi-dimensional property like *idiocy* involve dimension counting, not positions on scales.

(170) a. The workshop was a complete failure.
b. The failure was complete. (Constantinescu 2011: 222)

She explains her interpretation of (170-a) as follows.

> If the workshop fails in any of [the] respects that the speaker considers most important, then a sentence like [(170-a)] may be felicitously uttered. In other words, that would be salient enough an indication that the situation qualifies as a failure; it would be sufficient for it to be a clear case of failure in the speaker's view.
> (Constantinescu 2011: 222)

In other words, the statement's truth conditions amount to quantification

over salient dimensions. This is a presumably a subjective position, as other interlocutors may not agree that this particular set of dimensions is definitive of a successful event.[141]

In contrast, she claims that (170-b) indicates a failure in *all* respects (including non-salient ones), i.e. the failure is *complete* taking into account the mereological structure of the workshop, and so all parts were considered a failure. Accordingly, (170-b) would be infelicitous in a partial failure scenario, unlike (170-a).

This argument appears similar to Sassoon's (2007) theory of *respect* arguments, and specifically that 'social' nouns like *idiot* are more likely to be amenable to simple (unweighted) dimension counting than nouns denoting (say) animals and plants.

Constantinescu (2013: 190–192) proposes a technical analysis whereby 'type B' nouns like *generosity* and *idiocy* are considered to be (kinds of) tropes in the sense of Moltmann (2004a,b, 2007, 2009), or equivalently instances of properties Nicolas (2004, 2010). Tropes are 'particularized properties, concrete manifestations of properties in individuals' (Moltmann 2009: 51). *Mary's generosity* in (171-c) is unique to Mary, and distinct from anyone else's generosity.

(171) a. Generosity is rare/ widespread. [kind of trope]
b. #Generosity is enormous. [kind of trope]
c. Mary's generosity was enormous. [trope]
(Constantinescu 2013: 190)

Constantinescu suggests that the unacceptability of (171-b) is due to size adjectives being 'stubbornly distributive' modifiers as proposed by Schwarzschild (2009). I discuss this issue in more detail in chapter 4 in relation to the apparent reluctance of size adjectives to premodify certain abstract mass nouns that was uncovered by my corpus searches.

A key feature of tropes is that they are specific to a particular individual. On this basis the trope-kind *generosity* can be modelled as a relationship between the trope itself (p) and the individual in which it is located (x), e.g. $\mathbf{generosity}(p, x)$ (cf. *wisdom*, Nicolas 2004: 201). A second important attribute of tropes is that they have size (abstract or physical), and can thus be measured by size adjectives,

[141] Constantinescu (2011: 224 fn.) suggests that the denotation of phrases involving maximizers such as *complete N* should probably be relativized to a judge, although she doesn't pursue that line of thought further in her thesis.

e.g. **enormous**(p) on a measure function analysis of expressions like (171-c) (Constantinescu 2013: 190).

In contrast, 'type A' nouns like *idiot* denote the (sets of) individuals in which such properties are instantiated (Constantinescu 2013: 191).

(172) $[\![\text{idiot}]\!] = \lambda x \lambda p[\mathbf{idiot}(x, p)]$ (Constantinescu 2013: 191).

As Constantinescu (2013: 191) observes, the argument structure of *idiot* in (172) allows either the referential argument or the trope argument to be manipulated by a modifier like *big*, resulting in the size or idiocy readings respectively.

(173) a. $[\![\text{huge idiot}]\!] = \lambda x \lambda p[\mathbf{idiot}(x, p) \wedge \mathbf{huge}(x)]$ (size)
b. $[\![\text{huge idiot}]\!] = \lambda x \lambda p[\mathbf{idiot}(x, p) \wedge \mathbf{huge}(p)]$ (idiocy)
(Constantinescu 2013: 192, example a added for completeness)

This is similar to the relational neo-Davidsonian analysis of *Olga is a beautiful dancer* in Larson (1998), where different readings obtain depending on whether the referential or (in this case) event argument is modified by *beautiful*.

Constantinescu's denotation for *huge idiot* in (173-b) is similar to that used in my own proposal set out in chapter 5, save that I adopt an explicit kind-based approach based on Gehrke & McNally (2015), and where the notion of *idiocy* is represented by states (as in Wellwood 2019), rather than tropes. I also set my own solution firmly within a degree-theoretic framework, contrary to Constantinescu.[142] These decisions are, however, primarily based on personal analytic preferences and a desire for consistency between the denotations for [+big −utter] and [+big +utter] nouns. A trope-based analysis as proposed by Constantinescu could, however, provide a strong alternative.[143]

3.7 Scalarity coercion of ungradable nouns

This section examines mechanisms mentioned in the literature that could explain how otherwise ungradable nominals like *coat hanger* can exhibit degree effects

[142]Tropes (unlike states) are directly comparable, with no obvious need to introduce degrees e.g. *John's happiness is greater than Mary's happiness* (Moltmann 2005: 158).

[143]Louise McNally (p.c.) observes that a trope-based analysis could have significant advantages over a state-based approach, such as explaining why temporal properties such as duration and frequency contribute so readily to categorization under *big smoker*, but not under *big idiot*.

in certain contexts, most noticeably as discussed in section 2.4 with maximizing modifiers like *absolute*.

> you can make nearly any object into a good insult if you put 'you absolute' in front of it
> example: you absolute coat hanger
>
> (asexualbrittaperry, blog post; repeated from section 2.4)

The apparently ad hoc felicity of *absolute* with the nouns mentioned in the blog cited above (*coat hanger, floorboard, cereal bowl, stop sign* and *coffee cup*) suggests that the [+big +utter] nouns are very much an open category available to be exploited by the creative language user.

A conjecture is that this phenomenon is related to the ability of normally ungradable adjectives like *choral* to combine with gradable modifiers like *seems* (174) and modifiers that target scale bounds such as *almost* and *pretty much* (175).

(174) a. The music seems nice/*choral.
b. The problem seems insoluble/*mathematical.

(175) a. The music seems almost choral.
b. The problem seems pretty much mathematical.

(Matushansky 2002: 231 citing Bolinger 1972)

Matushansky (2002) refers to this process as 'scalarity coercion', a form of type-shifting that allows a degree operator to combine with an otherwise-ungradable noun (cf. Constantinescu 2011: 28,68, Bylinina 2011).

> Attempting to combine a nonscalar adjective with a degree modifier in [(175)] results in a type mismatch. The repair strategy used in this case is a typeshifting operation called scalarity coercion, which changes the meaning of the nonscalar adjectives in [(175)] so that they can be interpreted as scalar.
>
> (Matushansky 2002: 231)

Rett (2015: 7) (citing Krifka 1989) comments that such coerced interpretations always require a homomorphism from an available scale to a scale of degrees. As she explains, instead of requiring Skye to be *pregnant* to a greater degree

than Leah (177-b) (which is impossible with a binary predicate like *pregnant*), their respective pregnancy states are coerced onto a temporal scale. Similarly, the comparison based on being *more Australian* in (177-a) gets coerced onto a prototypicality scale of Australian traits, rather than being related to the binary state of nationality.

(176) a. Skye is really/very Australian. (non-gradable)
b. Skye is really/very pregnant.

(177) a. Skye is more Australian than Leah. (non-gradable)
b. Skye is more pregnant than Leah.

(Rett 2015: 8)

Bylinina (2011) observes that a similar form of scalarity coercion and/or type-shifting can occur between nouns and the degree modifier *so* in the *This is so NP!* construction. Her examples in (178) also appear to map ungradable concepts like *McDonalds*, *2004* and *Obama* to degree scales of similarity to the traits exhibited by those (singleton) entities.

(178) a. Matching shirt and hat is so McDonalds. (≈ cheap, unfashionable)
b. Buying DVDs is so 2004! (≈ out-of-date)
c. Yeah, that is so Obama! (≈ cool)

(Bylinina 2011: 1)

Arguably, maximizers like *absolute* prime the listener to expect a following gradable noun phrase, and in a similar way to that seen above with *seems* and *is so NP!* they are able to coerce an ungradable NP into a scalar (and maximal) reading, for example *You absolute coat hanger!*.

This is perhaps unsurprising. Sassoon (2013a: 337) suggests that adjectival modifiers like *perfectly* act 'as cues for universality over dimensions' (i.e. as maximizers), giving the example of the slang expression *perfectly sick*, where *sick* is coerced into taking a positive reading equivalent to *cool*, rather than its usual negative meaning of *not healthy* (Sassoon 2013a: 367 citing Jessica Owen p.c.). Although *sick* is a multi-dimensional adjective, its dimensions are bound disjunctively (i.e. by logical $\vee$), and it would not normally accept universal quantification over dimensions by an adjective like *perfectly*. But in Sassoon's example *perfectly sick*, the presence of *perfectly* primes the listener to expect a multi-dimensional

adjective with positive meaning whose dimensions are bound conjunctively (i.e. by logical $\wedge$). This explains its unexpected felicity with *sick*.

Examples such as *You absolute coat hanger!* can perhaps be explained as the same process translated to the nominal space. According to Sassoon (2007), the difference between ordinary nouns like *coat hanger* and 'exceptional nouns' like *idiot* is that the former do not make dimensions available for quantification. Nouns like *idiot* behave more like multi-dimensional adjectives such as *healthy* in this respect, which explains their felicity with *utter*-type modifiers. The acceptability of *absolute coat hanger* can be explained by *absolute* priming the listener by a process of scalarity coercion to expect an 'exceptional' (i.e. [+big +utter]) noun. This overrides the normal ungradability of *coat hanger*, causing it to project new, contextually-specfied dimensions where none were previously in place.

On this basis, I will assume that ad hoc gradable noun phrases such as *You absolute coat hanger!* are subject to processes of scalarity coercion as described above. As such, the semantics I propose in my technical proposal in chapter 5 for the *utter*-type modifiers (on both their scalar and quantificational readings) are also applicable to NPs like *coat hanger* in circumstances where the conversational context allows for such coercion.

3.8 Summary

Much of this chapter has necessarily focused on the development of Morzycki's theory of nominal gradability. While he provides plausible explanations of the behaviour captured by his two main empirical generalizations, the Position Generalization and the Bigness Generalization, some key issues remain unsettled.

Given his background assumption of a degree-theoretic framework, the mechanism by which degrees are introduced into gradable nominal expressions remains unclear, with Morzycki proposing quite different solutions in each of the three papers considered. Nouns either acquire degrees from context (Morzycki 2005), or they are returned from measure functions, as in some theories of adjectival gradability (Morzycki 2009), or perhaps nouns lack inherent gradability entirely, with degrees arising due to some external relationship (Morzycki 2012b).

The origin of the fundamental semantic distinction between the [+big −utter] and [+big +utter] nouns is also uncertain. I reject the proposal in Morzycki

(2012b) that it is based solely on dimensionality, and consequently that the *utter*-type modifiers are only able to combine with one-dimensional nouns. Such a conjecture is not supported by Sassoon's 'respect' diagnostic (de Vries 2010, 2018, Rutland 2017), although the argument may turn on precisely what is meant by 'dimension'. If the dimensionality constraint is removed, Morzycki's denotations for *big* and *utter* (Morzycki 2012b: 193–194) are mathematically equivalent, both meaning 'large in context on a (possibly unique) dimension'. This cannot be correct, as it takes no account of the maximality semantics of the *utter*-type modifiers. In contrast, while the denotation for *complete* in Morzycki (2009: 189) implements maximality semantics, it does not explain how the scale of an apparently unbounded predicate like *idiot* can be said to have an upper limit.

Perhaps most significantly, Morzycki's proposals do not single out what appears to be the main distinguishing feature of the [+big −utter] nouns (or at least a significant subset of them), which is that they are almost always deverbal (*smoker*) or otherwise entail the presence of an event (*guitarist*). With any repeatable eventive predicate P of these types (e.g. *smoke*, *play guitar*), the agent can categorize as a *big P* simply by performing the activity in question more frequently than the contextual norm, as well as other factors such as duration, quantity of consumption (etc.) and enthusiasm. The frequency-based interpretation of *big smoker* appears to be highly significant with this category of noun, and merits the closer attention I give it in chapter 5.

As well as discussing Morzycki's work on nominal gradability, this chapter critically reviewed theoretical contributions from Morzycki (2012a) on extreme adjectives, Sassoon (2007, 2013a,b, 2017b) on multi-dimensional predicates, and Wellwood (2019) on the stative nature of adjectives, all of which will be used as part of the proposal in chapter 5 to explain how a phrase like *complete idiot* can represent a genuine maximum, despite the underlying scale being clearly unbounded given the lack of an objective absolute limit to (in this case) idiocy.[144]

While Constantinescu (2011, 2013) is strongly critical of the concept of nominal gradability in general, she proposes an alternative analysis for phrases such as *huge idiot* that is based on tropes (and kinds of tropes) in the sense of Moltmann (2004a,b, 2007, 2009) and Nicolas (2004, 2010) ('instances of properties'). Her proposal is very close to the denotation I adopt in chapter 5 save that I assume a kind-based semantics based on Gehrke & McNally (2015) firmly set within a

[144]Thus addressing Research Question 3 from section 1.3.

scalar, degree-theoretic framework.

In chapter 5 I consider the above theoretical contributions as part of a revised analysis of the lexical semantics of the *big-* and *utter*-type degree modifiers and the nouns they combine with, thus resolving the research questions raised in chapter 1. The proposal will also incorporate aspects of existing theory that have been intentionally deferred from this literature review, in particular Gehrke & McNally's (2015) kind-based theory of the modification of deverbal nouns by frequency adjectives (e.g. *frequent sailor*).[145] Elements of the neo-Davidsonian denotation of *huge idiot* from Constantinescu (2013: 192) and the state-based denotation of *big* (*of an*) *idiot* in Wellwood (2019: 171) are also present in my solution.

[145]The notion that gradable nouns project modifiable kind arguments provides an overall explanation of the availability of ordinary and degree readings with both [+big −utter] and [+big +utter] nouns, thus addressing Research Question 1 from section 1.3.

Chapter 4

Corpus Investigation

4.1 Introduction

4.1.1 Scope

This chapter documents an initial corpus investigation into some of the key predictions in Morzycki (2005, 2009, 2012b). The study is exploratory in nature, and intended to inform more formal experimental research to be conducted at a later date.[146] Its aim is to lend empirical support to the intuition that meaningful semantic subcategories of English nouns can be identified by their felicity with *big* and *utter* class degree modifiers (in my terminology [+big −utter] and [+big +utter] nouns), and to investigate the nature of the set theoretic relationship between them. My investigation focuses on aspects of the following predictions that can be tested with easily reproducible automated corpus searches.

(i) With *big* class degree modifiers, 'an adjective that normally expresses size characterizes the degree to which the gradable predicate holds' (Morzycki 2009: 176) (section 4.2).

(ii) Degree modification by *utter* class modifiers is 'restricted to nouns whose scales have a maximum' (Morzycki 2009: 190), even if the underlying meaning is not conceptually bounded (as with *idiocy*) (section 4.3).

(iii) 'The nouns that license these [*utter* class] modifiers seem to be a proper subset of those that license the *big* class' (Morzycki 2012b: 194) (section 4.4).

[146]The study is 'exploratory' in the sense that it is not driven by explicit hypotheses, and the results are not necessarily appropriate for statistical significance testing.

While Morzycki argues convincingly on the basis of the examples he cites, in total his core evidence consists of a relatively small set of 24 nouns and 13 modifiers across three published papers (Morzycki 2005, 2009, 2012b). This chapter proceeds on the assumption that stronger and more defensible conclusions can be reached by reference to the much larger and arguably more representative body of evidence contained in a modern web-sourced corpus.

For consistency with Morzycki's research, my investigations target the same *big-* and *utter*-type adjectives (179), but leave aside *real* and *true* which are not of current interest. The aim of the searches is simply to ascertain which nouns collocate with each adjective in a given grammatical structure or context.

(179) Adjectives investigated (base forms only)

big type:	big, colossal, enormous, gargantuan, huge, mammoth
utter type:	absolute, complete, outright, total, utter

The adjectives in (179) appear in attributive position immediately preceding a noun in the following frequencies in the corpus used in this study.

Adjective	Frequency↓	Type
big	1,641,536	big
total	971,187	utter
huge	911,564	big
complete	779,215	utter
absolute	207,958	utter
enormous	194,568	big
utter	48,718	utter
outright	31,473	utter
colossal	15,552	big
mammoth	11,041	big
gargantuan	4,480	big
big type	2,778,741	
utter type	2,038,551	
Total	4,817,292	
All adjectives	461,107,603	

Figure 4.1: Frequency of adjectives as adnominal noun modifiers[147]

The phenomena investigated in this chapter have a very simple grammatical structure, consisting in most cases of either an adjective/noun bigram such as

[147]To reproduce these results, follow the instructions in appendix A.7.

total buffoon, or an adjective/noun/noun trigram like *big basketball fan*.[148] The trigram structure is only used when attempting to reproduce some of Morzycki's results, as everything I wish to discuss in this thesis can be adequately illustrated with bigrams.[149]

Some of my searches are restricted to count nouns (and count usages of mass nouns).[150] Mass expressions introduce additional considerations outside the scope of this thesis, and in some cases appear to contradict aspects of Morzycki's analysis. In particular, the interaction between size adjectives and (some) abstract mass nouns appears to be relevant to the resolution of item (iii) above; this is discussed in section 4.4.

Apart from *magic* and *bullshit*, which he cites for their compatibility with the *real-* and *utter*-type modifiers, Morzycki's evidence does not include mass nouns. His papers do not mention the count/mass distinction, and there are no provisions in his proposed semantics to distinguish between the two cases. While the restriction of some searches to count expressions limits the generality of the results, and omits many valid cases, it has the desired effect of excluding the unwanted mass readings.

4.1.2 Testing Morzycki's evidence

While the main aim of the queries documented in this chapter is to test Morzycki's predictions across the full set of nouns in the chosen corpus, a secondary objective is to validate his published evidence (which I assume is based on intuition) against real language examples.

Morzycki's core data consists of a set of 25 unmodified noun phrases (with 24 unique head nouns) between one and three words in length, and a set of examples showing felicitous and infelicitous combinations with selections of the adjectives

[148] Vera Hohaus (p.c.) suggests that it would also have been interesting to investigate strings with additional modifiers, such as adjective/adjective/noun trigrams. For one thing, this might have supplied evidence for or against the assumption in my technical analysis that degree modifiers must be directly adjacent to the NPs they modify.

[149] Morzycki cites a single example of a 4-gram, *huge goat cheese enthusiast*, which occurs just once in the chosen corpus. I did not consider it worthwhile to investigate 4-grams or longer structures.

(i) She loves all things social media, her cat Arthur, has ran a marathon and is a huge goat cheese enthusiast. [#1033591278]

[150] Where the restriction is applied, mass usages are excluded by searching for full DPs headed by an indefinite article. Searches then match (say) *an utter joy*, but not *a bundle of utter joy*.

in figure 4.1. The full set of NPs is listed in figure 4.2 along with the modifier types he cites with them.[151]

Modifier type	Nouns/NPs (A = 'abstract size')
real	American, basketball player (+big), sportscar
real, big	bastard (+utter), goat cheese enthusiast, basketball fan, curling fan, mafia goon, smoker, stamp collector, warmonger
real, big, utter	bullshit, disaster (A?), dork, fascist, idiot, magic, catastrophe (A), mistake (A), problem (A), snowstorm (A)
(ungradable)	male nurse, non-Methodist, person here now, resident

Figure 4.2: Modifiers and nouns cited in Morzycki (2005, 2009, 2012b)

The corpus queries for one-word NPs simply elicit the bigrams generated by all possible pairs of the modifiers in (179) and the nouns in (180).[152]

(180) One-word noun phrases (18)
American, bastard, bullshit, catastrophe, disaster, dork, enthusiast, fascist, goon, idiot, magic, mistake, problem, smoker, snowstorm, sportscar, stamp-collector, warmonger

Many of Morzycki's two-word phrases proved to be relatively infrequent. To produce more informative results, my queries search for all nominal modifications of the head noun. This matches, for example, not only *sports car* and *stamp collector*, but also *racing car* and *book collector*.[153]

(181) Two-word noun phrases (6)
N car, N collector, N enthusiast, N fan, N goon, N player

[151] Clearly not all valid cases are attested: *big basketball player* ('plays a lot of basketball') and *utter bastard* are also felicitous on a degree reading, suggesting that these nouns are [+big −utter] and [+big +utter] respectively.

[152] There is some additional complexity, as queries strictly targeted at bigrams must be restricted so as to match instances of (say) NP *utter disaster*, but to exclude the initial spans of longer NPs such as *utter disaster area*.

[153] Intuitively, *enthusiast* and *goon* appear to be gradable nouns by themselves, and I therefore included them in both the one- and two-word categories. In retrospect, the same is also true of *collector* and *fan*.

4.1.3 Constraints on what can be achieved

The inherently ambiguous degree/non-degree nature of most of the modifiers under consideration severely limits what can be achieved by fully automated tests. For example, while a corpus search can readily uncover statistically significant collocations of *big* with *sailor*, without knowledge of the context of the utterances it is impossible to ascertain whether a size or degree reading obtains. Out of all the modifiers under consideration, only *utter* has the ability to function as a (reasonably[154]) reliable probe for degree usages without subsequent manual inspection of corpus results.

A further constraint on what can be achieved is the desire that, as with any scientific research project, my results should be reproducible by other workers in the field.[155] With one small exception,[156] all of my results can be easily replicated using the standard web interface provided by my chosen corpus, Sketch Engine.[157]

Finally, the usual caveats of corpus research apply to this investigation. A corpus is a snapshot of real language use, and while it can demonstrate the existence of a phenomenon, it cannot establish non-existence or absolute infelicity, only at best a statistical inference.

4.1.4 Choice of corpus

For this exercise I selected the Sketch Engine corpus manager (Kilgarriff et al. 2014) and the English Web 2015 Corpus (enTenTen15).[158] The enTenTen15 corpus contains 13 billion (13,190,556,334) words of English collected in a principled

[154]As corpora are built from snapshots of real human language, grammatical mistakes and non-standard usages are likely to be encountered. Errors in automated part of speech (POS) tagging are also common, such as *utter* or *complete* being incorrectly marked as verbal in adjectival contexts or vice versa. As such, the figures presented accurately reflect the data as recorded in the corpus, but not necessarily actual language use.

[155]'Non-reproducible single occurrences are of no significance to science' (Popper 1992: 66).

[156]One of my searches needs to be seeded with a list of agentive *-er* form deverbal nouns to separate nouns like *smoker* from those like *idiot*. Unfortunately the necessary verb ↔ noun relational information is not recorded in standard corpora like Sketch Engine. In appendix B I provide a small script that generates the required list from the WordNet lexical database (https://wordnet.princeton.edu), which contains the derivational relationships required.

[157]Each set of results is cross-referenced to the source of the Sketch Engine query that generated it, which will be found in appendix A.

[158]https://www.sketchengine.eu/ententen-english-corpus/ version enTenTen15_tt31 accessed on 09/04/2021. 'TenTen' refers to the order of magnitude of the database, 10^{10} words. At the time of writing (August 2021) enTenTen15 contains approximately three times as many words as the entire English version of Wikipedia.

manner from web sites in selected top-level domains (.com, .edu, .net, .org, etc.) and domains from countries where English is an official language (.au, .ca, .ie, .in, .nz, .uk, .us, etc.).[159]

Decisive factors in choosing Sketch Engine as a corpus manager were its intuitive user interface, and its Corpus Query Language (CQL), which enabled my searches to be phrased in a straightforward manner. Also, while database size and text provenance are important factors in corpus research, so too is performance. Although even larger corpora have recently become available,[160] enTenTen15 offers a good balance between size and speed of query response. The latter is an important factor in exploratory research such as that documented in this chapter, where queries are constantly being developed and refined.

All the examples I cite are accompanied by a corpus-specific token number such as [#8482029450] which allows the original textual context to be inspected with a web browser.[161]

4.1.5 Selecting meaningful data

Collocational strength: the Mutual Information (MI) score

Corpus investigations based on collocation can be viewed as attempts to disprove the null hypothesis that the items in question co-occur by pure chance. Simply measuring the frequency of occurrence does not achieve this goal, as two words may have a loose association that occurs with a high incidence simply due to the relative frequencies of the individual items.

Some of the phenomena under investigation can be identified by collocation. Given that *utter* is a reliable probe for degree readings, any noun that it associates with is prima facie a candidate for the [+big +utter] class, and the stronger the association, the more likely this is to be the case. Such a test is, however, not

[159] A restriction to 'English' web domains does not, of course, guarantee that the selected texts originate from native English speakers. Indeed, text found on the web may well not represent natural language at all.

[160] Such as Sketch Engine's Web 2018 Corpus (enTenTen18, 21.9 billion words).

[161] The original concordance line can be inspected directly from a web browser by using the following URL as a template (details correct as of 12/08/2021).

> https://app.sketchengine.eu/#concordance?corpname=preloaded%2Fententen15_tt31&tab=advanced&queryselector=cql&cql=[#8482029450]

If you are not already logged in to Sketch Engine you will be asked to supply user credentials, after which it will be necessary to click on the above link again to display the concordance.

directly applicable to the other modifiers under consideration due to degree/non-degree ambiguity, or as a mechanism for testing hypotheses other than simple collocation, such as the goodness of fit of a set of results to theoretical expectations.

A collocation metric commonly used in corpus linguistics is the Mutual Information (MI) score (e.g. Manning & Schütze 1999: 178 ff.). MI is an information-theoretic measure of the strength of the association between two items; the higher the MI score, the stronger the collocation. MI is simply the ratio of the observed and expected frequencies (or probabilities) for the collocation in question, projected onto a logarithmic scale for convenience.[162]

(182) $\text{MI} = \log_2 \frac{\text{Observed frequency}}{\text{Expected frequency}}$ (Brezina 2018: 72)

In the primary case of interest (bigrams consisting of an adjective followed by a noun) MI can be equivalently expressed as the ratio of the observed probability of the collocation $[_{\text{NP}}\ A\ N]$ to the expected probability that the elements A and N occur together by chance (the product of their individual probabilities).

(183) $\text{MI} = \log_2 \frac{P(AN)}{P(A)P(N)}$ (adapted from Manning & Schütze 1999: 166)

If the items in question co-occur purely by chance (i.e. observed frequency = expected frequency), the MI score would be zero. Positive MI suggests a collocation, and negative MI that the items shun each other (McEnery et al. 2006: 56–57). Hunston (2002: 71) proposes that MI ≥ 3.0 can be taken as good evidence of a genuine collocation.

By its nature MI is unreliable when applied to words with low frequencies and tends to give high scores to collocations with unusual words (Clear 1999). For this reason, it is usually appropriate to apply an appropriate minimum frequency filter on result sets which will be interpreted with respect to MI.[163] In circumstances where I find it useful to present results whose frequency is below the Sketch Engine default minimum frequency, they are clearly marked as such, for example

[162] As the scale is logarithmic to base 2, an MI score of 10 indicates an association $2^{10} = 1{,}024$ times stronger than if the items had occurred together by pure chance.

[163] Interpreting MI in combination with a frequency-based statistic such as the t-score has also been recommended (Clear 1999). In fact, all the Sketch Engine queries documented in this chapter do generate t-score values, in addition to the MI scores presented. I chose not to reproduce the t-score column as it proved to be uninformative, being monotonic with the count of occurrences ('Hits') in almost every case.

by being displayed below a dashed line in tabular layouts.

Statistical significance: the chi-squared test

Although MI has great value in corpus linguistics, as mentioned above it is not appropriate for testing hypotheses beyond assertions of collocation, as the corpus typically does not contain the information necessary to make a decision.

A method commonly used to assess the significance of a set of results is the chi-squared test (alternatively 'chi-square' or χ^2).[164] Chi-squared provides a simple technique to ascertain with a given level of confidence whether the differences between the observed and expected results for some category of data arose by chance. In essence, the technique attempts to show that the proposed null hypothesis (H_0) is statistically unlikely at a certain significance level (typically 0.05 = 5% in social sciences), thus indicating the likely truth of its logical opposite (H_1). Informally, if the probability of getting the observed results when H_0 is true is below 0.05, then H_0 probably doesn't account for the phenomenon under investigation.

Given the exploratory nature of the queries documented in this chapter, I present significance tests in support of the goodness of fit of my results to formal hypotheses in two areas only: the apparent partitioning of nouns into distinct classes by *utter* (figure 4.7), and the observed infelicity of *big* with certain nouns (figure 4.19).

4.2 *Big*-type modification

In contrast to the [+big +utter] nouns to be discussed in section 4.3, I am not aware of any diagnostic probe equivalent to *utter* that can reliably identify [+big −utter] nouns. Size modification is ubiquitous, not least because all physical entities have measurable dimensions such as height, width, depth and weight. Searching the entire corpus for (say) *big N* would be a fruitless task, as such a query would inevitably match both gradable and ungradable nouns, and would fail to differentiate between the [+big −utter] and [+big +utter] cases.

An important subcategory that appears to always have the potential for degree readings (although non-degree readings may be strongly preferred with some

[164] See, for example, Manning & Schütze (1999: 169) Johnson (2008: 145–150) and Gries (2016: 150–154).

nouns) consists of morphologically deverbal nouns like *drinker* ([+big −utter]) and *tosser* ([+big +utter]). But even with deverbal nouns, whether a degree reading obtains in practice must usually be ascertained by visual inspection, save that the unique ability of *utter* to diagnose [+big +utter] nouns can identify degree uses of non-event entailing nouns like *tosser*.

Given the inherent ambiguities, there would be little point in running statistical significance tests on the results in this section without manual inspection of individual matches, an exercise that would require considerable effort, and which I defer to future, more formal, corpus investigations.

4.2.1 *Big*-type modifiers with Morzycki's nouns

Despite the caveats mentioned above, searching for *big N* (etc.) can be a useful way of finding interesting examples of degree modification on a small set of nouns such as those in Morzycki's evidence, albeit subject to subsequent manual filtering of degree and non-degree readings. The results of searching enTenTen15 for collocations between *big*-type modifiers and Morzycki's one- and two-word NPs are shown below.

[165]To reproduce these results, follow the instructions in appendix A.1.6.

On later inspection, the surprising lack of matches for *American* occurred because the query searches only for common nouns (annotated as NN in enTenTen15). An exploratory search for proper nouns (NP) elicited 37 matches, all readings of physical size (i-a) or significance (i-b).

(i) a. What a turnaround, Anderson can't buy a double and the **big American** takes full advantage. [#13069334022]

b. "I thought, I'm the **big American** from across the sea. I'll sock it to these people here." [#9587628747]

#	Noun	Hits↓	Freq	MI
1	problem	35,775	2,997,901	11.89
2	mistake	11,124	255,026	13.76
3	disaster	729	453,526	9.00
4	snowstorm	287	9,135	13.29
5	catastrophe	173	63,387	9.76
6	dork	100	2,611	13.57
7	enthusiast	77	45,455	9.07
8	bastard	66	20,432	10.00
9	idiot	64	38,501	9.05
10	magic	47	363,141	5.36
11	smoker	20	12,788	8.96
12	goon	12	2,632	10.50
13	fascist	6	38,375	5.64
14	bullshit	5	25,236	5.98
15	warmonger	1	1,230	8.01
16	American	0	4,289,376	N/A
17	sportscar	0	1,386	N/A
18	stamp-collector	0	0	N/A

#	Modifier	Hits↓	Hit %
1	big	33,399	68.88 %
2	huge	13,521	27.89 %
3	enormous	1,086	2.24 %
4	colossal	410	0.85 %
5	mammoth	39	0.08 %
6	gargantuan	31	0.06 %

Figure 4.3: *big*|*colossal*|*enormous*|*gargantuan*|*huge*|*mammoth N*
(48,486 hits from 18 nouns[165])

#	Noun	Hits↓	Freq	MI
1	N fan	2,859	452,597	14.76
2	N player	394	981,860	10.79
3	N enthusiast	109	45,455	13.37
4	N car	98	1,811,060	7.90
5	N collector	41	75,780	11.22
6	N goon	1	2,632	10.71

#	Modifier	Hits↓	Hit %
1	big	2,002	57.17 %
2	huge	1,482	42.32 %
3	enormous	16	0.46 %
4	gargantuan	1	0.03 %
5	colossal	1	0.03 %

Figure 4.4: *big*|*colossal*|*enormous*|*gargantuan*|*huge*|*mammoth N N*
(3,502 hits from 6 nouns)[166]

Four of the top five nouns by frequency are cited by Morzycki as examples of 'abstract size' nouns, and the other (*disaster*) is surely also in the same category. This rather skews the dataset to examples which, on his account, are 'not true degree readings' (Morzycki 2005: 121).

