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English Nouns

The Ecology of Nominalization

Rochelle Lieber

ENGLISH NOUNS

Using extensive data from the *Corpus of Contemporary American English*, this groundbreaking book shows that the syntactic patterns in which English nominalizations can be found and the range of possible readings they can express are very different from what has been claimed in past theoretical treatments and, therefore, that previous treatments cannot be correct. Lieber argues that the relationship between form and meaning in the nominalization processes of English is virtually never one-to-one, but rather forms a complex web that can be likened to a derivational ecosystem. Using the Lexical Semantic Framework (LSF), she develops an analysis that captures the interrelatedness and context dependence of nominal readings and suggests that the key to the behavior of nominalizations is that their underlying semantic representations are underspecified in specific ways and that their ultimate interpretation must be fixed in context using processes available within LSF.

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Acknowledgments

I've always been mystified by nominalizations. Ever since I read 'Remarks on Nominalizations' (Chomsky 1970) as an undergraduate, I've been intrigued by the intricacies of eventive nominalizations in English, but I never felt that I could get a handle on them. I avoided them in my scholarly work for as long as I could. So I thank Chiara Melloni for coming to work with me in the summer of 2006 and for showing me just how much I didn't understand about nominalizations. Inadvertently she set me off on this project. I am also grateful to Laurie Bauer and Ingo Plag, with whom I spent three pleasant years working on *The Oxford Reference Guide to English Morphology*; they trusted me to write the first drafts of the three nominalization chapters and thereby gave me the opportunity to wallow in corpus data until I began to get a grip on the data. By the time we finished that book, I felt that I understood the many ways in which nominalizations could be polysemous, but I was still confused about the larger syntactic configurations in which nominalizations could be found and about the relationship between syntactic context and polysemy. I therefore thank the University of New Hampshire for a sabbatical in the spring of 2015 that finally gave me the time to explore the syntactic side of nominalizations, to let the pieces fall into place, and ultimately to write this book. I thank my new colleague Sean Madigan for reading the first half of the manuscript. And I thank Ingo (again) and his team – Lea Kawaletz and Marios Andreou – for reading a nearly complete draft of the book and commenting on it extensively. It is very much better for all of their careful attention. Thanks finally to David and the furry kids for being there through all.

Part I

Preliminaries

1 Introduction

Nominalizations are complex nouns that are derived from verbs, adjectives, and other nouns. As described in Bauer et al. (2013), English has many ways of deriving complex nouns: affixes such as *-er* (*writer*), *-ant* (*accountant*), *-ist* (*accordionist*), *-ee* (*employee*), *-ster* (*hipster*), *-eer* (*conventioneer*), and *-meister* (*trashmeister*), whose main use is to derive personal or participant nouns; affixes such as *-ing* (*writing*), *-ation* (*destruction*), *-ment* (*amusement*), *-al* (*recital*), and *-ure* (*closure*), whose main use is to derive nouns that denote events and results; affixes such as *-age* (*assemblage*) and *-ery* (*pottery*) or *-ity* (*purity*) and *-ness* (*happiness*), whose main use is to derive collective or abstract nouns. English also has a productive process of conversion from verb to noun, the results of which can be used with a wide range of readings: *cook* – an agent noun, *attack* – an event or result noun, *wrap* – an instrument, *nosh* – an inanimate patient, *dump* – a location noun, and so on.

English nominalizations have been extensively discussed by both morphologists and syntacticians. In the generative tradition, the study of event and result nominalizations (henceforth E/R nominalizations) has been important from the start. Beginning with Lees (1960) and Chomsky (1970), an enormous literature devoted to the syntactic analysis of E/R nominalizations has accumulated within the tradition of mainstream generative grammar, including Lebeaux (1986), Grimshaw (1990, 2011), Roeper (1993), Snyder (1998), Alexiadou (2001, 2011), Newmeyer (2009), Harley (2009), Sichel (2010), Roy and Soare (2011), Fabregas (2012), Borer (2013), and Bruening (2013) among many others. Pustejovsky (1995, 1998) looks at E/R nominalizations through the lens of computational lexical semantics. The subject of E/R nominalizations has also been an important one for morphologists as well, as works by Bierwisch (1990/1991), Lieber and Baayen (1999), Melloni (2007, 2011), and Fradin (2011), among others

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show. Although there is somewhat less literature by syntacticians on personal nominalizations, the work of Levin and Rappaport Hovav (1988), Rappaport Hovav and Levin (1992), Alexiadou and Schäfer (2010), Bowers (2010), and Borer (2013) comes to mind. Among morphologists, personal nominalizations have been discussed in the work of Booij (1986), Bauer (1987, 1993), Ryder (1999), Heyvaert (2001), Booij and Lieber (2004), and Lieber (2004), among others, but there is less theoretical discussion of personal affixes such as *-ant* or *-ist* and virtually none of exotic nominalizations in *-eer*, *-ster*, or *-meister*. Abstract nominalizations have not figured prominently in the work of syntacticians (although see Roy 2010 and van Hout et al. 2013) but have been of interest among morphologists from the start (for example, Aronoff 1976, Anshen & Aronoff 1981, Baeskow 2012, Arndt-Lappe 2014 on *-ness* and *-ity*). Lieber (2004) gives a brief analysis of collectives such as *-ery* and *-age*. Trips (2009), Lieber (2010a), Aronoff and Cho (2001), and Baeskow (2010) look at denominal complex nouns in *-dom*, *-ship*, and *-hood*. The only recent work that takes on the entire range of nominalizations in English is Bauer et al. (2013), which is largely a descriptive work that begins to reveal the issues I will raise here but does not attack them in theoretical terms. Thus far, no one has taken on the task of analyzing the full range of nominal derivation and trying to account for the complex relationship between form and meaning that we find in that domain.

Not surprisingly, although both syntacticians and morphologists have been interested in nominalization, they have not always asked the same questions. Morphologists have been primarily interested in forms: what are the affixes used to derive nominalizations of various sorts; what are the rules that govern them and how productive are they; in what way do they compete with each other? Morphologists, myself included, have also been concerned with affixal polysemy but seem to have concentrated primarily on the polysemy of personal affixes such as *-er* and *-ee* (Booij 1986, Booij & Lieber 2004, Lieber 2004). Less attention has been paid to the ambiguities displayed by affixes such as *-ation*, *-ment*, *-al*, and *-ing*, or by conversion (but see Melloni 2011 for discussion of comparable processes in Italian).

Syntacticians have been less concerned with the formal details of derived nouns (productivity, competition among affixes) and more interested in the relationship between sentences and the noun phrases (or determiner phrases) in which nominalizations occur: what arguments can occur or must occur to get what reading? and what verbs are allowed in

one configuration or the other? In recent years, much of the syntactic literature has concentrated on the ambiguity that E/R nominals show between an eventive reading (*the instructor's examination of the students*) and so-called result readings (*the examination was difficult/three pages long*). In many of these analyses, different readings are associated with different argument structures (Grimshaw 1990) or different underlying syntactic structures and derivations (Alexiadou 2001, Harley 2009, Borer 2013). Neither morphologists nor syntacticians have studied the full range of data pertaining to nominalizations or the intricacies of polysemy that nominalizations display.

My overall goal in this book is to rectify this state of affairs. Specifically, I intend to consider the full range of nominalizations, including the commonly discussed E/R and personal nominalizations, as well as collective and abstract nominalizations and a few seldom-discussed areas of nominalization that I will add as we go along. Second, I will try to establish on the basis of corpus data the full range of readings available to various kinds of nominalizations in various syntactic contexts. Finally, I will try to model within the lexical semantic framework of Lieber (2004, 2006, 2009, 2010b, 2015), henceforth LSF, the ways in which speakers arrive at or build those readings.¹ I will try to show how tangled the interrelationships are among various types of nominalizations, and how complex and labile the readings are that are available to them, and yet how simple the mechanisms might be that give rise to this wide range of readings.

Let me illustrate what I mean briefly by the range of readings that are frequently available for complex nouns. At first, it seems possible to start with three broad categories of nominalizations – E/R, personal/participant, and abstract/collective – with distinct sets of affixes occurring under each rubric. Of course, it is well known that nominalizations derived with suffixes such as *-ation* are systematically ambiguous between an event reading (*The professor's examination of the student was thorough*) and a so-called result reading (*The examination was two pages long*), and much has been written trying to explain that ambiguity. But it seems, as argued by Melloni (2011), that there is not a single “result” reading for nouns in *-ation*, *-ment*, *-ing*, or nouns derived by conversion. Rather, non-eventive readings can include products (*construction*), locations (*reservation*), measures (*pinch*),

¹ I have resisted in previous publications giving my theoretical framework a name and an acronym, but it is clumsy to keep referring to “the lexical semantic framework of Lieber (etc.).” So I take a plunge here in giving the framework a name – the Lexical Semantic Framework – and the accompanying acronym LSF.

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paths (*descent*), and even agents (*administration*, *cook*) or instruments (*clip*, *fastening*), in addition to results. Indeed, individual E/R nouns like *construction* can have three or four possible readings, depending on syntactic context and other factors. And it has long been noted in the literature that personal nouns derived with the affixes *-er*, *-ant*, and *-ee* can also have a variety of readings and that those readings overlap in complex ways. Of course, they can not only have agent and instrument interpretations (*writer*, *printer*, *accountant*, *accelerant*, *attendee*) but also patient interpretations (*employee*, *loaner*), not to mention measure (*fiver*), means (*stroller*), and location (*diner*) interpretations. Indeed, the same *-er* noun can be used as an agent (*shooter* = a person who shoots), an instrument (*shooter* = a gun), or a patient (*shooter* = the thing which is shot).² Nouns in *-ee* typically denote patients but can sometimes denote agents (*attendee*, *escapee*). Derived nouns that typically express collectives (*pottery*, *acreage*) can be found in contexts where they have E/R readings (*the media's coverage of the tragedy*, *the mayor's bribery of the officer*) or location readings (*orphanage*, *nunnery*), among others. Such overlap cannot be dismissed as rare, exceptional, or even as the random effect of lexicalization – this sort of chameleon-like behavior is both productive and pervasive, as I will try to show. And given its pervasiveness, it raises many questions.

As this book progresses, I will begin to articulate the many difficulties this pervasive polysemy presents for morphological and syntactic theory. The copious syntactic literature on E/R nominalizations has led to a dizzying array of claims concerning what formal means of nominalization are attested with what kind of complements and modifiers with what kinds of interpretations. Some claims can be traced through the literature from its beginnings in Chomsky (1970) and Grimshaw (1990) to more contemporary work on nominalization such as Borer (2013). Other claims appear sporadically in one work or another. Counterexamples to previous claims crop up here and there (see especially Newmeyer 2009), oftentimes not noticed or attended to in subsequent work. Added to the problem is the apparent tendency of syntacticians to read and respond primarily to literature by other syntacticians and of morphologists to read and respond primarily to the literature of other morphologists. And with few exceptions, most of the claims are based on native speaker acceptability judgments, as has been the tradition for decades among generative linguists.

² See Section 4.2 for corpus examples to illustrate this point.

My contribution to this debate will be to use the tools of corpus linguistics, as exemplified in Bauer et al. (2013), to probe various claims, and thereby to try to put the study of nominalizations on a sounder empirical basis. Not surprisingly, it will turn out that intuitions about the forms and possible readings of complex nouns are often surprisingly unreliable: morphological and syntactic configurations that theorists, on the basis of intuitions, have deemed unacceptable often turn out to be easy to find and quite unproblematic in ordinary contexts. To the extent that many patterns that have been claimed to be unacceptable can be found in corpora, the theories that have been built on that data are undermined. So one goal of this book is to take a broader look at the data and try to establish what we need to explain.

My contribution will be theoretical as well as empirical. In the latter half of the book, I will argue that with a number of small modifications to be introduced in Chapters 5–8, LSF will allow us to model the way in which this complex web of polysemy arises. Briefly, LSF is a framework in which the lexical semantic representation of both simplex morphemes and affixes consists of two parts. The first is the skeleton which is made up of semantic functions and their arguments that are hierarchically arranged. Functions consist of a highly constrained set of features that allow us to characterize those aspects of lexical meaning that are relevant to the syntax; these features are simple, primitive, chosen from a universal pool of semantic features, and are such that they may be used to cross-classify lexical categories (nouns, verbs, adjectives, and so on). Skeletons are stable from one speaker to the next, but critically for what I will argue here, they may be underspecified in a number of ways. The second part of the lexical semantic representation is the body, which consists of two parts. One part comprises random bits of encyclopedic information that may vary from one speaker to the next. The other is more systematic and consists of features that might be syntactically active (and therefore part of the skeleton) in some languages, but not in the language at hand. Affixes have skeletons, just as simplex morphemes do, although they may lack semantic bodies. Derivational affixation involves the subordination of the skeleton of a base to that of an affix, with subsequent referential integration that is effected by the Principle of Coindexation.

My analysis of nominalization will begin with the theory of lexical semantic representations of Lieber (2004) but will extend that framework to look at the interplay between semantic underspecification of complex words and the resolution of that underspecification in syntactic context. My leading idea is similar to one voiced in Hanks (2013: 65). Hanks raises the question of whether words actually have determinate meanings and answers in the negative:

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“The proposal here is that, strictly speaking, words in isolation have meaning potential rather than meaning, and that actual meanings are best seen as events, only coming into existence when people use words, putting them together in clauses and sentences.”³ My argument will be that LSF is well suited to operationalizing this idea. In subsequent chapters, I will work out in some detail the structures that provide the semantic potential for complex words and the mechanisms, which I will call Feature Value Matching and Contextual Coercion, by which specific readings of those words are realized in specific syntactic contexts.⁴ In effect, what I will be arguing is that nominalizations do not have fixed meanings, but that they can take on a variety of readings by virtue of their sparse lexical semantics and the filling in of their representations in contexts.