It is also arguable that single word deverbal *-er* nominals are underrepresented

[166]To reproduce these results, follow the instructions in appendix A.1.7.

in Morzycki's evidence, *smoker* being the sole candidate. Nouns like *smoker* are perhaps the clearest examples of [+big −utter] nouns, typically denoting the habitual performer of the action entailed by the verbal stem.[167]

The examples presented in (184) and (185) below illustrate the non-maximal intensifying effect of size adjectives on their degree readings. A *big dork* is more of a dork than the ordinary dork, and presumably a *big big dork* (184-a) ranks even higher up the scale. Similarly, the subject of *colossal idiot* in (184-b) is construed as a very idiotic person. In both cases the speaker leaves open the possibility that even higher levels of dorkishness or idiocy can be attained.

(184) Degree readings (one-word NPs)

a. I am basically a **big big dork**, professionally and privately. [#4070142710]

b. You'd have to be a **colossal idiot** to make such an argument. [#1107272778]

c. Steve, born in 1950, was diagnosed with double lung cancer, he was a **huge smoker** since a young age. [#12481608990]

(185) Degree readings (two-word NPs)

a. I'm not a **big baseball fan**, but I do feel the loss of both men, such icons as they were. [#242004193]

b. I am a **huge poker player**, and I love to play every chance I can get. [#106797509]

c. My uncle was also a **huge motor enthusiast** and he sparked my love for American muscle cars. [#853807986]

Whereas the size modifiers of *dork* have an intensifying reading, perhaps unexpectedly most of those modifying *bastard* (as an epithet) appear to relate to physical size. *Big* in (186-a) presumably applies to the subject's physique on account of the following reference to Achmed's *muscles*, although the alternative (degree) reading of 'very much a bastard' is still available.[168]

(186) Non-degree readings

[167]Non-eventive instrumental readings may also be available, as later results illustrate. See section 3.3 for a brief summary of relevant literature on *-er* nominals like *smoker*.

[168]The expression can be rephrased non-attributively (albeit clumsily) without changing the overall meaning, indicating a size reading: *And you are like Achmed,* ***big*** *and a* ***bastard****.*

a. "And you are like Achmed, you **big bastard**. Never saw muscles like yours." [#12977977918]
b. When the city is hit by a **colossal snowstorm**, only one superhero can save the day. [#13742222276]

When modified by size adjectives, nouns like *snowstorm*, *problem*, *mistake* and *catastrophe* are distinguished by their ability to take what Morzycki terms an 'abstract size reading', perhaps in addition to an interpretation involving actual physical size. An *enormous catastrophe* might denote a really serious catastrophe (187-d), as well as one with great physical extent.

(187) Abstract size readings

a. Youth unemployment in Europe is a **huge problem** nowadays. [#15398455225]
b. That is what a politician sounds like when admitting she has made an **enormous mistake**. [#1272860313]
c. India has recently witnessed a **mammoth disaster** in the form of Uttrakhand floods. [#14350650445]
d. Population growth globally is projected to continue for another century, barring some **enormous catastrophe**. [#875814000]

Abstract size readings differ from true degree readings in that they can obtain in predicate position without loss of meaning. For example, in (187-b) *she has made an enormous mistake* could be accurately paraphrased as *she has made a mistake, and it was enormous* (Morzycki 2005: 121).

4.2.2 *Big* with deverbal *-er* suffix nouns

An important special case that is amenable to automated searches is the category of deverbal *-er* suffix nouns.[169] While not all [+big −utter] nouns have an *-er* suffix, or are necessarily morphologically deverbal (*guitarist* and *vegetarian* have neither attribute), this category forms a significant and relatively easy to identify subset of them. For this reason, most of the searches for [+big −utter] nouns documented in this section are restricted to the deverbal *-er* subset.

A significant amount of research has been conducted into deverbal *-er* suffix

[169]The *-er* suffix is sometimes spelled out as *-r* (e.g. *smoke-r*) or *-or* (*sail-or*).

nouns, including the circumstances under which they entail the presence of an event (which, on my account, is what characterizes a [+big −utter] nominal).[170] A discussion of relevant theoretical points can be found in section 3.3.

Although many deverbal nouns like *smoker*, *eater* and *drinker* are intuitively [+big −utter] nouns, it is challenging to target this category with a standard corpus search. While it is easy to find nouns ending in -$(e)r$ with a query language such as Sketch Engine's CQL, there is no guarantee that the resulting matches are deverbal.[171] Ordinary corpora like enTenTen15 are typically annotated for parts of speech like N and V, but do not contain derivational links between the categories.[172]

Because the presence of an apparently agentive suffix like -*er* is not by itself a reliable diagnostic, I wrote a Python script to query the WordNet lexical database for all -$(e)r$ suffix nouns having a derivational relationship to at least one verb.[173] The resulting list of nouns was then used to construct CQL queries for execution in Sketch Engine.[174]

The table in figure 4.5 shows the results of searching the enTenTen15 corpus for instances of *big* followed by any of the 1,519 -$(e)r$ suffix nouns that my script identified as deverbal in the WordNet database.[175]

[170] See, for example, Levin & Rappaport (1988), Rappaport Hovav & Levin (1992), Alexiadou & Schäfer (2008, 2010), McIntyre (2014).

[171] *Stranger*, for example, is non-deverbal and a [+big +utter] noun.

[172] A morpho-syntactically annotated corpus might help avoid this issue (Vera Hohaus p.c.).

[173] See Miller et al. (1990), Miller (1990, 1995), Gross & Miller (1990), Fellbaum (1990, 2006) for background information on WordNet and the relational structures it encodes.

[174] The script and instructions on how to install and run it are presented in appendix B.2.

[175] WordNet version 2.1 downloaded from https://wordnet.princeton.edu/ on 24/09/2018.

#	Noun	Hits↓	Freq	MI
1	believer	2,396	67,163	14.95
2	supporter	2,254	127,360	13.94
3	player	1,876	981,860	10.73
4	seller	673	75,837	12.94
5	driver	634	769,124	9.52
6	loser	549	24,253	14.30
7	spender	347	2,069	17.18
8	user	236	1,856,369	6.82
9	poster	234	242,237	9.75
10	reader	194	387,443	8.80
11	employer	191	342,303	8.95
12	admirer	183	10,173	13.96
13	container	175	199,903	9.60
14	eater	171	9,801	13.92
15	computer	167	1,772,025	6.39
16	producer	166	326,649	8.82
17	mover	156	16,288	13.05
18	thinker	149	32,636	11.99
19	consumer	148	636,200	7.69
20	tower	142	227,028	9.12
21	talker	129	4,211	14.73
22	shocker	129	5,025	14.48
23	drinker	129	8,306	13.75
24	lover	128	110,826	10.00
25	buyer	126	95,870	10.19
26	striker	115	41,713	11.26
27	booster	115	34,580	11.53
28	server	115	944,821	6.76
29	killer	111	131,896	9.55
30	leader	109	1,235,483	6.29
31	promoter	104	63,689	10.50
32	retailer	99	84,985	10.02
33	publisher	99	157,408	9.13
34	trailer	95	183,898	8.84
35	exporter	90	36,185	11.11
36	reminder	85	188,862	8.64
37	folder	82	280,992	8.02
38	dreamer	79	9,789	12.81
39	sucker	77	15,773	12.08
40	spoiler	76	19,421	11.76
41	helper	76	39,299	10.75
42	defender	76	73,623	9.84
43	manufacturer	73	261,225	7.96
44	polluter	73	5,338	13.57
45	contender	71	32,445	10.92
46	follower	67	34,223	10.76
47	developer	63	306,039	7.51
48	merger	59	100,256	9.03
49	earner	57	8,056	12.62
50	downer	57	3,224	13.94
	...			
88	smoker	14	12,335	9.98

Figure 4.5: *big deverbal-N*: top 50 by frequency plus *smoker* (17,348 hits (tokens) from 1,519 words (types))[176]

Manual inspection of the top 50 hits suggests that most (if not all) have a potential [+big −utter] reading, although closer examination of the surrounding text in each case would be necessary to establish whether the eventive meaning or some other usage was matched in practice. This is well illustrated by the phrase *big tower* (match #20). Although WordNet identifies *tower* as a deverbal noun, (e.g. a vehicle equipped for towing something), the enTenTen15 corpus is blind to its derivational structure, and will also generate hits for *tower* as an architectural feature. Similar factors explain the high incidence of matches for *computer*, which, although theoretically capable of referring to an agent,[177]

[176]To reproduce these results, follow the instructions in appendix A.4.1.

[177]See https://en.wikipedia.org/wiki/Computer_(occupation) accessed on 06/03/2022.

invariably occurs as an instrument in these results.

It is unsurprising that agentive nouns derivationally related to verbs with extensible themes such as *eater*, *drinker*, *user*, *reader* and *producer* feature strongly. Such nouns are systematically felicitous with *big* in a degree sense, as the size adjective can always extend the implied theme to be 'more than average' in extent: a *big reader* might read more (novels, articles, lines of text, words, etc.) in a given time than does the average *reader*.

As the literature reviewed in section 3.3 makes clear, even if a noun is morphologically deverbal, it may not behave as such in context, i.e. it may not entail the presence of the event lexically specified by the verb. My preferred example [+big −utter] phrase *big smoker* is a case in point, as searches uncovered both degree (188-d) and non-degree (instrumental) readings (189-a).

(188) Degree readings

a. I'm a **big believer** that being out in the woods is healing and rejuvenating. [#201666139]

b. One of the first mainstream devices of its kind, Apple TV is a **big seller** worldwide. which I plan on discussing today. [#4950953252]

c. Oh, and thank you for making the drink weak. I'm not a **big drinker** and this might be a long night. [#186552627]

d. I am not a **big smoker** myself but believe it is in the best interests of society to decriminalize marijuana ASAP. [#5956816921]

(189) Non-degree (instrumental) readings

a. They have a **big smoker** out back and the aromas waft over all day! [#4117699108]

b. I called it a boom box, even though it had only one **big speaker** next to the single tape-deck. [#7965400688]

c. The issue there is, the front wheel of our **big stroller** broke yesterday. [#2583018701]

d. Ford has now corrected the problem though, the addition of a nice **big supercharger** has corrected the airflow dilemma. [#13899718359]

As (189) illustrates, some of the matches, although derivationally related to verbs and thus identified as deverbal by WordNet, can be false positives, as they refer

to instruments rather than agents of events. These are often genuinely ambiguous in the absence of clarifying context: a *big poster* might be a prolific online poster of comments on websites, or a physically large advertisement.

However, when such exceptions are (manually) excluded, visual inspection of a selection of the matches in figure 4.5 supports the conjecture that modification of event-entailing deverbal nouns by *big* elicits the desired 'more of an N' reading. As such, I saw no point in repeating the query with the full set of *big*-type modifiers, although a more detailed study might choose to do so in future.

Finally, although I have adopted Morzycki's example *big smoker* as my exemplar [+big −utter] nominal throughout this thesis, the phrase in fact occurs relatively rarely in the enTenTen15 corpus, and is only ranked 88th in figure 4.5 by frequency. Also, out of the 14 recorded matches, only seven denoted consumers of tobacco or marijuana (188-d), the remainder being references to cooking appliances (189-a).

4.2.3 *Big* with non-deverbal event entailing nouns

Although I did not investigate the category in detail, nouns like *cyclist* and *guitarist* that are not deverbal, but nevertheless entail that the subject is the agent of some action involving a lexically-specified theme (***ride*** *a cycle*, ***play*** *guitar*, ***practise*** *philanthropy*), also appear to be systematically [+big −utter].

(190) a. "I'm a **big cyclist**," he said. "I ride most days, when I can." [#15229774730]

b. I've always been about gadgets and games, and I'm a **big guitarist** so music and media have been close to my heart. [#7638553211]

c. James is well known to be a **big philanthropist** and contributes to a number of important causes. [#11356884751]

Further examples of *-ist* suffix phrases can be found by following the instructions in appendix A.5.1.

While *-ist* suffix nouns are particularly common, non-deverbal [+big −utter] nouns with implied events also occur in other forms. A *mathematician* may **know**, **practise** or **do** mathematics, and an *athlete* perhaps **performs** or **does** athletics, for example.

(191) a. I'm not a **big mathematician**, but I can make some additions. I

know more or less the cost of things. [#3588969701]

b. "I was a **big athlete** back in the day," he says. "Playing soccer gave me a good work ethic." [#1572630257]

No premodifying instances of *utter* occur in enTenTen15 with any of the nouns in (190) or (191), which lends a certain amount of assurance to the claim that this kind of noun falls into the [+big −utter] category with *smoker*.[178]

4.3 *Utter*-type modification

This section presents the results of searching the enTenTen15 corpus using the unique ability of *utter* to target [+big +utter] nouns.

4.3.1 *Utter* with Morzycki's nouns

The table below records an attempt to validate Morzycki's claims regarding the partitioning of his chosen set of one-word nouns according to their felicity with *utter* itself, i.e. a straightforward search for *utter N*, where *N* ranges across the NPs in (180). No matches occur between *utter* and the two-word compound nouns in (181).[179]

[178]To reproduce this result, follow the instructions in appendix A.5.2.
[179]To reproduce this result, follow the instructions in appendix A.1.2.

#	Noun	Hits↓	Freq	MI
1	disaster	365	453,526	13.92
2	bullshit	241	25,236	17.49
3	catastrophe	97	63,387	14.84
4	idiot	50	38,501	14.61
5	bastard	24	20,432	14.46
6	magic	16	363,141	9.73
7	mistake	6	255,026	8.82
8	problem	2	2,997,901	3.68
9	dork	1	2,611	12.85
10	American	0	4,289,376	N/A
11	enthusiast	0	45,455	N/A
12	fascist	0	38,375	N/A
13	goon	0	2,632	N/A
14	smoker	0	12,788	N/A
15	snowstorm	0	9,135	N/A
16	sportscar	0	1,386	N/A
17	stamp-collector	0	0	N/A
18	warmonger	0	1,230	N/A

Figure 4.6: *utter N* (802 hits from 18 nouns)[180]

The collocations under the dashed line have frequencies below the Sketch Engine default minimum of 3, and would not normally register in a corpus search. They are shown here to highlight the distribution of hits across Morzycki's sample data, and also because the full set of results is necessary for the statistical significance test presented below.

On visual inspection, the results in figure 4.6 appear to support Morzycki's intuitions. A combination of MI > 3 (Hunston 2002: 71) and frequency ≥ 3 (Sketch Engine default minimum) suggests that *utter* associates strongly with four of the six examples he cites with this category of modifier (*bullshit*, *disaster*, *idiot* and *magic*), plus *bastard*, *catastrophe* and *mistake* which intuitively also pattern with *utter*-type modifiers. In contrast, half of the nouns in the selection are completely rejected by *utter* (frequency = 0). At first sight, this appears to be a very polarised result set.

The extent to which these results reflect a statistically significant phenomenon can be examined using a chi-squared test. The null hypothesis (H_0), which we hope to reject, relies on *utter*'s unique ability to elicit degree readings.

[180]To reproduce these results, follow the instructions in appendix A.1.1.

H_0: The adnominal degree modifier *utter* is equally likely to occur with any noun.

H_1: The adnominal degree modifier *utter* is not equally likely to occur with any noun.

If H_0 was true, all nouns would be degree nouns (which is intuitively highly unlikely), and the distribution of *utter* would be roughly in proportion to its relative frequency as an adnominal modifier. More precisely, on the basis of H_0 the probability of any adnominal modifier being *utter* is equal to the frequency of *utter N* divided by the frequency of all adjective/noun pairs *A N* in the corpus.

$$\begin{aligned} \text{prob}(\textit{utter } N) &= \text{freq}(\textit{utter } N) \text{ / freq}(A\ N) \text{ for all } A, N \\ &= 48{,}718 \text{ / } 461{,}107{,}603 \\ &= 0.000105654 \end{aligned}$$

The expected frequency of *utter* with any noun N_i can then be derived by multiplying this probability by the number of occurrences of $A\ N_i$ for any adjective A in the corpus. In the case of *utter idiot*, the calculation proceeds as follows.

$$\begin{aligned} \text{E}(\textit{utter idiot}) &= \text{freq}(A\ \textit{idiot}) * \text{prob}(\textit{utter } N) \\ &= 6{,}074 * 0.000105654 \\ &= 0.64 \end{aligned}$$

While the expected number of occurrences of *utter idiot* is 0.64, the observed number of occurrences is much higher at 50. The significance of such results across Morzycki's set of 18 single-word nouns can be calculated by a chi-squared test, as shown in figure 4.7.

#	Noun	O↓	AN	E	$(O-E)^2/E$
1	disaster	365	109,381	11.56	10,809.63
2	bullshit	241	5,015	0.53	109,135.04
3	catastrophe	97	22,977	2.43	3,684.24
4	idiot	50	6,074	0.64	3,796.27
5	bastard	24	6,892	0.73	743.75
6	magic	16	33,868	3.58	43.12
7	mistake	6	62,076	6.56	0.05
8	problem	2	597,882	63.17	59.23
9	dork	1	561	0.06	14.93
10	American	0	1,402	0.15	0.15
11	enthusiast	0	6,395	0.68	0.68
12	fascist	0	846	0.09	0.09
13	goon	0	442	0.05	0.05
14	smoker	0	3,635	0.38	0.38
15	snowstorm	0	2,444	0.26	0.26
16	sportscar	0	586	0.06	0.06
17	stamp-collector	0	1	0.00	0.00
18	warmonger	0	276	0.03	0.03
			860,753		χ^2 128,287.96

$$\chi^2\ (17,\ \mathrm{N} = 860{,}753) = 128{,}287.96,\ \mathrm{p} < .001$$

prob(*utter* N)	= freq(*utter N*) / freq(*A N*) for all *A*, *N*
	= 48,718 / 461,107,603 = 0.000105654
O	= observed frequency of *utter* N_i for a given noun N_i
AN	= observed frequency of *A* N_i for all *A*
E	= expected frequency of *utter* N_i
	= $\mathrm{AN_i}$ * prob(*utter* N), assuming $\mathrm{H_0}$

Figure 4.7: χ^2 test for *utter* on the nouns in Morzycki (2005, 2009, 2012b)[181]

The significance test in figure 4.7 indicates (as anticipated) that we should reject the null hypothesis in favour of the alternative hypothesis $\mathrm{H_1}$. In other words, *utter* is not equally likely to occur with any noun. As *utter* is (almost) always a degree modifier, this supports the conjecture that there is a distinct category of [+utter] nouns that take a degree reading with *utter*, at least within the sample set of nouns in Morzycki's data.[182]

Some selected examples from the resulting data are presented in (192).

[181] To reproduce these results, follow the instructions in appendix A.7.

[182] This is not a random sample of data, as Morzycki's examples were (presumably) artificially constructed to illustrate *real*, *big* and *utter* class modification.

(192) Degree readings (one-word NPs)

a. This update for me has been an **utter disaster**. [#2095698803]

b. This is, to put it politely, **utter bullshit**. [#8841473700]

c. According to Gore, "The American political system is an **utter catastrophe** ... there's no question that we've seen the degrading of our democracy." [#2094270970]

d. Whoever thought of this is a **complete and utter idiot** without any awareness or care for his fellows. [#10561327046]

e. [H]e's so damned hot in that movie, but he's also an **utter bastard**. [#10694690298]

f. The quality of her voice, her songwriting and stage presence it's **utter magic**. [#8699843453]

In each case, the modified phrase conveys a sense of maximality or totality. In (193-a) the *update* could not have been more of a *disaster*, at least from the speaker's perspective. There is a sense that it has been as much of a disaster as contextually possible, or perhaps a disaster in all contextually-possible respects, but not necessarily maximally so. Arguably *complete and utter* in (193-d) allows for both such interpretations, although this could be simply a conversational device to reinforce the speaker's position.

Overall the results support Morzycki's claim that *utter* picks out a distinct set of degree nouns within his selected group of 18 single word nominals.

4.3.2 *Utter* with any noun

It is straightforward to extend the query from the previous section to search for collocations between *utter* and any noun in the enTenTen15 corpus, rather than just those in Morzycki's selection. However, such an exercise naturally elicits far more hits than those reported in figure 4.6 above. In an attempt to restrict the results to count nouns[183] (the subject of both Morzycki's research and this thesis), the query was filtered to select only phrases headed by an indefinite article.[184]

I chose not to perform a chi-squared significance test from on these results, as the results in figure 4.7 already demonstrate that *utter* partitions nouns on the

[183] As well as count usages of mass nouns, such as *an utter joy*.

[184] Because the search uses different criteria, matches for nouns in Morzycki's set shown in figure 4.8 will show different numbers of hits and MI scores to those in figure 4.6.

basis of degree/non-degree readings.

#	Noun	Hits↓	Freq	MI	#	Noun	Hits↓	Freq	MI
1	failure	606	762,852	11.39	26	catastrophe	26	63,387	10.43
2	lack	341	1,329,536	9.75	27	shock	24	248,237	8.35
3	waste	176	996,726	9.22	28	travesty	24	10,529	12.91
4	disgrace	172	28,263	14.32	29	tragedy	22	191,936	8.59
5	disaster	170	453,526	10.30	30	fiasco	21	17,477	11.98
6	disregard	160	57,520	13.19	31	destruction	21	393,941	7.49
7	mess	113	181,229	11.04	32	sense	21	1,895,195	5.22
8	delight	83	147,807	10.88	33	betrayal	20	46,261	10.51
9	fool	79	67,753	11.94	34	end	20	4,913,818	3.78
10	joy	55	464,962	8.64	35	surprise	19	457,480	7.13
11	disappointment	53	97,280	10.84	36	indifference	19	40,587	10.62
12	stranger	53	110,008	10.66	37	idiot	18	38,501	10.62
13	impossibility	53	21,720	13.00	38	absurdity	18	20,533	11.53
14	lie	51	312,404	9.10	39	collapse	18	241,605	7.97
15	nightmare	45	85,338	10.79	40	state	17	5,534,718	3.37
16	contempt	39	61,990	11.05	41	success	17	2,001,046	4.84
17	shame	39	180,345	9.51	42	falsehood	17	13,111	12.09
18	shambles	36	8,798	13.75	43	disdain	17	22,604	11.31
19	inability	34	128,928	9.79	44	bore	17	88,822	9.33
20	absence	33	406,538	8.09	45	rejection	16	119,768	8.81
21	mystery	32	227,095	8.89	46	flop	16	15,883	11.73
22	embarrassment	28	46,534	10.98	47	nonsense	15	68,507	9.53
23	fraud	27	235,642	8.59	48	ruin	15	80,488	9.29
24	joke	26	127,549	9.42	49	fabrication	15	77,609	9.35
25	loss	26	1,338,586	6.03	50	misery	15	65,538	9.59

Figure 4.8: *a(n) utter N*: top 50 by frequency (4,577 hits (tokens) from 808 words (types))[185]

Three of Morzycki's *utter*-type words are in in the top 50 by frequency (*disaster*, *catastrophe* and *idiot*), along with many other intuitively *utter*-type words.

(193) Degree readings

a. It is **an utter disgrace** the way our communities have been treated. [#6745278980]

b. It is **an utter delight** to see you in the Chair, Madam Deputy Speaker. [#990723739]

c. Hiring the wrong team for the job can turn out to be **an utter nightmare**. [#13269075970]

[185]To reproduce these results, follow the instructions in appendix A.2.1.

d. The region is in **an utter shambles**, with corruption and waste on a huge scale. [#6079180797]
e. I want to explain my thinking so hopefully you aren't convinced that I'm **an utter idiot**. [#1920327508]

The results provide further support (if needed) that *utter* selects for gradable nouns with lexical (but not necessarily conceptual) maxima. In the speaker's opinion, the situation in (193-d) could not have been more of a *shambles*, even though there is no obvious conceptual limit to *shambles*, or to the *corruption and waste* that constitute it.

The relatively high occurrence of nouns such as *lack*, *waste*, *sense* and *state* can be partly blamed on the inability of CQL queries to target complex NPs consisting of nouns with PP complements. Hits are reported for the head nouns *lack* and *waste*, when the syntactic matches were actually with the complete NPs *lack of flavor*, and *utter waste of time*, for example.

(194) a. Combine that with **an utter lack of flavor**, and you get why I hate mushrooms. [#904477044]
b. Sleeping is **an utter waste of time**. [#663909184]

Ideally, my queries would be able to identify syntactic NPs involving nouns with PP complements. But as the enTenTen15 corpus is only annotated for part of speech (POS), and not for grammatical structure, such searches are infeasible.[186]

4.3.3 *Utter*-type modifiers with Morzycki's nouns

The tables below show the collocations of the full set of *utter*-type modifiers with the target one- and two-word noun phrases respectively, namely *absolute*, *complete*, *outright*, *total* and *utter N* itself.

Caution is necessary when interpreting the frequency and MI figures, as the results contain both degree and non-degree readings. I do not supply a statistical significance test, as it would be meaningless without first disambiguating the data, an exercise I reserve for future research. Although manual disambiguation based on introspection would be feasible in this case, subsequent queries across the whole corpus elicit tens of thousands of matches, making such a strategy

[186]Louise McNally (p.c.) observes that I could have used a smaller (but parsable) corpus such as SpaCy or CoreNLP to avoid such problems.

impractical.[187]

#	Noun	Hits↓	Freq	MI
1	disaster	3,447	453,526	14.10
2	idiot	1,226	38,501	16.17
3	bullshit	824	25,236	16.20
4	catastrophe	410	63,387	13.87
5	problem	195	2,997,901	7.23
6	bastard	158	20,432	14.12
7	mistake	148	255,026	10.39
8	magic	132	363,141	9.71
9	dork	111	2,611	16.58
10	fascist	14	38,375	9.72
11	enthusiast	5	45,455	7.99
12	sportscar	2	1,386	11.70
13	goon	2	2,632	10.78
14	warmonger	1	1,230	10.87
15	American	1	4,289,376	-0.89
16	smoker	0	12,788	N/A
17	snowstorm	0	9,135	N/A
18	stamp-collector	0	0	N/A

#	Modifier	Hits↓	Hit %
1	complete	2,727	40.85 %
2	total	2,128	31.88 %
3	absolute	914	13.69 %
4	utter	802	12.01 %
5	outright	105	1.57 %

Figure 4.9: *absolute*|*complete*|*outright*|*total*|*utter N* (6,676 hits from 18 nouns)[188]

#	Noun	Hits↓	Freq	MI
1	N player	114	981,860	13.34
2	N car	34	1,811,060	10.72
3	N fan	13	452,597	11.33
4	N enthusiast	10	45,455	14.27
5	N collector	1	75,780	10.21
6	N goon	0	2,632	N/A

#	Modifier	Hits↓	Hit %
1	complete	97	56.40 %
2	total	54	31.40 %
3	absolute	18	10.47 %
4	outright	3	1.74 %

Figure 4.10: *absolute*|*complete*|*outright*|*total*|*utter N N* (172 hits from 6 nouns)[189]

The following examples were chosen to highlight the effects of maximizing modifiers other than *utter*, which was the focus of the previous section. In contrast to *utter*, the other modifiers are capable of eliciting non-degree readings, a small selection of which are also shown.

[187]In retrospect, the issue could have been overcome by random sampling and/or employing native speaker consultants to make degree/non-degree judgements.

[188]To reproduce these results, follow the instructions in appendix A.1.3.

[189]To reproduce these results, follow the instructions in appendix A.1.5.

(195) Degree readings (one-word NPs)

a. "I think you're behaving like an **absolute idiot**," said Jack Kirkby indignantly. [#157213460]

b. The honeymoon takes them to Italy and turns out to be a **complete catastrophe**. [#181274197]

c. So if you know me, you know I'm a **total dork** about silly things. [#14987688971]

d. "I discovered he was simply an **outright fascist**." [#5081904986]

(196) Degree readings (two-word NPs)

a. i am a **total twilight fan**. i have watched all of the films and it would be an amazing honor to actually act in one. [#9395769758]

b. The Old Jug Society is a prestigious Beer Society for the **absolute beer enthusiast**. [#13460644736]

c. This feels like a pageant question. 21, sometimes illogical – always stubborn; a **complete cat enthusiast**. [#8388745974]

d. [. . .] it feels more like an entertaining diversion, than an **outright performance car**. [#8560284319]

(197) Non-degree readings (one-word NPs)

a. The **complete problem** shows a Multi-Physics character. [#12131599108]

b. I am coming at this as a total amateur and a **total American** [. . .] [#6612658832]

Unsurprisingly, the same nouns that pattern with *utter* alone are also prominent with the full set of *utter*-type degree modifiers. Noticeably *dork* and *fascist* feature more with modifiers other than *utter*, which perhaps reflects speakers' lexical choices as to which intensifier is preferred with which noun (e.g. *total dork* (196-c) vs. *utter dork*, and *outright fascist* (196-d) vs. *utter fascist*), rather than indicating unacceptability per se.

As expected, some non-degree interpretations were apparent in the search results. The phrase *complete problem* in (197-a) refers to 'a problem with no parts missing', not something that is 'as much of a problem as it could be', or that is 'a problem in all respects'. Regarding (197-b), on Morzycki's account *American* should not exhibit gradable behaviour with maximizers like *total*; whether one is

an American is a strictly binary choice dependent on nationality status. This kind of usage is, however, fairly common and can perhaps be interpreted as coercing *American* (and also *amateur* in the example sentence) onto a scale where it is possible to be 'more of an American/amateur' than some other individual, i.e. a similar meaning to *real American/amateur* (cf. 'scalarity coercion', Matushansky 2002).[190]

The status of *enthusiast* is less certain. While Morzycki (2009: 190) suggests that *enthusiast* should be infelicitous with *utter*-type nouns such as *complete goat cheese enthusiast*, the corpus provides some contradictory evidence. There are four distinct [A enthusiast] occurrences in enTenTen15 (198), and ten [A N enthusiast] patterns including those in (196) such as *complete cat enthusiast*. These results suggest that (*contra* Morzycki) *enthusiast* should more properly be classified as a [+big +utter] noun, rather than a [+big −utter] one.[191]

(198) a. He was of course impervious to the Cause, for he was a **complete enthusiast** in his own belief. [#1875189802]
b. I didn't become an **absolute enthusiast** until a decade ago and since then I've been quite obsessive about him and always have a Shakespeare play in my bag [...] [#11055170621]
c. I am an **absolute enthusiast** in what I do. [#13159100758]
d. This girl was a **total enthusiast** about sex [...] [#966481060]

4.3.4 *Utter*-type modifiers with any noun

Querying a corpus the size of enTenTen15 using simple adjective/noun pattern matching equivalent to *absolute/complete/outright/total N* would produce a very large number of hits, requiring manual disambiguation of degree and non-degree usages, a tedious and largely unproductive exercise.