Taking a panoramic view of nominalizations in terms of the range of forms, the range of readings, and both the morphological and syntactic contexts in which they occur will allow me to argue that the range of interpretation available to one kind of nominalization is inevitably influenced and shaped by the range of other nominalizations that are available to speakers of a language as well as by the contexts in which those nominalizations are deployed. In other words, one of the central claims of this book will be that nominalizations exist within a kind of derivational ecosystem where everything bears a relation to everything else.⁵

Let me be clear at the outset that the “derivational ecosystem” is a metaphor. Metaphors, as Ricoeur (1975/1977: 87) argues, are not merely verbal ornamentation but neither are they scientific models.⁶ Rather, a good metaphor draws us to see something in terms of something else that is superficially unlike it; the former is what I.A. Richards (1936) calls the “tenor” and the latter the “vehicle.” The tenor (for us derived nouns) and the vehicle (for us, the notion of an ecosystem) intersect in terms of some features and not others, and the metaphor serves as a filter that

³ A precursor of this idea might be seen in some remarks of Benveniste (1966: 39), who sees the value of words as signs as being only a part of what they become in the syntagmatic context.

⁴ The mechanisms by which skeletal underspecification is resolved might be seen as similar in spirit to mechanisms made available within the Generative Lexicon framework of Pustejovsky (1995, 1998), specifically what Pustejovsky (2011: 1411) calls type matching and accommodation subtyping.

⁵ A disclaimer: what follows in this book is not meant in any way to be related to the branch of linguistics that is known as “ecolinguistics” as presented in Steffensen and Fill (2014) and the references cited therein.

⁶ Here, Ricoeur echoes Max Black (1962).

allows us to see derived nouns in a different and potentially new light. By seeing derived nouns in a different way, we are then led to analyze them in a different way.

In what follows, I hope that the metaphor of the derivational ecosystem will draw attention to the ways in which the readings of complex nouns adapt to and are shaped by the semantic contexts in which those nouns are deployed and by the other nouns that are available to express a needed reading. I will argue that my theoretical treatment using LSF allows for this adaptability and indeed predicts that it should exist, but it should be kept in mind that LSF is nevertheless a formal theory within the general rubric of generative grammar. It is not an “ecological” theory in any sense, whatever that may mean. The metaphor simply helps us to see what the theory needs to do, but the metaphor is not itself a theory of nominal meaning. Briefly, the metaphor helps us to see two different facets of nominalization in English.

First, if we think of areas of meaning (agentives, collectives, and so on) as habitats and morphological types (particular affixes, conversion) as the organisms that exploit (or express) them, we are led to think about the ways in which forms compete in certain semantic domains and the ways in which certain semantic domains are better served by the formal morphological resources of a language than are others.⁷ Some semantic habitats have several morphological types that “inhabit” them. We have, for example, lots of ways of deriving agent nouns. Interestingly, other semantic habitats are barely populated at all; there is no particular affix, for example, that forms nouns that mean “thing or stuff that has been verb-ed.” One of the questions I raise in this book is what happens when there is an area of meaning which is largely uninhabited – that is, where there are no morphological types whose primary function is to express that meaning. My answer is that morphological types often expand their territories, and that different morphological types may be deployed to cover those underexploited semantic habitats under different conditions. We can take this first interpretation of the metaphor as focusing on a paradigmatic dimension: how do particular forms fit into the semantic niches that need to be expressed? Of the available means of derivation that we have, which do we choose to express a particular reading? This aspect of the metaphor will be highlighted in [Chapter 4](#) when we look in detail at the various referential readings that derived nouns are subject to.

⁷ Think of cattle and antelopes competing for grassland.

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Taking the ecological metaphor in a slightly different direction, we are led to think about the way in which the syntactic and even discourse context in which a nominalization occurs pushes us toward one reading or another out of whole range of potential readings. In this sense, the syntactic or discourse context is like the ambient environment, and the complex noun like an organism that adapts to and is shaped by that environment.⁸ This interpretation of the ecological metaphor takes a more syntagmatic perspective, encouraging us to see the shaping of the meaning of complex nouns in their larger syntactic and discourse contexts. This aspect of the metaphor comes to the fore in [Chapters 5–7](#), where we look at the actual formal representations of derived nouns in LSF and at the ways in which context allows us to fix aspects of their meaning that are left lexically underspecified.

Neither interpretation of the metaphor is a perfect fit, of course; that's the nature of metaphor. In the end, affixes are not organisms like cows, antelopes, or finches; semantic categories of affixes (agent nouns, patient nouns) are not habitats like islands or grasslands; syntactic contexts are not the Galapagos Islands. But to the extent that the metaphor allows us to see that nominalizations do not have rigid denotations and to model how we arrive at their highly flexible meanings, I hope that it proves useful. For readers that are bothered by the ways in which the ecological metaphor does not work, I think that the analysis that I offer in this book nevertheless has merit.

The metaphor of a derivational ecosystem has linguistic precursors, both in the Saussurean tradition (Saussure 1916/1983) and in semantic field theory (Lehrer 1974, 1993, Kittay 1992). The notion of derivational ecosystem has its roots in the Saussurean notion of “value.” What Saussure means by “value” is, roughly, that the sign is not simply a function of the signifier and the signified but is characterized as well (or as some would have it, exclusively) by its position with respect to other signs. This means that the value of a sign is not fixed but may shift, depending on where it finds itself in relation to fellow signs. Semantic field theory applies the Saussurean notion of “value” to lexical domains – color terms, verbs of motion, words for utensils, and so on. The words that occupy a lexical domain can be seen as deriving their meanings, at least in part, from their relationship to other items in the same domain. Adding or subtracting a new word in a particular domain requires a concomitant shrinking or expansion of the meanings of words already in that domain. My notion of the derivational ecosystem is related to that of the semantic field, although the domain in question is not a simple lexical domain,

⁸ Think of Darwin's finches in the Galapagos Islands.

but rather an entire derivational domain – the overall system for deriving complex nouns in a language.

One thing that I will not try to do in this book is to argue against various syntactic accounts of nominalizations. Much recent work on nominalizations has been situated in syntactic frameworks such as Distributed Morphology (Alexiadou 2001, 2011, Harley 2009, Sichel 2010, Bruening 2013) or the Exo-skeletal model of Borer (2013), which claim that morphology is syntax, that vocabulary items (not morphemes) have only encyclopedic properties but no category or morphosyntactic properties, and that the properties of nominalizations can be accounted for by a series of functional projections that host affixes and trigger movement of various sorts. There are two reasons why I will not confront these accounts directly. The first is that such accounts have tended to concentrate solely on the analysis of E/R nominalizations to the exclusion of personal, participant, collective, abstract, and other nominalizations. Interesting though they are, they fail to look at the big picture. Second, and more importantly, to the extent that the data I present undermine the empirical claims on which these theories are based, they do not present viable alternatives to the lexical semantic account I give here. This is not to say that such accounts could not be modified to account for the full set of data that I will set out in what follows, just that there are no extant syntactic accounts that do so.

I have made the choice in this book to concentrate exclusively on data from English. There are a number of reasons for this. First is that many of the claims about properties of nominalizations have originated on the basis of data from English, although of course those claims have been extended and explored for many other languages. Because the origins of claims about nominalizations lie in works like Lees (1960), Chomsky (1970), and Grimshaw (1990), I would need to discuss English in detail in any case. Second, the territory I hope to cover is large. It would be difficult to cover the entire range of nominalizations in two or more languages with any degree of thoroughness. However, the main reason for concentrating on English is that arguments will frequently hinge on fine nuances of meaning: what reading(s) can a given nominalization take on in what contexts? I do not mean to claim that such nuances of meaning are only available to native speakers. Rather, I believe that I don't have good enough command of any other language to be sensitive to such nuances in a language other than my own. The arguments will also hinge on finding "live" examples of rather specific sorts for which a very large corpus will be necessary. For this, I rely largely on the Corpus of Contemporary American English, which I refer to

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henceforth as COCA (Davies 2008). I have consciously tried not to rely on my intuitions about grammaticality or acceptability for reasons that I will elaborate on in [Chapter 2](#) but take the attestation of a pattern to indicate acceptability. I do not rule out the use of intuition entirely, however, as of course I must rely on my intuitions to know what nuance of meaning is intended by any specific textual example.

In [Chapter 2](#), I will go into some depth about the terminology I will use and my methodology in gathering examples. I will try to be clear from the outset about the terms I will use for morphological forms, for different potential readings of forms, for syntactic structures in which those can be found, and for syntactic diagnostics for various readings. Part of the difficulty in absorbing the literature on nominalization is the proliferation of terms that can be found, with a variety of terms frequently being deployed for what appear to be the same concept. With respect to methodology, I will describe how I make use of corpora, how I search for relevant examples, and how I view rare examples. My methodology is largely that used in Bauer et al. (2013) and is extensively justified in that work as well.

[Chapters 3](#) and [4](#) of this book are devoted to data. [Chapter 3](#) will look in detail at the claims that have been made in the syntactic literature regarding E/R nominalizations and consider the extent to which those claims can be supported by examples extracted from corpora. If claims are accurate, we would expect to find corpus examples of those patterns. We would similarly not expect to find examples of patterns that have been judged to be unacceptable. Of course, since it is impossible to search corpora absolutely systematically and exhaustively, we can never be certain that there are “no examples” of a phenomenon. Inability to find a pattern may be suggestive of its ungrammaticality but does not guarantee that a pattern is ungrammatical. What is more important for my purposes then is finding attested examples of patterns that have been claimed to be unacceptable. To the extent that I do find such examples, this truly changes the landscape that theorists will need to account for. I will try to show in [Chapter 3](#) that the landscape really is quite different than we have thought for some time.

[Chapter 4](#) will broaden the discussion beyond E/R nominalizations to a very wide range of other nominalizations, again concentrating on the formal means available and the range of readings that can be expressed. I will begin by surveying the majority of the nominalizing affixes in English and illustrating by means of corpus examples the various readings they can convey. What will emerge is that the relationship between form and meaning/reading is very far from one-to-one: morphological forms or types may not only have primary

semantic habitats, so to speak, but may also appear in other habitats as well. I will also argue that there are semantic habitats that are served by no morphological type or process in particular and explore one of these in detail – the realm of inanimate patient nouns, that is, nouns that mean “thing/stuff that can be/has been/is being verb-ed.” Here, I will survey various nominalizers that are sometimes recruited to express this reading, but I will also argue that English is evolving at least one new affix whose primary role is to create inanimate patient nouns. I will also argue that the territory of inanimate patient nouns is by no means homogenous, but rather that different affixes are recruited to express inanimate patient nouns with subtly different modal nuances.

The picture that I develop in [Chapters 3 and 4](#) inevitably leads to the theoretical questions that will be the subject of the rest of the book. In [Chapter 5](#), I will provide a brief recap of LSF. I will also propose a preliminary analysis of E/R nominalizations in the form of two related but slightly different skeletons that can be used to distinguish eventive from referential readings in complex nominals. [Chapter 6](#) explores the eventive reading that we find with nominalizations in *-ation*, *-ing*, and conversion nouns. Here, I will concentrate on the syntactic structures in which these nominalizations can be found and specifically on the role of the Principle of Coindexation in accounting for the patterns that they exhibit within DPs. I will also raise the question of simplex nouns with eventive interpretations and whether they work in the same way as complex nominalizations. I argue that the eventive skeleton that I propose in [Chapter 5](#) allows us in a rather simple way to arrive at a full range of eventive interpretations for complex nouns without assuming intricate layers of functional projections or movement rules in a syntactic structure. In effect, the structures that host complex nouns turn out to be no different than the structures in which we find simplex nouns, but the differences in their skeletons can explain some of the ways in which simplexes are more limited in interpretation than complex nouns.

[Chapter 7](#) goes on to work out the intricacies of interpretation in referential nominalizations, not only the referential interpretations common in E/R nominals (result, product, and inanimate patient) but also the referential interpretations that occur prominently in other derived nouns (agent, animate patient, collective, abstract, location, manner, means, and so on), and only secondarily or sporadically in E/R nominals. In this chapter, I will provide a formal analysis within LSF of most of the nominalizing affixes in English. My main claim here will be that affixal skeletons are often radically underspecified and that resolution of that underspecification is in part dependent on composition with bases of particular kinds but most critically

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dependent on lexical semantic characteristics of the wider syntactic environment as well as on encyclopedic knowledge. The flexibility in reading that we find for almost all nominalizing affixes in English will follow from this underspecification and from the ways in which underspecification may be resolved in context. In this chapter, I will also take up possible modifications to LSF to account for the modal and evaluative nuances discussed in [Chapter 4](#).

[Chapter 8](#), finally, looks at the role of nominalizations in so-called argumental compounds in English, among which we find not only synthetic compounds such as *truck driver*, *cost containment*, and *home construction* but also compounds formed on conversion nouns such as *dog attack* and *attack dog*, which in previous work (Lieber 2010b, 2016) I have referred to as non-affixal (de)verbal compounds or NDVCs. The analysis of synthetic compounds is another area in which both syntacticians and morphologists have taken an interest, with a wide range of claims about what can and cannot occur, largely based on the intuitions of linguists; the other kinds of argumental compounds have not received as much attention. I will first examine the claims that have appeared in the literature and show that a variety of patterns that have been claimed to be ungrammatical are in fact attested in COCA. Further, I will show that LSF is fully capable of accounting for a full range of argumental compounds – both synthetic compounds and others – with no further extensions.

In [Chapter 9](#), I summarize the main findings of the book: the importance of checking our intuitions against data from corpora, the idea that complex nouns have meaning potential rather than rigid meaning, and the importance of syntactic context in ultimately determining what a complex word conveys in any given instance. I will argue that in the end the interpretation of complex nouns is a matter of lexical semantics rather than syntax. Syntactic context plays its part in determining meanings, but the meaning of nominalizations is unlikely to be reducible to their syntax. Finally, I raise questions on a number of empirical, methodological, and theoretical points that remain to be addressed in future research.

2 Terminology and Methodology

Before we begin to explore the complex ecology of nominalization, it will be useful to make several things clear. In [Section 2.1](#), I set out the terminology that I will use throughout this work and try to clarify how it aligns with terms used in other works. In [Section 2.2](#), I will discuss my sources for data, the way I have extracted the data from those sources, and my system for citing them.

2.1 Terminology

One of the things that is most daunting in taking on the topic of nominalization is the welter of terminology that has been used in the literature. We need to distinguish terms for the forms of nouns from terms for their readings in contexts. We must have ways to refer systematically to those contexts. And we need to refer to various diagnostics that have been used in the literature to disambiguate the readings of nouns. Further, we will need to refer to types of verbs that can be the bases of nominalizations. And finally we will need terms for types of compounds in which we find nominalizations. I will take up each of these subjects in turn.

Issues arise first with respect to terms for particular forms of nouns. The first division that needs to be made is between *simplex* and *complex* nouns. Simplex nouns are underived. Complex nouns may be formed on bases that are adjectives, verbs, or other nouns. They may be formed by compounding, affixation, or conversion, often referred to in the literature as zero-affixation or zero-derivation (see, for example, Borer [2013](#)). In what follows, complex nouns formed either by affixation or by conversion will be called *nominalizations*.

- (1) simplex nouns: car, war, event, effort
- (2) complex nouns – nominalizations: writing, destruction, refusal, amusement, driver, employee, certainty, happiness, childhood, kingdom, hipster, mountaineer, trashmeister, kick
- (3) complex nouns – compounds: file cabinet, truck driver

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It should be pointed out at the outset that simplex nouns can be divided into those that are inherently eventive, or processual, in the terms I used in Lieber (2004) and those that are non-eventive. *Car, dog, tree*, for example, are non-eventive, but *war, event, effort, sunset* are inherently eventive.

Nominalizations can be categorized in a number of ways. They may be characterized first by what I will call their *morphological form* or *type*, terms which I will use interchangeably in what follows, by which I mean the formal operation (affixation, conversion, etc.) by which they have been derived. This will be especially important in the discussion of E/R nominalizations, as different types of E/R nominalizers have been claimed to display rather different properties. For our purposes, we will divide E/R nominalizations into three formal groups. Nouns derived with the *-ing* affix will be referred to as *-ing* nominalizations, regardless of the specific syntactic configuration in which they occur. Following Borer (2013), I will refer to E/R nominals derived on verbal bases with affixes other than *-ing*, including *-ation, -ment, -al, -ure, -ty*, and *-ance* as ATK nominalizations, ATK being an acronym that stands for “*-ation* and kin.”¹ Nouns derived from other categories (typically verbs) with no overt affix will be referred to as conversion Ns. In other works (e.g., Borer 2013), these are referred to as zero derivations, but the term “conversion noun” is more neutral with regard to the details of analysis, so I will stick to it here.

- (4) types of E/R nominalization
- ing*: writing, spelling, destroying, arriving, falling
 - ATK: destruction, refusal, amusement, certainty, annoyance
 - conversion N: kick, walk, climb, attack

Note that these terms are meant to identify only the form of nominalizations, and not their potential readings or the syntactic configurations in which they can appear. The reader should keep in mind as well that (4) is not an exhaustive list of morphological types that can convey E/R readings. As we will see in later chapters, affixes such as *-age, -ery*, and others, which typically carry other readings, can on occasion carry E/R readings as well.

The second way of categorizing nominalizations will depend on semantics rather than form. In what follows, I will typically refer to *readings* rather than

¹ As allomorphy is generally irrelevant in what follows, I choose a single form of each affix and refer to that affix in the same way throughout the book, regardless of which allomorph may appear in a particular form. For example, I refer to the affix by which *rebellion, resolution, conversation, prohibition*, etc. are derived uniformly as *-ation*. For a thorough discussion of allomorphy in the nominalizing affixes, see Bauer et al. (2013).

meanings, as what I will be arguing is that complex forms rarely have rigid or fixed meanings, but that they can be construed in different ways depending on contexts. The general rubrics that have been common in the literature (see Bauer et al. 2013) include such terms as E/R nominalizations, personal and participant nominalizations, collective and abstract nominalizations, among others. The typical E/R nominalizations include *-ing*, *-ation*, *-ment*, *-al*, *-ure*, and *-ance/ence*. Personal and participant nominalizations include *-er*, *-ee*, *-ist*, *-ant/ent*, as well as more specialized forms in *-eer*, *-ster*, and *-meister*. Collectives and abstracts include *-ery*, *-age*, *-dom*, *-ship*, *-hood*, *-ness*, and *-ity*.

As will become apparent in subsequent chapters, the rough semantic rubrics that I have set out earlier are only a first approximation of the lexical semantic behavior of nominal forms. One of the goals of this book is to show that most nominalizations can have a number of different readings or interpretations depending on the syntactic configuration in which they are found, so it will be useful to have terms to use for various readings that nominals can take on. One basic division that I will start with should be familiar from the literature, that is, the distinction between eventive and referential readings, sometimes referred to in the literature as the complex event reading versus the result reading (Grimshaw 1990, Melloni 2011), or the process reading versus the result reading (Alexiadou 2001), among other variations. I will refer to these as the E reading and the R reading, respectively. The E reading is found most clearly when a nominal occurs in a structure with certain sorts of modifiers and complements: possessives or prepositional phrases that can be construed as “subject” or “object” of the verbal base on analogy to the arguments that appear with the underlying verb in a sentence, temporal or aspectual modifiers, as well as a number of others that will be mentioned in example (11) below.

- (5) eventive reading
 the Roman’s destruction of the city
 the city’s destruction by the Romans
 her constant writing of notes
 Sir Edmund Hillary’s climb of Mount Everest

For convenience, I will use the term “E” as a cover term to include not only readings expressing events or processes in the obvious sense but also those that express states, for example forms like those in (6) (Fradin 2011, Fabregas & Marin 2012). Where necessary, I will distinguish event from state readings, but they should both be seen in contrast to R or referential readings.

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- (6) Fenster's constant preoccupation with wombats
My dislike of oatmeal

For reasons that will be clarified as this work progresses, I will not make use of Grimshaw's (1990) further distinction between a complex event reading and a simple event reading. Grimshaw's distinction hinges on matters internal to her theory: complex event nominals, as she defines them, are nominalizations that appear with all arguments of the base verb expressed. Simple event nominals lack full argument structure in her theory, but presumably still have an eventive reading. In other words, for Grimshaw the terms *simple* and *complex* refer to a combination of a reading and a syntactic configuration, two elements that I will try to keep separate in what follows. I will use the term "E" to refer exclusively to a specific reading that nominalizations can have in a number of syntactic configurations and leave aside the terms "complex" and "simple."

Non-eventive or R readings are referential in nature. Although these are often referred to in the literature as "result" nominalizations, I prefer the term *referential*, as it can be used as a cover term for a wide range of readings that are not eventive, only one of which is a result reading. The range of referential readings with illustrative examples is given in (7), with definitions based on those in Bauer et al. (2013: 210–212) in parentheses. Note that the examples are ones that can have the indicated reading, provided the appropriate context is present, but can have other readings as well, often both E and R.

- (7) result (the outcome of verb-ing)
amelioration, understanding, reclamation
product (the thing or stuff that is created or comes into being by verb-ing)
carving, concoction, blot, embroidery
instrument (the thing that verb-s, a way of verb-ing)
adornment, leavening, tie
location (the place of verb-ing)
camp, dwelling, exhibition, residence, orphanage,
agent (people or person who verb-s)
cook, administration, writer, accountant
measure (how much is verb-ed)
weight, pinch
path (the trajectory of verb-ing)
decline, ascendance, continuation
patient/theme² (the thing or person verb-ed, the thing affected or moved by verb-ing)

² I have made a slight modification here to Bauer et al.'s categories in that I have added 'person' to the definition of patient/theme nominalizations.

employee, catch, assignment, discovery, allocation
 instance (an instance of verb-ing)
 balk, punch, sob
 collective (a group of X-s)
 acreage, knickknackery
 abstract (the quality or state of X)
 happiness, purity, gurudom, childhood, authorship

Note as well that a variety of morphological forms can convey each of these different readings, a point that will be important in what follows.

In some contexts, it will not be particularly relevant to the discussion at hand whether a particular referential interpretation of a nominalization is a result reading, a product reading, or a patient reading, but it will be important whether the noun refers to an animate undergoer of an action or an inanimate one; in such cases, particularly from [Chapter 4](#) on, I will contrast *animate patient nouns* and *inanimate patient nouns*, where the latter subsumes both products and things that undergo or are affected by an action.

As we will see in detail in [Chapter 3](#), the interpretation or reading of a nominalization is heavily dependent on the syntactic configuration in which that morphological form finds itself. It will therefore be useful to have clear terminology that can be used to refer to both the syntactic elements that occur with nominalizations in DPs as either their modifiers or their arguments and to those configurations as a whole. I begin with the term *argument*, which I will at first use loosely to refer to a participant that is conceptually necessary in an event (although it may be implicit). Roughly, this corresponds to the subject, object, indirect object, and complements of traditional grammar. I use *external argument* and *internal argument* in the familiar way to refer to subject and object, respectively.

The term *argument* has been used in the literature in a variety of other ways as well. For example, Grimshaw uses the term in a technical sense, as an element of a distinct layer of syntactic structure that she calls “argument structure.” This layer is distinct from lexical conceptual/semantic structure (LCS); LCS participants, in Grimshaw’s framework, may correspond to bona fide arguments, or they may not. I do not use the term *argument* in her sense, although starting in [Chapter 5](#) I introduce my own technical sense of the word within LSF, namely as an element of the skeleton. I defer that technical definition to [Chapter 5](#).

The next set of terms that need clarification are terms referring to elements of syntactic structure. For the time being, the exact nature of syntactic structure will not be of importance, although I will assume structures generally in line

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with mainstream generative syntax. The terms we need are ones that can be used to refer to the arguments and modifiers that we find with complex nouns. Let us begin by considering the syntactic configurations in (8):

- (8)
- a. He destroyed the sandcastle.
 - b. Him destroying the sandcastle/his destroying the sandcastle
 - c. His destroying of the sandcastle

(8a) of course is a full sentence or CP. (8b) and (8c) are two syntactically distinct *-ing* constructions in English. The one illustrated in (8b) is sometimes referred to as the verbal gerundive construction, which is characterized by an *-ing* form preceded by either an accusative or a genitive DP that is interpreted as the external argument of the verb and followed directly by a DP that is interpreted as the internal argument of the verb. The two versions of this construction are sometimes distinguished as the ACC-*ing* and the POSS-*ing* constructions respectively.³ Under most treatments, the structures in (8b) are said to have the internal structure of a sentence but the external distribution of a DP. The fact that adverbs as well as aspectual auxiliaries can appear internally in the gerundive constructions suggests that the *-ing* form internal to these DPs is not a noun, but rather is still a verb. In contrast, the *-ing* nominalization in (8c) clearly has the internal structure of a DP, with a possessive DP preceding the *-ing* nominal and an *of*-PP following. In what follows, I will confine myself to the sort of nominalization we see in (8c), which has both the internal structure and the external distribution of a DP. I will have nothing further to say about the verbal gerundive construction in what follows.

The kind of nominalization illustrated with an *-ing* nominalization in (8c) can also be illustrated with an ATK nominalization as head of the DP.

- (9)
- a. The Romans destroyed the city.
 - b. the destruction of the city by the Romans
 - c. the Roman's destruction of the city
 - d. the city's destruction by the Romans

(9a) again illustrates a full sentence or CP in which there is an external argument or subject DP that is interpreted as the agent and an internal argument or object DP that is interpreted as the theme. The DPs in (9b–d) show the typical structure of DPs in English: DPs may have a determiner or a possessive phrase as specifier, and may have a complement *of*-PP, and/or an adjunct *by*-PP, where appropriate.

³ See Huddleston and Pullum (2002) for a discussion of these structures.

We begin with possessive DPs. Possessives can, of course, have a number of different interpretations. With simplex nouns, possessives can denote ownership or authorship (*Fenster's book*) but also other relationships (for example, temporal, as in *last summer's rains*). In the configurations we will mostly be concerned with here, the possessive can be interpreted as either the subject of the verbal base or the object of the verbal base. We find the subject interpretation in (9c) and the object interpretation in (9d). We will refer to the possessives with these interpretations as Subj-poss and Obj-poss, respectively, or simply as Poss if the distinction between them is not pertinent. DPs containing nominalizations can also contain prepositional phrases as well, which we will refer to as the *of*-PP and the *by*-PP. The *of*-PP typically expresses the object relationship and the *by*-PP the subject relationship.

It has become common in the literature on nominalization to refer to the configuration in (9c) as *active* and the one in (9d) as *passive*, clearly on analogy to active sentences in which the subject precedes the object in English and passive sentences in which the underlying internal argument has become the subject through movement. I will continue to identify the configuration in (10a) as the active one and (10b) as the passive one, although I do not mean by the use of those terms to commit myself to an analysis of either structure that requires movement within the DP.

- | | | | |
|------|------------|-------------------|---|
| (10) | a. active | Subj-poss N of-PP | <i>the Roman's destruction of the city</i> |
| | b. passive | Obj-poss N by-PP | <i>the city's destruction by the Romans</i> |

We will explore in [Chapter 3](#) the extent to which the Poss phrase, the *of*-PP, and the *by*-PP are necessary ingredients to give rise to either the active or the passive reading.

Since Grimshaw's (1990) seminal work, it has also become common in the literature on E/R nominalizations to use a number of diagnostics to distinguish E readings from R readings and to probe the internal structure of nominal DPs. In what follows, I will have reason to make use of some of those diagnostics as well, so I mention them here to again make my use of terms as clear as possible. Among the diagnostics that are frequently cited are temporal modifiers such as *constant* or *frequent*, aspectual modifiers such as *for X time* or *in X time*, purpose clauses such as *in order to V* or *just to V*, and agent-oriented adjectives such as *intentional* or *deliberate*. The illustrations in (11) are taken from Grimshaw (1990: 50–59):

- | | |
|------|--|
| (11) | a. temporal modifiers: |
| | The frequent expression of one's feelings is desirable. |
| | The constant assignment of unsolvable problems is to be avoided. |

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b. aspectual modifiers:

The total destruction of the city in only two days appalled everyone.