Despite this, a reasonable conjecture is that if a noun patterns with *utter* (and therefore has a gradable interpretation), it is also likely to be capable of exhibiting gradable behaviour with the other *utter*-type modifiers. The results below were generated using this heuristic. Rather than searching the entire set of gradable and ungradable nouns in enTenTen15, the query was seeded using only the 808

[190]Louise McNally (p.c.) points out that *American* has a well-established gradable interpretation. It is questionable therefore whether Morzycki (2012b) should have treated it together with *sportscar* as a canonical example of a non-gradable noun.

[191]To reproduce these results, follow the instructions in appendix A.1.4.

nouns shown to match *utter N* by the exercise summarised in figure 4.8. There is, however, no guarantee that such an approach will catch all of the nouns that pattern with the other modifiers, as convention and speakers' lexical preferences may dictate what choices are made in practice.[192]

#	Noun	Hits↓	Freq	MI	#	Noun	Hits↓	Freq	MI
1	lack	5,689	1,329,536	8.99	26	disgrace	1,132	28,263	12.22
2	ban	5,183	322,616	10.90	27	collapse	1,119	241,605	9.10
3	failure	4,556	762,852	9.47	28	idiot	1,093	38,501	11.72
4	loss	4,461	1,338,586	8.63	29	nightmare	1,030	85,338	10.49
5	stranger	3,963	110,008	12.06	30	halt	974	104,619	10.11
6	waste	3,548	996,726	8.72	31	mystery	973	227,095	8.99
7	success	3,034	2,001,046	7.49	32	commitment	945	1,044,200	6.75
8	change	2,751	5,225,666	5.97	33	reversal	930	54,957	10.97
9	surprise	2,649	457,480	9.43	34	joke	895	127,549	9.70
10	necessity	2,609	215,808	10.49	35	victory	849	519,304	7.60
11	disaster	2,554	453,526	9.39	36	break	831	1,040,415	6.57
12	mess	2,369	181,229	10.60	37	shock	824	248,237	8.62
13	description	2,331	644,004	8.75	38	experience	772	5,635,495	4.02
14	minimum	2,019	864,084	8.12	39	sense	748	1,895,195	5.55
15	pleasure	2,015	410,554	9.19	40	novice	695	52,062	10.63
16	investment	1,948	1,520,853	7.25	41	priority	693	589,163	7.13
17	blast	1,829	138,701	10.61	42	gift	632	796,630	6.56
18	absence	1,555	406,538	8.83	43	fabrication	624	77,609	9.90
19	lie	1,469	312,404	9.13	44	rejection	609	119,768	9.24
20	joy	1,398	464,962	8.48	45	fool	604	67,753	10.05
21	transformation	1,373	440,175	8.53	46	end	590	4,913,818	3.83
22	disregard	1,372	57,520	11.47	47	look	544	4,265,068	3.92
23	right	1,259	6,316,168	4.57	48	contrast	535	544,406	6.87
24	delight	1,247	147,807	9.97	49	work	502	14,828,164	2.01
25	breakdown	1,145	127,467	10.06	50	war	460	2,071,109	4.72

Figure 4.11: *a(n) absolute|complete|outright|total|utter N*: top 50 by frequency (129,699 hits (tokens) from 808 words (types)[193])

[192]For example, corpus results documented later in this chapter suggest that *absolute* is strongly preferred with non-eventive *-er* suffix expressions such as *an absolute stinker of an article* or *an absolute corker of a goal*. See section 4.3.6 for a possible explanation.

#	Modifier	Hits↓	Hit %
1	complete	56,379	43.47 %
2	total	36,307	27.99 %
3	absolute	28,169	21.72 %
4	utter	4,565	3.52 %
5	outright	4,279	3.30 %

Figure 4.12: Modifier distribution

Selected examples (degree readings)

(199) a. She is **an absolute joy** and we are so blessed to have such a loving kitten in our home! [#12062247]

b. But, if I made a **total fool of myself** yesterday, 'twas not in vain. [#9964353192]

c. LugRadio Live USA 2008 was **an utter blast** – everyone seemed to have a great time, and it was a lot of fun. [#8482029450]

d. I got **a complete shock** when my niece told me the other day that Christmas was only 35 days away. [#127309042]

e. All I could ask myself was, "What kind of man would insult a woman, **a complete stranger**, in such a way?" [#136100834]

f. This is completely false and reveals **a total lack of understanding** of biblical or Classical Hebrew. [#493969568]

Without manual inspection, it is impossible to say what proportion of the very large number of overall hits (almost 130,000) relate to degree readings. As with searches for *utter*, manual inspection suggests that many of the hits for *lack* (the most frequent match), *loss*, *waste*, *sense* and *state*, are complex NPs with PP complements such *lack of understanding* (199-f) that my queries are unable to match automatically due to the lack of syntactic annotation in the corpus.[194]

Noticeably, the results are heavily skewed by hits for the three most frequent modifiers, *complete*, *absolute* and *total* which together account for 99% of matches (198). In contrast, the seed adjective *utter* elicits only 3.52%.

In addition to strong collocations previously noted for *utter* itself (including *disgrace*, *shambles*, *nightmare*, *idiot* and *delight*, there are frequent matches for *joy*, *fool*, *blast* and *shock* which, as the examples in (199) demonstrate, can take

[193]To reproduce these results, follow the instructions in appendix A.2.2.

[194]As previously noted, this is a design weakness caused by my choice of an unparsed corpus.

intensifying readings of the kind anticipated.

However, overall the search was not particularly illuminating. Several of the top results by frequency are clearly not evaluative 'Morzycki nouns' of the *idiot* category that I was hoping to elicit. *Description*, *end*, *halt*, *investment*, *look*, *right*, *sense* and *work* are not gradable nouns at all, for example.[195]

4.3.5 *Utter* with deverbal *-er* suffix nouns

I did not anticipate many deverbal nouns being felicitous with *utter*. The corpus results back up this intuition, with a low total frequency of only 36 hits (tokens) from 21 nouns (types) in the result set.

#	Noun	Hits↓	Freq	MI
1	sucker	7	15,773	17.54
2	tosser	7	447	22.68
3	shocker	3	5,025	17.96
4	disbeliever	2	715	20.19
5	daydreamer	1	399	20.03
6	wanker	1	1,058	18.63
7	cracker	1	12,405	15.07
8	charmer	1	3,354	16.96
9	prayer	1	565,128	9.57
10	creeper	1	3,176	17.04
11	loser	1	24,253	14.11
12	downer	1	3,224	17.02
13	slacker	1	3,612	16.85
14	stinker	1	1,086	18.59
15	dreamer	1	9,789	15.42
16	layer	1	526,502	9.67
17	butter	1	148,802	11.49
18	filer	1	3,132	17.06
19	tumbler	1	5,917	16.14
20	tower	1	227,028	10.88
21	screamer	1	1,373	18.25

Figure 4.13: *utter deverbal-N*: top 50 by frequency (36 hits (tokens) from 1,519 words (types))[196]

(200) a. Also I'm an **utter sucker** for outdoor lights of all sorts, look at all those pretty lanterns [#3245929743]

b. FashionBeans - Probably my favourite/most read blog. It stops me dressing like a **complete and utter tosser**. [#11764282836]

c. I hate whining about poor refereeing but this was an **utter shocker**. [#835569282]

[195]The high proportion of such apparently ungradable nouns is disappointing, but could have been caused by seeding the search with *every* match of *utter N*, rather than just the most significant ones. In retrospect, the matches for *work*, *end*, *look* and *right* have relatively low MI scores compared to the gradable nouns I am interested in, and could have been safely excluded.

[196]To reproduce these results, follow the instructions in appendix A.4.2.

While the nouns may be morphologically deverbal, the matches elicited appear to be readings that do not entail the presence of an event; certainly no 'sucking' or 'tossing' is involved in (200-a) and (200-b). While (200-c) is possibly an exception, there is no obvious agentive relationship: the speaker experiences (utter) shock due to his or her personal appraisal of the referee's performance, rather than the referee being the agent of an event of shocking the speaker.

4.3.6 *Utter*-type modifiers with deverbal *-er* suffix nouns

Far more hits were obtained by attempts to match all *utter*-type modifiers than just *utter* itself (5,460 vs. 36), although manual inspection of a small selection of the raw results suggests that a high proportion of these are probably for ordinary non-degree readings (*total abstainer*, *absolute ruler* etc.).

The results are presented in order of Mutual Information (MI) score, rather than frequency. This helps to pull out the degree readings, which appear to be less frequent and therefore can get obscured by ordinary non-degree readings. However, MI can be misleading with low frequency matches, as by its nature unusual words tend to elicit very high scores (Clear 1999). For this reason, I increased the minimum frequency setting to 15 for this search from the corpus default of 3.

#	Noun	Hits	Freq	MI↓
1	abstainer	38	172	19.25
2	corker	45	629	17.62
3	tosser	21	447	17.02
4	screamer	43	1,373	16.43
5	stinker	34	1,086	16.43
6	smasher	17	669	16.13
7	wanker	24	1,058	15.97
8	shocker	98	5,025	15.75
9	banger	42	2,866	15.34
10	charmer	45	3,354	15.21
11	sucker	206	15,773	15.17
12	downer	40	3,224	15.10
13	cracker	143	12,405	14.99
14	slacker	36	3,612	14.78
15	howler	23	2,328	14.77
16	loser	214	24,253	14.60
17	ruler	402	66,513	14.06
18	entertainer	48	13,726	13.27
19	fertilizer	138	77,054	12.30
20	waiver	101	68,600	12.02
21	merger	122	100,256	11.75
22	disclaimer	23	21,737	11.54
23	thriller	49	48,665	11.47
24	believer	63	67,163	11.37
25	killer	100	131,896	11.06

#	Noun	Hits	Freq	MI↓
26	primer	38	51,064	11.04
27	striker	29	41,713	10.94
28	fighter	65	123,808	10.53
29	commander	83	164,819	10.47
30	player	445	981,860	10.32
31	lover	47	110,826	10.23
32	owner	262	655,075	10.14
33	flyer	23	62,518	10.02
34	keeper	17	52,735	9.83
35	performer	32	101,705	9.79
36	folder	86	280,992	9.75
37	leader	367	1,235,483	9.71
38	compiler	15	57,018	9.54
39	header	37	143,608	9.51
40	defender	18	73,623	9.43
41	supporter	28	127,360	9.28
42	rider	15	79,738	9.05
43	buffer	27	158,108	8.91
44	tower	30	227,028	8.54
45	layer	69	526,502	8.53
46	liver	30	238,778	8.47
47	trailer	23	183,898	8.46
48	provider	60	551,607	8.26
49	container	21	199,903	8.21
50	receiver	18	174,415	8.19

Figure 4.14: *absolute|complete|outright|total|utter deverbal-N*
top 50 by MI, frequency ≥ 15
(5,460 hits (tokens) from 1,519 words (types))[197]

(201) Degree readings

a. This gorgeous, light but satisfying fish dish is an **absolute corker!** [#10349918495]

b. He's had an **absolute stinker** in this first half but that will go down as one of the best goals in Premier League history. [#13294157681]

c. Such a full of yourself name that as well. You aren't going to be called Brandon Flowers unless you are a **complete wanker**. [#7951875581]

[197]To reproduce these results, follow the instructions in appendix A.4.3.

d. Wild Culture from Austria are also doing great at the moment. Their tune "The Tide" is a an **absolute banger**. [#4871562504]

e. 1410: GOAL Wigan 0-1 Everton Disaster for the hosts and – you could barely even make this up – it's a **total howler** from that man Titus Bramble. [#5777678553]

(202) Non-degree readings

a. He was a **total abstainer**, a non-smoker and a vegetarian. [#597019743]

b. As the **absolute ruler** of Egypt, Cleopatra's image is actually more flexible. [#12621442750]

As is the case for collocations with *big*, the degree readings in (201) have little connection with the verbal stem of the nouns in question. No literal events of 'corking' (putting a cork into a bottle[198]), 'stinking', 'wanking', 'banging' or 'howling' are entailed. The meanings are at best metaphorical. The first half performance of the footballer in (201-b) was presumably so unpleasant for the speaker to witness that it (metaphorically) 'stank'. Similarly, the player named in (201-e) made a mistake so bad that it was worthy of 'howling', even if no howling actually occurred.

It is strange that such readings (which are clearly degree interpretations) appear to obtain far more frequently with maximizers other than *utter*, given that *utter* is otherwise such a reliable indicator of degree usages. I provisionally attribute this to lexical choices which (perhaps) reflect some vestige of the original literal meanings (cf. Paradis 2000).

Although most of the 10 hits by MI have this evaluative, metaphorical flavour, the strongest match (*abstainer*) does not. A *total abstainer* (202-a) is quite literally someone who 'totally abstains' (from alcohol, usually). Similarly, an *absolute ruler* (202-b) is one who 'rules absolutely'. Finally, all the nouns cited in their degree interpretations in (201) are still capable of taking literal readings involving their derivational verbal stems: a *corker* is a device for inserting corks into bottles, and a *banger* can be a type of firework (amongst other meanings).

[198]Here perhaps indicating finality, cf. 'putting the icing on the cake'.

4.3.7 *Utter*-type modifiers with binominal noun phrases

As discussed in section 3.4.2, the N-of-an-N binominal NP construction appears to have a particular affinity for evaluative (and particularly hyperbolic) gradable nouns in the N1 position. In these cases N1 can be seen as having an adjectival function, being syntactically and morphologically a noun, but having the semantic function of applying adjectival modification to the referring noun N2 (Bolinger 1972: 75, Aarts 1998: 126, Villalba 2008 among others).[199] The query documented below searched enTenTen15 for all instances of this structure that were pre-modified by the maximizers under consideration (*absolute*, *complete*, *outright*, *total*, and *utter*).

Sorting the resulting collocations by their Mutual Information (MI) scores, rather than raw frequency, helps to prevent the interesting (but generally less frequent) gradable cases being obscured by ordinary uses of the structure such as *total lack of a sense of direction*, *complete absence of a plan*, etc.

#	Noun	Hits	Freq	MI↓
1	stormer	8	302	16.18
2	belter	19	775	16.07
3	corker	7	629	14.93
4	dreamboat	3	333	14.62
5	scorcher	7	1,026	14.22
6	screamer	9	1,373	14.17
7	stinker	7	1,086	14.14
8	smasher	3	669	13.62
9	nail-biter	3	802	13.36
10	cracker	37	12,405	13.03
11	obliteration	8	3,734	12.55
12	extinguishment	3	1,531	12.42
13	stunner	6	4,107	12.00
14	banger	4	2,866	11.93
15	gem	86	61,674	11.93
16	ripper	5	3,801	11.85
17	howler	3	2,328	11.82
18	dud	5	4,427	11.63
19	emissivity	4	3,754	11.54
20	shocker	5	5,025	11.45
21	nullity	3	3,185	11.37
22	lifecycle	36	43,652	11.17
23	annihilation	14	18,362	11.06
24	skeleton	37	50,863	10.99
25	shambles	6	8,798	10.90
26	peach	16	24,092	10.86
27	travesty	5	10,529	10.38
28	beast	40	89,576	10.29
29	bastard	7	20,432	9.91
30	overhaul	20	59,828	9.87

Figure 4.15: *absolute*|*complete*|*outright*|*total*|*utter N of a(n) N*: top 30 by MI, frequency ≥ 3 (5,498 hits (tokens) from 388 words (types))[200]

[199] Detailed studies of this construction include those in Bolinger (1972), Austin (1980), Aarts (1998), den Dikken & Singhapreecha (2004), Khudyakova (2007), Villalba (2008), Champollion (2010).

[200] To reproduce these results, follow the instructions in appendix A.3.

#	Modifier	Hits↓	Hit %
1	complete	2,105	38.29 %
2	total	2,052	37.32 %
3	absolute	1,099	19.99 %
4	utter	145	2.64 %
5	outright	97	1.76 %

Figure 4.16: Modifier distribution

Manual inspection of some of the matches supports the intuition that, when premodified by maximizing modifiers, the binominal structure tends to elicit evaluative and/or hyperbolic meanings. Noticeably, metaphors of positivity or negativity like *gem*, *peach* and *dump* occur frequently in the N1 position.

(203) a. It's an **absolute gem of a building** and it was my first choice as a setting for this story. [#43912440]
b. Just as it looked like the match was going to wind down at 2-2 Lu Lin pops up and bags an **absolute peach of a goal**. [#3473455727]
c. While I'm listing the "cons" I'll say that Surfer's Paradise is an **absolute dump of a place**. [#10508098525]
d. Overall, a **total shambles of a film**. I would not reccomend this to anyone at all! [#5272333449]

A particularly productive source of nouns for the N1 position comes from apparently deverbal -$(e)r$ suffix nouns that in context do not entail the existence of the lexically specified event, such as *stormer*, *belter* and *corker*. This is interesting, but somewhat unsurprising, as previous queries have established that this kind of noun tends to be [+big +utter].

(204) a. This is an **absolute stormer of a book**. [#9054342414]
b. The previous Leon Cupra R was an **absolute belter of a car** and makes a great used buy. [#8496917094]
c. One of his best moments in a Foggia shirt surely had to be this **absolute corker of a goal**. [#5850632504]
d. There's an **absolute stinker of an article** in today's New York Times, emotively talking up an terrible lawsuit. [#10204810284]
e. Jimmy Devanney landed an **absolute cracker of a pike** yesterday at Templemore town lake. [#3885069141]

f. Last night, there was an **absolute stunner of a sunset** in Auckland. [#11907657114]

4.4 Is [+utter] a proper subset of [+big]?

This section provides evidence contrary to the suggestion in Morzycki (2012b: 194) that the nouns that accept *utter*-type degree modifiers ([+utter]) form a proper subset of those that accept *big*-type degree modifiers ([+big]). If this conjecture is true, and assuming that [+big] is also a proper subset of the set of nouns that accept *real*-type degree modifiers ([+real]),[201] it would lead to the simple inclusion hierarchy [+utter] ⊂ [+big] ⊂ [+real] shown in the Venn diagram in figure 4.17.[202]

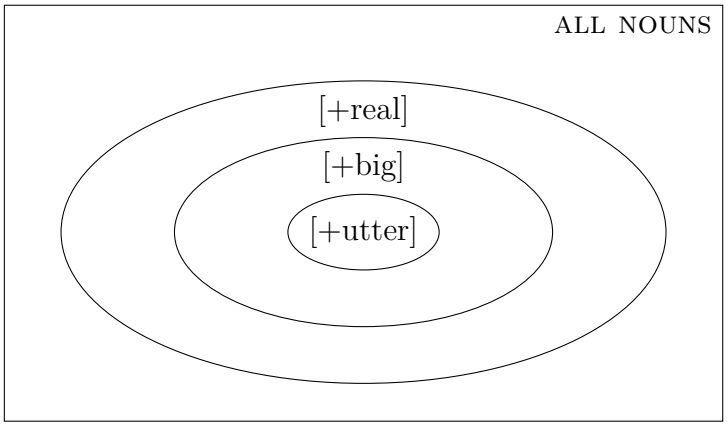


Figure 4.17: Inclusion hierarchy predicted by Morzycki's data

While Morzycki's examples support the existence of such a relationship, the corpus results below suggest that such a claim is not sustainable when evaluated against the much larger amount of data in the enTenTen15 corpus, or at least that its applicability may have to be limited to a certain subset of gradable nouns.

The exploratory query documented in this section elicits 78 nouns that are adnominally modified by *utter* in the enTenTen15 corpus, and can thus reasonably be expected to be potential targets for degree intensification. Unexpectedly, most of these nouns never collocate with *big*, and the remainder only do so once or

[201] Which Morzycki does not claim explicitly, although his evidence strongly suggests it, e.g. example (5) in chapter 2.

[202] The diagram assumes that some nouns do not fall within [+real], which on Morzycki's arguments is because they do not have prototypes.

twice. The main headlines from this exercise are as follows. The full results are set out in figure 4.18.

- All 78 nouns in the sample collocate with *utter* at least 12 times;[203]
- 59 of the nouns never collocate with *big*, although some pattern with other (stronger) size adjectives (205);
- The remaining 19 nouns only occur with *big* once or twice, which is below the Sketch Engine default minimum frequency, and would not normally be recorded as concordances;
- 28 of the nouns never occur with any of the size modifiers under consideration (*big*, *colossal*, *enormous*, *gargantuan*, *huge* or *mammoth*) (206).

The imbalance between *big* and *utter* is somewhat surprising, given that *big* occurs adnominally almost 34 times more frequently (1,641,536 vs. 48,718).

(205) **Nouns never adnominally modified by *big* (59)**[204]
abandonment, annihilation, bafflement, banality, barbarism, bewilderment, blackness, brutality, clarity, contentment, craziness, depravity, destitution, dominance, drivel, dross, exasperation, exhaustion, extirpation, fearlessness, frankness, futility, helplessness, hopelessness, impossibility, impunity, inability, incapacity, incomprehension, incredulity, inhumanity, innocence, irrelevance, lawlessness, loathing, lunacy, meaninglessness, nakedness, obscurity, passivity, perfection, powerlessness, recklessness, ridiculousness, ruthlessness, savagery, seclusion, selflessness, seriousness, shamelessness, sinfulness, stillness, tripe, twaddle, unworthiness, uselessness, weariness, worthlessness, wretchedness.

(206) **Nouns never adnominally modified by *big*, *colossal*, *enormous*, *gargantuan*, *huge* or *mammoth* (28)**
bafflement, barbarism, bewilderment, contentment, craziness, drivel, exasperation, extirpation, frankness, hopelessness, incredulity, inhumanity, lunacy, meaninglessness, nakedness, obscurity, ridiculousness, ruthlessness, seclusion, selflessness, shamelessness, sinfulness, tripe, twaddle, unworthiness, uselessness, worthlessness, wretchedness.

[203] 12 is an arbitrary threshold that elicits the most frequent matches that fit on a single page.
[204] Although apparently infelicitous with *big* itself, several of these nouns pattern with arguably stronger and more expressive size adjectives, e.g. ***huge*** *dominance*, ***enormous*** *brutality*, ***colossal*** *stupidity*.

It is worth stressing that the examples in (205) and (206) are unlikely to be all the nouns in the enTenTen15 corpus that resist degree modification by size adjectives. The list of 78 nouns I used to seed the search was discovered by a developmental process of trial-and-error.[205] I defer the development of a more scientific experiment for future research, ideally one involving native speaker consultants.

The full search results are shown in figure 4.18 below. The column codes indicate whether the results relate to modification by *big* itself (B), the other size modifiers (*colossal*, *enormous*, *gargantuan*, *huge* and *mammoth*) (O) or *utter* itself (U).

[205]I began my research with the BYU iWeb corpus (Davies 2018) before adopting Sketch Engine. I developed a strategy that involved extracting data from iWeb search results into SQL database tables using the R programming language. Using SQL enabled me to frame much more complex queries than are possible using iWeb's native query language, including finding nouns that collocate with *utter* but not *big*. On reflection, however, I realised that such an approach would make it hard for other researchers to reproduce my results, and I went back to the standard iWeb (and later Sketch Engine) query languages. The list of 78 nouns cited in this section derives from my initial exploratory work on iWeb.

#	Noun	Freq	B	O	U↓
1	amazement	22,939	2	3	464
2	madness	59,922	1	1	319
3	helplessness	15,316		3	288
4	inability	128,928		3	254
5	hopelessness	18,925			251
6	stupidity	24,480	1	41	244
7	indifference	40,587	2	8	200
8	desperation	40,582	1		195
9	exhaustion	41,481		4	188
10	incompetence	26,271	1	22	183
11	desolation	9,915	1	2	178
12	futility	14,263		1	172
13	impossibility	21,720		1	159
14	annihilation	18,362		1	130
15	foolishness	10,239	2	3	129
16	bewilderment	6,666			121
17	absurdity	20,533	1	1	110
18	insanity	35,941	1	3	108
19	impunity	51,218		6	107
20	stillness	19,916		1	102
21	destitution	7,006		1	98
22	perfection	88,804		3	94
23	abandonment	41,866		1	89
24	depravity	9,463		2	87
25	humility	71,681	1	8	86
26	clarity	167,693		18	83
27	blackness	11,701		1	79
28	seriousness	43,108		10	74
29	dominance	86,575		14	68
30	uselessness	2,639			66
31	ruthlessness	3,786			66
32	brutality	55,084		11	63
33	irrelevance	6,704		1	58
34	brilliance	32,803	1	3	56
35	lunacy	5,247			54
36	drivel	4,263			52
37	powerlessness	8,769		1	51
38	ridiculousness	2,703			48
39	contentment	17,793			47

#	Noun	Freq	B	O	U↓
40	worthlessness	2,128			46
41	tripe	3,076			45
42	lawlessness	11,931		1	41
43	strangeness	7,471	1	2	40
44	incapacity	12,212		2	40
45	recklessness	6,077		1	37
46	sinfulness	5,871			35
47	weariness	7,142		2	35
48	banality	4,127		2	33
49	loathing	6,620		2	32
50	fearlessness	5,321		1	30
51	obscurity	17,812			30
52	selflessness	7,651			28
53	filth	15,224	2		27
54	inhumanity	6,718			25
55	barbarism	9,557			24
56	unworthiness	2,044			24
57	incredulity	3,700			23
58	despondency	3,219	1		22
59	incomprehension	2,122		3	22
60	shamelessness	818			21
61	extirpation	1,965			21
62	innocence	59,714		2	21
63	meaninglessness	2,142			20
64	twaddle	813			20
65	passivity	9,539		2	19
66	wretchedness	2,392			19
67	unwillingness	21,635	1		19
68	purity	71,111	1	1	17
69	nakedness	5,666			17
70	craziness	8,880			16
71	savagery	7,192		1	15
72	dross	2,886		1	15
73	bafflement	984			15
74	balderdash	466	1		14
75	seclusion	13,194			14
76	exasperation	5,334			13
77	tranquillity	10,017	1	1	13
78	frankness	3,978			12

Figure 4.18: Nouns with big (B), other size-modifiers (O) and utter (U)[206]

[206]To reproduce these results, follow the instructions in appendix A.6.

At first sight, the very low collocation frequencies in figure 4.18 suggest that speakers avoid combining *big*-type degree modifiers with the 78 nouns in figure 4.18. As was done for *utter* in figure 4.7, a chi-squared test can lend assurance to this intuition without relying on raw frequency. The null hypothesis (H_0) in this case refers to both size and degree readings, as I have no automated mechanism for resolving the inherent ambiguity.[207]

> H_0: The adnominal modifier *big* is equally likely to occur with any noun.
>
> H_1: The adnominal modifier *big* is not equally likely to occur with any noun.

If H_0 was true, the probability of any adnominal modifier being *big* would be equal to the frequency of *big N* divided by the frequency of all adjective/noun pairs *A N* in the corpus.

$$\begin{aligned} \text{prob}(\textit{big } N) &= \text{freq}(\textit{big } N) \text{ / freq}(A \ N) \text{ for all } A, N \\ &= 1{,}641{,}536 \text{ / } 461{,}107{,}603 \\ &= 0.003559985 \end{aligned}$$

The expected frequency of *big* with any noun N_i can then be derived by multiplying this probability by the number of occurrences of *A* N_i for any adjective *A* in the corpus. In the case of *big perfection*, the calculation proceeds as follows.

$$\begin{aligned} \text{E}(\textit{big perfection}) &= \text{freq}(A \textit{ perfection}) * \text{prob}(\textit{big } N) \\ &= 15{,}716 * 0.003559985 \\ &= 55.95 \end{aligned}$$

While the expected number of occurrences of *big perfection* is 55.95, the observed number of occurrences is 0. The significance of such results across the dataset in figure 4.18 can be assessed by a chi-squared test, as shown in figure 4.19

[207] The abstract mass nature of many of the nouns in question does tend to rule out physical size meanings, however.

#	Noun	O	AN	E	$(O-E)^2/E$
1	amazement	2	2,843	10.12	6.52
2	madness	1	8,936	31.81	29.84
3	helplessness	0	1,876	6.68	6.68
4	inability	0	10,590	37.70	37.70
5	hopelessness	0	1,407	5.01	5.01
6	stupidity	1	6,774	24.12	22.16
7	indifference	2	11,826	42.10	38.20
8	desperation	1	4,762	16.95	15.01
9	exhaustion	0	8,107	28.86	28.86
10	incompetence	1	6,848	24.38	22.42
11	desolation	1	1,686	6.00	4.17
12	futility	0	1,542	5.49	5.49
13	impossibility	0	4,540	16.16	16.16
14	annihilation	0	5,440	19.37	19.37
15	foolishness	2	1,850	6.59	3.19
16	bewilderment	0	1,030	3.67	3.67
17	absurdity	1	3,431	12.21	10.30
18	insanity	1	6,004	21.37	19.42
19	impunity	0	6,189	22.03	22.03
20	stillness	0	4,225	15.04	15.04
21	destitution	0	1,088	3.87	3.87
22	perfection	0	15,716	55.95	55.95
23	abandonment	0	6,246	22.24	22.24
24	depravity	0	3,619	12.88	12.88
25	humility	1	9,604	34.19	32.22
26	clarity	0	29,609	105.41	105.41
27	blackness	0	2,162	7.70	7.70
28	seriousness	0	4,993	17.78	17.78
29	dominance	0	24,509	87.25	87.25
30	uselessness	0	497	1.77	1.77
31	ruthlessness	0	794	2.83	2.83
32	brutality	0	8,622	30.69	30.69
33	irrelevance	0	1,422	5.06	5.06
34	brilliance	1	10,108	35.98	34.01
35	lunacy	0	1,601	5.70	5.70
36	drivel	0	1,824	6.49	6.49
37	powerlessness	0	1,134	4.04	4.04
38	ridiculousness	0	478	1.70	1.70
39	contentment	0	3,473	12.36	12.36
40	worthlessness	0	228	0.81	0.81
41	tripe	0	720	2.56	2.56
42	lawlessness	0	1,551	5.52	5.52
43	strangeness	1	1,419	5.05	3.25
44	incapacity	0	3,102	11.04	11.04
45	recklessness	0	1,436	5.11	5.11
46	sinfulness	0	1,515	5.39	5.39
47	weariness	0	1,121	3.99	3.99
48	banality	0	804	2.86	2.86
49	loathing	0	1,211	4.31	4.31
50	fearlessness	0	508	1.81	1.81
51	obscurity	0	3,755	13.37	13.37
52	selflessness	0	581	2.07	2.07
53	filth	2	2,355	8.38	4.86
54	inhumanity	0	973	3.46	3.46
55	barbarism	0	1,980	7.05	7.05
56	unworthiness	0	342	1.22	1.22
57	incredulity	0	587	2.09	2.09
58	despondency	1	410	1.46	0.14
59	incomprehension	0	611	2.18	2.18
60	shamelessness	0	128	0.46	0.46
61	extirpation	0	447	1.59	1.59
62	innocence	0	7,517	26.76	26.76
63	meaninglessness	0	307	1.09	1.09
64	twaddle	0	370	1.32	1.32
65	passivity	0	1,913	6.81	6.81
66	wretchedness	0	429	1.53	1.53
67	unwillingness	1	2,392	8.52	6.63
68	purity	1	16,840	59.95	57.97
69	nakedness	0	824	2.93	2.93
70	craziness	0	1,261	4.49	4.49
71	savagery	0	1,959	6.97	6.97
72	dross	0	570	2.03	2.03
73	bafflement	0	184	0.66	0.66
74	balderdash	1	142	0.51	0.48
75	seclusion	0	2,104	7.49	7.49
76	exasperation	0	754	2.68	2.68
77	tranquillity	1	1,561	5.56	3.74
78	frankness	0	1,089	3.88	3.88
			293,405		χ^2 1,003.79

$$\chi^2\ (77,\ \mathrm{N} = 293{,}405) = 1{,}003.79\ \mathrm{p} < .001$$

$$\begin{aligned}
\text{prob}(\textit{big N}) &= \text{freq}(\textit{big } N) \text{ / freq}(A\ N) \text{ for all } A,\ N \\
&= 1{,}641{,}536 \text{ / } 461{,}107{,}603 = 0.003559985 \\
\text{O} &= \text{observed frequency of } \textit{big } N_i \text{ for a given noun } N_i \\
\text{AN} &= \text{observed frequency of } A\ N_i \text{ for all } A \\
\text{E} &= \text{expected frequency of } \textit{big } N_i \\
&= \text{AN}_\text{i} * \text{prob}(\textit{big N}), \text{ assuming } \text{H}_0
\end{aligned}$$

Figure 4.19: χ^2 test for the existence of [−big +utter][208]

The significance test in figure 4.19 suggests that we should reject the null hypothesis in favour of the alternative hypothesis H_1, namely that the adnominal

[208]To reproduce these results, follow the instructions in appendix A.7.

modifier *big* is not equally likely to occur with any noun.