Only observation of the patient for several weeks can determine the most likely . . .

c. purpose clauses:

The translation of the book (in order) to make it available to a wider readership

d. agent-oriented adjectives

The instructor's intentional/deliberate examination of the papers took a long time.

A variety of other diagnostics have appeared in the literature as well, but these are the ones that appear most consistently and that I will confine myself to.

Other terminology that I will need to make use of is no doubt familiar to syntacticians, but perhaps not as familiar to all morphologists, so I will quickly review it here. Since I will be looking in some detail in [Chapter 3](#) at claims that have been made about the behavior of E/R nominalizations, and since some of those claims make reference to different types of verbs, it is worth briefly mentioning various terms used to classify verbs. I expect that terms such as *transitive* and *intransitive* are ubiquitous and familiar, and probably need no definition. Intransitive verbs can be divided, however, into *unergative* verbs and *unaccusative* verbs on the basis of their syntactic behavior. Unaccusatives are verbs whose single argument is interpretable as theme or patient. Unergatives, in contrast, are intransitive verbs whose single argument is interpreted as an agent (or more broadly as the originator or causer of the event). Unaccusatives in English are unacceptable in such constructions as the “X’s way” or “reflexive plus result” constructions, whereas these constructions are possible for unergative verbs, as illustrated in (12):

- (12) a. *The train arrived its way into the station.
 *Fenster fell himself black and blue.
 b. Fenster yawned his way into the living room
 Fenster snored himself hoarse.

In the generative tradition, sentences with unaccusative verbs are generally analyzed as having an underlying internal argument (that is, an object), but no underlying external argument (or subject). The s-structure position of the single unaccusative argument is effected by movement. Unergative verbs, on the other hand, have an external argument at all levels of structure. Semantically, unaccusative verbs tend to be verbs of directed motion (*ascend*, *fall*, *arrive*) or change of state (*die*). The change-of-state

unaccusatives (for example, *break*, or *cook*) are sometimes referred to as inchoative verbs, as in (13a), and in English they typically also occur as transitives with a causative interpretation (13b):

- (13) a. The bottle broke.
b. Fenster broke the bottle.

Semantically, unergative verbs include verbs of undirected motion (*wiggle*, *squirm*) or of bodily motion (*sneeze*, *snore*, *yawn*), among others.

Also figuring in the discussion of E/R nominalizations in the literature are the aspectual classes of verbs outlined by Vendler (1967). These include *states*, *activities*, *achievements*, and *accomplishments*. Although there is much discussion of what the characteristics of each aspectual class are, for our purposes the following characterization will suffice. In Vendler's system, states are situations that do not involve change. They are unbounded, have no natural endpoint, and imply no transitions. Unlike activities, they do not require an input of energy to be maintained. Activities are also unbounded and involve duration, but they do require an input of energy to be maintained. Achievements and accomplishments also require an input of energy, but in contrast to activities they imply a natural endpoint. That is, they are bounded or telic. They differ from one another in that achievements are punctual whereas accomplishments involve duration. Examples are provided in (14):

- (14) a. states: love, hate, own, know
b. activities: eat, run, push the cart
c. achievements: arrive, reach
d. accomplishments: eat a peach

It is well known that Vendler's aspectual classes are not determined entirely by the lexical semantics of individual verbs, although verbal meaning certainly contributes to the determination of aspectual class. But as theorists like Verkuyl (1972, 1989, 1993, 1999) have shown, aspectual class seems to be a complex calculation based on verbal semantics, the presence or absence of arguments and even the quantitative characteristics of those arguments. Note, for example, that *eat* with a plural object (*Fenster is eating peaches*) or no object at all (*Fenster is eating*) is construed as an activity, but with a singular object (*Fenster ate a peach*) is construed as an accomplishment. The reader is referred to the treatment of the Vendler classes in Lieber (2004, chapter 5) for further discussion.

The last terminological issue that I will cover in this section concerns the classification of different kinds of compounds. It has become customary in

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the literature on compounding in English to distinguish two types of compounds, *root* (or *primary*) compounds and *synthetic* (or *deverbal*) compounds. Synthetic compounds are those whose second element is derived from a verb (*truck driver*, *hand washing*, *wind driven*, *cost containment*). Root compounds are everything else. As I have argued in Lieber (2009, 2010b), these terms are problematic for a number of reasons. First, as Bisetto and Scalise (2005) and Scalise and Bisetto (2009) have shown, the terminology common in the English tradition does not fit well with terminology needed for discussing compounding in other languages. Second, there are compounds in English that cannot be accommodated with a binary division into root and synthetic compounds. For example, there are so-called coordinative compounds such as *scholar-athlete* that are clearly not synthetic, but are also different from typical root compounds such as *file cabinet* or *dog bed*. Then there are compounds such as *attack dog* and *dog attack* that are in some ways similar in interpretation to synthetic compounds, but are formally distinct in that they contain deverbal conversion nouns rather than affixal nominalizations. These are compounds that I have referred to in previous work (Lieber 2010b, 2016) as non-affixal (de)verbal compounds, or NDVCs. The traditional classification into root and synthetic is therefore insufficient, and I will therefore follow Bauer et al. (2013) in classifying English compounds somewhat differently.

Compounds in English can first be divided into *argumental* and *non-argumental* compounds. Argumental compounds are comprised of the traditional synthetic compounds plus NDVCs. For our purposes, then, compounds such as *truck driver*, *city employee*, *hand washing*, *attack dog*, and *dog attack* are all argumental compounds. Also included in the argumental compounds are compounds whose second element is an argument-taking simplex noun, for example, *tea merchant* or *club member*. Note that argumental compounds need not have nouns as their second elements; although we will not be concerned with them in this book, compounds such as *hand made* or *steam-driven* can be classed as argumental as well. Non-argumental compounds are comprised of attributive compounds, which in earlier literature would have been called root compounds (*file cabinet*, *dog bed*, etc.) and coordinative compounds (*scholar-athlete*, *writer-producer*). We will have only a little to say about non-argumental compounds in what follows.

There are no doubt other terms that will need to be defined as we go along, but the ones covered in this section are the main ones that will allow us to

proceed with outlining the issues with which the rest of this volume will be concerned.

2.2 Methodology

The generative tradition has long maintained that what it seeks to explain is the set of rules that allow a native speaker of a language to produce and understand infinite numbers of new sentences. As a generative morphologist, I would of course add to this that we need to understand the rules that allow the native speaker to produce and understand infinite numbers of new words as well. Over more than half a century now, generative linguists, both syntacticians and morphologists, have probed the nature of that set of rules based on their intuitions about grammaticality or acceptability. We have not generally relied on examples that are captured in texts or spoken language. For one thing, these would presumably not tell us anything that we couldn't more conveniently tell from our own intuitions. For another, those corpus sentences and words seem suspiciously like the stuff of what Chomsky has called E-language, as opposed to I-language (Chomsky 1995: 15).⁴

Nevertheless, in spite of my commitment to the generative enterprise, I intend to base much of my theoretical analysis in what follows on examples extracted from corpora, specifically from COCA (Davies 2008). Occasionally, where historical issues arise (as in Chapter 4), I will also make use of data from the Corpus of Historical American English (COHA). In this section, I will give some basic information about these corpora, about the ways in which I have searched them, and about how I cite examples. I will begin, though, with explaining why I choose not to rely on self-generated data and my intuitions about them.

The reason for turning to corpus data in this work is simple: in writing *The Oxford Reference Guide to English Morphology* (Bauer et al. 2013), my coauthors and I came to realize that many of the claims on which generative morphological principles had been based turn out to be falsified by data that we found amply attested in COCA, the British National Corpus (BNC), and elsewhere. It became clear to us in writing that book that our intuitions about the formal and semantic properties of complex words are not particularly reliable (see Bauer et al. 2013, chapter 29).⁵ Forms that may seem odd to us

⁴ Chomsky (1995: 15–16) uses “I” “to suggest ‘internal’, ‘individual’, and ‘intensional’” and “E” “to suggest ‘external’ and ‘extensional.’”

⁵ A similar point is made in Hanks (2013: 20–21).

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out of context and forms that have been taken in the literature to be impossible or unacceptable can often be found easily in texts and seem unremarkable in the contexts in which they are found. Forms that seem to have one reading out of context can be found with several other readings that arise in specific contexts. As much theorizing in the literature on nominalizations has hinged on the existence of various syntactic patterns or on the possibility of certain readings for particular morphological forms (for example, is the eventive reading available with conversion Ns, do *-ing* nominalizations ever have R readings?), it seemed to me a good idea to make use of the corpora to see how the empirical claims of previous works held up. The real question would be whether those configurations claimed to be unacceptable could be found in corpora such that they would seem unremarkable.

In the research for this volume, I tried to stick as much as possible to finding examples in COCA. Although I sometimes Google examples on the Internet, I generally tried to avoid doing so.⁶ Material from the Internet is unfiltered. The web is utterly democratic, which is a good thing, and offers millions, probably billions of words of text, also a wonderful thing. However, it is rarely possible to tell whether the English that is found on a particular website is native-speaker English and even if native-speaker English, the degree to which it is relatively unproblematic literate English.⁷ COCA is not nearly as large, but it provides some level of control over the sort of English sampled. COCA is a balanced corpus of 520 million words of American English from 1990 to 2015, taken from both spoken and written English, and for written English from a variety of kinds of texts including newspapers, popular magazines, fiction, and academic journals. The spoken English tends to be from transcripts of movies or interview programs on television. The written texts are snippets of published material, but varied enough in register to be relatively democratic. COHA contains 450 million words of written text covering the period of 1810 through 2000, and again is balanced for genre.

⁶ Bruening (2014) uses corpus data from the Internet to debunk several long-standing empirical claims about adjectival passives, but also discusses the pitfalls of using the web as a corpus.

⁷ I am well aware of how loaded the word “literate” is. I do not mean to confine my study here to educated or literary English. Rather, what I am looking for is English that has to some extent been subjected to an editorial eye other than mine. My reasoning here is that such examples would be less likely to be dismissed by critics who might somehow want to label particular usages as the effects of mis-speaking or mis-writing. Spoken language is, of course, unedited, so I am especially careful in using examples from the spoken corpus to try to filter out anything that seems to involve hesitations, self-corrections, mistranscriptions, or any usage that otherwise seems dubious.

Both COCA and COHA are made available on the BYU (Brigham Young University) website (<http://corpus.byu.edu>) with an interface designed by Mark Davies (Davies 2008). I had several ways of searching for examples. In some instances, I was looking for specific words in specific contexts. For example, where Grimshaw says that something like **their frequent/constant attempt to climb Mt. Everest* is not possible (1990: 75), I would search first to see if I could find the string *constant attempt* or *frequent attempt* in a similar context. In many instances, though, I was not necessarily searching for specific words or strings of words but for words with a specific affix in a specific syntactic configuration (e.g., nominalizations in *-ing* with a “passive” structure such as *the city’s destroying by the Romans*); for such searches a bit more ingenuity was required to find what I was looking for. The interface provided on the BYU websites allows for searches using one or more wildcards (*), so, for example, to find passive configurations with *-ing* nominalizations, I would search using the string: *’s **ing by* *. Such a search turns up many hits that must then be individually checked in context to see whether they have the properties I was looking for: an Obj-Poss followed by an *-ing* nominalization followed by a *by-PP* that can be interpreted as an agent of the base verb in the *-ing* nominalization. It is also possible to specify a particular part of speech when searching COCA and COHA, but I tried to avoid using this function in my searches as previous experience has shown me that the part of speech tagging in these corpora is not always reliable.

In what follows, where I cite data from the corpora, I follow the method of citation used in Bauer et al. (2013). Unless otherwise specified, examples have been extracted from COCA. The particular work from which the example comes will be given first, followed by the date of publication, followed by the example, as illustrated in (15).

- (15) *Arab Studies Quarterly* 1992: States may also of course apply combinations of these and of other strategies in their **constant attempt** to mediate between the international and the domestic forces.

The final methodological point I need to make before we get down to actual business concerns the status of negative intuitions and rare examples, and the existence of “exceptions.” Addressing all of these is important, as I will be offering in what follows many corpus examples that seem to be counterexamples to claims that are found in the literature. Take for example Grimshaw’s (1990) claim that collocations like **their frequent attempt to climb Mt. Everest* are unacceptable. This is a claim that has been repeated widely in the literature, although it has not remained unquestioned. Newmeyer (2009), for example,

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cites a number of plausible counterexamples (for example, *the frequent use of sharp tools by children*). It is not hard to add corpus examples to Newmeyer's counterexamples, as (15) illustrates.

One sort of response to counterexamples is to dismiss them as being rare, infrequent, or exceptions to an otherwise sound generalization. For example, regarding counterexamples to Grimshaw's claim earlier, Fabregas (2014: 111) remarks: "Borer (2009), when mentioning these cases, notes that they are not frequent, and suggests that perhaps they could be treated as lexical exceptions."⁸ The main problem with this sort of dismissal is that it suggests a quantitative judgment, namely that unless we find a phenomenon frequently, it is not real. But most studies that dismiss some phenomenon as rare or exceptional do not actually provide quantitative evidence to support those judgments. Generativists are rarely in the business of counting things, and indeed one or two examples usually suffice to illustrate whatever phenomenon is under discussion.

My policy in this work has therefore been the one justified in Bauer et al. (2013, chapter 3) to be as non-judgmental and non-prescriptive as possible. Specifically, I have chosen not to rely on intuition, either positive or negative, but to take attestation in a corpus as a marker of acceptability. If examples can be found in the corpora that do not appear to be typos, speech errors, mistakes in transcription of spoken speech, clumsy dialect renderings in fiction, or otherwise corrupted or questionable, I assume that a pattern is acceptable. Using this logic, one example is, in principle, enough to call a previous claim of ungrammaticality into question. In actual practice, though, I have tried to find several examples to support claims of acceptability that I make.

⁸ Borer (2009) is a handout given at a talk and is therefore not accessible to me to quote directly. To his credit, Fabregas suspends judgment on these examples and provides evidence that ones similar to them are acceptable in his dialect of Spanish.

Part II

Data

3 *Event/Result Nominalizations*

I start my investigation of nominalization in English on territory that will be familiar to syntacticians but perhaps less so to morphologists. In this chapter, I will ask what determines the conditions under which E/R nominalizations can be interpreted as eventive or as referential. I will start in [Section 3.1](#) with a review of the claims that have been made about E/R nominalizations in the literature. As mentioned in [Chapter 1](#), these generalizations have been based largely on data drawn from the intuitions of linguists. Some claims have persisted from the earliest literature on the subject, for example Chomsky (1970), other claims have their origins in the work of Grimshaw (1990) and Alexiadou (2001), and some are relatively recent, for example, in the work of Borer (2013). [Section 3.1](#) is a systematic attempt to enumerate these generalizations and to draw together the sorts of examples that have been used to support them in previous literature. In [Section 3.2](#), I go on to examine in detail the extent to which these claims can be corroborated by corpus-based data drawn from COCA. [Section 3.2](#) is organized around a series of questions probing the syntactic configurations in which nominalizations appear, the extent to which various readings are available with different morphological forms of nominalization, the range of R readings that can appear, and a variety of other claims that have appeared in previous literature. I intend to look not only at *-ing* and ATK forms and the claims that have been made about them but also at conversion nouns and where relevant simplex nouns. In doing so, I hope to develop a broad picture of the range of readings available to both E/R nominalizations and simplex nouns in English. [Section 3.3](#) will be devoted to drawing conclusions that will lead us into the wider context of personal, collective, and abstract nominalizations in [Chapter 4](#).

3.1 *Previous Claims*

It seems safe to say that two works on English nominalization have formed the basis of a range of claims that appear repeatedly in the syntactic literature

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about nominalizations. The initial set of claims comes from Chomsky's (1970) classic paper "Remarks on Nominalization." A larger set comes from Grimshaw's (1990) seminal monograph *Argument Structure*. Other claims have been added and some have been challenged, but these two works have largely shaped the discussion of nominalization in English for some time.

The significance of Chomsky's paper for the subsequent history of both morphology and syntax has been acknowledged for decades. In "Remarks on Nominalization," Chomsky draws a firm line between *-ing* nominalizations, which are to be accounted for as part of the syntax, and other kinds of nominalizations – ATK nominalizations in our terms – which are to be excluded from syntactic analysis. The reason for the division is twofold. First, Chomsky believes ATK nominalizations to be generally unpredictable in meaning and subject to lexical gaps, as compared to *-ing* nominalizations which are semantically transparent and available for all English verbs. Second, whereas *-ing* nominalizations can be found in certain "transformational" contexts, ATK nominalizations are generally not possible in those contexts. The logic of the argument is this: if a nominalization can be found in a context that would require the operation of a movement rule in the analogous context of a full sentence, then presumably the most parsimonious analysis of the nominalization would require the operation of that movement rule as well. If transformational contexts are unacceptable, a syntactic derivation is ruled out. For example, sentence (1a) is an example of Subject Raising and requires DP Movement for its derivation. In the terms current in 1970, it would have required the Raising-to-Subject Transformation in its derivation. If analogous nominalizations are found, we would expect some movement to be relevant in their derivation as well. More specifically, if the derivation of nominalizations is a syntactic matter, we would expect that both (1b) and (1c) should be acceptable. (1c) is acceptable and receives a syntactic derivation involving DP Movement (or the Raising-to-Subject Transformation in 1970 terms). But as the story goes, (1b) is not acceptable. ATK nominalizations must therefore be derived lexically; with a lexical derivation we should not expect Subject Raising to be possible with *appearance*.

- (1)
- a. Fenster appeared to be smart.
 - b. *Fenster's appearance to be smart.
 - c. Fenster's appearing to be smart.

Other contrasts that would have been explained by Chomsky's analysis are shown in (2) (example (2a) from Newmeyer 2009: 96).

- (2) a. *my belief of Bill to be a fool / my believing Bill to be a fool
b. *John's growth of the tomatoes / John's growing of tomatoes

In the post-*Aspects* framework in which Chomsky's (1970) analysis was written, the ATK nominalizations in (2) fail to occur in the context of either Raising-to-Object or Causativization. Those transformations no longer play a role in current theory, of course, but they do have correlates in terms of DP Movement in contemporary frameworks, as Raising-to-Subject does.¹

Chomsky's claims remain important in current discussion of nominalizations. With the turn to the claim that morphology is syntax that is represented in the frameworks of Distributed Morphology (Alexiadou 2001, 2011, Harley 2009, Alexiadou et al. 2010) and the Exo-Skeletal Model (Borer 2013), nominalizations must be derived syntactically. There is no option for claiming a syntactic derivation for *-ing* nominalizations and a lexical derivation for ATK nominalizations. But if all nominalizations are to be derived syntactically, the contrast between the *-ing* forms and the ATK forms still needs to be explained.

In Grimshaw's (1990) work, we find the origins of a number of other claims that have continued to appear in the literature over the ensuing years. I have tried to summarize these in (3), using both my preferred terminology and Grimshaw's, where they differ:

- (3) a. possible readings
 -ing nominalizations are always eventive in reading. In Grimshaw's terms, they occur exclusively as complex event nominals.
 ATK nominalizations can have either the E or the R reading. In Grimshaw's terms they may have complex event, simple event, and result readings.
 Other nouns (simplex and conversion Ns) never have E readings in my sense of the term E. For Grimshaw, they may have simple event or result readings, but not complex event readings.
- b. structural correlates
 -ing nominalizations must always exhibit event participants (true arguments in Grimshaw's terms) and may show other diagnostics of E readings such as temporal and aspectual modifiers, agent-oriented adjectives, and purpose clauses.
 ATK nominalizations can only express E readings if they occur with all event participants (which are then counted as true arguments in Grimshaw's terms). Other event diagnostics can also occur, but only in the company of all event participants.

¹ At various points in Minimalist Theory, Raising-to-Object has been reanalyzed as Exceptional Case Marking (ECM).

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Other nouns (that is, simplex nouns and conversion Ns) typically do not occur with event diagnostics. If they do occur with what look like event participants, Grimshaw does not consider these to be true syntactic arguments in her sense but says that they are “complements” arising in the LCS of the verbal base of the nominalization.

c. other claims

Nominalizations with an E interpretation do not occur in the plural and they do not occur with indefinite articles.

Nominalizations with an E interpretation do not occur as the predicate of equational be.

The passive configuration is only available if all event participants are exhibited.

Grimshaw supports these claims with a variety of examples that I provide in [Table 3.1](#). The numbers in parentheses after the example indicate the page number in Grimshaw (1990) on which the example can be found.

Other theorists have taken up Grimshaw’s assessment of the data and sometimes have added further claims as well. Roeper (1993), for example, suggests that conversion nouns cannot express an eventive reading; so **the push of John* is not possible. Alexiadou (2001: 15) accepts the majority of Chomsky’s and Grimshaw’s claims and notes as well that adverbs generally do not occur with ATK nominalizations (**Pat’s collection of mushrooms secretly went on all afternoon*), that *-ing* nominalizations are odd with achievement verbs (**the arriving of John*, 2001: 51),² and that passive nominalizations are more acceptable when the event denoted is a delimited one (**the city’s destruction for just five minutes* versus *the city’s destruction in five minutes*, 2001: 52) and when the DP complement in the *by*-PP is an affector, by which she means an agent, instrument, or causer (**the receipt of the package by John*, 2001: 116). This range of claims has reappeared in later work as well, including Alexiadou (2011), Alexiadou et al. (2010), Roy and Soare (2011), and Borer (2013). Fabregas (2012: 71) discusses conversion nouns (which he refers to as zero nominals) in some detail, supporting Grimshaw’s and Roeper’s claims that such nouns cannot display either argument structure or event diagnostics.

3.2 *Nineteen Questions*

The following nineteen questions serve as a way of distilling and systematizing these claims so that we can probe more thoroughly the intersection of

² This observation also occurs somewhat earlier in Pustejovsky (1995).

Table 3.1 *Ungrammaticality of nominalizations from Grimshaw (1990)*

Example from Grimshaw	Reason for ungrammaticality
The destroying *(of the city) (G50)	- <i>ing</i> nominalizations need to express their internal arguments
*The frequent expression is desirable; *the constant assignment is to be avoided (G50)	For ATK nominalizations to have eventive reading, they must display full argument structure; presence of temporal adjective forces the eventive reading
*The instructor's (intentional/deliberate) examination took a long time (G51)	For ATK nominalizations to have eventive reading, they must display full argument structure; presence of agent-oriented adjective forces the eventive reading
*The city's development was applauded; *the enemy's destruction was awful to watch (G52)	With an ATK nominalization, if the possessive is interpreted as the subject, the object argument must be present
The assignment *(of unsolvable problems) by the instructor; the destruction *(of the city) by the enemy (G52)	With an ATK nominalization, if the <i>by</i> -PP is present, the object argument must be as well
*The frequent trip/event was a nuisance; *Jack's trip in five hours/for five hours was interesting (G59)	Simplex nouns cannot have eventive interpretations and therefore can't occur with event diagnostics
The/*an/*one assignment of the problem; *a/one shooting of rabbits is illegal (G54, 56)	For either - <i>ing</i> or ATK nominalizations, the eventive interpretation is not available with indefinite determiners
*The assignments of the problems took a long time; *the shootings of rabbits are illegal (G54/56)	For either - <i>ing</i> or ATK nominalizations, the eventive interpretation is not available with plurals
*That was the/an assignment of the problem/ *that was the shooting of rabbits (G54/56)	For either - <i>ing</i> or ATK nominalizations, the eventive interpretation is not available as predicate of equational <i>be</i>
*The city's destroying; *the politician's frequent/constant nomination (G83/84)	For either - <i>ing</i> or ATK nominalizations, the eventive passive interpretation requires all event participants to be exhibited

form and interpretation with E/R nominalizations. To be as systematic as possible, I try to answer each of the relevant questions not only for ATK nominalizations and -*ing* nominalizations, the subject of most previous literature, but also conversion nouns and, where relevant, simplex nouns. In what follows, by arguments I mean possessives (Subj-poss, Obj-poss), *of*-PPs, and *by*-PPs, and by event-denoting modifiers I mean temporal adjectives (*frequent*, *constant*), aspectual modifiers (*in X time*, *for X time*), purpose clauses, and agent-oriented adjectives (*intentional*, *deliberate*):

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- (4) The nineteen questions:
1. Can all four forms of nouns show the full array of arguments in the active configuration?
 2. Can all four forms of nouns show the full array of arguments in the passive configuration?
 3. Is the full array of arguments necessary to have an E reading?
 4. What event-denoting modifiers occur with each form of noun?
 5. Can all four forms of noun receive R readings?
 6. Is the R reading possible when the nominalization has arguments? That is, does the presence of any argument at all force the E reading?
 7. What R readings are possible with each form of complex noun (e.g., result, product, etc.)?
 8. Are both eventive and stative E readings possible with each form of complex noun?
 9. Are *-ing* nominalizations possible with all four Vendler classes of verbs?
 10. Are ATK nominalizations possible with all four Vendler classes of verbs?
 11. Are conversion nouns possible with all four Vendler classes of verbs?
 12. What forms of noun are available for unaccusative verbs?
 13. What forms of noun are available for unergative verbs?
 14. What forms of noun are available for causative/inchoative verbs?
 15. Are any “transformational structures” possible in E nominalizations?
 16. Are there any thematic restrictions on arguments in E nominalizations?
 17. Are there any restrictions on choice of determiner in E nominalizations?
 18. Is there any restriction on number (singular/plural) in E nominalizations?
 19. Are all three types of complex noun allowed with eventive reading in predicative position?

I will take up each of these questions in turn and explore systematically what patterns we find in the corpus.

3.2.1 *Full Argument Structure in Active Configuration*

Question 1: Can all four forms of nouns show full argument structure in the active configuration (Subj-poss N *of*-PP)?

My first question concerns the ability of all four types of nominals to occur in an active configuration with both a possessive construed as subject of the verbal base and an *of*-PP construed as an object. For Grimshaw, recall, the expression of all event participants is the hallmark of her complex event reading, what I have referred to generally as the E or eventive reading. The answer that emerges from the corpus data is that full argument structure is clearly possible with *-ing*, ATK, and conversion Ns. Examples for inherently eventive simplex nouns like that in (5d) are suggestive, but perhaps not conclusive. Generally, I have not found examples in which a simplex noun is preceded by a Subj-poss and followed by an *of*-PP; although as (5d) shows, it is possible to find

a simplex eventive noun preceded by a possessive and followed by a purpose clause.

- (5) a. *-ing*
Arab Studies Quarterly 1995: Arabs could not help noticing how the case of fellow Arab League member, Somalia, in which swift retaliation by the U.S. followed warlord General **Aideed's killing of Pakistani troops**, presented a stark contrast to UN and U.S. inaction in Bosnia.
- b. *ATK*
Archaeology 2011: The troops were garrisoned there after A.D. 135, when the Roman city of Aelia Capitolina was established following **Hadrian's destruction of the old city**.
- c. *conversion N*
Denver Post 2004: Last year, just before the 50th anniversary of Sir Edmund **Hillary's climb of Mount Everest**, the Sherpas wanted to put up an Internet cafe at 18,500 feet, base camp on Everest.
- d. *simplex* (not clear that these should count as real examples)
PBS_Newshour 1998: The Senate also turned back Sen. **Ashcroft's effort to block any tax increase** at all.

3.2.2 Full Argument Structure in Passive Configuration

Question 2: Can all four forms of nouns show full argument structure in the passive configuration (Obj-poss N *by*-PP)?³

What we observe here is that the passive configuration is apparently available for *-ing*, ATK, and conversion Ns, but I have been unable to find any convincing example containing an inherently eventive simplex noun.