This supports the conjecture that there is a distinct subcategory of [+utter] nouns that (while being degree nouns), are strongly reluctant to collocate with *big* on either a size or degree reading. The (to me) previously unexpected subcategory is shown shaded in the revised taxonomy of gradable nouns in figure 4.20.

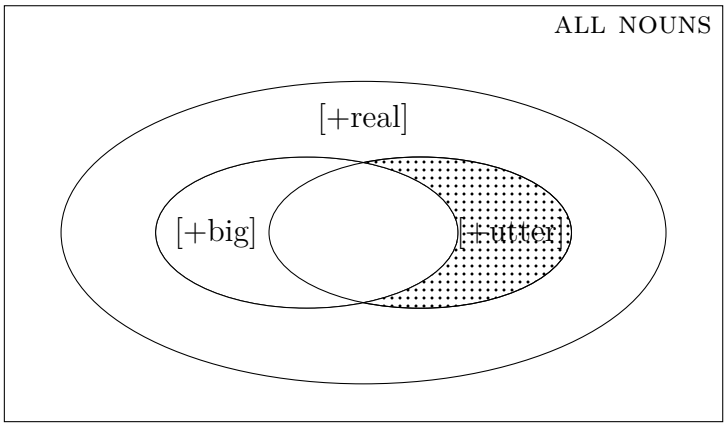


Figure 4.20: Inclusion hierarchy suggested by corpus results

I do not fully understand the reasons for the such avoidance, but I suspect that it may be connected with the abstract mass nature of this particular type of noun. The affected nouns all fall into Constantinescu's (2013) 'type B' category (abstract nouns like *idiocy* that denote properties or tropes), rather than her 'type A' category (nouns like *idiot* that denote individuals characterized by an abstract property of the type B kind). Constantinescu's categorization of (for her, allegedly) gradable nouns is explained in more detail in section 3.6.

A possible explanation for this phenomenon comes from the observation in Schwarzschild (2009) that *big* is a 'stubbornly distributive' modifier. Compare, for example, *the boxes are heavy*, which has both collective and distributive readings, with *the boxes are big* which can only be interpreted distributively.[209] Constantinescu (2013: 190) suggests the same cause for the infelicity of the predicative phrase *#Generosity is enormous*, although in this case the size adjective is able to appear in attributive position: *enormous generosity*.

On Schwarzschild's account, *big* generally resists patterning with mass entities as they project no atoms for it to distribute to, and due to *big*'s inherent 'stubbornness' it is unable to deliver the alternative collective reading – although, as

[209]Schwarzschild's original example was *the boxes are* ***large***.

he notes, there is no obvious reason why it should not be able to do so.[210]

Alternatively, Vera Hohaus (p.c.) wonders how unacceptable *big* modification really is to native language speakers. Does the apparent reluctance to deploy it indicate genuine infelicity, or is it the result of competition with other (perhaps stronger and more evaluative) lexical choices?

Although the existence of a previously-unidentified [−big +utter] category is interesting, beyond apparently being a subset of the (abstract) mass nouns, its nature and constitution is somewhat mysterious, and I reserve further investigation for future research. In particular, the technical proposal in chapter 5 does not attempt to model the semantics of this category, and makes the tacit assumption that all [+utter] nouns are [+big +utter].

4.5 Conclusions regarding Morzycki's evidence

Based on visual inspection, the corpus evidence generally supports Morzycki's categorization of his example set of nouns according to the *big-* and *utter*-type degree modifiers they pattern with, save for apparent exceptions such as *enthusiast* where the results contradict his data. This intuition is backed up in the case of *utter* by a chi-squared test, which confirms the (fully expected) existence of a statistically-significant division of nouns into [−utter] and [+utter] categories, with a high level of probability.

On reflection, the dataset is perhaps somewhat skewed for my purposes by the high proportion of nouns which take 'abstract size' readings, and which are therefore atypical gradable nouns from Morzycki's point of view (*problem*, *mistake*, *snowstorm*, *catastrophe* and, arguably, *disaster*). Under modification by size adjectives these nouns do not display discernible differences in meaning between their ordinary and degree interpretations (although Constantinescu 2011, 2013 offers an alternative view of this phenomenon, as discussed in chapter 3). However, *catastrophe*, *disaster* and *mistake* do all combine felicitously with *utter*-type modifiers, with the expected maximizing meanings such as 'as much of a catastrophe as it could be' / 'catastrophe in all respects', despite their failure to conform to the Position and Bigness Generalizations with size adjectives.

[210]Exceptions noted by Schwarzschild include mass nouns that denote collections, as atoms are readily available, thus licensing the distributive reading (*some/big furniture*, *some/big luggage*), and mass nouns packaged as count nouns (*I'd like some/a big water please*). None of the mass nouns in figure 4.18 is a collective mass noun of the *furniture* type.

Of the remaining (more canonical) nouns, it is striking that the strongly negative evaluative terms *bastard*, *idiot* and *bullshit* appear to be far more common with *utter*-type modifiers than they are with size adjectives. Although the raw figures cannot indicate what proportion of ordinary/degree matches occur, visual inspection suggests that most (if not all) of the *utter*-type hits have degree interpretations.

Noun	*big*-type↓	*utter*-type	*utter* itself
bullshit	5	824	241
idiot	64	1,226	50
bastard	66	158	24

Figure 4.21: Modifier types with evaluative nouns from Morzycki's data

This is perhaps because when speakers are minded to express very strong evaluative opinions, they feel the need to reinforce their conversational position by excluding the possibility that the individual or entity in question (or indeed any third party) could be 'any more of an N' and/or 'N in more respects'. In such circumstances, it is understandable that a speaker would chose to describe a third party as an *utter idiot*, rather than the somewhat less committed *big idiot*.[211]

The situation is reversed with the three deverbal nouns in Morzycki's example set, although as mentioned above this is not a particularly large or representative collection of such nouns. The results are in line with the intuition that this type of noun is fundamentally [+big −utter], and can be expected to reject *utter*-type endpoint related modification.

Noun	*big*-type↓	*utter*-type	*utter* itself
smoker	20	0	0
N collector	41	1	0
N player	394	114	0

Figure 4.22: Modifier types with deverbal *-er* suffix nouns from Morzycki's data

The *N player* examples are interesting, in that a (relatively) high proportion of *utter*-type modifications obtain. My intuition (and indeed a major assumption in the technical analysis in chapter 5) is that degree modification of deverbal nouns is in general restricted to size adjectives, with any degree uses of the *utter*

[211] In other words, these results might be the result of competition between valid lexical choices, rather than indicating any kind of semantic restriction on size adjectives.

modifiers counting as strongly marked coercions. This intuition is reinforced by the results with *utter* alone (the only reliable degree maximizer), which report no matches for *utter N player* or *utter N collector*.

Manual inspection of the relatively small number (114) of *utter*-type examples confirms that they are without exception ordinary readings of the 'N with no parts missing' or 'absolutely/totally an N' kinds, rather than instances of degree intensification.

(207) Complete (75 instances)

a. He is a **complete football player** – relentless, fearless and tough. [#10401704868]

b. He is the definition of a **complete ballplayer**. He is good in all aspects of the game [...] [#7787199478]

c. The first step to becoming a **complete soccer player** is a solid technical base, especially for ages 7-10. [#9026115908]

d. He's at least 2 years from being a **complete basketball player**, but he's already contributing to the game. [#6257997740]

(208) Total (30 instances)

a. He's quick, ultra competitive, a **total team player**, and a fast learner. [#14183773311]

b. That error with SS1 and NK2 positioning was something that only a **total rookie player** does. [#221242342]

(209) Absolute (9 instances)

a. I'm a problem solver and **absolute team player** and also work very well on my own initiative. [#13097491986]

b. Tesla has a positive image but is an **absolute niche player**. [#1513531608]

In sum, Morzycki's evidence holds up well when tested against a very large corpus of modern English, although it consists of a rather unbalanced set of nominals, including a very high proportion of 'abstract size' nouns (which Morzycki does not consider to form genuine degree readings), as well as unusual two- and three-word NPs such as *mafia goon* and *goat cheese enthusiast* that were perhaps chosen for their illustrative qualities, rather than their typicality.

4.6 Summary

The corpus evidence presented in this chapter broadly supports Morzycki's intuitions regarding the partitioning of gradable nouns by *big*- and *utter*-type modifiers, at least for count nouns like *smoker* and *idiot*. With the possible exception of *enthusiast* (which my results suggest is [+big +utter], rather than [+big −utter]), his sample nouns appear to categorize as predicted based on the much larger body of evidence contained in the enTenTen15 corpus.

Although by definition [+big +utter] nouns combine with both size adjectives and maximizers, the results in figure 4.21 suggest that evaluative (and typically hyperbolic) [+big +utter] nouns like *bastard*, *bullshit* and *idiot* are much more likely to collocate with correspondingly evaluative *utter*-type modifiers than with the milder *big* type. This is reminiscent of the patterning of extreme adjectives with extreme degree modifiers, where although we could, for example, describe an individual as *very gorgeous*, we are perhaps more likely to select a stronger form such as *utterly gorgeous* (Morzycki 2012a).

An interesting subset of the [+big −utter] nouns that is only represented by the relatively low-frequency *fascist* in Morzycki's evidence consists of agentive nouns that are not morphologically deverbal, such as *guitarist*, *mathematician*, *vegetarian* and *philanthropist*. Such nouns appear to denote the agent of an implied event whose theme is lexically embedded in the noun, for example ***playing*** *guitar*, ***doing*** *mathematics*, ***practising*** *vegetarianism* or ***espousing*** *philanthropy*.

In contrast, a particularly rich source of [+big +utter] nouns turned out to be morphologically deverbal nouns that in context do not entail the existence of the event denoted by the embedded verb, for example *belter*, *corker*, *stormer*, *stinker*, *tosser* and *wanker*.

Perhaps the most interesting discovery was the unexpected reluctance of in particular *big*, and to a lesser extent the other size adjectives under discussion, to combine with a subset of [+utter] nouns consisting mostly of abstract mass nouns such as *perfection* and *bewilderment*, and concrete mass nouns used in an abstract sense such as *tripe*.

The apparent existence of a [−big +utter] category of nouns is contrary to Morzycki's suggestion that the [+big +utter] nouns form a proper subset of the [+big −utter] ones. These results are curious and unexpected, and were produced by a speculative ad hoc query after I noticed a general lack of matches for *big*

with nouns having characteristically abstract suffixes. While that query elicited the 78 nouns cited in figure 4.18, there is no guarantee that they constitute all relevant examples in enTenTen15 (there could be many more), or indeed that that they are representative of the type of noun affected by the phenomenon.

I do not investigate this phenomenon further in this thesis, and reserve the matter for future research.[212]

[212]The denotations in chapter 5 do not attempt to address or exclude the putative [−big +utter] category, such as by imposing domain restrictions on mass nouns.

Chapter 5

Technical Proposal

This chapter presents my proposed solutions to the research questions from section 1.3, which are reproduced below.

(i) **Research Question 1:** How can the ordinary and degree readings that arise under adnominal modification by size adjectives like *big* and maximizers like *complete* be explained compositionally?

(ii) **Research Question 2:** Why are the degree readings of size adjectives like *big* and *huge* possible both with nouns like *smoker* and with nouns like *idiot*?

(iii) **Research Question 3:** Why are the degree readings of maximizers like *utter* and *complete* possible with nouns like *idiot*, but not with nouns like *smoker*?

5.1 Overview of the proposed solution

5.1.1 Rationale for a kind-based approach

A key element of my proposal is that the degree readings of adnominally modified noun phrases like *big smoker* and *total idiot* should be interpreted as denoting sets of *kinds* of smokers and idiots, rather than sets of *individuals* as one might expect from a standard extensional semantic theory.

Such an approach is not entirely novel. Constantinescu (2011: 46) claims that nominal gradability is an 'illusion'. For her, adnominal degree modification as proposed by Morzycki simply does not exist, and the phenomena purported to

demonstrate it can instead be explained as kind-based effects. For example, *big idiot* can be interpreted as 'a sub-type of idiot as defined by a high degree of idiocy' (Constantinescu 2011: 228).

In contrast to Constantinescu, I view nominal gradability as a degree-based mechanism that is just as real as its more well-researched adjectival cousin, although I share her view that kinds are the main linguistic vehicle through which the observed phenomena are realized. In my model degrees and kinds work together. With its adjectival interpretation, a modifier like *big* increases the size of its referent on some dimension, while on a degree reading it increases the intensity of the nominal concept represented by the referent's kind.[213] Intensity is arguably just a measure of abstract size,[214] and while nominal intensification has a correspondingly more abstract nature than physical size modification, both meanings can be captured using standard degree semantics.

In overview, I propose a theory where the meaning of *every* noun is fundamentally derived from its relationship to a kind,[215] but only certain nouns – the gradable ones – can have their meaning intensified through adnominal modification. The deciding factor is that gradable nouns entail the presence of either a modifiable **event** for [+big −utter] nouns like *smoker* or *guitarist*, or a modifiable **state** for [+big +utter] nouns like *idiot*, or otherwise ungradable NPs like *coat hanger* when subjected to scalarity coercion in phrases like *You absolute coat hanger!*

A key motivation for adopting a kind-based solution is that kinds can provide a cogent explanation of the degree modification of deverbal nouns by size adjectives in the very common context where size indicates frequency of participation in the event denoted by the embedded verb. If an individual is described as a *big sailor*, a likely (but cancellable) inference is that they are a *frequent sailor*, in other words the *kind* of sailor who sails frequently.

[213]This is an informal description. My understanding of the precise distinction between the ordinary and degree meanings is set out in the form of denotations in section 5.4.

[214]The use of size adjectives in phrases like *big smoker* and *big idiot* is perhaps metaphorical, as Lakoff et al. (1991) suggest for *big eater*.

(i) a. **Amount is size**: I'm not a big eater. (Lakoff et al. 1991: 14)
b. **More is bigger**: He's a bigger eater than she is. (Lakoff et al. 1991: 62)

[215]This follows the principle in Gehrke & McNally (2015: 852) that nouns denote properties of kinds. Chierchia (1998: 348) takes a more conservative view and restricts the creation of kinds to 'natural nouns'.

The application of kinds to the interpretation of frequency adjectives was developed in Gehrke & McNally (2011, 2015).[216] Their analysis covers several distinct meanings, of which the case of interest to this thesis is the so-called 'internal reading', where a *frequent sailor* means a 'sailor who sails frequently' (Stump 1981, Zimmermann 2003, Schäfer 2007).[217] The internal reading is particularly associated with participant nouns like *sailor* (Gehrke & McNally 2015: 840), a canonical example of a Morzycki [+big −utter] noun.

It is clear that a single event of sailing cannot be classified as 'frequent', because 'there is no way to give an individual event an interesting distribution over time' (Gehrke 2017: 71); to establish frequency it is necessary to quantify over related events within some salient time span. Gehrke & McNally demonstrate how this can be achieved in a kind-based denotation by using a realization operator (Carlson's (1977a) **R** relation) to access the set of individual events that instantiate the kind in question at a given temporal index.[218]

Gehrke & McNally's kind-based analysis of *frequent sailor* is presented in detail in section 5.1.3. In overview, it proceeds by treating both *frequent* and *sail* at the NP level as predicates (or equivalently sets) of event-kinds. Their intersection creates a set of sailing event-kinds representing pluralities of individual events whose temporal distribution qualifies them as 'frequent'.[219] The NP *frequent sailor* can then be interpreted as a predicate (or set) of individual-kinds, subkinds of *sailor* whose realizations at the NumP level are precisely those individual sailors who are the agents of (plural) events of sailing that count as 'frequent' in context.

My analysis extends Gehrke & McNally's (2015) treatment of frequency adjectives to degree adjectives in general, and specifically to the *big* and *utter* types

[216]See also Gehrke (2017, 2019, To appear) for more insight into this line of theory.

[217]The other interpretations of frequency adjectives investigated by Gehrke & McNally (2015) are the 'generic reading' (*Frequent check-ups are essential* ≈ 'on a frequent basis') and the 'adverbial reading' (*An occasional sailor strolled by* ≈ 'occasionally', Bolinger 1967). See Stump (1981), Zimmermann (2003), Schäfer (2007) for more information on these additional cases, neither of which is relevant to the phenomena investigated in this thesis.

[218]Depending on meaning, frequency can be established from pluralities of events without recourse to kinds. Gehrke & McNally (2015: 854) contrast the singular phrase *daily broadcast* (which refers to a kind of event) with the plural phrase *frequent downdrafts* (which refers to a plurality of event tokens, not a kind).

[219]Set intersection of kinds can generate subkinds in the same way that ordinary intersective modification of non-kind denoting predicates generates subsets of individuals. However, in this case there is no suggestion that 'frequent sailing' forms a meaningful subkind of sailing in the same way that (say) 'frequent sailor' does (Louise McNally p.c.).

studied by Morzycki (2005, 2009, 2012b). Bringing kinds into the ontology has significant advantages for my own analysis. Once kinds are available, they enable a consistent analysis to be applied to any nominal degree reading that represents evaluations of behaviour across multiple events, including readings of duration (*big reader*), consumption (*big eater*) and production (*big polluter*), as well as frequency.

As I demonstrate in section 5.4.4, it is relatively straightforward to extend Gehrke & McNally's analysis from frequency adjectives to size adjectives like *big* on the basis that a *big sailor* is an individual who engages in what might be called 'big sailing' (although we would not usually phrase it that way in English), a kind of sailing which stands out from normal sailing due to factors such as frequency, distance or duration. On this basis, gradable nouns of the *sailor* type denote relations between individual-kinds and event-kinds: a *big sailor* is the kind of individual who is the agent of a kind of sailing that is perhaps more frequent, longer in distance or duration, or performed more enthusiastically than the kind of sailing undertaken by the average sailor.[220]

As agentive -$(e|o)r$ nominalizations like *sailor* appear to be the most common form of noun in Morzycki's [+big −utter] category, this move is crucial to my overall proposal. The technique would also apply to nouns that are not morphologically deverbal, such as *guitarist*, *athlete* and *vegetarian*, where there are nevertheless implied events of perhaps ***playing*** *guitar*, ***doing*** *athletics* and ***practising*** *vegetarianism* that can be interpreted as kinds and intensified in similar ways.[221]

In section 5.4.5, essentially the same analytical technique is used to derive a kind-based derivation of *big idiot*, save that [+big +utter] nouns like *idiot* are not eventive, but stative. On my analysis, the degree reading of *big idiot* forms a meaningful subkind of *idiot*, denoting the kind of individual who is the holder of a state-kind of idiocy whose intensity is greater than that held by the average idiot.[222] As is the case with *sailing*, there are many different subkinds of *idiocy*

[220]Although I will provisionally extend the analysis to modifiers like *enthusiastic*, I am less confident in claiming that *enthusiastic sailing* is a kind of sailing; it might better be considered as any kind of sailing for which the sailor in question has enthusiasm.

[221]On this account, a *big vegetarian* might be one who practises (or espouses) vegetarianism enthusiastically, devotedly, passionately, zealously, etc.

[222]Adnominally modified expressions such as *big idiot* and *big smoker* are not established kinds in the same way that (say) *French wine* is, and have a more ad hoc flavour. Umbach & Gust (2014) propose an alternative approach to dimensionality in adjectives and nouns based on similarity and the generation of ad hoc kinds. I was unaware of this paper at the time of

that could potentially qualify an individual as a *big idiot*. Apart from the use of kinds, my state-based analysis of *big idiot* is broadly similar to that in Wellwood (2019: 170–172), although I do not adopt Wellwood's semantics directly, and I make different syntactic assumptions.

In contrast, literal-size readings are not usually kind-denoting. On its size reading a *big sailor* is simply a physically large individual who sails, not a *kind* of sailor.[223] This leads to the second major analytical advantage of using kinds, which is a by-product of adopting Gehrke & McNally's theory, rather than central to it. If (as I claim) degree modification occurs only as a part of kind formation, and if kind formation only occurs at a specific syntactic level (below NumP in NP, as Gehrke & McNally argue), then degree readings cannot result from predicative adjectival modification, as the modifier and noun are separated by another category (typically the copular *be*), and in any case the modifier cannot access the kind-level nominal meaning, as this does not project above NP.

Given that the typal distinction between kinds and non-kinds is mirrored by a categorial distinction between NP and NumP, and further that on my account degree modification by *big-* and *utter*-type adjectives necessarily involves kind modification, the syntactic bracketing provided by NumP/NP provides a direct explanation of Morzycki's (2005, 2009) Position Generalization, without requiring the introduction of novel syntactic categories such as his proposed Deg_{NOM}P or Deg_{N}P.[224]

5.1.2 Kinds in general

Much of the literature on kinds in language relates to expressions that refer to kinds of 'things', such as natural kinds (*dogs*, *people*), social constructs (*actors*, *linguists*) and human artefacts (*movies*, *mechanical devices*) (Carlson 1977a, Krifka et al. 1995, Chierchia 1998 and many others). However, Landman & Morzycki (2003) and Gehrke & McNally (2011, 2015) extend the scope of the

writing the original version of this thesis, but it should be taken into account when considering future developments of the proposal presented in this chapter. Thanks to Vera Hohaus (p.c.) for mentioning this body of work to me.

[223]On the other hand, a *big cat* is a kind of cat (lion, tiger, etc.) which as a species is typically larger than other cats.

[224]Louise McNally (p.c.) points out that this analysis makes testable predictions about sentence structure and meaning. For example, a phrase such as 'intelligent big smoker' should allow a degree reading, while 'big intelligent smoker' should not (assuming that 'intelligent smoker' is not itself a kind of smoker). While this follows my own intuition, I reserve further investigation for future research.

theory to event-kinds like *dancing* or *sailing*,[225] and I demonstrate below that the further step of adding state-kinds to the ontology allows expressions such as *idiocy* and *genius* to be analysed along much the same lines. My final move is to treat Gehrke & McNally's event-kind analysis of *frequent sailor* as the template for more general event-kind denoting expressions such as *big smoker* as well as state-kind denoting expressions like *big idiot* and *complete genius*.

While I follow Gehrke & McNally's assumption that every noun is derived from a noun-kind (syntactically NP → NumP), for other authors the scope of kinds is more restricted. While Chierchia (1998: 348) proposes that nouns denoting 'natural properties' (dogs, trees, etc.) always have a related kind, human artefacts like chairs and cars, and more complex concepts such as 'intelligent students' or 'spots of ink' may or may not. For Chierchia, whether a given noun can constitute a kind is not lexically fixed, but depends on whether 'sufficiently regular behaviour' can be imputed based on context and social practice in the speaker community.[226] I will adopt a pragmatic approach that every noun has an underlying kind, although that kind may or may not surface as such in language, depending on its utility as an concept.

Kinds can be thought of as proper names for properties (Chierchia 1984: 18 citing Cocchiarella 1976).[227,228] For example, to say ***the dog*** *is a quadruped* or *I am scared of* ***dogs*** is to make a statement about the 'kind of thing that is a dog' (i.e. the dog-kind), rather than specific animals. Grammatically, both the definite phrase *The dog* and the bare plural *dogs* can be thought of as proper names for the 'kind of thing that is a dog', with kinds themselves being 'abstract individuals' (Carlson 1977a: 443).[229] Individual dogs are then the concrete realizations of

[225]See also the literature on Situation Theory, e.g. Barwise & Perry (1983).

[226]Chierchia gives the following examples of NPs which he suggests are not 'sufficiently lawlike as to be regarded as a kind' under standard diagnostics for kindhood such as *rare*, *widespread* and *come in x*.

(i) a. ??Boys sitting here are rare.
b. ??Parts of that machine are widespread.
c. ??People in the next room come in three sizes.
(Chierchia 1998: 372 cf. Carlson 1977b: 316)

[227]Chierchia refers to the process of deriving a named kind from a property as 'nominalization', but I will avoid this usage as I use the term to refer to morphological processes such as deverbal nominalization, e.g. *drinker* = *drink* + *er*.

[228]Introductions to the theory of kinds can be found in Carlson (1977a), Carlson & Pelletier (1995), Chierchia (1998), Krifka (1998). Carlson (2011) is a handbook-level overview.

[229]On the assumption that proper names refer to entities, kinds and their realizations can both

this generic dog-kind, members of a set whose constitution varies from time to time and from possible world to possible world. Kinds are thus an inherently intensional concept, although in this thesis I am only concerned with a single evaluation world and will abstract away from intensionality.

Chierchia (1998) gives a clear informal definition of the nature of kinds.

> It seems natural to identify a kind in any given world (or situation) with the totality of its instances. Thus, the dog-kind in our world can be identified with the totality of dogs, the scattered entity that comprises all dogs, or the fusion of all dogs around.
>
> (Chierchia 1998: 349)

My chosen approach of interpreting phrases like *frequent sailor* (Gehrke & McNally 2015), *big smoker* and *utter idiot* as fundamentally kind-denoting expressions which need to be syntactically 'promoted' before they can refer to individuals may seem at first sight to be a roundabout and rather abstract analytical approach. But as Carlson (1977a: 435) observes, in contrast to genuinely abstract NPs like *democracy* or *the speed of light*, kinds can 'predicate very concrete things of the subject' and 'can be tall, have wings, or even be sitting next to me in the theater'.

(210) a. This kind of animal is tall.
b. A certain kind of lizard has wings.
c. Some kind of duck was sitting next to me in the theater.

(Carlson 1977a: 435)

While the examples in (210) signpost the kind-denoting nature of the nouns by embedding them in a prepositional *kind of* phrase, many common uses of kinds surface as plain grammatical NPs. Indeed, Carlson (1977a: 413) treats all instances of bare plurals as the 'proper names of kinds of things'. As he points out, the examples in (211) are generic expressions that cannot be interpreted as referring to specific horses, not even as covertly-quantified expressions referring to 'all' or 'most' horses.

(211) a. Horses are widespread.

be treated as members of the domain of individuals D_e (cf. Krifka et al. 1995: 65), although as described in section 5.2 I will adopt sorted variable names to distinguish kinds from non-kinds.

b. Horses are extinct.
c. Horses are indigenous to eastern Chile. (Carlson 1977a: 414)

In addition to bare plurals, definite singular NPs, mass nouns and proper nouns can all be kind-denoting in context.

(212) a. The panda will become extinct soon.
b. Pandas will soon become extinct.
c. Gold has the atomic number 79.
d. *Ailuropoda melanoleuca* will become extinct soon.
(Krifka et al. 1995: 65)

The examples of kinds given so far are from the natural world, concepts that tend to form taxonomic kind/subkind hierarchies (Cruse 1986: 140, Krifka et al. 1995: 74 ff.). In the natural world, kinds are usually divergent at all levels: there is no animal that is both a *cat* and a *bear*, or that is both a *blue whale* and a *sperm whale*, for example.

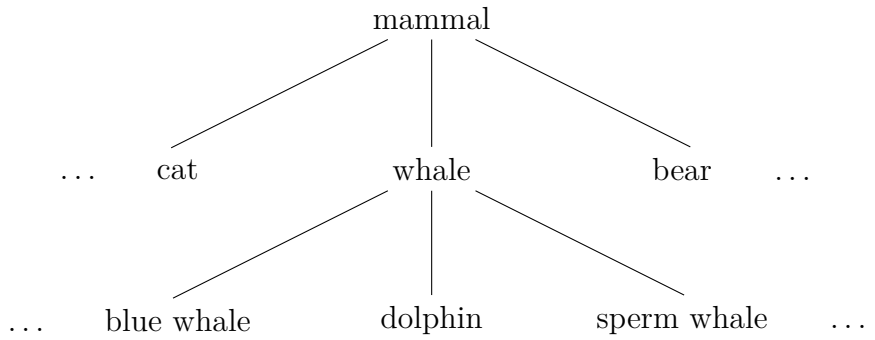


Figure 5.1: Taxonomic hierarchy with natural kind terms (Krifka et al. 1995: 76)

In contrast, the kinds of interest to this thesis are what Cruse (1986: 140) calls 'nominal kind terms', those which 'correspond in a fairly precise way to analytic definitions containing a superordinate with a modifier'. Indeed, previous authors have held a wide variety of adnominally modified NPs to be kind-denoting, including the examples below.

(213) a. intelligent students (Chierchia 1998)
b. clumsy people, clumsy dancings (Landman & Morzycki 2003)
c. technical architect (McNally & Boleda 2004)
d. big idiot (Constantinescu 2011)

e. French wine (Arsenijevíc et al. 2014)

f. frequent sailor (Gehrke & McNally 2015)

Given the presence of the canonical Morzycki-type nouns *idiot* and *sailor* in this list, it does not seem unreasonable to propose that *big sailor* is similarly kind-denoting.

The kind/subkind hierarchies generated by the modification of nominal kind terms are typically not taxonomic, as subkinds are not necessarily distinct: a *two-door car* can also be a *luxury car*, for example. In the Hasse digram below the hierarchy forms the familiar lattice structure of a Boolean algebra (e.g. Davey & Priestley 2002: 93 ff.).

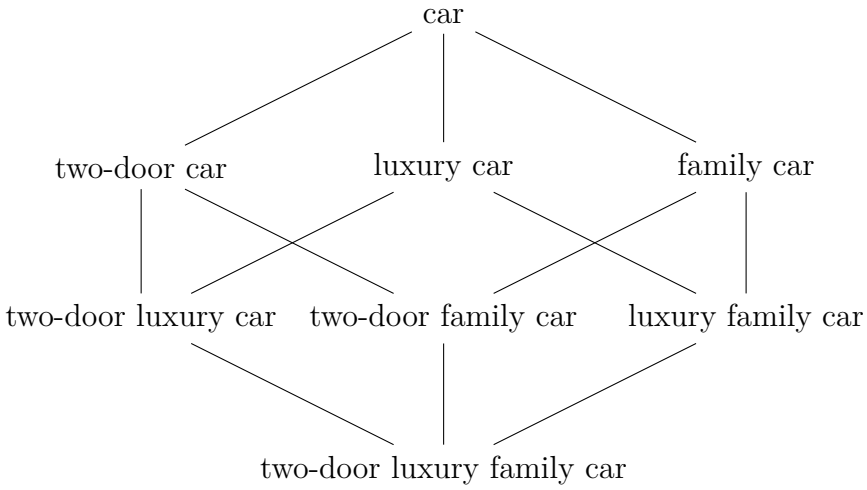


Figure 5.2: Non-taxonomic hierarchy with nominal kind terms

5.1.3 Using kinds to model frequency adjectives

Gehrke & McNally (2015) assume a layered structure to the determiner phrase similar to that proposed by Zamparelli (1995). On their account, the meaning of *every* noun originates as kind-denoting (and numberless) in an NP node, and becomes individual-denoting (with singular or plural number) when promoted to NumP. Their version of NumP thus subsumes the functionality of Zamparelli's 'Kind Phrase' (KIP), in addition to NumP's standard responsibility of assigning number.

In this style of analysis determiners select for NumP, rather than NP directly (cf. Sportiche et al. 2013 online version). My interpretation of structures involving

singular and plural examples of the ungradable noun *car* are given below.

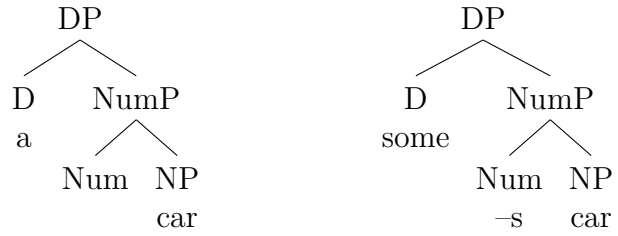


Figure 5.3: Kind-based derivations of *a car* and *some cars*

Gehrke & McNally's kind-based derivation of *car* is reproduced in (214). On this analysis [$_{\text{NP}}$ car] denotes a predicate of kinds, the characteristic function of the set of all kinds of car, namely the car-kind itself and all its meaningful subkinds (*sports car*, *hatchback*, *SUV*, etc.) (214-a).[230] The existential quantifier in (214-b) ensures that the token-level predicate [$_{\text{NumP}}$ car] is true of any individual that realises at least one of the kinds in this set: a car may be both a *hatchback* and an *SUV*, for example. **R** is a simplified version of Carlson's (1977a) realization operator that relates individuals to the kind(s) they instantiate.[231]

(214) a. $[\![[_{\text{NP}}\ [_{\text{N}}\ \text{car}]]]\!] : \lambda x_k\,[\mathbf{car}(x_k)]$ (x_k is a kind of car)

b. $[\![[_{\text{NumP}}\ [_{\text{NP}}\ \text{car}]]]\!] : \lambda y \exists x_k\,[\mathbf{car}(x_k) \wedge \mathbf{R}(y, x_k)]$ (y is a car)

(Gehrke & McNally 2015: 852, annotations added)

The denotations of kind nominals (NPs) representing deverbal *-er* nominalizations like *sailor* take an additional argument (λe_k in (215) below) which enables modification of the event-kind that is the external argument of the embedded verb, in this case $\mathbf{sail}(e_k)$. The exposure of an eventuality argument is key to both Gehrke & McNally's analysis of frequency adjectives in (216) and my subsequent explanation of how both size adjectives and adjectives of maximality can function as degree modifiers.

(215) a. $[\![[_{\text{NP}}\ [_{\text{N}}\ \text{sailor}]]]\!] : \lambda x_k \lambda e_k\,[\mathbf{sail}(e_k) \wedge \mathbf{Agent}(x_k, e_k)]$

b. $[\![[_{\text{NumP}}\ [_{\text{NP}}\ \text{sailor}]]]\!] : \lambda y \exists x_k, e_k\,[\mathbf{sail}(e_k) \wedge \mathbf{Agent}(x_k, e_k) \wedge \mathbf{R}(y, x_k)]$

(Gehrke & McNally 2015: 856)

[230] Further subkinds can be created by intersective modification with kind-creating predicates such as *two-door* (Gehrke & McNally 2015: 861).

[231] Gehrke & McNally's version of **R** is simplified from Carlson's original in that it relates kinds to the *tokens* that instantiate them, rather than to the *stages* (spatiotemporal slices) of those tokens. Stages are not relevant to their analysis of frequency adjectives or to my proposal.

In contrast to the analysis of *car* in (214), the addition of the event-kind argument makes [$_{\text{NP}}$ *sailor*] a relational noun denoting the kind of individual who is the agent of a kind of sailing event. This construction has many similarities to the two-argument neo-Davidsonian analysis of expressions such as *Olga is a beautiful dancer* in Larson (1998), where *beautiful* can be predicated of either the individual argument *Olga*, or the event representing her dancing.

The key to the interpretation of *frequent sailor* is that intersection of the verbal meaning *sail* with a frequency adjective like *frequent* creates a subset of sailing event-kinds whose per-sailor temporal distribution counts as 'frequent' in context. Further intersection with the role-defining predicate *Agent* has the effect of creating a meaningful subkind of *sailor*, one whose instances frequently engage in sailing events. These moves lead directly to the kind (NP) and token (NumP) denotations of *frequent sailor* below.

(216) $[\![[_{\text{NP}}\text{ frequent sailor}]]\!] : \lambda x_k \lambda e_k\, [\mathbf{sail}(e_k) \wedge \mathbf{Agent}(x_k, e_k) \wedge \mathbf{frequent}(e_k)]$

(217) $[\![[_{\text{NumP}}\text{ frequent sailor}]]\!] :$
$\lambda y \exists x_k, e_k\, [\mathbf{sail}(e_k) \wedge \mathbf{Agent}(x_k, e_k) \wedge \mathbf{frequent}(e_k) \wedge \mathbf{R}(y, x_k)]$
(Gehrke & McNally 2015: 856)

Gehrke & McNally derive frequency from the distribution of all the event tokens that realize a particular event-kind at a given temporal index i, $\{e\colon \mathbf{R}(e, e_k)$ at $i\}$. A *frequent* event-kind is considered to be one that has a *high* distribution.

(218) $\forall e_k, i\, [\mathbf{frequent}(e_k)$ at $i \leftrightarrow \mathbf{distribution}(\{e\colon \mathbf{R}(e, e_k)$ at $i\}) = \mathit{high}]$
(Gehrke & McNally 2015: 856)

The **distribution**() function returns a value representing the temporal distribution of the set of events that realize a given event-kind (*low*, *high*, *occasional*, *daily*, etc.). The distribution value represents an assessment of behaviour during a 'well-defined stretch of time' at temporal index i (Gehrke & McNally 2015: 853), in the case at hand a context-sensitive time interval over which it is possible to judge whether the individual in question meets the positive standard for *frequent sailor*, where *frequent* is assumed to correspond to a *high* distribution.

For frequency adjectives in general, the **distribution**() function is non-trivial, and Gehrke & McNally do not attempt to define it.[232] The function must be able

[232]The considerable complexities inherent in defining the notion of temporal distribution are

to address not only the (relatively simple) 'internal' reading relevant to participant nouns like *smoker* and *sailor*, but also the more complex 'generic' and 'adverbial' cases. However, as I am only dealing with the relatively straightforward 'internal' case, in section 5.4.4 I am able to propose implementations of **distribution**() which cover not only readings of frequency (e.g. *big sailor*), but also other aggregate interpretations of degree *big* such as duration (*big sunbather*) and quantity (*big eater*).

5.2 Ontology and notation

This section presents the ontology that underlies the technical proposal set out in the remainder of the chapter, consisting of the fundamental categories I assume to exist in the universe of discourse relevant to the subject matter of this thesis and the relationships between them.

In overview, I follow Landman & Morzycki (2003) in considering the domain of entities to be simultaneously partitioned from two perspectives. One perspective distinguishes individuals from eventualities (219), while the other distinguishes non-kinds ('realizations') from kinds (220).[233]

(219) $D' = D_e \cup D_v$ (individuals vs. eventualities)

(220) $D' = D_r \cup D_k$ (realizations vs. kinds)

(Landman & Morzycki 2003: §4.1, notation slightly altered)

A tacit assumption in (219) and (220) is that the domains of individuals and eventualities are distinct ($D_e \cap D_v = \emptyset$), as are the domains of realizations and kinds ($D_r \cap D_k = \emptyset$). I will also assume that all non-kind entities are realizations of at least one kind, i.e. kinds are a semantic primitive and non-kind entities are derived from them (cf. Gehrke & McNally 2015: 852).

Landman & Morzycki's analysis is restricted to individuals ('objects') and the eventive subset of the domain of eventualities. While their proposal is capable of generating all the kind and non-kind types used in Gehrke & McNally's (2015)

described in Stump (1981), Zimmermann (2003), Schäfer (2007).

[233] Landman & Morzycki's notation for the individual vs. event(ive) partition is $D_e = D_o \cup D_s$, where D_o is the domain of objects and D_s the domain of eventualities. I have changed the subscripts to reflect my analysis that D_e is exclusively the domain of individuals, distinct from eventualities (D_v).

analysis of phrases like *frequent sailor* (individual realizations, individual kinds, event realizations and event kinds), my theory requires an additional distinction to be made within D_v between events and states. Following Wellwood 2015) I model this with sorted variables (e, e', s, s', etc.), rather than introducing a novel domain of states such as D_s.

The overall domain of discourse (D) extends D' with degrees, an ancillary category which is not obviously partitioned into kinds and realizations.[234]

(221) $D = D' \cup D_d$

The following subsections explain the resulting structure in more detail.

5.2.1 Individuals vs. eventualities

On my analysis, the two classes of noun investigated in this thesis differ fundamentally in that they lexically entail the existence of either an event or a state. In many cases the entailment is clear from the surface form of the noun: a *smoker* is the Agent of *smoking* events and an *idiot* is the Holder of a state of *idiocy* (or equivalently of *being idiotic*), for example. In less straightforward cases the nature of the eventuality must be inferred from context, e.g. *a complete tosser*, *a gem of a restaurant*, *You absolute coat hanger!*

My proposal therefore requires a clear categorial distinction to be made between eventualities (events and states[235]) and the individuals that act as participants in those eventualities, who occupy the thematic roles of Agent, Theme, Holder etc. I treat thematic roles as simple relationships between individuals and eventualities in the neo-Davidsonian tradition (Parsons 1990 and many others).

I will assume that this portion of the overall domain of discourse consists of distinct non-intersecting subdomains of individuals (D_e) and eventualities (D_v), and that sorted variables $e, e', e'', \ldots$ and $s, s', s'', \ldots$ range over the eventive and

[234] Although see Anderson & Morzycki (2015) for a proposal that degrees *are* kinds. See also the discussion on the existence or non-existence of degree-kinds in Landman & Morzycki (2003: §6.1). Other subdomains such as possible worlds and temporal indices could also be incorporated into the ontology, should later developments of my theory demand them.

[235] Eventualities are distinguished from (ordinary) individuals in that they have a temporal trace. The set of eventualities can be divided on aspectual grounds into events (dynamic eventualities) and states (static eventualities). Although discrete events and continuous processes can be further distinguished (Bach 1986: 589), for the purposes of this thesis I will treat them together as 'events'.

stative subsets of D_v respectively.[236]

5.2.2 Realizations vs. kinds

As explained in section 5.1, I follow Gehrke & McNally (2015) in adopting a kind-based analysis, with entities in the evaluation world uniformly treated as being the realizations of particular entity-kinds, and where the realization/kind relationship is mirrored by a corresponding NumP/NP structure in syntax (cf. Zamparelli's (1995) 'Kind Phrase' KIP).

In Gehrke & McNally's analysis of eventive participant nouns like *sailor*, not only is an individual *sailor* seen as a realization of the generic sailor-kind, but a *frequent sailor* is correspondingly a realization of the *frequent sailor* kind, a subkind of *sailor* whose realizations engage in the kind of sailing which counts as frequent in context based on the temporal distribution of distinct sailing events to sailors.

I make two additional moves. First, I extend the kind-modifying ability of frequency nouns like *frequent* to size adjectives like *big* and maximizing intensifiers like *complete*. Second, I assume that states are uniformly realizations of state-kinds, in the same way that Gehrke & McNally (2015) and Landman & Morzycki (2003) treat events as realizations of event-kinds. A *big idiot* is then the realization of a particular subkind of the idiot-kind, one characterized by state-kinds of what might be called 'big idiocy'.[237]

I model kinds as single elements of D_e or D_v which represent some meaningful set of non-kind (token) entities in the evaluation world. Mapping between kinds and the sets they represent (or, more generally, intensional properties) and vice versa can be achieved with mechanisms such as Chierchia's 'up' ($\cup$) and 'down' ($\cap$) operators (Chierchia 1998: 349), or Carlson's (1977a) $\mathbf{R}$ relation.[238]

[236] It would be equally valid and perhaps clearer to postulate a distinct domain of states (D_s).

[237] This is essentially the analysis of *big idiot* in Constantinescu (2011: 228) as 'a sub-type of idiot as defined by a high degree of idiocy', save that Constantinescu does not invoke a stative interpretation of idiocy.

[238] Although it is not necessary for my theory, the relationship between the set-of-instances and kind interpretations of an expression in a single world can be captured by the following equivalences. (i-a) defines predicate δ_p as the characteristic function of the set of realizations of kind δ_k. (i-b) defines kind δ_k as the unique entity whose realizations are equal to the set induced by δ_p in the evaluation world.

(i) a. $\delta_p = \lambda x.\mathbf{R}(x, \delta_k)$
b. $\delta_k = \iota x \forall y \left[\delta_p(y) \leftrightarrow \mathbf{R}(y, x)\right]$ (Krifka et al. 1995: 66)

In the denotations that follow, a macron distinguishes kind types ($\lambda\bar{x}$, $\bar{e}$, $\lambda P_{\langle\bar{e},\bar{v}t\rangle}$) from non-kind (token) types (λy, s, $\lambda Q_{\langle e,vt\rangle}$), rather than Gehrke & McNally's subscript notation (x_k etc.).[239]

Like Gehrke & McNally (2015) I model the relationship between kinds and tokens using a simplified version of Carlson's (1977a) realization operator **R**. The relation $\mathbf{R}(x, \bar{y})$ asserts that entity x is an instance (or realization) of kind $\bar{y}$, and correspondingly $\lambda x.\mathbf{R}(x, \bar{y})$ is the characteristic function of the set of all instances of $\bar{y}$ in the evaluation world (cf. Krifka et al. 1995: 66).

Gehrke & McNally use an existential construction that provides a variable which can subsequently be used to generate subkinds. In the following example (recast in my chosen notation), **car**() is a predicate of kinds and the existential expression $\exists\bar{x}\,[\mathbf{car}(\bar{x}) \wedge \ldots]$ asserts that the unnamed kind in question ($\bar{x}$) is *car* or one of its subkinds (*sports car*, *family car*, *station wagon*, *sedan*, etc.). By transitivity of the subkind relation, this ensures that any vehicle realizing kind $\bar{x}$ always realizes the superkind *car* itself in any case.[240] I adopt the same analytical technique in my own proposal.

(222) a. $[\![[_{\text{NP}}\ \text{car}]]\!] = \lambda\bar{x}.\mathbf{car}(\bar{x})$

b. $[\![[_{\text{NumP}}\ [_{\text{NP}}\ \text{car}]]]\!] = \lambda y.\exists\bar{x}\,[\mathbf{car}(\bar{x}) \wedge \mathbf{R}(y, \bar{x})]$

(Gehrke & McNally 2015: 852, my notation)

In summary, the domains of individuals D_e and eventualities D_v consist of both kinds and non-kinds (tokens). I distinguish the two categories where necessary using sorted variables. Variables $x, y, z, x', y', z', \ldots$ will range over the non-kind subset of D_e and $\bar{x}, \bar{y}, \bar{z}, \bar{x}', \bar{y}', \bar{z}', \ldots$ over the kind subset. Similarly encoded

[239] While Gehrke & McNally use a subscript notation for kind variables (x_k), this cannot be easily accommodated in my chosen notation, as the subscript position is already filled in typed function arguments like $\lambda P_{\langle e,t\rangle}$.

[240] Krifka et al. (1995) use a special operator (**T**) to represent the kind/subkind relationship. The transitive relation $\mathbf{T}(x, y)$ asserts that kind x is a subkind of kind y. The **R** (realization) and **T** (taxonomic subkind) relations combine as follows: if x is a subkind of y, and entity z realizes kind x, then z also realizes y.

(i) $[\mathbf{T}(x, y)\,\&\,\mathbf{R}(z, x)] \implies \mathbf{R}(z, y)$ (Krifka et al. 1995: 77)

This rule provides theoretical support for the intuition that realizing any subkind of (say) *smoker* (such as *frequent smoker* or *big smoker*) entails that the subject also realizes its superkind, *smoker*.

variables range over the non-kind and kind subsets of D_v, but with further subcategorization to distinguish the eventive and stative portions of each, namely $e, e', e'', \ldots, s, s', s'', \ldots$ and $\bar{e}, \bar{e}', \bar{e}'', \ldots, \bar{s}, \bar{s}', \bar{s}'', \ldots$.

5.2.3 Summary of the proposed ontology

The figure below summarises the portion of the ontology relating to the participation of individuals in eventualities (D' in (221)). The ancillary domain of degrees (D_d) is not shown. The division into quadrants illustrates the intersection of the individual/eventuality and non-kind/kind perspectives from Landman & Morzycki (2003). The further subdivision of D_v into eventive and stative subcategories identified by sorted variables mirrors the ontology in Wellwood (2015).

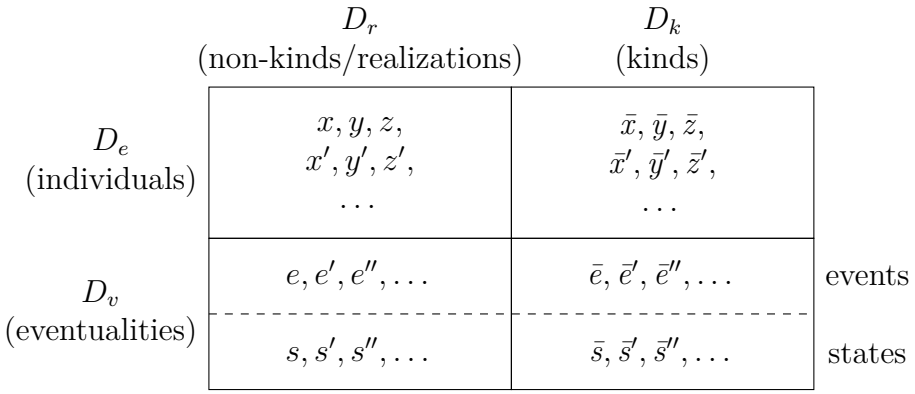


Figure 5.4: The domain of participation in eventualities (D')

The quadrants in the above figure represent the major types used in the technical proposal in the remainder of this chapter, namely individual realizations (coded in function type signatures as e), individual kinds ($\bar{e}$), event realizations (v) and event kinds ($\bar{v}$). The full relationship between domains (including degrees), type codes and sorted variables is shown in figure 5.5.

Type	Domain	Variables	Ontological entities
e	$D_e \cap D_r$	$x, y, z, \ldots$	Individuals
v	$D_v \cap D_r$	$e, e', e'', \ldots$	Events (dynamic eventualities)
		$s, s', s'', \ldots$	States (static eventualities)
$\bar{e}$	$D_e \cap D_k$	$\bar{x}, \bar{y}, \bar{z}, \ldots$	Individual-kinds
$\bar{v}$	$D_v \cap D_k$	$\bar{e}, \bar{e}', \bar{e}'', \ldots$	Event-kinds
		$\bar{s}, \bar{s}', \bar{s}'', \ldots$	State-kinds
d	D_d	$d, d', d'', \ldots$	Degrees

Figure 5.5: Type codes, domains and sorted variables

5.2.4 Notational conventions used in formal semantics

I assume that readers have a working knowledge of the techniques and notational conventions of formal semantics as used in standard textbooks on the subject such as Cann (1993), de Swart (1998), Heim & Kratzer (1998) and Kearns (2011). While I do not adhere strictly to any specific analytical style, my approach is perhaps closest to that in Heim & Kratzer (1998).

5.3 Kind-based denotations of gradable nouns

My proposed denotations for eventive [+big −utter] nouns like *smoker*[241] and stative [+big +utter] nouns like *idiot* are firmly based on Gehrke & McNally's (2015) kind-based treatment of *sailor*. This is a relational analysis in the neo-Davidsonian tradition that deverbal nouns make two arguments available for modification: the individual argument projected by all nominals, and the event argument projected by the embedded verb.

A natural principle to apply in such an analysis is that adjectival and adverbial modification should be treated similarly, as in Larson's (1998) analysis of the famous phrase *Olga is a beautiful dancer*, where *beautiful* can be applied either adjectivally to the individual Olga (semantic type e), or adverbially to the event of dancing in which she participates (type v in my notation).[242]

[241] The eventive denotation covers both true deverbal nouns like *smoker*, as well as nouns that are not morphologically deverbal but imply an event, such as *guitarist* and *vegetarian*.

[242] On this approach, the categorial distinction between adjective and adverb is relevant only to syntactic positioning. The *-ly* suffix on (say) *beautifully* indicates a grammatical adverb, but is otherwise semantically vacuous.

An important distinction in Gehrke & McNally's (2015) approach compared to earlier work is that both the individual and event arguments are base-generated as kinds in NP, and are existentially-closed (perhaps after kind-level modification of either argument), to project a standard nominal type $\langle e, t\rangle$ in a NumP node that is selectable by a determiner. The multi-level syntactic structure that Gehrke & McNally assume is similar to that adopted in Winter & Zwarts (2012a) analysis of 'Olga' type phrases, but where the Num head takes the place of Winter & Zwarts's existential closure node SAT.

My adaptation of Gehrke & McNally's analysis extends in a straightforward manner to stative nouns like *idiot*. In contrast to the eventive case, at the NP level stative nouns represent a relationship between an individual-kind and a state-kind, for example a state of *idiocy*. The thematic relationship is then one of Holder rather than Agent, but otherwise the eventive and stative denotations are identical.

The denotations in the following sections follow the notation scheme in figure 5.5. As previously mentioned, in a typographical change from Gehrke & McNally's scheme, I use a macron to distinguish kind types ($\lambda\bar{x}$, $\bar{e}$, $\lambda P_{\langle\bar{e},\bar{v}t\rangle}$) from non-kind (token) types (λy, s, $\lambda Q_{\langle e,vt\rangle}$).

5.3.1 Eventive nouns like *smoker*

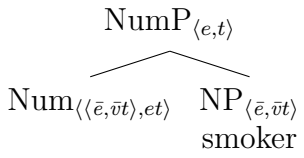


Figure 5.6: Kind-based derivation of *smoker*

The kind- and token-level denotations for *smoker* in this section are the semantic building blocks upon which all my subsequent analyses are constructed. They are functionally identical to those of *sailor* in Gehrke & McNally (2015: 856), save for the trivial additional assertion that the referent is a *person*. The extra clause ensures that the subject is a human agent being capable of forming subjective assessments of enthusiasm, importance, belief etc., which are potential targets for degree modifiers like *big*.[243] A *big smoker* may denote an *enthusiastic smoker*, for

[243]I added the **person**() constraint after corpus results revealed that an unexpectedly high proportion of hits for *big smoker* related to devices for cooking food in a smoky environment.

example.

At the kind (NP) level, *smoker* represents an agentive relationship between individual-kinds and event-kinds, where the realizations of the *person* individual-kind are the agents of realizations of the *smoke* event-kind.

(223) $[\![[_{\text{NP}}\ \text{smoker}]]\!] = \lambda\bar{y}\lambda\bar{e}.\mathbf{person}(\bar{y}) \wedge \mathbf{smoke}(\bar{e}) \wedge \mathbf{Agent}(\bar{y}, \bar{e})$

Individual-kinds are type-shifted to individual-tokens at the NumP level using a version of Carlson's (1977a) realization relation **R**. This involves exhaustive existential closure of all open kind arguments, which do not project syntactically above NumP.[244]

(224) $[\![[_{\text{Num}}\ \bullet\ ]]\!] = \lambda P_{\langle\bar{e},\bar{v}t\rangle}\lambda x.\exists\bar{y}\exists\bar{v}\,[P(\bar{y})(\bar{v}) \wedge \mathbf{R}(x, \bar{y})]$

The semantics of the kind-level **Agent** relationship require that every realization of its individual-kind argument (here *person*) is the agent of at least one realization of its event-kind argument (*smoke*).[245] This guarantees that individual y in (225) is a person who is the agent of one or smoking events, and is therefore a *smoker*.

(225) $[\![[_{\text{NumP}}\ \text{smoker}]]\!]$
$= [\![[_{\text{Num}}\ [_{\text{NP}}\ \text{smoker}]]]\!]$
$= \lambda x.\exists\bar{y}\exists\bar{e}\,[\mathbf{smoker}(\bar{y})(\bar{e}) \wedge \mathbf{R}(x, \bar{y})]$
$= \lambda x.\exists\bar{y}\exists\bar{e}\,[\mathbf{person}(\bar{y}) \wedge \mathbf{smoke}(\bar{e}) \wedge \mathbf{Agent}(\bar{y}, \bar{e}) \wedge \mathbf{R}(x, \bar{y})]$

A tacit assumption in (225) is that *smoker* has minimum standards, i.e. that any participation in smoking, no matter how small, makes one a smoker. While perhaps analytically naive, this will suffice for my purposes.

As mentioned previously, in this style of syntactic theory determiners select for NumP, rather than NP. For completeness, the following figure illustrates how a determiner such as *these* combines with the number morphology to form the plural individual-denoting expression *these smokers* (denotation omitted).[246]

[244] See Chung & Ladusaw (2003) for an extensive treatment of syntactic and semantic argument saturation.

[245] This is my interpretation of the semantics of **Agent**, and may not be precisely what Gehrke & McNally (2015) intended.

[246] This is the structure that Sportiche et al. (2013 online version) assume for *these books*.

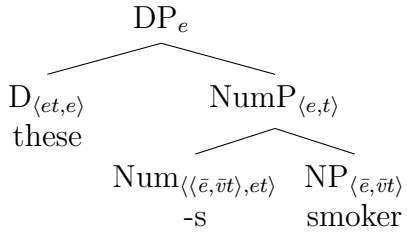


Figure 5.7: Kind-based derivation of *these smokers*

5.3.2 Stative nouns like *idiot*

The notion that *idiot* denotes the holder of a state of idiocy, and that in phrases like *big idiot* that state is intensified to possess the property of 'bigness' is part of a proposal sketched out by Wellwood (2019: 170–172). Although I do not use Wellwood's semantics directly, and instead choose a kind-based denotation more akin to that of *frequent sailor* in Gehrke & McNally (2015), her ideas have been influential in my understanding of the [+big +utter] nouns in particular.

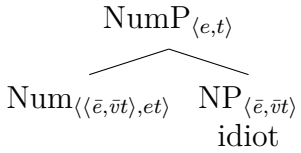


Figure 5.8: Kind-based derivation of *idiot*

The kind- (NP) and token-level (NumP) denotations of *idiot* in (226) and (227) are identical to those of *smoker* in section 5.3.1, save that the relationship is between individual-kinds and state-kinds, rather than event-kinds. The individuals who realize the *idiot* kind thus play the thematic role of the **Holder** of a state, rather than the **Agent** of an event.[247] The semantics of **Holder** ensure that y is the holder of at least one state of idiocy, and is therefore an *idiot*.

(226) $[\![[_{\text{NP}}\ \text{idiot}]]\!] = \lambda\bar{y}\lambda\bar{s}.\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y}, \bar{s})$

(227) $[\![[_{\text{NumP}}\ \text{idiot}]]\!]$
$= [\![[_{\text{Num}}\ [_{\text{NP}}\ \text{idiot}]]]\!]$
$= \lambda x.\exists\bar{y}\exists\bar{s}\,[\mathbf{idiot}(\bar{y})(\bar{s}) \wedge \mathbf{R}(x, \bar{y})]$
$= \lambda x.\exists\bar{y}\exists\bar{s}\,[\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y}, \bar{s}) \wedge \mathbf{R}(x, \bar{y})]$

[247]The denotations are, as with *smoker*, restricted to human individuals and kinds. I follow Francez & Koontz-Garboden (2017: 78) in assuming that *idiot* only correctly applies to idiotic people, not to idiotic things in general.

As in the case of *smoker*, a tacit assumption in (226) is that the possession of any state of idiocy, no matter how slight, qualifies one as an *idiot*, and therefore *idiot* is an absolute predicate with minimum standards (cf. Kennedy & McNally 2005).[248] This assumption is not critical to my analysis, and it would be trivial to introduce a relative scale standard to *idiot*, either compositionally with POS (Cresswell 1976), as does Morzycki (2009: 188), or pragmatically using Rett's (2008) *EVAL* morpheme.

5.4 Adnominal modification by size adjectives

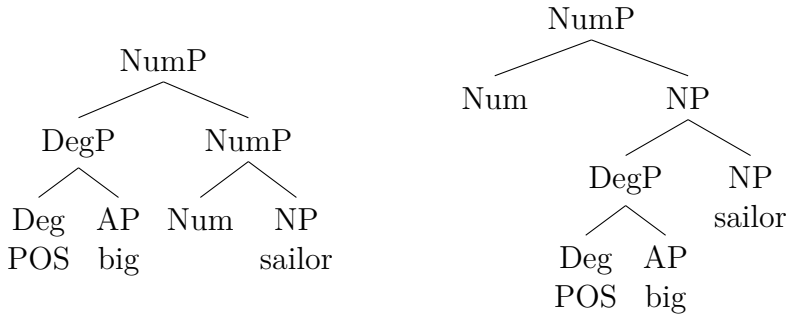
In this section I adapt Gehrke & McNally's (2015) analysis of *frequent sailor* to form the basis of eventive predicates like *big smoker* and (*mutatis mutandis*) stative predicates like *big idiot*.

5.4.1 Explaining the size/degree ambiguities

On a kind-based analysis, the selection of a size- or degree-related interpretation – as might occur, say, when choosing between *height* and *frequency* with a phrase like *big sailor* – represents not just a difference in the scale of measurement, but a categorial distinction between a set of *individual* sailors on a size reading (e.g. those who are taller or bulkier than average), and a set of *kinds* of sailor on a degree reading (those whose realizations engage in a kind of sailing that is frequent).

The size/degree ambiguity can be explained by the existence of multiple possible points of attachment for *big* in the syntactic derivation. Following the general structure of Gehrke & McNally's analysis (with the addition of POS), adjectival modification can occur either at or below the NumP level.

[248] A similar assumption that *idiot* has minimum standards is made by Wellwood (2019: 170) and (with some caveats) Morzycki (2012b: 190).



(a) physically big sailor (b) frequent sailor (etc.)

Figure 5.9: *big sailor* - size reading vs. degree reading

Full denotations for the size and degree readings shown in the figure above are presented in section 5.4.3 (as *big house*) and section 5.4.4 respectively.

The point-of-attachment argument is similar to that proposed by Winter & Zwarts (2012a) to explain the well-known ambiguities in phrases such as *Olga is a beautiful dancer* in the neo-Davidsonian tradition of Parsons (1990) and Larson (1998), where *beautiful* can function either as an adjective (modifying Olga) or an adverb (modifying *dance* as embedded within *dancer*). My solution extends this analogy to gradable modifier usages like *big*.

5.4.2 Size adjectives denote measure functions

On both their ordinary and degree interpretations, *big* and the other size modifiers under consideration are relative adjectives whose positive standard is set by context, perhaps by reference to a comparison class of salient individuals.

In this respect *big* is similar to a canonical relative adjective like *tall*, although unlike *tall*, *big* is underspecified not just for its positive standard, but also for dimension of measurement. Whereas *tall* is lexically bound to the dimension of *height*, *big* can measure on various dimensions depending on context, including literal-size scales of *height* and *weight* and nominal degree scales of *frequency*, *quantity*, *duration* and *enthusiasm*. The degree readings are, in accordance with Morzycki's Position Generalization, only available attributively, as in my theory they are syntactically restricted to the NP level, and can never obtain at the NumP level.