- (6) a. *-ing*
New York Times 2001: But Phil Bowers, a trained pilot who sat in on his **brother's debriefing by military officials** in Peru on Saturday, disputed that version.
- b. *ATK*
Military History 2011: The invasion is perhaps better known, however, for the **fleet's destruction by a legendary typhoon** known as kamikaze (Japanese for "divine wind").
- c. *conversion N*
Fox_Hume 2001: And as you pointed out, it really was the central factor in leading to President **Carter's defeat by Reagan** in 1980.

³ Note that Bruening (2013) also notes the compatibility of conversion nouns with *by*-PPs.

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Humanist 2005: One unfortunate American family was unable to obtain an accounting of missing body parts, let alone recover the remains, after their **child's autopsy by government doctors**.

- d. *Simplex*
no examples found

3.2.3 *Eventive Readings without Full Argument Structure*

Question 3: Is the full array of argument structure necessary to have the E reading?

What I have in mind here is the extent to which the eventive interpretation can be achieved in either the active or passive configuration with one or the other argument unexpressed. This means looking for examples which either lack a Subj-poss or an *of*-PP in the active configuration or an Obj-poss or *by*-PP in the passive configuration. What we find is that eventive interpretations are easily available for *-ing* and ATK nominals in either active or passive configurations. Conversion and inherently eventive simplex nouns can also be found without full argument expression, but the eventive reading is only clear in the presence of some other event diagnostic, such as a temporal adverb. The conclusion I draw from this is that eventive readings are available for all kinds of nouns but increasingly dependent on contextual help without overt affixation.⁴

- (7) a. *-ing*
Massachusetts Review 2007: There's an element of suicide in **the abandoning of everyday habits**. (Subj-poss missing)
Analog Fiction & Fact 2004: The shouting of the angry crowd drowned the rest of **Pia Ahn's ranting**. (*of*-PP missing)
Associated Press 1994: In the southwestern Pacific, U.S. warplanes bombard Japanese positions on Momote and Lorengau in the Admiralty Islands in preparation for **the landing by American troops**. (Obj-poss missing)
New York Times 1997: And in fact there may come a time in **an actor's training** where the acquisition of technical skills doesn't draw from the deepest resources of one's imagination. (*by*-PP missing)
- b. *ATK*
Popular Mechanics 2011: The mirror heaters are supposed to switch on simultaneously with **the activation of the rear-window defroster grid**. (Subj-poss missing)

⁴ Note that for Grimshaw, these examples would have to be considered "simple events" rather than "complex events." In her analysis, the simple event reading is a function of LCS rather than syntactic argument structure as she has defined it.

Analogue Fiction & Fact 2004: They did an excellent job of cleaning you up. You could pass an **admiral's inspection**. (*of*-PP missing)

CNN_Burden 1997: The Republic of Texas regards the State of Texas as an independent nation and says that **the annexation by the United States** in 1845 was unlawful because it was not put to a vote of the people. (Obj-poss missing)

Boston College Environmental Affairs Law Review 1992: This list of factors, created fifteen years after the **Sax Act's adoption**, constitutes the Michigan courts' attempt to qualify when the Sax Act requires their intervention in an environmental controversy. (*by*-PP missing)

- c. conversion noun (need some other diagnostic to show eventive reading)
NPR_Morning 2002: People are also talking about **the frequent arrest of Iowa college football players**, and then there's the debate over what image Iowa should use when its turn comes to put a log for the state on quarters that will circulate nationwide. (Subj-poss missing)
- d. simplex (need some other diagnostic to show eventive reading)
National Review 1991: One should add that election campaigns involving large numbers of voters and conducted among an electorate with no direct knowledge of the candidates can be so frivolous and shrill that, given **the frequent bias of the media**, a large proportion of the voters may turn away in disgust. (Subj-poss missing)

3.2.4 Event Diagnostics

Question 4: What event-denoting modifiers occur with each form of noun?

Although other diagnostics are sometimes mentioned in the literature, I will concentrate here on four event diagnostics: the presence of temporal modifiers like *frequent* or *constant*, of aspectual PPs like *for X time* and *in X time*, of purpose clauses like *in order to X* or *just to X*, and of agent-oriented adjectives like *intentional* or *deliberate*. Note that bona fide examples of aspectual PPs modifying nominals are hard to find because in context those PPs almost always refer to the verb and not to the closest noun, whatever its form; for example, if one searches for an ATK noun followed by *for X weeks*, what one finds is typically something like the example in (8):

- (8) *USA Today 2009*: Sen. Bernie Sanders, I-Vt., **blocked Gensler's nomination for several weeks**, saying he wanted to see the commission's top job go instead to "an independent leader who will help create a new culture in the financial marketplace and move us away from the greed, recklessness and illegal behavior which has caused so much harm to our economy."

Clearly, in (8), the aspectual PP is intended as an adjunct to the verb *block*, and not as a modifier of the ATK nominal *nomination*. It would be optimal to find aspectual PPs modifying a nominal in subject position of a sentence, where the interpretation of the aspectual PP as a modifier of the noun would be unambiguous, but it is not easy to find such examples. I have therefore tried to be as careful as possible in judging that an aspectual PP really does modify the noun that precedes it, rather than a verb earlier in the sentence. Similar difficulties occur in searching for purpose clauses, and again, I have tried to be as careful as possible that the primary reading of the example is one in which the purpose clause modifies the preceding noun, not an earlier verb in the sentence.

As the examples in (9)–(12) suggest, all four kinds of event diagnostics are available with all four forms of nominal, with examples, not surprisingly, hardest to find with simplex nouns. The fact that any of the diagnostics can occur with simplexes suggests that eventive interpretations are not ruled out in any form of noun, although they are not typical for simplexes.

- (9) *-ing*
- a. Temporal
New York Times 2001: Mr. Bauer said **the frequent switching of planes** had not led anyone in the campaign to wonder how Mr. Chang, whose company employed only a handful of people, had access to so many aircraft.
 - b. Aspectual
Harpers Magazine 1993: The boat fare, the cost of **boarding for three weeks**, the travel within England, and the return trip to Chicago – added to the price of the portrait – cost my great-aunt Muriel nearly \$900.
CBS_Sixty 2002: The penalty was **counseling for 16 weeks**.
 - c. Purpose
Washington Post 1996: **The jockeying to succeed him** has been anything but discreet.
 - d. agent-oriented adjectives
Mechanical Engineering 2001: A section of the Pentagon had been destroyed by **the intentional crashing of a hijacked commercial airliner**.
- (10) *ATK*
- a. Temporal
African Arts 1991: **The frequent incorporation of external ideas** and aesthetics, which has existed throughout Africa's history, should not be forgotten when we seek to understand the phenomena of contemporary African art.

Journal of Sex Research 1991: **The frequent assumption** was that if a woman was sexually active, she would use the pill. # Young women, however, very infrequently buy oral contraceptives, although again, these are available over the counter.

b. Aspectual

Associated Press 1991: In 1984, equipment problems forced the **plant's closure for 22 months**.

c. Purpose

Journal of Interamerican Studies & World Affairs 1998: **The competition to lure investors** by waiving this tax has been termed a "fiscal war," a vicious cycle of bidding in which states reduce their own tax revenues (and consequently those of their municipalities) and assume broad commitments in exchange for dubious economic benefits.

d. agent-oriented adjectives

Today's Parent 2011: I learned to knit not just from my **mother's intentional instruction**, but in the hours I simply sat and watched her flashing needles.

NPR_ATC 1995: The road and the canyon and the mountain around them are inside the Toiyabe National Forest, the target of **Carver's deliberate provocation**.

(11) *conversion N*

a. Temporal

NPR_Morning 2002: People are also talking about **the frequent arrest of Iowa college football players**, and then there's the debate over what image Iowa should use when its turn comes to put a log for the state on quarters that will circulate nationwide.

b. Aspectual

Community Care 2011: Those on **remand for 13 weeks** or more will be entitled to leaving care support, including accommodation.

c. Purpose

Commentary 1991: **A compromise in order to deal with a world of hostile questioners**, he frequently reassured himself, and sometimes almost an interesting challenge, although not today.

Health & Social Work 2003: **The call to eliminate health disparities** among racial and ethnic minority populations was repeated in the DHHS's "Healthy People 2000", and more recently in "Healthy People 2010" (cited in Health Disparities: Bridging the Gap (2000).

d. agent-oriented adjectives

San Francisco Chronicle 2011: Lee had switched labels on two wines, and revealed that Parr had praised a 15 percent wine. See [sfg.ly/hyac9X](https://www.sfgate.com/hy9X) # **The intentional switch** stemmed, no doubt, from Parr's vocal role in the

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lower-alcohol movement – including a policy that limits New World Pinot Noir and Chardonnay at his San Francisco restaurant, RN74, to 14.5 percent.

Atlanta Journal Constitution 2006: The main issue is **the intentional insult**, the intent to incite . . .

(12) Simplex

a. Temporal

Houston Chronicle 2010: Brandley said life only gets better when someone can live freely, not on a prison schedule, and can savor the quiet of a comfortable home, a welcome release after **the constant noise** inside a prison.

Christian Science Monitor 2008: Warren, too, is **the frequent brunt of criticism**.

b. Aspectual

Christian Science Monitor 2005: After the Twin Towers crumbled, Union Square – **my home for four years** as a New York University student – became the makeshift memorial for 9/11.

c. Purpose

Fortune 2002: **The bait to lure you to the Passport den** is the new Windows Messenger – a beefy revamping of the wimpy MSN Messenger instant messenger.

Chicago Sun Times 2009: **The event to select the 25-woman dance team** will be Aug. 1 at the United Center from 9 a.m. to 5 p.m.

d. agent-oriented adjectives

Christian Century 2004: His examples from literature and film, and analyses of institutions like Willow Creek Community Church and **the intentional retroutopian town** of Love Valley, all reinforce one's sense that Ostwalt is perceptive about the strange mix of sacred and profane that permeates American life.

3.2.5 Referential Readings

Question 5: Can all four forms of noun receive R readings?

It is fairly obvious from the literature that no one questions the ability of ATK, conversion, or simplex nouns to receive R interpretations; indeed, the R interpretation is the default one for simplex nouns. Grimshaw (1990) suggests that for *-ing* nominalizations, however, only the complex event reading is available. This can't be the case, though, as the example in (13a) suggests. Nouns like *painting* or *carving* that have a product reading are clearly referential in nature (13) also gives examples of R readings for ATK and conversion Ns, although their existence has never been questioned.

- (13) a. *-ing*
Southwest Review 2009: Running my hand over **that cold carving** was like touching the new contours of my sister's face.
- b. *ATK*
USA Today 2009: The **sticky-sweet concoction** combines gin, cherry brandy, pineapple juice, Cointreau, grenadine and other ingredients.
- c. *conversion N*
Mother Earth News 1998: Fortunately, the safety features force an operator to stop the engine and halt the blade before trying to clear **the clog**, and the electric key makes a restart so easy that not even the most resolute King of the Hill should be tempted to try to defeat the safety features.

3.2.6 Arguments with R Readings

Question 6: Is an R reading possible with arguments?

The question I raise here is whether the presence of Poss, *of*-PP, or *by*-PP automatically forces an E reading. As the examples in (14) show, it is certainly possible to find possessives and *of*-PPs with nominalizations of all types, and when the nominalization is one that typically has a lexicalized R reading like *carving* or *concoction*, the R reading is retained. Accompanying possessives are interpreted as possessors, creators, or authors rather than as subjects or objects of the verbal base. Examples are more difficult to find with conversion nouns, but the R reading does seem possible again as long as the conversion noun has a clearly conventionalized referential reading, as the noun *catch* does when referring to a bunch of fish that have been caught. For simplex nouns, the R reading is of course the dominant one, the E reading only appearing when supported by event diagnostics, so I will not provide an example.

- (14) a. *-ing*
Yankee 2002: It was gigantic, nearly as big as my **grandfather's carving of Gog Magog**, and a beautiful dark silver color.
- b. *ATK*
USA Today 1999: That girl's mix of Kool-Aid and Bacardi rum, along with **Lisa's concoction of Cherry 7-Up and grain alcohol**, created quite a stir in the school cafeteria as students passed the drinks around.
- c. *conversion N*
Natural History 1992: Guiding ethics have always required these guides to keep within the legal limits and never personally help fill a **client's catch of fish or bag of game**.

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3.2.7 Possible R Readings

Question 7: What R readings are possible with each form of complex noun?

Bauer et al. (2013: 209–212) give examples of a number of referential readings for complex nominals. I give a selection of their examples here. It should be kept in mind that the examples below are forms for which the listed reading is available in the right context. I do not mean here to say that these are the only readings these forms can have. Examples in context will be given in Chapter 4, where the referential readings are discussed in some detail.

- (15)
- a. result (the outcome of verb-ing):

-ing	understanding
ATK	certification
conversion N	surrender
 - b. product (thing or stuff that is created or comes into being by verb-ing)

-ing	building
ATK	creation
conversion N	puke
 - c. instrument (the thing that verb-s, a way of verb-ing)

-ing	kindling
ATK	decoration
conversion N	tie
 - d. location (the place of verb-ing)

-ing	dwelling
ATK	residence
conversion N	dump
 - e. agent (people or person who verb-s)

-ing	following
ATK	administration
conversion N	cook
 - f. measure (how much is verb-ed)⁵

-ing	dusting (e.g., <i>a dusting of sugar</i>)
conversion N	pinch
 - g. path (the trajectory or direction of verb-ing)

-ing	swirling ⁶
ATK	continuation
conversion N	decline

⁵ Generally, it is difficult to find examples that bear the measure reading. I have not been able to find an ATK form, for example, that clearly bears this reading.

⁶ COCA *Fantasy & Science Fiction 2011*: An ovoid central eye, three hooked, scythe-like tentacles, and a small spherical body behind the eye; a suggestion of chaotic **swirling**.

- h. patient/theme (the person or thing verb-ed or affected or moved by verb-ing)
- | | |
|--------------|----------|
| -ing | reading |
| ATK | donation |
| conversion N | catch |

3.2.8 Possible E Readings

Question 8: Are both eventive and stative E readings possible with each form of complex noun?