I propose to analyze size adjectives as measure functions. My approach is similar to Kennedy's (1997) analysis of gradable adjectives, save that as *big* is

underspecified for dimension, its meaning (as well as its positive standard) must be supplied by context where a trivial interpretation of 'generally large' does not suffice. There is nothing significant in the decision to adopt an analysis based on measure functions. The main alternative treatments of gradable adjectives in the literature would work just as well for my purposes, including representations based on relations between degrees and individuals (e.g. Cresswell 1976), as well as delineation as an alternative to morphological degrees and the POS mechanism (e.g. Kamp 1975, Klein 1980, Burnett 2017).

A more significant consideration with a measure function analysis is that gradable adjectives must be capable of acting as measure functions of kinds in contexts where a kind reading is salient (such as the frequency interpretation of *big sailor*), in addition to being able to measure individuals in non-kind contexts. In my analysis, the underspecified nature of *big* will be represented by $\mu_{\mathbf{big}}$, a measure function whose interpretation will vary depending on the meaning of the following noun (phrase) and the discourse context. The phrase *big sailor* might, for example, result in $\mu_{\mathbf{big}}$ being interpreted as a measure of any of the scales mentioned above to reflect the ordinary or degree interpretation to be applied in context.[249] My denotations will therefore rely on two versions of each modifier, the standard Kennedy-style measure function of individuals (semantic type $\langle e, d\rangle$), and an additional measure function specific to kinds which operates on the eventive or stative argument of the NP node (type $\langle \bar{v}, d\rangle$).

As previously mentioned, my fundamental premise is that [+big −utter] nouns like *smoker* are event based, while [+big +utter] nouns like *idiot* are state based. I make the further assumption that while the 'size' of a state can be measured directly by its position on a linear scale, it is only possible to measure events indirectly. These assumptions are explained in more detail below.

Modelling the measurement of a stative argument is relatively straightforward, as states can be ordered relative to one another based on the intensity (or degree) to which they exhibit a given property (Wellwood 2015, 2019, Francez & Koontz-Garboden 2017).[250] Equivalence classes of states of equal intensity can be understood to form a scale of nominal degrees in much the same way as adjectival

[249]These are simple examples to illustrate the concept. More complex notions of *big* are of course possible in context, e.g. 'tall and wide' (size) or 'frequent and enthusiastic' (degree).

[250]For Francez & Koontz-Garboden (2017: 51,103), the existence of a size (pre)order in addition to the ordering induced by the mereological part/whole relationship is what distinguishes qualities like *idiocy* from ordinary mass nouns like *gold*. Although I have chosen a degree-based approach, it would be perfectly feasible to recast my analysis in terms of portions of qualities.

scales can be constructed from equivalence relations (e.g. Cresswell 1976: 281, Bale 2008: 10). Individuals can thus be placed on a scale based on the states of *idiocy* they hold, and a direct assessment can be made as to who is *more idiotic*, or equivalently *more of an idiot*. This is the sense in which *idiot* is a gradable noun.

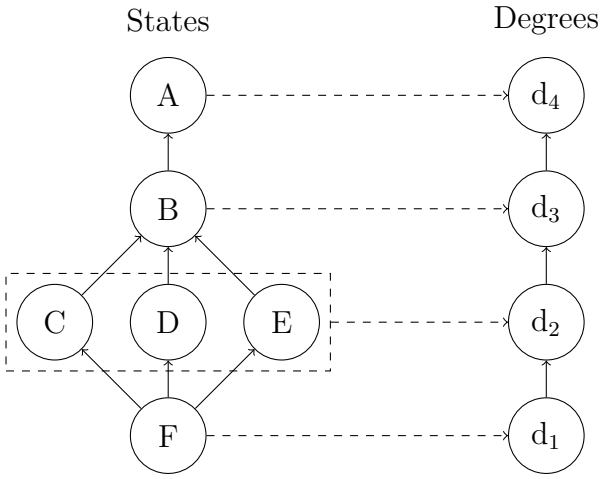


Figure 5.10: Degrees as equivalence classes

On this account, a modifier like *utter* targets *idiot*-class nouns because it is sensitive to the size ordering of states (cf. Francez & Koontz-Garboden 2017: 103). The inherent availability of a size-related scale perhaps explains Morzycki's (2012b) theory that nouns in this class are one-dimensional.

In contrast, events can only be measured indirectly, by time-related metrics such as frequency (for plural events or kinds) and duration, or by extensive event-specific measures such as consumption (*big eater* ≈ 'eats more than the norm') or production (*big polluter* ≈ 'pollutes more than the norm').

My denotations follow the modern analytical approach of modelling adjectival modification intersectively where possible (Larson 1998, Heim & Kratzer 1998: 70–71, McNally 2016: 449, Morzycki 2016: chapter 2, Francez & Koontz-Garboden 2017: 93–94).[251] For relative size adjectives like *big*, this is feasible once the comparison class has been fixed in the evaluation context.

> [O]nce the comparison class is taken into account and given a fixed

[251] Intensional modifiers such as *alleged*, *fake* and *former* are often cited as exceptions (although see Partee 2010).

value, gradable adjectives such as *large* are arguably better characterized as intersective rather than subsective.

(McNally 2016: 449)

The following sections develop denotations for both ordinary and degree readings of size adjectives, taking the above theoretical points into account.

5.4.3 Size reading: *big house*

This section illustrates the analytical technique of injecting the meaning of an underspecified gradable adjective via a contextually-supplied measure function ($\mu_{\mathbf{big}}$) into the kind-based denotation for a non-gradable noun such as *house*. Section 5.4.4 then extends the application of the technique to a prototypical gradable deverbal noun of the [+big −utter] class, *smoker*.

On its literal-size interpretation (POS) *big* selects for a NumP node. In this position it is unable to modify the underlying kind (*house* in the figure below), as kinds do not project above NP.[252]

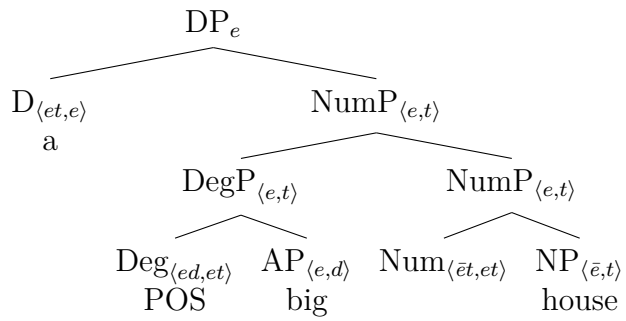


Figure 5.11: Size reading: *a big house*

As mentioned, I model the underspecification of *big* by a measure function $\mu_{\mathbf{big}}$ of semantic type $\langle e, d\rangle$. By default $\mu_{\mathbf{big}}$ carries some generic size-related meaning such as 'generally large', but in the cases of interest to this thesis the default can be overridden by discourse context and the nature of the following noun phrase. In the current example, as *house* is not a gradable noun, $\mu_{\mathbf{big}}$ will typically represent some measure of physical size such as *height*, *width*, *floor area*,

[252]Although *house* is not a gradable noun (as it does not project an eventive or stative argument for modification), it can form the modified kind *big house*: the kind of house that the richest or most influential family in a small community might occupy, for example.

or *number of rooms*.[253]

(228) $[\![\text{big}]\!]^g = \lambda x.\mu_{\mathbf{big}}(x)$

I adopt a straightforward theory of the positive form in line with Graff (2000), whereby to meet the standard for a relative adjective P is to significantly exceed the norm (standard) for P in a contextually-supplied comparison class of relevant individuals C. The comparative operator $>_!$ is Graff's interest-relative relation, for which small differences in size are not significant. The formulation of POS in (229) is essentially the same as that in Kennedy (2011).[254,255]

(229) $[\![\text{POS}]\!]^c = \lambda P_{\langle e,d\rangle}\lambda x.P(x) >_! \mathbf{norm}_c(P)(C)$

(230) $$\begin{aligned}[\![\text{POS big}]\!]^c &= \lambda x.[\![\text{POS}]\!]^c([\![\text{big}]\!]^c)(x)\\ &= \lambda x.[\![\text{POS}]\!]^c(\mu_{\mathbf{big}})(x)\\ &= \lambda x.\mu_{\mathbf{big}}(x) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C)\end{aligned}$$

The nature of the positive standard for relative gradable adjectives like *tall*, *expensive* and *big* has been the subject of much research interest. For illustration purposes, (231) and (232) present a simplistic version of the $\mathbf{norm}_c()$ function based on the arithmetic mean of the members of a contextual comparison class. However, such a simple calculation is unlikely to be realistic in practice. For more sophisticated discussions see, for example, Kennedy (2007b), Solt (2011, 2012), Solt & Gotzner (2012), Lassiter & Goodman (2013).

(231) $\mathbf{norm}_c(P)(C) = \dfrac{1}{|C|}\sum_{x\in C} P(x)$ (simple version for illustration)

(232) $\mathbf{norm}_c(\mu_{\mathbf{big}})(C) = \dfrac{1}{|C|}\sum_{x\in C} \mu_{\mathbf{big}}(x)$

[253]It would be possible to model the underspecification of *big* by some kind of contextual variable assignment, such as the following. I will not pursue this analytical option further.

(i) $$\begin{aligned}[\![\text{big}]\!]^{g[\mu_{\mathbf{big}}\mapsto\mu_{\mathbf{tall}}]} &= \lambda x.[\![g(\mu_{\mathbf{big}})]\!]^{g[\mu_{\mathbf{big}}\mapsto\mu_{\mathbf{tall}}]}(x)\\ &= \lambda x.\mu_{\mathbf{tall}}(x)\end{aligned}$$

[254]Kennedy (2007b) discusses the nature of the contextual standard in depth. He argues that it may be more complex than can be described by simple membership of a comparison class as I have shown. For example, a phrase such as *Everyone in my family is tall* (Kennedy 2007b: 8) requires a separate standard to be invoked for every family member.

[255]Von Stechow (1984a) argues instead for a quantificational analysis of POS that would be equally valid for my purposes. See the recent discussion on POS in Morzycki (2016: 113–117).

In a context where *big* means *tall*, the positive standard for *big* might, for example, depend on the average (e.g. mean) height in the comparison class of detached houses in the speaker's locality.[256]

(233) $C = \lambda x.\mathbf{house}(x) \wedge \mathbf{local}_c(x) \wedge \mathbf{detached}(x)$
(example for illustration)

The underlying kind-based nature of *house* is not particularly significant for this non-degree example, but is included in (234) for completeness. The NumP level denotation mirrors that for *car* in Gehrke & McNally (2015: 852) (reproduced in (214) above). For x to categorize as a *house*, it must realize at least one house-kind ($\bar{y}$); it might be a *detached house*, a *two-bedroomed house*, a *bungalow*, or any meaningful combination of these or other subkinds of house.

(234) $[\![[_{\text{NumP}}\ \text{house}]]\!] = \lambda x.\exists \bar{y}\,[\mathbf{house}(\bar{y}) \wedge \mathbf{R}(x, \bar{y})]$

Assembling the pieces of the derivation with the adjective and noun combining intersectively gives the expected result. For x to categorize as a *big house*, it must be a *house* (as in (234)) and its size on some contextually-salient dimension must significantly exceed the norm.

(235) $[\![\text{POS big house}]\!]^c$
$= \lambda x.[\![[_{\text{NumP}}\ \text{house}]]\!](x) \wedge [\![\text{POS big}]\!]^c(x)$
$= \lambda x.[\![[_{\text{NumP}}\ \text{house}]]\!](x) \wedge [\![\text{POS}]\!]^c([\![\text{big}]\!]^c)(x)$
$= \lambda x.[\![[_{\text{NumP}}\ \text{house}]]\!](x) \wedge [\![\text{POS}]\!]^c(\mu_{\mathbf{big}})(x)$
$= \lambda x.\exists \bar{y}\,[\mathbf{house}(\bar{y}) \wedge \mathbf{R}(x, \bar{y})] \wedge \mu_{\mathbf{big}}(x) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C)$

Apart from the (here somewhat superfluous) introduction of kinds, and the use of a contextual measure function to model the underspecification of *big*, (235) presents a fairly standard exposition of the semantics of a gradable adjective. The next section applies these analytical techniques to the more complex problem of explaining the meaning of a canonical gradable noun phrase, *big smoker*, where the modifier *big* can be understood to operate at the kind level, rather than at the token level as it did in (235).

[256] Vera Hohaus (p.c.) suggests that the comparison class could instead be modelled using contextually-supplied kinds, rather than having to assume a specific set of houses. This might provide a neater solution, given that my analysis is firmly based on the theory of kinds.

5.4.4 Degree reading: *big smoker*

My analyses of the degree readings of phrases such as *big smoker* (this section) and *big idiot* (section 5.4.5) are similar to that for *big house* given in section 5.4.3, save that I interpret *big* as a measure function of *kinds*, rather than *individuals*.

I adopt a syntactic framework similar to that in Gehrke & McNally (2015), where (POS) *big* selects for NPs which expose an additional argument in addition to the standard individual argument projected by all nominals. The adjective thus merges at a lower syntactic level on a degree reading than it does on an ordinary reading, i.e. at NP rather than NumP.

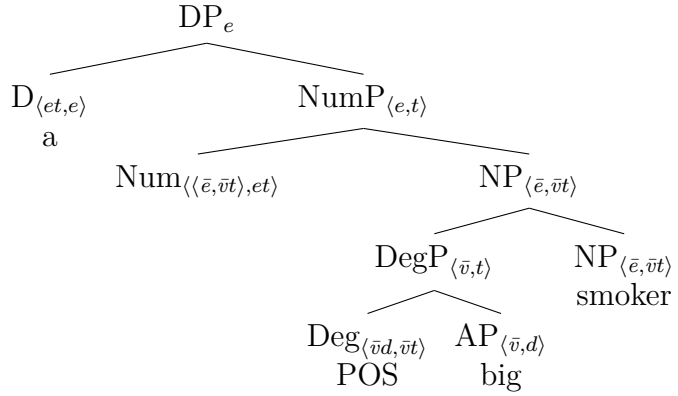


Figure 5.12: Degree reading: *a big smoker*

As mentioned above, there are two categories of interest, corresponding to Morzycki's (2012b) *smoker* and *idiot* classes of noun. This section discusses the first category, where the additional argument is an event-kind, as is the case with morphologically deverbal nouns like *smoker* and (arguably) nouns which imply a verb, such as *saxophonist* or *vegetarian*.

The second category consists of nouns which lack an eventive interpretation, but which can instead be understood to project a state-kind argument at the NP level, for example *idiot* and *genius*. The degree modification of this category of gradable nouns is discussed in section 5.4.5 for size adjectives and in section 5.5 for modifiers of maximality.

A key observation is that many degree readings of *big smoker* appear to involve the same type of quantification over events that Gehrke & McNally (2015: 856) employ in the analysis of their canonical example *frequent sailor* (reproduced in (216) above). Whether an individual counts as a *big smoker*, *big eater* or *big rugby fan* cannot normally be established from a single event of smoking, eating

or playing rugby. Such expressions instead characterize the referent based on a series of observations of his or her behaviour over time, and carry a fundamentally iterative or habitual meaning.[257]

In contrast, on its ordinary literal-size reading whether an individual is a *big rugby player* can be established from a single observation of a relatively stable physical characteristic such as height, weight or musculature, rendering the eventive nature of the noun *player* irrelevant to the phrase's interpretation.

Just as for its ordinary reading, the degree interpretation of *big* with an eventive noun is underspecified for dimension, and will also be modelled by measure function $\mu_{\mathbf{big}}$. Depending on context, *big* (via $\mu_{\mathbf{big}}$) is capable of representing a wide range of meanings including frequency, duration, enthusiasm and various notions of quantity corresponding to the theme of the embedded (or implied) verb (236).

(236) a. x Vs frequently/habitually.
b. x spends a lot of time Ving.
c. x Vs enthusiastically.
d. In the process of Ving, x consumes/creates/destroys a lot of Theme(V).

The following are some possible interpretations of *big* in this cumulative sense involving quantification over individual events of Ving.

(237) a. A *big smoker* is the kind of person who smokes at least n cigarettes a day.
b. A *big reader* is the kind of person who spends at least n hours a day reading.
c. A *big golfer* is the kind of person who plays golf at least n times a month.
d. A *big runner* is the kind of person who runs at least n miles a week.
e. A *big drinker* is the kind of person who drinks at least n units of alcohol a week.

[257] A fundamental property of the kinds derived from frequency adjectives is that their validity at a particular index depends on 'the existence of a set of token realizations' (Gehrke & McNally 2011: 192), not merely one. One instance cannot be 'frequent'. I carry forward this requirement to size adjectives acting as degree modifiers.

While there are certainly differences in the meaning *big* across the expressions in (237), the proposal I develop in this section uses frequency as an exemplar of the quantifying interpretation of *big*, which in my analysis corresponds to cases where the underspecified measure function $\mu_{\mathbf{big}}$ is equivalent to $\mu_{\mathbf{frequency}}$.

As in the analysis of the size reading in section 5.4.3, *big* is modelled by measure function $\mu_{\mathbf{big}}$. The difference in this case is that the domain of $\mu_{\mathbf{big}}$ is the set of event-kinds, rather than the set of individuals.

(238) $\quad [\![\text{big}]\!]^g = \lambda\bar{e}.\mu_{\mathbf{big}}(\bar{e})$

It may not be immediately obvious that event-kinds have measurable 'size' in the way that a physical object like a house does, i.e. that kinds can be meaningfully mapped onto a linear scale of degrees. The concept I wish to pursue is that individuals who categorize as (say) *big smokers* necessarily smoke to some contextually-set minimum level on a property such as frequency, duration or quantity. I will assume that in the event-kind domain a measure function like $\mu_{\mathbf{big}}$ returns the minimum level of the set of individuals who realize the event-kind in question. This will be explained fully below.

The denotation of the POS morpheme amounts to the interest-relative comparison of the size of an event-kind (as explained in the previous paragraph) with the contextual standard (**norm**) relative to a comparison class of salient event-kinds. This is the same formula as for the non-degree case (229), except that the predicate denotes in kinds $\langle\langle\bar{e},d\rangle,\langle\bar{e},t\rangle\rangle$, rather than individuals $\langle\langle e,d\rangle,\langle e,t\rangle\rangle$.

(239) $\quad [\![\text{POS}]\!]^c = \lambda P_{\langle\bar{e},d\rangle}\lambda\bar{e}.P(\bar{e}) >_! \mathbf{norm}_c(P)(C)$

The denotation of *POS big* is thus the same as for the size-related version, save that its domain is the set of event-kinds ($D_{\bar{v}}$), rather than individuals (D_e).

(240) $$\begin{aligned}[\![\text{POS big}]\!]^c &= \lambda\bar{e}.[\![\text{POS}]\!]^c([\![\text{big}]\!]^c)(\bar{e}) \\ &= \lambda\bar{e}.[\![\text{POS}]\!]^c(\mu_{\mathbf{big}})(\bar{e}) \\ &= \lambda\bar{e}.\mu_{\mathbf{big}}(\bar{e}) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C)\end{aligned}$$

The $\mathbf{norm}_c()$ function in (240) represents the positive standard for *big*, which on a degree reading denotes a measure function of event-kinds, rather than of individual events. In (241) and (242) I provide a simplistic implementation of

$\mathbf{norm}_c()$ for illustration purposes only, based on the arithmetic mean. As explained in section 5.4.3, the calculation of the positive standard is non-trivial. See the references cited there if a more sophisticated analysis is required.

(241) $\mathbf{norm}_c(P)(C) = \frac{1}{|C|} \sum_{\bar{e} \in C} P(\bar{e})$ (simple version for illustration)

(242) $\mathbf{norm}_c(\mu_{\mathbf{big}})(C) = \frac{1}{|C|} \sum_{\bar{e} \in C} \mu_{\mathbf{big}}(\bar{e})$

As the degree version of *big* is a predicate of event-kinds, the comparison class C in (242) must correspondingly be a set of event-kinds. In the current case of smoking, an obvious comparison class is the set of all smoking event-kinds whose agents are smoker-kinds. The denotation in (243) ensures that the agents of members of the comparison class fulfil all necessary conditions for being smokers, as well as the events being smoking events.

(243) $C = \lambda \bar{e}.\exists \bar{y} \, [[\![\text{smoker}]\!]^c(\bar{y})(\bar{e})]$ (example for illustration)

With these building blocks in place, the derivation of *big smoker* is straightforward. The first step relies on *POS big* (type $\langle \bar{v}, t \rangle$) combining intersectively with *smoker* (type $\langle \bar{e}, \langle \bar{v}, t \rangle \rangle$) through the compositional rule of Event Identification (Kratzer 1996, 2002).

(244) **Event Identification (EI)**
If α is a constituent consisting of daughters β, γ such that $[\![\beta]\!]$ is type $\langle e, \langle \epsilon, t \rangle \rangle$ and $[\![\gamma]\!]$ is type $\langle \epsilon, t \rangle$, then $[\![\alpha]\!] = \lambda x \lambda e.[\![\beta]\!](x)(e) \wedge [\![\gamma]\!](e)$.
(Kratzer 1996 as expressed in Kennedy 2007a: 5)

This move is not essential to my theory, but is a considerable simplification. Also, the introduction of the comparison class C fixes the meaning of *big* to be *big* (*for a smoker*), and as such there is no obvious need to introduce the typal complexities of functional composition into the analysis (McNally 2016: 449).

(245) $[\![[_{\text{NP}} \text{ POS big smoker}]]\!]^c$

$$
\begin{aligned}
&= \lambda\bar{y}\lambda\bar{e}.[\![\text{smoker}]\!](\bar{y})(\bar{e}) \wedge [\![\text{POS big}]\!]^c(\bar{e}) \\
&= \lambda\bar{y}\lambda\bar{e}.[\![\text{smoker}]\!](\bar{y})(\bar{e}) \wedge [\![\text{POS}]\!]^c([\![\text{big}]\!]^c)(\bar{e}) \\
&= \lambda\bar{y}\lambda\bar{e}.[\![\text{smoker}]\!](\bar{y})(\bar{e}) \wedge [\![\text{POS}]\!]^c(\mu_{\mathbf{big}})(\bar{e}) \\
&= \lambda\bar{y}\lambda\bar{e}.\mathbf{smoker}(\bar{y})(\bar{e}) \wedge \mu_{\mathbf{big}}(\bar{e}) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C) \\
&= \lambda\bar{y}\lambda\bar{e}.\left[\begin{array}{l} \mathbf{person}(\bar{y}) \wedge \mathbf{smoke}(\bar{e}) \wedge \mathbf{Agent}(\bar{y},\bar{e}) \wedge \\ \mu_{\mathbf{big}}(\bar{e}) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C) \end{array}\right]
\end{aligned}
$$

The token-level (NumP) predicate (246) is simply the realization of the kind-level (NP) predicate in (245).

(246) $[\![[_{\text{NumP}}\ \text{POS big smoker}]]\!]^c$

$$
\begin{aligned}
&= [\![[_{\text{Num}}\ [_{\text{NP}}\ \text{POS big smoker}]]]\!]^c \\
&= \lambda x.\exists\bar{y}\exists\bar{e}\left[\begin{array}{l} \mathbf{person}(\bar{y}) \wedge \mathbf{smoke}(\bar{e}) \wedge \mathbf{Agent}(\bar{y},\bar{e}) \wedge \\ \mu_{\mathbf{big}}(\bar{e}) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C) \wedge \\ \mathbf{R}(x,\bar{y}) \end{array}\right]
\end{aligned}
$$

The following subsections explain how different contextual realizations of the measure function $\mu_{\mathbf{big}}$ can calculate the 'size' of event-kinds of frequency, duration and quantity, all of which are likely readings of *big* in expressions such as *big smoker*. The formulae are simplified by the use of two helper functions, as follows.

(i) Helper function $\mathbf{agents}_i(\bar{e})$ returns the set of agents participating in realizations of event-kind $\bar{e}$ at temporal index i.

(247) $\mathbf{agents}_i(\bar{e}) = \{x\colon \exists e\,[\mathbf{Agent}(x,e) \wedge \mathbf{R}(e,\bar{e})\text{ at }i]\}$

(ii) Helper function $\mathbf{events}_i(x,\bar{e})$ returns the set of discrete events of kind $\bar{e}$ in which individual x performs the Agent role at temporal index i.

(248) $\mathbf{events}_i(x,\bar{e}) = \{e\colon \mathbf{Agent}(x,e) \wedge \mathbf{R}(e,\bar{e})\text{ at }i\}$

The formulae below use these helper functions to establish frequency, duration and quantity of an event-kind by calculating the minimum value of some property for any individual agent during a contextually-salient time span. This reflects the intuition that, for example, any individual who counts as a 'big smoker' will smoke **at least** a certain amount in a given period, perhaps 20 cigarettes per day.

Frequency ($\mu_{\textbf{big}} = \mu_{\textbf{frequency}}$)

Gehrke & McNally do not give a detailed denotation for this 'internal' sense of *frequent*, simply modelling it as a distribution value of *high* returned from their generic **distribution**() function (Gehrke & McNally 2015: 856). They note the overall complexities of specifying the semantics of frequency adjectives in general, citing Stump (1981), Zimmermann (2003), Schäfer (2007) for further reference. However, as I am only dealing with the relatively simple 'internal' reading, I am able to provide a basic notion of frequency that can be adapted to represent the other readings of *big* that are of interest, including duration and consumption.

I interpret a *frequent* event-kind as 'a kind of event that is performed frequently by anyone who does it'. In this sense, the meaning of phrases such as *frequent smoking*, *frequent reading* and *frequent sailing* is dependent on the per-agent frequency, not the aggregate frequency of the event per se.[258]

The following formula calculates frequency as the minimum of the number of discrete events (e.g. of smoking) for any individual x who is the agent of a realization of event-kind argument $\bar{e}$ within the span of temporal index i, divided by the duration of i.[259] The unit of measurement is thus 'events per unit time'.[260]

(249) $$[\![\mu_{\textbf{frequency}}]\!]^i = \lambda\bar{e}. \min_{x \in \textbf{agents}_i(\bar{e})} \frac{|\textbf{events}_i(x, \bar{e})|}{\textbf{duration}(i)}$$

Based on the above, in readings of *big smoker* where frequency is salient, the following variable assignment can be assumed to hold.

(250) $\mu_{\textbf{big}} = \mu_{\textbf{frequency}}$

[258] On a per-agent interpretation, fifty people each smoking one cigarette per day is unlikely to count as *frequent smoking*; one person smoking fifty cigarettes every day almost certainly does. Cf. the 'generic' reading which is not relativized to individual agents, e.g. *There was frequent fighting.*

[259] Temporal index i is the 'well-defined stretch of time' from Gehrke & McNally (2015: 853), here sufficient time for the speaker to establish whether the behaviour counts as 'frequent' in context.

[260] Relevant time units in frequency expressions might include cigarettes smoked **per day**, books read **per month** and skiing trips taken **per year**. The salient time span necessary to establish whether an individual's behaviour counts as (POS) 'frequent' is likely to involve observation over several such units in each case.

Duration ($\mu_{\textbf{big}} = \mu_{\textbf{duration}}$)

A similar technique can be used to calculate the 'duration' of an event kind as the minimum cumulative duration of any agent who participates in its realizations during a given time period. For example, to count as a *big reader* might require reading for a minimum of 20 hours per week on average, almost certainly consisting of multiple discrete reading events. The unit of measurement is some contextually-salient proportion of elapsed time, such as hours per week or days per year.

$$[\![\mu_{\textbf{duration}}]\!]^i = \lambda \bar{e}. \min_{x \in \textbf{agents}_i(\bar{e})} \frac{\sum_{e \in \textbf{events}_i(x,\bar{e})} \textbf{run-time}(e)}{\textbf{duration}(i)} \tag{251}$$

Based on the above, in readings of *big smoker* where duration is salient, the following variable assignment can be assumed to hold.

$$\mu_{\textbf{big}} = \mu_{\textbf{duration}} \tag{252}$$

Quantity ($\mu_{\textbf{big}} = \mu_{\textbf{quantity}}$)

Events of consumption, creation, destruction, etc. have an implied theme which is available to be measured in a similar way to duration: *big ~~food~~ eater*, *big ~~alcohol~~ drinker*, *big ~~tobacco~~ smoker*, *big ~~human~~ killer*, *big ~~environment~~ polluter*, etc.

As with duration (but distinct from frequency), quantity can accumulate across any number of distinct events within the salient time span i. The unit of measurement is 'quantity per unit time'. What counts as 'quantity' is theme-dependent, and for the examples given above might include calories, units of alcohol, cigarettes, deaths and volume of pollutant.

$$[\![\mu_{\textbf{quantity}}]\!]^i = \lambda \bar{e}. \min_{x \in \textbf{agents}_i(\bar{e})} \frac{\sum_{e \in \textbf{events}_i(x,\bar{e})} \textbf{size}(\textbf{Theme}(e))}{\textbf{duration}(i)} \tag{253}$$

Based on this assumption, in readings of *big smoker* where quantity is salient, the following variable assignment can be assumed to hold.

$$\mu_{\textbf{big}} = \mu_{\textbf{quantity}} \tag{254}$$

5.4.5 Degree reading: *big idiot*

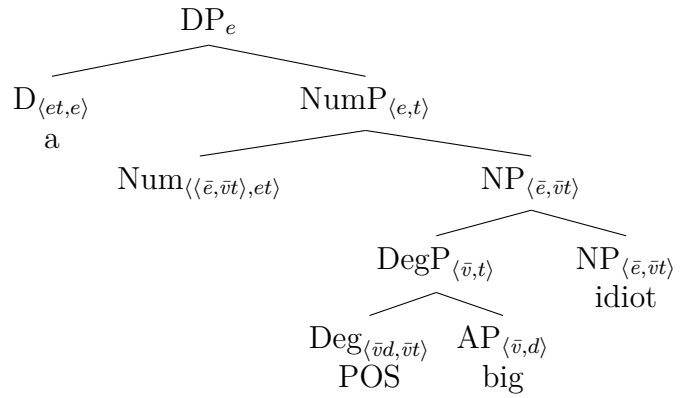


Figure 5.13: Degree reading: [$_{\text{NP}}$ *POS big idiot*] forms a kind

The denotation I propose for *big idiot* is the same as that given for *big smoker* in section 5.4.4, save that event-kinds are replaced by state-kinds. On my analysis, the only relevant measure of a state-kind such as *idiocy* is the intensity to which its realizations reflect the nominal concept. On that basis, only a single measure function is required ($\mu_{\textbf{intensity}}$), which I interpret as returning the minimum intensity of any state-token realizing the state-kind in question.

This conclusion is perhaps surprising in the light of previous comments in this thesis, given that diagnostics based on Sassoon's (2007) *respect* test for dimensionality suggest that [+big +utter] nouns like *idiot* and *genius* are multi-dimensional (de Vries 2010, Rutland 2017),[261] and it might be thought that each dimension could require its own distinct measurement scale. However, on my account each dimension has a natural scale induced by the stative nature of the noun: the single measure of *idiot with respect to mathematics* is intensity, just as it is for *idiot with respect to finance*.

I will assume that state-tokens (of, say, *idiocy*) can be directly measured, unlike events, which can only be measured indirectly on an external dimension like *frequency* or *consumption*. This is because neo-Davidsonian states like *idiocy* are totally preordered by the intensity of the concept the state embodies (Francez & Koontz-Garboden 2017: 51,103). Such a preorder can be understood to induce a mapping to degrees based on the quotient structure of equivalence classes of states as was depicted in figure 5.10 above (e.g. Cresswell 1976, Bale 2008). State-tokens therefore have a natural 'size' (which I will denote by $|s|$) representing the degree to which they exhibit the nominal concept in question, i.e. their intensity.

[261] See the discussion in chapter 3.

The ability to measure states is established in the literature. For Wellwood (2014: 123 ff.), adjectives are inherently stative predicates, but meaningful measurement is only possible with those that have a non-trivial mereological structure. This explains why internally-structured scalar adjectives like *hot* are gradable, but atomic predicates such as *wooden* are not. In the nominal space, Francez & Koontz-Garboden (2017: 51,103) suggest that the existence of a size (pre)order in addition to the ordering induced by the mereological part/whole relationship is what distinguishes abstract qualities relevant to this thesis such as *idiocy* and *genius* from ordinary mass nouns like *gold* and *water*.

I will rely on the strong association between adjectives and gradable nouns of the [+big +utter] class noted by several of the authors cited in chapter 3,[262] together with Wellwood's (2014, 2019) claim that adjectives are fundamentally stative predicates, to propose that [+big +utter] nouns are similarly stative, and that their stativity is the basis of the phenomena they display under modification by the *big*- and *utter*-type modifiers.

Given the inherent ability to measure state-tokens (modelled as $|s|$), a measure function of state-kinds ($\mu_{\textbf{intensity}}$) can be derived straightforwardly by quantifying over all the state-tokens realizing a given state-kind, and returning the degree of intensity ($|s|$) of the smallest one. This is essentially the same move that I used to create measure functions for event-kinds of frequency, duration and consumption in section 5.4.4.

(255) $\quad [\![\mu_{\textbf{intensity}}]\!]^i = \lambda \bar{s}.\, \min\{|s| \colon \mathbf{R}(s, \bar{s}) \text{ at } i\}$

The denotations of *big* and POS are carried over from the eventive versions, save for the trivial change in the sorted variable name from $\bar{e}$ to $\bar{s}$ to ensure that their domains are restricted to state-kinds.

(256) $\quad [\![\text{big}]\!]^c = \lambda \bar{s}.\mu_{\textbf{big}}(\bar{s})$

(257) $\quad [\![\text{POS}]\!]^c = \lambda P_{\langle \bar{v}, d\rangle} \lambda \bar{s}.P(\bar{s}) >_! \mathbf{norm}_c(P)(C)$

[262] Authors who have noted the close semantic association between gradable adjectives and nouns of the [+big +utter] class include Bolinger (1972: 84–86,283), McCawley (1987: 461), Aarts (1998: 147), Paradis (2000: 252), Macaulay (2006: 272–273), Jenks et al. (2016: 15) and Sassoon (2017b: 314).

(258) $[\![\text{POS big}]\!]^c = \lambda\bar{s}.[\![\text{POS}]\!]^c([\![\text{big}]\!]^c)(\bar{s})$
$= \lambda\bar{s}.[\![\text{POS}]\!]^c(\mu_{\mathbf{big}})(\bar{s})$
$= \lambda\bar{s}.\mu_{\mathbf{big}}(\bar{s}) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C)$

As this version of *big* is a predicate of state-kinds, the comparison class C must correspondingly be a set of state-kinds, in the context of the current example, the set of all idiocy state-kinds held by idiot-kinds.

(259) $C = \lambda\bar{s}.\exists\bar{y}\,[[\![\text{idiot}]\!]^c(\bar{y})(\bar{s})]$

The derivation proceeds as for *big smoker* in section 5.4.4 on the assumption that *big* (semantic type $\langle\bar{v}, t\rangle$) and *idiot* (type $\langle\bar{e}, \langle\bar{v}, t\rangle\rangle$) can combine intersectively by Event Identification (strictly speaking State Identification here). I have omitted some of the more straightforward steps this time through.

(260) $[\![[_{\text{NP}}\ \text{POS big idiot}]]\!]^c$
$= \lambda\bar{y}\lambda\bar{s}.[\![\text{idiot}]\!](\bar{y})(\bar{s}) \wedge [\![\text{POS}]\!]^c([\![\text{big}]\!]^c)(\bar{s})$
$= \lambda\bar{y}\lambda\bar{s}.\left[\begin{array}{l}\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y}, \bar{s}) \wedge \\ \mu_{\mathbf{big}}(\bar{s}) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C)\end{array}\right]$

The token-level (NumP) predicate is simply the realization of the kind-level (NP) predicate (260).

(261) $[\![[_{\text{NumP}}\ \text{POS big idiot}]]\!]^c$
$= [\![[_{\text{Num}}\ [_{\text{NP}}\ \text{POS big idiot}]]]\!]^c$
$= \lambda x.\exists\bar{y}\exists\bar{s}\left[\begin{array}{l}\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y}, \bar{s}) \wedge \\ \mu_{\mathbf{big}}(\bar{s}) >_! \mathbf{norm}_c(\mu_{\mathbf{big}})(C) \wedge \\ \mathbf{R}(x, \bar{y})\end{array}\right]$

5.5 Adnominal modification by maximizers

5.5.1 Introduction

As mentioned previously, with very few exceptions (which I exclude), the modifier *utter* only has a degree interpretation in modern English (Bolinger 1972: 147, Paradis 2000: 233). In my analysis, this means that it selects for NP, but never NumP, and is thus exclusively a modifier of state-kinds, not one of individual state-tokens.

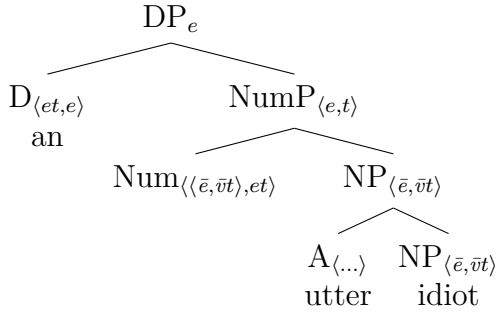


Figure 5.14: *utter* unambiguously forms a kind with *idiot*

The figure assumes a simplified syntax where *utter* is a simple adjective, not a degree morpheme, and does not head a extended DegP projection. I make this move because *utter* is an absolute adjective, and so does not need the injection of a degree standard via the POS morpheme or similar mechanisms.[263]

The type signature of [$_{\text{A}}$ utter] is elided in figure 5.14 because there are two analytical options, depending on whether *utter* is understood to target a scale maximum (≈ 'as idiotic as he could be'), or to act as a quantifier over dimensions (≈ 'idiotic in every respect'). The corresponding denotations are presented in sections 5.5.2 and 5.5.3 respectively.

The other adjectives in the *utter*-class (*absolute*, *complete*, *total*, etc.) retain both ordinary and degree readings (Paradis 2000). For these modifiers figure 5.14 represents only one of two possible structures, as they are able to merge with either NumP or NP depending on interpretation.[264]

On my account, the evidence set out in chapters 2 and 4 for [+big +utter] nouns like *idiot* can be fully explained by assuming that the nouns' denotations

[263]Abney (1987: 192), however, takes the view that adjective phrases are uniformly DegPs.

[264]The ordinary non-degree reading of (say) *complete idiot* where A merges with NumP ('idiot with no parts missing') is not of interest to my investigation.

are stative (rather than eventive, as in the case of *smoker*), and by there being two core meanings of each degree modifier, one scalar and the other quantificational.

My analysis of the *utter*-type degree modifiers therefore consists of two sets of denotations. The first is scalar and combines intersectively with the stative element of the noun (semantic type $\langle \bar{v}, t \rangle$) by Event Identification. The second is a predicate modifier that quantifies over the noun's dimension set,[265] with the necessarily high semantic type of $\langle \langle \bar{e}, \langle \bar{v}, t \rangle \rangle , \langle \bar{e}, \langle \bar{v}, t \rangle \rangle \rangle$.

Figure 5.15: Intersective and predicate modifier versions of *utter idiot*

The first (intersective) version elicits scalar meanings such as 'as idiotic as he or she can be'. The modifier operates in a similar manner to the proposal for *big smoker* in section 5.4.4, save that the denotation of *utter* has to supply an end-of-scale meaning to nouns like *idiot* whose scales have no obvious maximum. In this case, as *utter* combines intersectively with *idiot* via a process of Event Identification (Kratzer 1996, 2002), it can be given a low semantic type of $\langle \bar{v}, t \rangle$ that matches the stative component of the denotation of *idiot*. This move is not essential to my theory, but it is both a considerable analytical simplification and a distinguishing feature between the two meanings of *utter*.

The second (predicate modifier) corresponds to quantificational meanings such as 'idiotic in every respect'. In this case the modifier is unable to combine intersectively with *idiot*, as it needs access to the meaning of the nominal predicate in order to ascertain the noun's contextual dimension set. A higher semantic type is therefore necessary in this case, $\langle \langle \bar{e}, \langle \bar{v}, t \rangle \rangle , \langle \bar{e}, \langle \bar{v}, t \rangle \rangle \rangle$ rather than $\langle \bar{v}, t \rangle$.

These two interpretations of the *utter*-type degree modifiers are discussed in the following sections with reference to a single example, *complete idiot*, which on my account is ambiguous between scalar and quantificational readings.[266]

[265] To be precise, the denotation actually quantifies over the noun's **respect** set, as explained in section 5.5.3. But as respects (in the sense of Sassoon 2007: 11) are 1-1 with dimensions, it is sufficient to think of quantification over dimensions at this stage of the discussion.

[266] Although for brevity the denotations in the following sections only refer to *complete*, I assume that the same analyses apply uniformly to all the *utter*-type modifiers under consideration (*absolute*, *complete*, *outright*, *total* and *utter*), although this might be analytically naive.

5.5.2 *Complete* as an extreme degree modifier

As discussed in chapter 3, Morzycki (2012a) uses a speedometer metaphor to explain the behaviour of extreme adjectives like *gigantic*, *fantastic* and *gorgeous* under modification by correspondingly extreme degree modifiers (EDMs). The adverbial forms of the *utter*-type modifiers under discussion would be classed as EDMs in this context (*absolutely*, *completely*, *totally*, *utterly*, etc.).

Values above the marked zone on the gauge (illustrated in figure 3.10) constitute an extreme 'zone of indifference' representing speeds that are 'way too fast', and have no relevance for ordinary driving. We are unable or unwilling to differentiate values in this extreme band, and therefore they 'might as well be a single degree' (Morzycki 2012a: 568,601). This leads Morzycki to the perhaps unexpected conclusion that

(262) thinking in terms of equivalence classes, there *is* a maximum to the scale of size. (Morzycki 2012a: 601)

The scalar proposal for the semantics of *complete idiot* presented in this section uses the speedometer metaphor, together with the associated availability of an equivalence class of maximal degrees, to provide a technical explanation of the modification of [+big +utter] nouns by *utter*-type modifiers. Although there is no obvious objective upper limit to the scale of idiocy, any more than there is to the scale of speed, language sometimes behaves as if such a maximum exists.

I follow Morzycki's suggestion in (262) by representing this reluctance to differentiate among a set of degrees by modelling the extreme range with a single equivalence class, thus giving the scale a genuine maximum point that can be targeted by lexical maximizers.

Although Morzycki doesn't provide a corresponding denotation, the mathematics is relatively straightforward. The idea is that gradable nouns can have conceptual maxima, and an expression like *complete idiot* therefore means something like 'an individual whose idiocy is maximal in a contextually-relevant sense'. Although there is no objective upper bound on the underlying scale of idiocy, in any given discourse situation the subject can be understood to possess some (contextual) maximum amount of idiocy, relating to an equivalence class of indistinguishable degrees at the top of the scale. As a single point, the equivalence class is available to be targeted by maximizers like *utter*, *complete*, *total* etc. just as if it were a true objective endpoint.

On my interpretation, Morzycki's 'perspective scale' is not an ordered set of *degrees*, but a finite ordered set of *equivalence classes of degrees*, with an upper endpoint consisting of the equivalence class mentioned above. For consistency I also model the other points on the perspective scale as equivalence classes, but as singleton sets containing individual degrees.[267]

(263) $\{\{d_0\}, \{d_1\}, \ldots, \{d_{max-1}\}, \{d\colon d \geq d_{max}\}\}$

The scale in (263) can be represented more simply using the notation that $\lceil d \rceil$ denotes the unique equivalence class (set) containing degree d.[268] Using equivalence classes enables my proposed denotation to more closely reflect the linguistic evidence that *utter*, *complete*, etc. exhibit maximality semantics, even though the underlying scales of the nouns they modify may not have true maxima.[269]

(264) $\{\lceil d_0 \rceil, \lceil d_1 \rceil, \ldots, \lceil d_{max-1} \rceil, \lceil d_{max} \rceil\}$

Equivalence classes give the intensity scale a genuine (albeit contextual) endpoint that can be targeted by maximizers like *complete*. A degree of intensity is maximal iff it is in the same equivalence class as the contextual scale maximum point $d_{max} = \mathbf{max}_c(\mu_{\mathbf{intensity}})$, where $\mu_{\mathbf{intensity}}()$ is the function introduced in (255).

(265) $[\![\text{complete}]\!]^c = \lambda \bar{s}.\lceil \mu_{\mathbf{intensity}}(\bar{s}) \rceil = \underbrace{\lceil \mathbf{max}_c(\mu_{\mathbf{intensity}}) \rceil}_{\substack{\text{Equivalence class} \\ \text{of extreme degrees}}}$

With this mechanism in place the denotation of *complete idiot* is straightforward. The version of *complete* in (265) can combine intersectively with the denotation of *idiot* by Event Identification, just as was done for *big idiot* in the previous section.[270]

[267] The diagram assumes that there are a finite number of perceivable equivalence classes below the maximum marked point on the (metaphorical) speedometer, each perhaps corresponding to a single 'miles per hour' point, In this way, the (presumably infinite) number of actual degrees of measurement can be reduced to the finite number of 'ticks' displayed on the gauge. Following Bale (2008, 2011), I assume that the underlying linguistic scales are actually countably infinite dense sets of degrees isomorphic to the set of rational numbers $\mathbb{Q}$.

[268] The standard mathematical notation for equivalence classes is $[d]$, but in this thesis square brackets are already used to delimit the scope of λ-abstraction and quantification.

[269] Morzycki's proposal is based on domain widening and as such his chosen denotation does not use equivalence classes. He models the 'extreme range' as degrees that exceed the salient range ($d > \mathbf{max}(C)$), rather than having the maximum value represented by an equivalence class as I do.

[270] Arguably by introducing d_{max} I have changed *complete* from an absolute predicate to a

(266) $[\![[_{\text{NP}}\text{ complete idiot}]]\!]^c$

$$= \lambda\bar{y}\lambda\bar{s}.[\![\text{idiot}]\!](\bar{y})(\bar{s}) \wedge [\![\text{complete}]\!]^c(\bar{s})$$

$$= \lambda\bar{y}\lambda\bar{s}.\left[\begin{array}{l}\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y},\bar{s}) \wedge \\ \lceil\mu_{\mathbf{intensity}}(\bar{s})\rceil = \lceil\mathbf{max}_c(\mu_{\mathbf{intensity}})\rceil\end{array}\right]$$

The token-level predicate simply instantiates the kind-level denotation in the usual fashion through a process of existential closure.

(267) $[\![[_{\text{NumP}}\text{ complete idiot}]]\!]$

$$= \lambda x.\exists\bar{y}\exists\bar{s}\left[\begin{array}{l}\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y},\bar{s}) \wedge \\ \lceil\mu_{\mathbf{intensity}}(\bar{s})\rceil = \underbrace{\lceil\mathbf{max}_c(\mu_{\mathbf{intensity}})\rceil}_{\substack{\text{Equivalence class}\\ \text{of extreme degrees}}} \wedge \\ \\ \mathbf{R}(x,\bar{y})\end{array}\right]$$

The denotation in (267) represents the scalar interpretation of *complete idiot*, the set of individuals whose idiocy is maximal in context. The next section presents the alternative quantificational reading.

5.5.3 *Complete* as a quantifier over dimensions

The second (quantificational) interpretation I wish to propose is that being a *complete idiot* means having the property of *idiocy* in every respect, but not necessarily maximally. For de Vries (2010: 50), this means that adjectives such as *complete* and *total* are modifiers of dimension, rather than of degree.

> *Complete* or *total* in a *complete/total nerd* do not really seem to refer to the endpoint of a scale, such that a total nerd could not possibly be more nerdy; rather, they carry a sense of having some property 'in every respect'. Thus, a *total nerd* is someone who is nerdy with respect to his looks, social skills, intelligence, hobbies, in short, every dimension that we tend to associate with nerdiness. In contrast, whether someone can reasonably be called a goat cheese enthusiast or a curling fan really only depends on one dimension: their enthusiasm for goat's cheese and curling.
>
> (de Vries 2010: 49)

relative one, in which case a comparison class would be required to establish at what level the 'maximum' occurs in context. I reserve resolution of this point for future research.

It is straightforward to construct a denotation for *complete* based on de Vries's intuition, by taking the theoretical step of introducing nominal dimensions identified by 'respects' into the ontology (cf. Sassoon 2007: 11). A consequence is that the resulting quantificational solution directly contradicts the assertion in Morzycki (2012b: 194) that predicates like *idiot* and *disaster* are one-dimensional.

An insight from Sassoon (2013b: 276) is that 'animate-evaluative' terms like *genius* and *idiot* are exceptional nouns that defy the general restriction that nouns do not combine with *with respect to* phrases. In this sense, they behave more like multi-dimensional adjectives such as *healthy* than nouns.

(268) Amy is healthy with respect to $\left\{\begin{array}{l}\text{blood pressure}\\ \text{lung function}\\ \text{cholesterol}\\ \text{pulse}\end{array}\right\}$. (cf. Sassoon 2013a)

The presence of multiple dimensions and their ability to be selected via 'respect' arguments is a key distinguishing feature of [+big +utter] nouns like *idiot* (Sassoon 2007: 200, Sassoon 2013b: 276 ff.). The free accessibility of dimensions in the nominal case of *idiot* in (269) shows a clear parallel with the adjectival case of *healthy* in (268).

(269) Roy is an idiot with respect to $\left\{\begin{array}{l}\text{money}\\ \text{alcohol}\\ \text{relationships}\\ \text{anything remotely technical}\end{array}\right\}$.

The felicity of [+big +utter] nouns with 'in every respect' and 'except' clauses suggests that their dimensions are bound by universal, rather than existential, quantification (cf. *healthy except for cancer* vs. *#sick except for liver function*).

(270) a. Dan is an idiot $\left\{\begin{array}{l}\text{with respect to money}\\ \text{in every respect}\\ \text{except with respect to money}\end{array}\right\}$.

b. The conference was a success $\left\{\begin{array}{l}\text{with respect to the quality}\\ \qquad\qquad\text{of the papers}\\ \text{in every respect}\\ \text{except for the papers}\end{array}\right\}$.

(Sassoon 2013b: 276, reformatted)

While the denotation for *complete idiot* I develop below models 'respects' (which is what surfaces in language use as (269) and (270) demonstrate), Sassoon (2007: 182) stresses that the actual dimensions of a multi-dimensional adjective like *healthy* are not bare NPs like *cholesterol* and *blood pressure*, but phrasal assessments of health such as *healthy with respect to cholesterol* and *healthy with respect to blood pressure*.[271] In other words, a 'respect' argument like *blood pressure* selects from the available dimensions of health(y), but it is not a dimension in itself.

(271) $$\textbf{respect}_c(\textbf{healthy}) = \left\{ \begin{array}{l} \textbf{blood-pressure}, \\ \textbf{lung-function}, \\ \textbf{cholesterol}, \\ \textbf{pulse} \end{array} \right\}$$

For the nominal case I assume that the the dimensions of (say) *idiot* are similarly restricted subkinds selected by a *respect* argument such as *idiot with respect to money*, although in fact they do not relate to the *idiot* (the individual argument), but are direct projections from his or her idiocy (the state argument).

(272) $$\textbf{respect}_c(\textbf{idiot}) = \left\{ \begin{array}{l} \textbf{money}, \\ \textbf{alcohol}, \\ \textbf{relationships}, \\ \textbf{anything-remotely-technical} \end{array} \right\}$$

The cardinality of the example respect set in (272) (which is 1-1 with the underlying dimension set) reflects a theoretical divergence from Morzycki (2012b), who treats *idiot* as having a single dimension of 'idiocy'. This is perhaps caused by a straightforward difference of opinion as to what constitutes a 'dimension' (Morzycki 2012b: 192). While I will not attempt to specify precisely what a dimension is, the definition in Schwarzschild (2006) will suffice for the purposes of the denotation developed below.

A dimension is a kind of property like weight, volume, or temperature

[271] Healthy blood pressure is not a measurement of blood pressure in isolation, but of how close its systolic and diastolic extremes lie to the clinically healthy range for the patient, e.g. 120/80.

that can be had in varying degrees. (Schwarzschild 2006: 72)

The denotation I develop below for the quantificational reading of modifiers like *complete* is based on 'respects', rather than the underlying dimensions. Respects can be thought of as the selectors of dimensions like *genius with respect to maths* that surface in language. I will model respects as entity-kinds, as in a phrase like *idiot with respect to money*, *money* represents 'the kind of thing that is money', rather than a particular instance of money.

(273) $[\![[_{\text{NP}}\ \text{money}]]\!] = \lambda\bar{x}.\mathbf{money}(\bar{x})$ (a set of entity-kinds)

I treat *with respect to* and its various surface forms as a semantic primitive (**wrt**), being a relationship between state-kinds (e.g. of idiocy) and their various 'respects', entity-kinds such as money, alcohol and relationships in the case of idiocy.

(274) $[\![\text{with respect to}]\!] = \lambda R_{\langle\bar{e},t\rangle}\lambda\bar{s}.\exists\bar{z}\,[R(\bar{z}) \wedge \mathbf{wrt}(\bar{z})(\bar{s})]$

(275) $[\![\text{with respect to money}]\!] = \lambda\bar{s}.\exists\bar{z}\,[\mathbf{money}(\bar{z}) \wedge \mathbf{wrt}(\bar{z})(\bar{s})]$

A possible dimension of the state-kind idiocy is *idiocy with respect to money*, roughly 'a subkind of idiocy that relates to a subkind of money'.

(276) $[\![[_{\text{NP}}\ \text{idiocy with respect to money}]]\!]$
$= \lambda\bar{s}.\mathbf{idiocy}(\bar{s}) \wedge \exists\bar{z}\,[\mathbf{money}(\bar{z}) \wedge \mathbf{wrt}(\bar{z})(\bar{s})]$

At the NP (kind) level *idiot with respect to money* is the kind of idiot who is the holder of the state-kind in (276).

(277) $[\![[_{\text{NP}}\ \text{idiot with respect to money}]]\!]$
$= \lambda\bar{y}\lambda\bar{s}.\left[\begin{array}{l}\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y},\bar{s}) \wedge \\ \exists\bar{z}\,[\mathbf{money}(\bar{z}) \wedge \mathbf{wrt}(\bar{z})(\bar{s})]\end{array}\right]$

The NumP (token) level predicate instantiates the kind-level denotation in (277).

(278) $[\![[_{\text{NumP}}\ \text{idiot with respect to money}]]\!]$
$= \lambda x.\exists\bar{y}\exists\bar{s}\left[\begin{array}{l}\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y},\bar{s}) \wedge \\ \exists\bar{z}\,[\mathbf{money}(\bar{z}) \wedge \mathbf{wrt}(\bar{z})(\bar{s})]\end{array}\right]$

In contrast to the account in Morzycki (2012b: 194), on my analysis the domains of *complete* and the other *utter*-class modifiers are restricted to nouns with more

than one dimension, not (as he claims) nouns with only one dimension.[272] This must be the case for the modifier to be able to represent universal quantification, as it would be infelicitous to refer to *a complete N* (in the sense of 'an N in every respect') if the noun in question only has one 'respect' to quantify over. The relevant constraint is imposed by a domain precondition $|\mathbf{respect}_c(N)| > 1$.

The quantificational version of *complete* in (279) must have modifier semantics (with semantic type $\langle\langle \bar{e}, \langle \bar{v}, t\rangle\rangle, \langle \bar{e}, \langle \bar{v}, t\rangle\rangle\rangle$), in order to access the meaning of nominal predicate N and obtain its contextual 'respect' set.

(279) $$[\![\text{complete}]\!]^c = \lambda N_{\langle \bar{e}, \bar{v}t\rangle} \lambda \bar{y} \lambda \bar{s}\colon |\mathbf{respect}_c(N)| > 1. \left[\begin{array}{l} N(\bar{y})(\bar{s}) \wedge \\ \forall R_{\langle \bar{e}, t\rangle}\, [R \in \mathbf{respect}_c(N) \rightarrow \exists \bar{z}\, [R(\bar{z}) \wedge \mathbf{wrt}(\bar{z})(\bar{s})]] \end{array}\right]$$

(280) $$[\![[_{\text{NP}}\ \text{idiot}]]\!] = \lambda \bar{y} \lambda \bar{s}.\mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y}, \bar{s})$$
(reproduced from (226))

(281) $$\begin{aligned} &[\![[_{\text{NP}}\ \text{complete idiot}]]\!]^c \\ &\quad = \lambda \bar{y} \lambda \bar{s}.[\![\text{complete}]\!]^c([\![\text{idiot}]\!])(\bar{y})(\bar{s}) \\ &\quad = \lambda \bar{y} \lambda \bar{s}\colon |\mathbf{respect}_c(\mathbf{idiot})| > 1. \left[\begin{array}{l} \mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y}, \bar{s}) \wedge \\ \forall R_{\langle \bar{e}, t\rangle}\, [R \in \mathbf{respect}_c(\mathbf{idiot}) \rightarrow \exists \bar{z}\, [R(\bar{z}) \wedge \mathbf{wrt}(\bar{z})(\bar{s})]] \end{array}\right] \end{aligned}$$

The token-level predicate simply instantiates the kind-level denotation in (281).

(282) $$\begin{aligned} &[\![[_{\text{NumP}}\ \text{complete idiot}]]\!] \\ &\quad = \lambda x\colon |\mathbf{respect}_c(\mathbf{idiot})| > 1. \\ &\qquad \exists \bar{y} \exists \bar{s} \left[\begin{array}{l} \mathbf{person}(\bar{y}) \wedge \mathbf{idiocy}(\bar{s}) \wedge \mathbf{Holder}(\bar{y}, \bar{s}) \wedge \\ \forall R_{\langle \bar{e}, t\rangle}\, [R \in \mathbf{respect}_c(\mathbf{idiot}) \rightarrow \exists \bar{z}\, [R(\bar{z}) \wedge \mathbf{wrt}(\bar{z})(\bar{s})]] \wedge \\ \mathbf{R}(x, \bar{y}) \end{array}\right] \end{aligned}$$

The denotation in (282) represents the quantificational reading of *complete idiot*, namely the set of individuals who are idiots in all contextually-salient respects, but not necessarily maximally.

[272] De Vries (2010) notes the multi-dimensionality of [+big +utter] nouns like *genius* and *nerd*.

5.6 Resolution of research questions

The above proposal addresses the research questions from section 1.3 as described in the following subsections.

5.6.1 Research Question 1

I attribute the difference between gradable and non-gradable nouns to the availability of a modifiable kind argument with the former. Kinds (like individuals) have measurable dimensions, and it is this that allows them to be compatible with degree modifiers like *big* and *complete*. My proposal draws heavily on Gehrke & McNally's (2015) kind-based theory of *frequent sailor*, and extends their analysis to the adjectives of size and maximality considered in Morzycki (2005, 2009, 2012b).

My analysis is fundamentally based on a 'point of attachment' argument, similar to that in Winter & Zwarts (2012a). Degree modification can only take place at the NP (kind) level of the syntactic hierarchy assumed by Gehrke & McNally, and not at the NumP (token) level where ordinary adjectival modification occurs. The felicity of the modifiers under consideration with both NP and (*utter* excepted) NumP nodes leads directly to the size/degree ambiguities observed with phrases like *big sailor*.

The combination of the above factors fully explains the availability of both ordinary and degree readings in the scenarios under consideration, thus answering Research Question 1.

5.6.2 Research Questions 2 and 3

As explained in the technical analysis above, the differences in behaviour between the classes of gradable nouns under investigation arise because [+big −utter] nouns like *smoker* entail the presence of modifiable event-kinds, whereas [+big +utter] nouns like *idiot* entail the presence of modifiable state-kinds.

Both types of nouns are compatible with size adjectives, because it is always possible for an individual to significantly exceed the contextual standard of an N and thus qualify as a *big N*, for example by smoking more (*big smoker*) or being more idiotic (*big idiot*). The availability of kind-level scales and corresponding measure functions with both [+big −utter] and [+big +utter] nouns explains

Research Question 2.

While the scales of [+big −utter] nouns are unbounded, because the events they entail can always be extended by mechanisms such as increased frequency or duration, the evaluative nature of the [+big +utter] nouns permits speakers to impose subjective limits with endpoint modifiers like *utter* and *complete*. On my account, the availability of such contextual maxima (which I explain with reference to equivalence classes of degrees, following a suggestion in Morzycki 2012a) fully addresses Research Question 3.

5.7 Summary

The denotations proposed in this chapter are based on the assumption that the fundamental difference between [+big −utter] nouns like *smoker* and [+big +utter] nouns like *idiot* is that the former entail the existence of modifiable **events**, while the latter entail the existence of modifiable **states**.

The denotations further assume that both kinds of noun can be accurately modelled as kind-denoting predicates using an adaptation of the semantics of *frequent sailor* from Gehrke & McNally (2015). My suggested solution extends the scope of Gehrke & McNally's theory from frequency adjectives to size adjectives like *big* and modifiers of maximality like *complete*, and from eventive predicates like *sailor* to stative ones like *idiot*.

My proposal offers two complementary interpretations of phrases like *complete idiot*, one based on a scale of degrees of *idiocy* (an ordinal scale) and the other based on counting the dimensions on which the individual is idiotic (a cardinal scale). For the first interpretation, I model the (pseudo) upper bound as the equivalence class of degrees of (in this case) *idiocy* of all individuals who are as least as idiotic as the subject. By calling someone an *complete idiot*, the speaker asserts that the subject 'could not be more of an idiot'. Although other individuals might conceivably hold a higher degree of idiocy than he does, for the purposes of the discourse they are all considered to be equivalently (and maximally) idiotic.

On the second interpretation, a *complete idiot* is understood to be 'an idiot in every respect', and the denotation proceeds by quantification over dimensions (actually 'respects', which are 1-1 with dimensions). While objectively other individuals may indeed be *idiots* in other respects, for the purposes of the discourse the speaker defines the salient dimension (respect) set under consideration, and

effectively declares that in context nobody else is an *idiot* in a respect of idiocy that is not held by the subject.

Chapter 6

Conclusion

6.1 Project retrospective

This thesis has discussed some of the key phenomena investigated in Morzycki's seminal series of papers on nominal gradability (Morzycki 2005, 2009, 2012b). Of these, perhaps the most significant and challenging problem was to explain the differences in distribution and behaviour that are observed under adnominal degree modification between [+big −utter] nouns like *smoker* and [+big +utter] nouns like *idiot*. In particular, why can we freely use size adjectives as intensifiers to describe an individual as a *big idiot* or a *huge smoker*, while modifiers of maximality like *utter* and *complete* are restricted to nouns like *idiot* or *geek*, and are infelicitous with nominals such as *smoker* and *road sweeper*?

The full paradigm is summarized below, including for completeness the *real*-type modifiers, which I did not investigate in detail.

	real	big	utter
sportscar	✓	×	×
smoker	✓	✓	×
idiot	✓	✓	✓

Figure 6.1: Distribution of degree modifiers

While the empirical data presented in chapters 2 and 4 broadly supports the existence of a partitioning of gradable nouns by modifier type of the kind shown in figure 6.1, it does not fully corroborate Morzycki's distributional claims.