As mentioned in [Chapter 2](#), there are two possible E readings, either an eventive one (that is, one denoting a dynamic situation involving process or change) or a stative one. Whether an event or a state reading is available for any given nominalization is in large part a function of the verbal base of the nominalization. The question I ask here is whether there are instances of eventive or stative readings for each of the three forms of complex nouns.

- (16) a. Event
- | | |
|--------------|-------------------|
| -ing | climbing |
| ATK | examination |
| conversion N | arrest (see (7c)) |
- b. State
- | | |
|--------------|------------------|
| -ing | brooding |
| ATK | preoccupation |
| conversion N | hold (see (19a)) |

3.2.9 Vendler Classes for -ing Nominalizations

Question 9: Are -ing nominalizations possible with all four Vendler classes of verbs?

As the examples in (17) show, it seems that -ing nominals can be found in all four Vendler classes.

- (17) a. State
- Theological Studies 2006:* We should note, though, that this fulfillment is something that Jesus does, not only in the eventfulness of the resurrection itself but also in the way that this event is **his keeping of a promise**.
- Picture maker 2002:* It was not **the owning of the thing**, that absorbed me, but its creation.
- b. Activity
- CNN Talkback 1997:* But I do see the difficulties of parenting these days in terms of monitoring your children's **watching of TV**, in terms of how your child interacts with adults being on the subway or on the street.

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Washington Monthly 1993: The ad noted that the French passion for fatty foods “seems to be counteracted by **their drinking of French red wine**.”

c. Achievement

National Geographic 2009: The exploration and study of Uzoh Caldera by scientists, as well as Ustinova’s **finding of the Valley of Geysers**, gave additional purpose to the zapovednik: protecting geological wonders as well as biological ones.

d. Accomplishment

Style 1995: **His writing of the murder-mystery novel** coincides with a gradual decline of fortune and deteriorating personal relationships fueled by ever-increasing paranoia.

3.2.10 Vendler Classes for ATK Nominalizations

Question 10: Are ATK nominalizations possible with all four Vendler classes of verbs?

Again, although some of these classes are largely comprised of native verbs for which no ATK nominalizations exist, it is possible to find examples of all four Vendler classes for ATK nominalizations:

(18) a. State

Humanist 2002: Further proof of our strivings for status is our **society’s preoccupation with sexuality**.

b. Activity

Mercury 1996: For example, a clock sitting on the Earth’s equator has a speed due to the **Earth’s rotation of 465 meters per second**.

Ms. 1995: In other words, porn that is violent, degrading, or dehumanizing is prohibited because it obstructs **women’s pursuit of equality**.

c. Achievement

Symposium 1996: It is in this response to the suffering of others that Emie becomes a Juste; and indeed, only after the **train’s arrival at Auschwitz** does the narrator at last speak of “le Juste Ernie Levy” (343).

d. Accomplishment

Symposium 1995: As a case in point, one need only compare D. T. Niane’s reconstructed plain prose translation of the epic of Mali with John William Johnson’s **transcription of an actual oral performance** by Fa-Digi Sistkt.

Christian Science Monitor 1996: The story of Grace **Adams’s recovery from childhood abuse** and an unjust prison stint is clearly intended to sway readers on the subject of domestic violence.

3.2.11 Vendler Classes for Conversion Nouns

Question 11: Are conversion nouns possible with all four Vendler classes of verbs?

Of the four Vendler classes, it is most difficult to find conversion nouns that can carry state readings, but the example in (19a) seems like a plausible candidate. The other classes seem unproblematic.

- (19) a. State
Life as a house 2001: George is clearly not comfortable with his ex-wife's **hold of him**, with her tears.
- b. Activity
Sunset 2005: Reserve three days ahead for a photographer's **walk of Cooks Meadow**, along the Merced River, offered through the Ansel Adams Gallery (tours 9–11 Tue, Thu, Sat; free; www.anseladams.com).
Mother Jones 1995: Glaxo's **push of Imitrex** was no exception.
- c. Achievement
Houston Chronicle 1996: At the same time, it is fair to wonder what role spending on maintenance in years past may have played in last summer's **collapse of a rickety cafeteria roof** at 45-year-old Houston Gardens Elementary School.
New York Times 2008: What happens to the many homes left empty following the sudden **halt of the subprime era**?
PBS_Newshour 1995: Technically, in Pennsylvania, you only have to have one license plate on your car, so the officer was improper on **his stop of this car**, but while he stopped the car, he observed in the back seat over 200 pounds of cocaine.
- d. Accomplishment
PC World 2005: The most recent **build of Longhorn** -Microsoft's next Windows-has some impressive visual touches, including the kinds of translucent objects found now in Apple's OS X, and more powerful ways of finding files.

3.2.12 Nominalizations of Unaccusatives

Question 12: What forms of noun are available for unaccusative verbs?

It is possible to find all three forms of complex noun as nominalizations of unaccusative verbs, as the examples in (20) show:

- (20) a. *-ing*
Cross Currents 1990: If you ask the first question and answer Yes' then you are defining the Resurrection as **the disappearing of the body**, and so are comfortably, and conservatively' short of the Resurrection kerygma.

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b. ATK

New York Times 2012: The organization, for example, has declared **the disappearance of the Australian gastric brooding frog**, which ingested its eggs, gestating them in its stomach and eventually spitting out tadpoles.

c. conversion N

Mother Jones 2005: But now the weather is growing warmer annually, and **the melt of the Arctic** seems to be releasing so much freshwater into the North Atlantic that even the Pentagon is worrying that a weakening Gulf Stream could yield abrupt – and overwhelming – changes in climate.

3.2.13 Nominalizations of Unergative Verbs

Question 13: What forms of noun are available for unergative verbs?

It is also possible to find all three forms of complex noun as nominalizations of unergative verbs, as the example in (21) show:

(21) a. -ing

Fantasy & Science Fiction 2002: The exhalation, when it came, would be the violet yolk of a crushed pearl, and its sweet aroma would gently awaken his sleeping niece to the now darkened observatory, the last firefly, the wind in the leaves, and **the snoring of her uncle**.

b. ATK

Analogue Science Fiction & Fact 2005: Chandra sighed, **the exhalation of an instructor** burdened by an exceedingly ignorant student.

c. conversion N

Southwest Review 2011: He listens for the rustle of ringtails or rats, for **the cough of a lion**.

3.2.14 Nominalizations of Causative/Inchoative Verbs

Question 14: What forms of noun are available for causative/inchoative verbs?

As the examples in (22) show, we find all three forms of nominalization in both inchoative and causative readings for alternating verbs (although not necessarily in both readings for every alternating verb):

(22) a. -ing

Inchoative

Natural History 1993: The botanist confesses, in the unfolding of the calyx . . . an attractive emblem of the **expanding of the human mind**, as it emerges from a state of ignorance . . .

Southwest Review 2002: A hope for pleasure caused this thing, whether pleasure was found in the doing of it or not, and that portion is the joy that feeds **the growing of another life** within you.

Causative

PBS_Newshour 2007: It loaned money for **the growing of cotton**.

b. ATK

Inchoative

Foreign Affairs 2003: He has thus far avoided openly urging foreign volunteers to enter Iraq, but the postwar chaos has clearly provided fertile ground for **Hezbollah's expansion**.

Causative

Church History 2010: Through **their expansion of the FCC** into the even larger National Council of Churches in 1950 and through their leadership in the World Council of Churches (officially established at Amsterdam in 1948, and meeting for its second convention in Evanston in 1954), the energetic ecumenists blurred denominational boundaries and diminished the standing and authority of many local communities.

New York Times 1998: To avoid running afoul of the First **Amendment's separation of church and state**, Mr. Colson's organization agreed to pay the program's costs (which it estimates at more than \$250,000 a year), supply staff and volunteers, make it voluntary and open it to any inmate, regardless of religion.

c. conversion N

Inchoative

New York Times 1990: "It was a delightful flight, everything was pleasant," said Jorge Lozano, an executive of Cargill Inc. who was the only passenger in first class to survive the **jetliner's crash** on Long Island.

Causative

PBS_Newshour 1995: Technically, in Pennsylvania, you only have to have one license plate on your car, so the officer was improper on **his stop of this car**, but while he stopped the car, he observed in the back seat over 200 pounds of cocaine.

3.2.15 Transformational Structures

Question 15: Are any "transformational structures" possible in E nominalizations?

It is very difficult to find examples of nominalizations that appear to require movement rules in their derivations. I have been able to find a couple of examples of *-ing* nominalizations of typical raising verbs (*seem*, *appear*, *fail*) and a couple of ATK nominalizations of raising verbs (*tend*, *fail*), but I have not succeeded in finding any kind of nominalization in

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a context that would suggest Raising-to-Object (or ECM), “dative movement” constructions or particle movement. For the Subject Raising verbs, it is notable that the ATK nominalization of *appear* does not occur in the E nominalization context (that is, no examples of *X’s appearance to verb*), but neither does the *-ing* nominalization of *tend* (*X’s tending to verb*). Both the *-ing* and ATK forms can be found for *fail*, however. In other words, raising contexts do not seem to be ruled out for either *-ing* or ATK nominals, but they don’t seem to be common.

(23) a. Raising-to-Subject

Golf Magazine 1997: Watching this ebullient exchange, I took the glass of whiskey that Liston gave me and moved away without **anyone’s seeming to notice**.

Christian Science Monitor 1993: Hindu nationalists acknowledge that a separate personal law for Muslims does not directly impinge on Hindus, but they have made much of the **government’s appearing to bend** to Muslim will.

Orthopaedic Nursing 2002: Feelings of helplessness and defenselessness are contrary to the **adolescent’s tendency to feel invulnerable** and virtually indestructible so this state presents them with a stressful situation.

Social Work 2007: Low self-efficacy and demoralization have been shown to be associated with **people’s failing to pursue work** or independent living opportunities at which they might otherwise succeed (Link, 1982, 1987).

Commentary 1997: His own father did nothing to hide his disappointment at his only **child’s failure to marry** and provide him with grandchildren.

b. Raising-to-Object

not found

c. double object

not found

d. particle movement

not found

3.2.16 Thematic Restrictions

Question 16: Are there any thematic restrictions on arguments in E nominalizations?

Alexiadou (2001: 116) claims that the object of the *by*-PP in the passive configuration must be interpretable as an affecter, that is, as an agent, instrument, or creator. It is not clear that this is the case, although whether it is might hinge on the degree of sentience or volitionality that we expect in an agent.

In the example in (24), *plant* could at best be interpreted as some sort of originator, to use Borer's (2013) term for a participant capable of internal causation, but not as a bona fide agent, much less instrument or creator.

- (24) Alexiadou 2001: 116: the object of *by* must be affector (agent, instrument, creator)
US News & World Report 1992: Fungi, many of which aid **the absorption of nutrients by plants**, are on the verge of mass extinction in Western Europe; frogs and other amphibians are declining throughout the world.

3.2.17 Choice of Determiners

Question 17: Are there any restrictions on choice of determiner in E nominalizations?

Grimshaw (1990: 54, 56) makes the claim that E readings (her complex event nominals) can occur only with a definite determiner, a claim that has appeared in a number of works on nominalization subsequent to Grimshaw (e.g., Alexiadou 2001, Borer 2013). It seems, however, that the E interpretation is indeed available with indefinite determiners for all three types of nominalizations, as illustrated in (25):

- (25) a. *-ing*
American Indian Quarterly 2001: Wilderness designations inherently require **a balancing of competing interests**, some easily identifiable and others much harder to calculate.
- b. ATK
Humanist 2009: It was only the Chinese Communist Party which promised **a cancellation of debts**.
Current Psychology 2003: However, in **one assessment of the relative contribution of family** and personality variables to disordered eating, family variables were found to predict broad emotional and interpersonal difficulties, such as neuroticism, rather than eating disorders per se (Brookings & Wilson, 1994).
- c. conversion N
NPR_Fresh Air 2003: How might **an attack of Iran** compare to what happened in Iraq?

3.2.18 Pluralization of E Nominalizations

Question 18: Is there any restriction on number (singular/plural) in E nominalizations?

Grimshaw (1990: 54, 56) also claims that E readings (her complex event nominals) cannot occur in the plural, a claim which is perpetuated in

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Alexiadou (2001), but disputed elsewhere, for example, by Newmeyer (2009). Again, it seems that pluralization is possible with the E reading for all three types of complex noun:

- (26) a. *-ing*
Style 1995: I may as well confess at this point that my pleasure inheres in part here: in a compulsively repeated and suicidal submission to **the batterings of a style**.
New York Times 2010: The head seems to stand for his father's abiding influence, but also for the actual dismemberments that have come to dominate the news stories playing in the background of the travelogue, from the mayhem unleashed by amphetamine-crazed killers to **the beheadings of captured G.I.'s** by ruthless masked enemies in the war on terror.
- b. *ATK*
San Francisco Chronicle 1991: I think they will find (on average) that it will offset any increase they have seen in **the adjustments of their (risk) characteristics**," Woocher said.
IBM Journal of Research & Development 1994: However, the cost of examining **the alignments of both arrays** and setting up the unrolling by eight adds extra overhead to the subroutine, which is significant for small n.
- c. *conversion N*
Theological Studies 2008: A first bull issued on January 7, 1264, to Louis IX, says that William has informed the pope concerning **the attacks of Sultan Baybars** and urges the King to send the money collected for strengthening the fortification of Haifa.

3.2.19 Predicative Contexts

Question 19: Are all three types of complex noun allowed with eventive reading in predicative position?

Grimshaw (1990: 55–56) claims that eventive nominalizations do not occur as predicates following the verb *be*, a claim that Alexiadou (2001) also makes. It is not difficult to find examples, however, that serve as counterexamples to this claim.