Morzycki (2012b: 194) proposes that the [+utter] nouns form a proper subset of the [+big] ones, and indeed this is backed up by the evidence he puts forward in

his papers, as summarised in chapter 2. His examples also suggest the existence of the further subset relationship [+big] ⊂ [+real], although Morzycki does not claim this explicitly. A strict inclusion hierarchy representing both of these relationships is depicted in the Venn diagram in figure 6.2 below.

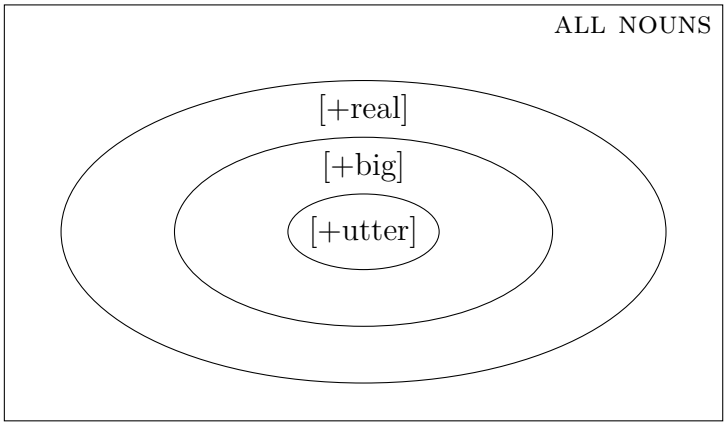


Figure 6.2: Inclusion hierarchy predicted by Morzycki's data (reproduced from figure 4.17).

Surprisingly, the corpus research documented in chapter 4 reveals the existence of a (possibly substantial) set of nouns that pattern freely with *utter*-type modifiers, but either completely reject *big*-type degree modification, or are at least strongly reluctant to accept it. The revised relationship with the hypothetical [−big +utter] category shaded is shown in figure 6.3.

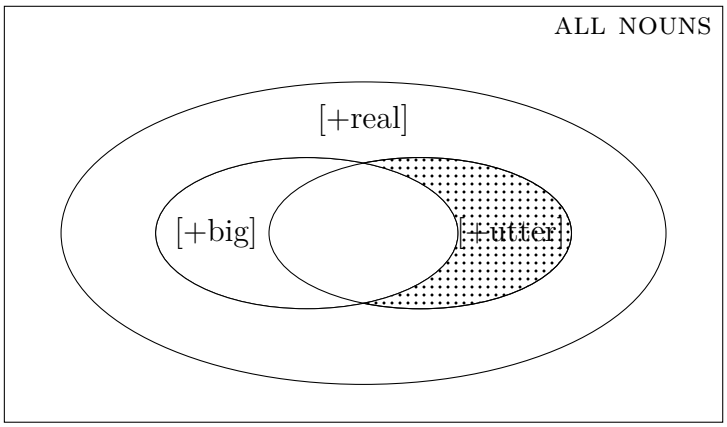


Figure 6.3: Inclusion hierarchy suggested by corpus results (reproduced from figure 4.20).

The 78 instances identified by my corpus query are presented in section 4.4.

They consist mainly of abstract mass nouns like *hopelessness*, *obscurity* and *seclusion*, and concrete nouns used in an abstract sense such as *tripe*. While I suggested some possible explanations for the phenomenon, including the 'stubborn distributivity' of size adjectives (Schwarzschild 2009) and the effects of competition between valid lexical choices (Vera Hohaus p.c.), I was unable to pinpoint the causes sufficiently accurately to be able to address this issue in the denotations in chapter 5.[273]

My main theoretical claim is that gradability arises in [+big −utter] nouns like *smoker* because their meanings entail the presence of modifiable **events**, and in [+big +utter] nouns like *idiot* because their meanings entail the presence of modifiable **states**. On this basis, *smoker* is a predicate denoting the set of agents of smoking events, and *idiot* is a predicate denoting the set of holders of states of idiocy.

The eventive nature of deverbal nouns such as *smoker*, *collector* and *rugby player* is apparent from their morphology (Rappaport Hovav & Levin 1992, Alexiadou & Schäfer 2008, 2010, Roy & Soare 2014 and many others). From this starting point it is but a small intellectual step to interpret a *big smoker* as one who 'smokes big', in the sense of smoking more frequently, copiously or enthusiastically than does the average smoker. A similar argument could apply to any noun denoting the agent of an event that can be extended through increased performance. Examples discussed in this thesis include non-deverbal (but still event-entailing) nouns such as *guitarist*, *athlete* and *vegetarian*, where the theme of the event is entailed by the noun (*guitar*, *athletics*, *vegetarianism*), rather than the event itself. In cases like these the event can generally be inferred from the nature of the theme, e.g. *playing*, *performing* or *practising*, or perhaps a semantically-bleached action such as *doing*.

My claim that evaluative nouns like *idiot*, *genius* and (metaphorically) *gem* are fundamentally stative nouns requires more justification. The argument rests firstly on the conjecture expressed by various authors from Bolinger (1972) onwards that gradable nouns of the [+big +utter] class are semantically more adjectival than ordinary nouns. Sassoon (2017b) expresses the concept particularly clearly.

[273] As discussed in section 3.4.4, for different reasons Wellwood (2019: 171) restricts the domain of *idiot* to atomic entities. While this works for *idiot*, in general it would appear to be at best a partial solution to the issue at hand, as it would exclude many valid cases of abstract mass nouns that do collocate with size adjectives.

> In sum, nouns carrying expressive or evaluative components such as *idiot*, *coward*, *hero* or *child* in its metaphoric sense, get as close to gradable adjectives as nouns can [...], perhaps because they have adjectival dimensions.
>
> (Sassoon 2017b: 314)

The second crucial move is to recognise that the gradable behaviour of adjectives can be accurately represented by reference to a stative component (Wellwood 2014, 2015, 2019, Baglini 2015). Although I do not directly use Wellwood's semantics, her sketch of a possible interpretation of *big idiot* based on *idiot* denoting the holder of a state of idiocy that has the property of 'bigness' (Wellwood 2019: 170–172) was very influential on my thinking.

Assuming that (i) [+big +utter] nouns like *idiot* contain an adjective-like semantic component, and (ii) a plausible description of the semantics of gradable adjectives can be provided by states, then it seems reasonable to model nouns in the [+big +utter] category as stative predicates.

The defining distinction between the [+big −utter] and [+big +utter] nouns is that, while neither category appears to entail the existence of a genuine conceptual upper bound, the [+big +utter] nouns are felicitous with modifiers of maximality. In the case of (say) *complete idiot*, clear bounded meanings obtain such as 'as much an idiot as he can be', or 'an idiot in every respect'. The lexical behaviour of *idiot* thus appears to diverge from one's everyday experience of idiocy, as Morzycki (2009: 190) observes.

The existence of a quantificational reading of *complete* that amounts to dimension counting (i.e. 'in every respect') provides strong evidence contrary to the suggestion by Morzycki (2009, 2012b) that [+big +utter] nouns like *idiot* are inherently one-dimensional. This is in line with similar arguments previously made in de Vries (2010) and Rutland (2017).

With nouns in the [+big +utter] class like *idiot* and *gem* (in its metaphorical sense), speakers are free to strengthen their conversational position by asserting, that someone is, for example, not merely an *idiot*, but an *utter idiot*. Another way of looking at this is that the use of *utter* **creates** an upper bound on an otherwise unbounded scale as a linguistic device for stressing the veracity of the speaker's appraisal of the high degree of the subject's idiocy. This mechanism is arguably also the means by which ungradable nominals like *coat hanger* can be coerced into exhibiting apparently gradable effects in ad hoc expressions such as *You*

absolute coat hanger! The presence of the maximizing modifier *absolute* primes the listener to expect a gradable noun, and by a process of scalarity coercion (Matushansky 2002) the normally ungradable nominal *coat hanger* acquires a contextually-salient set of gradable dimensions that allow it to be felicitous with *absolute*.[274]

In contrast, whether someone smokes, and the frequency and quantity of their smoking, are not matters of subjective judgement, but objective facts. Because the gradable properties of the events entailed by [+big −utter] nouns can be objectively measured[275], speakers are not free to impose artificial upper bounds on their scales, as it is clearly always possible for an individual to smoke, eat, drink, etc. more frequently, copiously or enthusiastically, and thus to become an even bigger *smoker*, *eater* or *drinker*.

Finally, one of the key steps taken in the technical analysis set out in chapter 5 was to extend Gehrke & McNally's (2015) kind-based analysis of *frequent sailor* from eventive predicates like *sailor* to stative predicates like *idiot*, and from frequency adjectives such as *frequent* itself to size adjectives like *big* and modifiers of maximality like *complete*. My original motivation for this move was to provide a cogent explanation of the (very common) situation where context equates a *big drinker* to a *frequent drinker*. In my analysis, this results from quantifying over the individual events (tokens) that constitute an event-kind of drinking over some salient temporal span, and assessing that the frequency distribution is sufficiently high to count as 'frequent' – which, depending on context, can result in an inference to 'big'.

Adopting the theoretical stance that all nouns are fundamentally base-generated as kinds has enabled me to apply a consistent set of semantics not just to readings of frequency, but also those of quantity ('drink more') and duration ('spend more time drinking'), and further to categorize individuals as *big idiots* or *complete idiots* based on quantifying over state-tokens, rather than event-tokens. While kinds are certainly not crucial to such an analysis (as the required pluralities of events and states could be arrived at by other mechanisms), the availability of kinds in my ontology facilitates such an approach.

[274]The full explanation is almost certainly more involved than this, as some kind of coercion has already occurred in the perfectly acceptable unmodified phrase *You coat hanger!* (Louise McNally p.c.).

[275]Perhaps with the exception of properties such as 'enthusiasm for smoking'.

6.2 Contributions made by this research project

The most significant contributions to the understanding of nominal gradability made by this project were discussed in detail above, and are briefly summarised below for convenience.

My main claim is that the key difference between [+big −utter] nouns like *smoker* and [+big +utter] nouns like *idiot* is that the former entail the presence of modifiable **events**, and the latter entail the presence of modifiable **states**. While the eventive meaning of deverbal nouns like *smoker* is fairly obvious, on my account the stative interpretation of those like *idiot* depends on the presence of an adjective-like semantic component (Bolinger 1972, Paradis 2000, Sassoon 2017b and many others), together with the ability to model the semantics of adjectives with states (e.g. Wellwood 2014, 2019, Baglini 2015).

The behaviour of the [+big −utter] category under adnominal degree modification can be explained in a straightforward manner by standard event semantics. To be a *big smoker* is to 'smoke more than the ordinary smoker', perhaps in terms of frequency, duration or quantity. In contrast, modification of the [+big +utter] nouns by size adjectives cannot elicit time-related meanings. The phrase *big idiot* refers only to the intensity to which the individual in question exhibits the property of idiocy, and not, for example, how frequently he or she does so, or for how long.

On one reading, the meaning of maximal phrases such as *complete idiot* amounts to universal quantification over dimensions ('idiot in every respect'). This can be confirmed by Sassoon's (2013a) semantically-based (and hence cross-categorial) diagnostics for multidimensionality. The existence of a reading of *complete* that amounts to dimension counting is contrary to the suggestion by Morzycki (2009, 2012b) that [+big +utter] nouns like *idiot* are inherently one-dimensional. This result reinforces similar arguments made previously by de Vries (2010) and Rutland (2017).

A novel feature of the technical proposal in chapter 5 is that it extends Gehrke & McNally's kind-based analysis of *frequent sailor* from eventive predicates like *sailor* to stative predicates like *idiot*, and from frequency adjectives such as *frequent* itself to size adjectives like *big* and modifiers of maximality like *complete*.

Finally, although corpus searches in a very large (13 billion word) corpus of modern English broadly confirm Morzycki's proposal that nouns can be partitioned based on their affinity with size adjectives and modifiers of maximality,

the results cast serious doubt on his conjecture that [+utter] is a proper subset of [+big] (Morzycki 2012b: 194). It appears that a substantial number of abstract mass nouns freely accept modification by *utter* etc., but either refuse or are reluctant to combine with size modifiers (and particularly so with *big* itself). Although I make no attempt to address the putative [−big +utter] category in the technical analysis in chapter 5, it is an interesting area for future research.

6.3 Suggestions for future research

6.3.1 Is [+utter] a proper subset of [+big]?

Perhaps the most interesting issue uncovered by this project, but not investigated in detail, is the apparent existence of a separate category of [−big +utter] nouns that do not follow Morzycki's conjecture that [+utter] is a proper subset of [+big]. Abstract mass nouns such as *bewilderment*, *hopelessness* and *lunacy*, and concrete mass nouns used in an abstract sense such as *tripe*, appear reluctant to combine with size adjectives. The effect is particularly prominent with *big* itself, and somewhat less so with more extreme modifiers such as *colossal* and *enormous*. Although I suggest that this behaviour might be connected with the 'stubbornly distributive' nature of size adjectives noted by Schwarzschild (2009), or alternatively with the effects of competition (Vera Hohaus p.c.), I did not investigate the matter further. My corpus results demonstrate conclusively that Morzycki's analysis needs refinement in this area, although apart from this issue, the evidence generally provides strong support for his empirical claims based on a much larger dataset than he considers.

6.3.2 Modification by *real*-type adjectives

The scope of my research was explicitly constrained to adnominal modification by *big*- and *utter*-type modifiers. No serious consideration was given to the *real*-type (*real*, *true*, *proper*, *pukka*, etc.), although these formed an important element of Morzycki's original research.[276] Given his assertion that the *real*-type modifiers operate on distinct scales of prototypicality separate from those of nominal intensity, it would be interesting to investigate why it appears from Morzycki's

[276]See Sánchez Masià (2017) for a recent investigation into this category of adjectives. The author also addresses the *utter*-type modifiers (in Spanish in both cases).

evidence that only nouns with prototypes can be intensified by the *big-* and *utter*-type modifiers.

6.3.3 The semantics of non-deverbal [+big −utter] nouns

The technical analysis in chapter 5, concentrates on specific canonical examples of the phenomena under investigation, with *smoker* as the main exemplar of the [+big −utter] group, and *idiot* for the [+big +utter] category. While intuition (and corpus results) suggest that nouns that are not morphologically deverbal, but nevertheless entail the presence of events (such as *guitarist*, *philanthropist* and *vegetarian*), are also first-class members of the [+big −utter] category, the denotations I propose do not make explicit provision for this possibility. A similar situation exists in the [+big +utter] class with metaphorical phrases such as *absolute gem*, where the meaning intensified (presumably some desirable quality) has to be inferred, rather than being lexically supplied as with *absolute idiot/idiocy*. It should be possible to extend my analysis to cope with such cases without too much difficulty.

6.3.4 Conjoined maximality phrases: *complete and utter*

A side issue that I have not addressed is the potential for a compositional analysis of conjoined phrases such as *complete and utter idiot*. As proposed in chapter 5, there are two possible degree readings of modifiers of maximality, one quantificational (282) and the other scalar (267). If this is correct, then *complete and utter idiot* could perhaps involve both meanings, with one of the modifiers (*complete*, say) universally quantifying over the dimension set of the noun to establish that the individual is an idiot in every salient respect, and the other (*utter*) ensuring that the individual is maximally idiotic in context.[277]

It is, however, not obvious that the meaning of *complete and utter* is derived compositionally in the manner suggested.[278] Such phrases could alternatively be interpreted as a reinforcing mechanism similar to *very very*, *over and done with* or *each and every*, in which case the entire expression could take either the

[277] A point for investigation is whether differences in meaning arise due to one modifier taking scope over the other.

[278] Some evidence for lack of compositionality is given by the apparent existence of ordering restrictions on the coordination of modifiers, with ?*utter and complete* seemingly less acceptable than *complete and utter* (Vera Hohaus p.c.).

quantificational meaning or the scalar meaning.

6.3.5 States vs. tropes

Finally, the proposal in chapter 5 adopts a state-based treatment of *idiot*, on the assumption that [+big +utter] nouns involve an 'adjective-like' semantic component (Bolinger 1972 and others), and that gradable adjectives can be accurately modelled using states (e.g. Wellwood 2019). On reflection, certain aspects of my suggested solution do not sit well with a stative analysis, in particular the notion that [+big +utter] nouns have just a single dimension of 'intensity', and the impossibility of temporal interpretations of *big idiot*, including the frequency and duration readings that are characteristic of the [+big −utter] nouns (*big smoker*, *big cyclist* etc.). Consideration should be given to a revised analysis of [+big +utter] nouns based on tropes, i.e. properties particularized to individuals such as *Socrates' wisdom* (Moltmann 2005, 2007, 2009, 2012, 2015 and other works).[279,280] A brief, but particularly clear, explanation of the differences between states and tropes in terms of their manifestations over time is given in Moltmann (2007: 369–370). Moltmann (2012) provides a more in depth discussion.

[279]Thanks to Louise McNally (p.c.) for these insights.

[280]A trope-based analysis should take into account the related proposals in Constantinescu (2011, 2013) that were reviewed in section 3.6.

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Appendix A

Corpus Queries

IMPORTANT: The corpus queries in this appendix contain new line characters to ensure correct document formatting. If you wish to copy and paste queries from the electronic version of this thesis, you must ensure that they are removed before execution, as Sketch Engine does not accept new line characters as white space in CQL.

This can be achieved either manually after pasting the query into Sketch Engine, or using a convenient text editor such as Vim, Notepad or Word. If any new line characters remain upon execution, Sketch Engine will display an error message such as *unexpected character at position 42*.

A.1 Morzycki's example nouns

A.1.1 utter N: one-word NPs

```
(1:[] within 2:[word="utter" & tag="JJ"]
[word="American|bastard|bullshit|catastrophe|disaster|dork|
enthusiast|fascist|goon|idiot|magic|mistake|problem|smoker|
snowstorm|sportscar|stamp-collector|war-monger|warmonger" & tag="NN"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.1.2 utter N N: two-word NPs

```
(1:[] within 2:[word="utter" & tag="JJ"]
[tag="NN"][word="car|collector|enthusiast|fan|goon|player" & tag="NN"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.1.3 absolute|complete|total etc. N: one-word NPs

```
(1:[] within
2:[word="absolute|complete|outright|total|utter" & tag="JJ"]
[word="American|bastard|bullshit|catastrophe|disaster|dork|
enthusiast|fascist|goon|idiot|magic|mistake|problem|smoker|
snowstorm|sportscar|stamp-collector|war-monger|warmonger" & tag="NN"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.1.4 absolute|complete|total etc. enthusiast

```
[word="absolute|complete|outright|total|utter"][word="enthusiast"]
```

A.1.5 absolute|complete|total etc. N N: two-word NPs

```
(1:[] within
2:[word="absolute|complete|outright|total|utter" & tag="JJ"]
[tag="NN"][word="car|collector|enthusiast|fan|goon|player" & tag="NN"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.1.6 big|colossal|huge etc. N: one-word NPs

```
(1:[] within
2:[word="big|colossal|enormous|gargantuan|huge|mammoth" & tag="JJ"]
[word="American|bastard|bullshit|catastrophe|disaster|dork|
enthusiast|fascist|goon|idiot|magic|mistake|problem|smoker|
snowstorm|sportscar|stamp-collector|war-monger|warmonger" & tag="NN"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.1.7 big|colossal|huge etc. N N: two-word NPs

```
(1:[] within
2:[word="big|colossal|enormous|gargantuan|huge|mammoth" & tag="JJ"]
[tag="NN"][word="car|collector|enthusiast|fan|goon|player" & tag="NN"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.2 Adnominal modification of count nouns

The queries in this section begin with an indefinite article to isolate count noun usages.

A.2.1 utter N: one-word NPs

```
(1:[] within [word="an?"] 2:[word="utter" & tag="JJ"][tag="NN"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.2.2 absolute|complete|total etc. N: one-word NPs

```
(1:[] within [word="an?"]
2:[word="absolute|complete|outright|total|utter" & tag="JJ"]
[UTTER_WORD_LIST]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

Replace the string **[UTTER_WORD_LIST]** in the above query with the (long) list of all utter nouns produced by the query in appendix A.2.1 (809 nouns expected). The list should be a single string conforming to Sketch Engine's query format, as follows.

```
[word="abandonment|abattoir| ... |write-off|zero|zoo" & tag="NN"]
```

A.3 The N-of-an-N (binominal NP) structure

```
(1:[] within
2:[word="absolute|complete|outright|total|utter"&tag="JJ"]
[tag="NN"][word="of"][word="an?"][tag="NN"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.4 Investigating deverbal nouns like *smoker*

Replace the string [**DEVERBAL_WORD_LIST**] in the following queries with the (long) list of all deverbal nouns produced by executing the Python script in appendix B.2 (1,519 nouns expected).

A.4.1 *big* with deverbal nouns

```
(1:[] within 2:[word="big"&tag="JJ"]
[DEVERBAL_WORD_LIST]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.4.2 *utter* with deverbal nouns

```
(1:[] within 2:[word="utter"&tag="JJ"]
[DEVERBAL_WORD_LIST]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.4.3 All *utter* modifiers with deverbal nouns

Although this search cannot guarantee matching degree readings, sorting by MI with frequency ≥ 15 produces a good sample of deverbal form nouns that are intensified by *utter*-type modifiers.

```
(1:[] within
2:[word="absolute|complete|outright|total|utter" & tag="JJ"]
[DEVERBAL_WORD_LIST]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.5 Non-deverbal *big* nouns

The queries in this section focus predominantly on the -*ist* suffix and could be extended to other suffixes, for example -*ster* and -*er* endings that are not attached to verbal (or otherwise event-entailing) stems (e.g. *hipster*).

A.5.1 -*ist* suffix

```
[tag="JJ"] within
[word="a"][word="big|colossal|enormous|gargantuan|huge|mammoth"]
[word=".*ist" & tag="NN"][tag!="N*"]
```

A.5.2 *Utter guitarist/mathematician/athlete* etc.

```
(1:[] within 2:[word="utter" & tag="JJ"]
[word="cyclist|guitarist|philanthropist|mathematician|athlete"]
[tag!="N.*"]) & 1.word=2.word & 1.tag=2.tag
```

A.6 Are all *utter*-nouns also *big* nouns?

The results are produced by consolidating the results from the following three queries into a single table.

A.6.1 Matches with just *utter*

```
(1:[] within 2:[word="utter" & tag="JJ"][word="abandonment|absurdity|
   amazement|annihilation|bafflement|balderdash|banality|barbarism|
   bewilderment|blackness|brilliance|brutality|clarity|contentment|
   craziness|depravity|desolation|desperation|despondency|destitution|
   dominance|drivel|dross|exasperation|exhaustion|extirpation|
   fearlessness|filth|foolishness|frankness|futility|helplessness|
   hopelessness|humility|impossibility|impunity|inability|incapacity|
   incompetence|incomprehension|incredulity|indifference|inhumanity|
   innocence|insanity|irrelevance|lawlessness|loathing|lunacy|madness|
   meaninglessness|nakedness|obscurity|passivity|perfection|
   powerlessness|purity|recklessness|ridiculousness|ruthlessness|
   savagery|seclusion|selflessness|seriousness|shamelessness|sinfulness
   |stillness|strangeness|stupidity|tranquillity|tripe|twaddle|
   unwillingness|unworthiness|uselessness|weariness|worthlessness|
   wretchedness"]) & 1.lemma=2.lemma & 1.tag=2.tag
```

A.6.2 Matches with just *big*

```
(1:[] within 2:[word="big" & tag="JJ"][word="abandonment|absurdity|
   amazement|annihilation|bafflement|balderdash|banality|barbarism|
   bewilderment|blackness|brilliance|brutality|clarity|contentment|
   craziness|depravity|desolation|desperation|despondency|destitution|
   dominance|drivel|dross|exasperation|exhaustion|extirpation|
   fearlessness|filth|foolishness|frankness|futility|helplessness|
   hopelessness|humility|impossibility|impunity|inability|incapacity|
   incompetence|incomprehension|incredulity|indifference|inhumanity|
   innocence|insanity|irrelevance|lawlessness|loathing|lunacy|madness|
   meaninglessness|nakedness|obscurity|passivity|perfection|
   powerlessness|purity|recklessness|ridiculousness|ruthlessness|
   savagery|seclusion|selflessness|seriousness|shamelessness|sinfulness
   |stillness|strangeness|stupidity|tranquillity|tripe|twaddle|
   unwillingness|unworthiness|uselessness|weariness|worthlessness|
   wretchedness"]) & 1.lemma=2.lemma & 1.tag=2.tag
```

A.6.3 Matches with the other size adjectives

```
(1:[] within 2:[word="colossal|enormous|gargantuan|huge|mammoth" & tag
   ="JJ"][word="abandonment|absurdity|amazement|annihilation|bafflement
   |balderdash|banality|barbarism|bewilderment|blackness|brilliance|
   brutality|clarity|contentment|craziness|depravity|desolation|
   desperation|despondency|destitution|dominance|drivel|dross|
   exasperation|exhaustion|extirpation|fearlessness|filth|foolishness|
   frankness|futility|helplessness|hopelessness|humility|impossibility|
   impunity|inability|incapacity|incompetence|incomprehension|
   incredulity|indifference|inhumanity|innocence|insanity|irrelevance|
   lawlessness|loathing|lunacy|madness|meaninglessness|nakedness|
   obscurity|passivity|perfection|powerlessness|purity|recklessness|
   ridiculousness|ruthlessness|savagery|seclusion|selflessness|
   seriousness|shamelessness|sinfulness|stillness|strangeness|stupidity
   |tranquillity|tripe|twaddle|unwillingness|unworthiness|uselessness|
   weariness|worthlessness|wretchedness"]) & 1.lemma=2.lemma & 1.tag=2.
   tag
```

A.7 Modifier frequencies

The following CQL statements when executed individually generate concordences showing the frequency with which a given adjective occurs in attributive position.

```
[word="absolute" & tag="JJ"][tag="NN"]                (single adjectives)
[word="big" & tag="JJ"][tag="NN"]
[word="colossal" & tag="JJ"][tag="NN"]
[word="complete" & tag="JJ"][tag="NN"]
[word="enormous" & tag="JJ"][tag="NN"]
[word="gargantuan" & tag="JJ"][tag="NN"]
[word="huge" & tag="JJ"][tag="NN"]
[word="mammoth" & tag="JJ"][tag="NN"]
[word="outright" & tag="JJ"][tag="NN"]
[word="total" & tag="JJ"][tag="NN"]
[word="utter" & tag="JJ"][tag="NN"]
[tag="JJ"][tag="NN"]                                    (all adjectives)
```

A similar technique can be used to find noun modification frequencies.

```
[tag="JJ"][word="idiot" & tag="NN"]
[tag="JJ"][word="disaster" & tag="NN"]
[tag="JJ"][word="bullshit" & tag="NN"]
[tag="JJ"][word="catastrophe" & tag="NN"]
[tag="JJ"][word="idiot" & tag="NN"]
[tag="JJ"][word="bastard" & tag="NN"]
[tag="JJ"][word="magic" & tag="NN"]
[tag="JJ"][word="mistake" & tag="NN"]
[tag="JJ"][word="problem" & tag="NN"]
[tag="JJ"][word="dork" & tag="NN"]
[tag="JJ"][word="American" & tag="NN"]
[tag="JJ"][word="enthusiast" & tag="NN"]
[tag="JJ"][word="fascist" & tag="NN"]
[tag="JJ"][word="goon" & tag="NN"]
[tag="JJ"][word="smoker" & tag="NN"]
[tag="JJ"][word="snowstorm" & tag="NN"]
[tag="JJ"][word="sportscar" & tag="NN"]
[tag="JJ"][word="stamp-collector" & tag="NN"]
[tag="JJ"][word="warmonger" & tag="NN"]
```

Appendix B

Finding deverbal Nouns in WordNet

B.1 Installation

B.1.1 Install the Python programming environment

Download and install a release of Python 3 compatible with your computer from https://www.python.org/downloads/. The script in this section was tested on Python release 3.8.7, but any version of Python 3 should be compatible.

B.1.2 Install the Natural Language Toolkit (NLTK)

Install NTLK using the Python package manager *pip* from your computer's command line. For Windows the command is as follows.

```
C:\Users\Rutland> pip install nltk
```

See http://www.nltk.org for information about NTLK and in particular http://www.nltk.org/howto/wordnet.html for the Python programming interface to NTLK's WordNet module.

B.1.3 Install script Deverbal.py

Copy the script in appendix B.2 into a file Deverbal.py in a folder on your computer. The extension '.py' is significant, as it indicates that the file contains Python source code.

IMPORTANT: If you copy the script from the PDF version of this thesis, be aware that many PDF readers (including the free version Adobe Acrobat Reader DC) strip off leading spaces from copied text. Spaces are significant in Python and must be manually reinstated before running the script.

B.1.4 Run the script

The simplest way to run the script is to use the Python Integrated Development and Leaning Environment (IDLE) which is included in every Python distribution and installed by default. Ensure that the file containing the script (Deverbal.py) is in a folder on the path accessible to IDLE.

Executing the *import* and *print* commands below should produce output similar to that illustrated. The output text is a valid CQL query that can be copied and pasted into Sketch Engine as instructed in appendix A.

```
>>> import Deverbal as de
>>> print(de.ske_deverbal_nouns())
[word="abhorrer|abjurer|abrader|abridger|absconder|absolver|absorber|
abstainer| abstracter|abuser|accuser|achiever|acquirer|adapter|adder|
...
wriggler|wringer|writer|yanker|yawner|yearner|yeller|yielder" & tag="NN"]
>>>
```

To inspect the deverbal nouns as a simple list rather than a CQL query, execute the following commands instead.

```
>>> import Deverbal as de
>>> print(de.deverbal_nouns())
['abhorrer', 'abjurer', 'abrader', 'abridger', 'absconder', 'absolver',
'absorber', 'abstainer', 'abstracter', 'abuser', 'accuser', 'achiever',
...
'wringer', 'writer', 'yanker', 'yawner', 'yearner', 'yeller', 'yielder']
>>>
```

B.2 Deverbal.py: Script to find deverbal nouns

```
# Extract −(e)r suffix deverbal nouns from the WordNet lexical database using
# the Python Natural Language Toolkit (https://www.nltk.org/)
#
# Colin Rutland, School of Arts, Languages and Cultures, The University of Manchester

import nltk
from nltk.corpus import wordnet as wn
from functools import reduce
from re import match

# Flatten a list of lists to a 1−dimensional list (a Python idiom)
flatten = lambda t: [item for sublist in t for item in sublist]

# Ensure that NLTK's WordNet database has been installed
nltk.download('wordnet')

# If the noun is derivationally related to a verb by the addition of
# an −(e)r suffix, return the verb, otherwise return an empty string
def verb_for_noun(noun):
    synonyms = [s.lemmas() for s in wn.synsets(noun, pos=wn.NOUN)]
    related = [l.derivationally_related_forms() for l in flatten(synonyms)]
    verbs = [l.name() for l in flatten(related) if l.synset().pos() == wn.VERB]
    return reduce(lambda a,b: (b if match(b + 'e?r', noun) else a), verbs, '')

# A list of all nouns in WordNet (119034 expected)
def all_nouns():
    nouns = [s.lemma_names() for s in wn.all_synsets(wn.NOUN)]
    return sorted(set(flatten(nouns)))

# A list of all deverbal −(e)r suffix nouns in WordNet (1519 expected)
def deverbal_nouns():
    return [n for n in all_nouns() if n.endswith('er') and verb_for_noun(n)]

# Format a Sketch Engine query for all −(e)r suffix deverbal nouns in WordNet
def ske_deverbal_nouns():
    return '[word=\"' + '|'.join(deverbal_nouns()) + '\" & tag=\"NN\"]'
```