- (27) a. *-ing*
American Studies International 1999: According to him, the worst time **was the bleeding of the trees**.
- b. *ATK*
Art Bulletin 2001: The main event **was a reenactment of Ariosto's Orlando furioso**.

c. conversion N

NPR_Science 2003: And **this was the return of the mountain lion.**

3.3 Adding It All Up

A great many claims have been made in the literature on the basis of data drawn from intuitions about what sorts of contexts nominalizations should appear in and with what sorts of readings. What I have tried to show is that the vast majority of these claims are called into question by data that can be extracted from a corpus like COCA. Configurations that are claimed to be ungrammatical can easily be found in ordinary speech and writing. The upshot, then, is that much of the theoretical work that has been based on these claims will have to be revisited. To the extent that much of the literature on nominalizations is based on dubious claims, the analyses that seek to explain them are rendered moot. Going forward, we need new theoretical proposals to account for a rather different array of data. In this section, I will give a brief sketch of the new landscape that theories of nominalization need to explain.

In terms of available readings, simplex nouns are clearly the most limited in scope of the four types of nominalizations considered here. Simplex nouns are generally referential rather than eventive. Some simplex nouns with a processual flavor can receive E readings, but chiefly when helped along by the presence of event modifiers. All three types of complex nominalization – *-ing*, ATK, and conversion nouns– behave similarly, however, with both E and R readings available in various syntactic configurations. E readings include both event and state. R readings go beyond result readings and include as well product, agent, location, means, measure, patient, and theme readings.

The syntactic configurations in which nominalizations appear are more varied and flexible than our intuitions have led us to believe. All three forms of complex nominalization can occur in both active and passive configurations with full argument structure or with either the possessive phrase or the prepositional phrase missing. All three forms of complex nominalization (and sometimes simplex nouns as well) can occur with all of the event diagnostics we have examined.

With regard to verb types, all forms of complex nominal occur with all four Vendler classes, with unaccusatives, unergatives, and with causative/inchoative verbs in either the causative or inchoative interpretation. There do not appear to be restrictions on the thematic interpretation of the possessor in DPs containing nominalizations.

It is quite difficult to find nominalizations in any “transformational” structure, but in the context of Raising-to-Subject the few examples to be found do not distinguish between *-ing* nominalizations and ATK nominalizations. Both are found, but both are equally hard to find.

Further, all three sorts of complex nominalization can be found pluralized and with indefinite articles. In effect, there do not seem to be restrictions on the interpretation of nominalizations as mass or count nouns. All three sorts of complex nominal can be found in predicative contexts as well, contrary to earlier claims. In other words, given the right contexts, complex nouns seem to be no different than simplex nouns in terms of the determiners they take, their ability to be pluralized, or their propensity to occur as predicates of the verb *be*.

Simply put, nominalizations are far more malleable in terms of both syntax and lexical semantics than earlier literature has led us to believe. In [Chapter 4](#), I will try to set E/R nominalizations in a wider context of other nominalizations, indeed the full range of derived nouns available in English. I will argue that any analysis that can explain the malleability of E/R nominalizations needs to be seen as part of the overall ecology of nouns.

One last point needs to be addressed before we move on to derived nouns in a larger context. Why is the picture that I have drawn on the basis of corpus data so different than the picture we have developed over the years on the basis of our intuitions? The answer to this is still not completely clear to me, but I suspect that several factors are involved. Bruening (2013: 375), in a corpus-based study of adjectival passives in English, addresses the same question and suggests that decontextualization has something to do with the failure of judgments made on the basis of intuition to match data drawn from corpora. Provided with a context, at least some configurations that seem odd on their own sound considerably better. But I suspect that there are other factors involved as well. In Lieber ([forthcoming](#)), I discuss the role of frequency in our judgments. Take as an example the use of aspectual modifiers like *in X time* or *for X time* to test for eventive readings. Modifiers of this sort can be found frequently in corpus data, but they tend to occur in verb phrases and therefore are more often than not construed as modifying the head of the VP, rather than an immediately preceding noun (see example (8)). They are apparently not so frequent in syntactic contexts in which they must unequivocally be interpreted as modifying a directly preceding noun, for example, as the subject of a sentence. Given the infrequency with which we encounter this configuration, examples out of context are likely to sound odd.

Hanks (2013: 21) also discusses why decontextualized examples sometimes sound odd and suggests that there is often a discrepancy between how we think we use a word and how we actually use it. Essentially, we are often not very good at bringing to mind the myriad ways in which some words can be used: “the more frequently a lexical item is used, the harder it becomes to call to mind and talk explicitly about all the normal uses of it.” The cautionary tale here is that we know too little of the effects of things like item familiarity and frequency on our intuitions; this is not to say that our intuitions are always wrong, just that for various reasons they are not always reliable and need to be taken with a grain of salt. It is to be hoped that as research on the mental lexicon progresses, we will learn more about factors like item familiarity and frequency and their relationship to our judgments of acceptability, and with this expanded knowledge the discrepancies between intuitions and what we find attested in corpora will become less mysterious.

4 *Nominalizations as a Derivational Ecosystem*

4.1 *The Derivational Ecosystem*

The results of [Chapter 3](#) suggest that it would be worthwhile looking at E/R nominalizations in a wider context. Languages typically have a variety of readings that complex nouns may express, among them events and results, participants, collectives, abstracts, and so on. In trying to understand this range of complex nouns, previous literature has occasionally couched the subject in the context of what Booij and Lieber (2004) call a “derivational paradigm”; on analogy to inflectional paradigms, derivational paradigms are grids that associate morphological forms with derivational meanings. Ideally, if derivation were analogous to inflection, we would expect that for the most part we would find one form for each reading. Cases of many forms corresponding to a single reading and several readings corresponding to a single form ought to be relatively unusual.

I will show in this chapter that the correlation between form and interpretation is so far from one-to-one that the notion of a derivational paradigm does not begin to do it justice. On the one hand, there are forms which characteristically express a specific reading but which can and do exhibit other readings on occasion as well. On the other hand, there are forms that are especially malleable in interpretation, exhibiting a range of readings, without one predominating. There are in fact almost no cases in English where we find a one-to-one relationship between form and reading. Looked at from the point of view of interpretations, there are very few readings that are characteristically expressed by a single affix or morphological process; more often than not particular readings can be expressed by a variety of forms. And interestingly, there are readings for which there is no apparent predominant form. In other words, the relationship between form and

reading is so complex that some metaphor other than the derivational paradigm seems necessary. The one that I turn to here is that of the derivational ecosystem.

In this chapter, I use the metaphor of the derivational ecosystem to evoke the relationship between organisms such as animals and plants and the habitats or ecological niches they occupy. To pursue an example that I alluded to briefly in [Chapter 1, footnote 4](#), think of several types of ungulates – cattle, horses, antelopes – all competing for sustenance in a grassland. There can be several species that all coexist or overlap in the same habitat. On the other hand, there might be habitats which few or no organisms inhabit (continuing with ungulates, think of deserts, for example, where the primary sort of ungulate might be the camel). If we think of morphological types (specific affixes, conversion) as analogous to organisms and readings (agent, location) as analogous to habitats, we can imagine each affix as occupying one or more semantic niches. A number of different morphological types can coexist in some semantic niches. Other niches may be sparsely populated, with only one or perhaps no particular morphological type giving that reading expression. In other words, some semantic niches may be hardly exploited at all. Morphological types cannot be seen as independent of each other, any more than the organisms inhabiting an ecosystem can be seen as independent. Like organisms, morphological types need to be seen as a complex interdependent system. I will try to show in this chapter that the ecological metaphor yields a far better understanding of the interactions of different kinds of nominalizations than the derivational paradigm metaphor.

Readers will recognize in this brief description of the derivational ecosystem a number of theoretical precursors, which I will reiterate briefly here. First, as noted in [Chapter 1](#), there is an analogy to Saussure's notion of "value." Saussure defines "value" as follows (Saussure 1916/1983: 114):

In a given language, all the words which express neighbouring ideas help define one another's meaning. . . . So the value of any given word is determined by what other words there are in that particular area of the vocabulary. . . . No word has a value that can be identified independently of what else there is in its vicinity.

In other words, for Saussure the sign is not merely a stable pairing of signifier and signified but a pairing that can only be assessed in relation to all the other signs that surround it. Of course, Saussure has in mind individual signs when he speaks of "value," and I have in mind the relationship between morphological types and their readings, but the analogy should be apparent: the meaning of

affixes is not fixed in an inventory, but fluid, depending on the other morphological types available in a language.

Second, there is a similarity between the derivational ecosystem and what has come to be called semantic field theory (Lyons 1968, Lehrer 1974). Kittay (1992: 237) notes that the notion of a semantic field is itself an outgrowth of Saussure's notion of value. Kittay explains that within semantic field theory, "the meaning of a term is partially determined by terms that apply to a similar domain and to which the term stands in relation of contrast or affinity." A semantic field is a conceptual domain that subsumes a segment of the lexicon in which terms are understood in relation to one another. Individual terms have meanings of their own, but those meanings can only be fully understood in contrast to other terms in the same domain. For example, under the rubric of basic color terms, in English we find (at least) the words *red*, *blue*, *green*, *yellow*, *white*, and *black*. A language that has only three basic color terms X, Y, and Z will carve up the visible spectrum of light into bigger chunks than a language like English that has six basic color terms. The word X in this language might subsume what English would differentiate as *black*, *blue*, and *green*. The fewer the basic color terms, the larger the portion of the spectrum they occupy. If a language borrows or otherwise adds a basic color term, the positions of the original terms will shift in relation to the new term.

The idea of a derivational ecosystem has its roots in Saussurean values and semantic fields in that it assumes that the work done by a particular affix or morphological process can only be seen in relation to the other affixes or processes that a language makes available. But the notion of a derivational ecosystem differs from or goes beyond its intellectual precursors in at least one significant way. Saussure's idea of value was meant to be applied to individual signs in relation to one another. Similarly, semantic fields refer to domains of the basic lexicon and the relationship of terms within those domains. For us, however, the domain with which we will be concerned is not a domain of the basic lexicon, but a domain of the complex lexicon, that is, the overall derivational system of the language – that is, we are concerned not so much with individual words as with whole morphological types. Still, the notion of relative position of morphological types in the domain of nominalizations is clearly comparable to the Saussurean notion of value or the idea of a semantic field.

In what follows, I will try to go beyond merely pointing out the ways in which derivational types exist in relation to each other. In subsequent chapters, I will try to tackle the issue of how particular morphological types go about

occupying and exploiting different semantic niches, adapting to them, as it were. Specifically, I will look at the role of semantic underspecification and the way that underspecification comes to be resolved in different syntactic environments. This will require us to deploy the ecological metaphor in a slightly different way, as we will see. In this chapter, however, I begin by exploring the wider domain of nominalization in English, focusing on the idea of interrelations between morphological types and typical readings.

As in [Chapter 3](#), this chapter will focus more on data than on theory, but it will allow me to develop the big picture on which a formal analysis of derivational meaning must be built. [Section 4.2](#) will give a broad overview of the relationship between morphological forms and the readings that they express. In this section, I hope to establish how very complex the relationship between morphological form and semantic reading is. In [Section 4.3](#), I will focus on a particular semantic niche for which English has apparently no dedicated morphological form, specifically inanimate patient nouns, and I will look at a possible development in English derivational morphology toward exploiting this underserved territory. In particular, I will look at forms in *-ables* (for example, *compostables*, *collectables*) and suggest that we may have the beginnings of a new nominalizing affix here that forms inanimate patient nouns. In this section, I will also look at nuances that are to be found in inanimate patient nouns and specifically at the ways in which inanimate patient nouns formed with different affixes may express subtle modal, quantitative, and aspectual overtones.

4.2 Forms and Readings

[Table 4.1](#) provides a relatively complete inventory of affixes that form nouns in English, along with an indication of what sorts of bases they favor and what sorts of readings they can express. There are a few sorts of derived nouns that I will not treat here, however. First, I will discuss only affixes that have some degree of productivity in contemporary English, even if that degree is rather small. So I will treat nominalizers like *-al* and *-ment*, but not *-th* (*warmth*, *health*) or *-nik* (*beatnik*, *peacenik*). The former of these is completely unproductive, the latter practically so.¹ Second, I will not treat diminutives like *-let* (*booklet*), *-ling* (*princeling*), *-y/-ie* (*hanky*, *bootie*), or feminine suffixes like *-ette* or *-ess*. The polysemy exhibited by evaluative affixes is certainly interesting in its own right, but evaluative affixes do not generally change the

¹ I rely on Bauer et al. (2013) for determination of productivity.

Table 4.1 *Affixes, bases, and potential readings*

		E		R												
Afx	C ₁	C ₂	event, state	res	ag, exp	inst, means	pat anim	pat –anim	loc	path	meas	col	abst	behv	inhab, blf lang	adhr
-al	V		1	1				2								
-ance	V	BB	1	1		2		2	2	2						
-ment	V	A, N, BB	1	1		2		2	2							
-ure	V	N, BB	1	1				2	2							
-ation	V	A, N, BB	1	1	2	2		2	2	2						
-ing	V		1	1	2	2		2	2							
Convers	V		1	1	2	2		2	2	2	2					
-er	V	N, Adv, Num,			1	1	2	2	2		2					
-ant	V	BB			1	1										2
-ist	N	V, A			1											
-an	N	A ²			1										1	2
-eer	N	V, BB			1											
-meister	V, N	A			1											
-ster	N	V, A			1											
-ee	V	N			2		1	2								
-ery	V, N		2						2			1		2		

² The suffix an attaches to derived adjectives in -ary and -ic, but apparently not to simplex adjectives (Bauer et al. 2013: 224).

-age	V,N		2		2	2	2	1	2		
-ness	A	N							1		
-ity	A	BB, N			2			2	1		
-dom	N	V,A						2	1		
-ship	N	V,A						2	1		
-hood	N	V,A						2	1		
-ite	N									1	1
-ish	N									1	
-ese	N	A								1	
-i	N									1	
-ism	N	BB, A							2		1

Note: C₁ = primary category of base, C₂ = secondary category of base, BB = bound base, res = result, ag = agent, exp = experiencer, inst = instrument, pat = patient, loc = location, meas = measure, col = collective, abst = abstract, behv = behavior, anim = animate, -anim = inanimate, inhab = inhabitant, lang = language, blf = belief, adhr = adherent or follower, 1 = primary or predominant reading, 2 = secondary or occasional reading.

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referential readings of nouns. Since it is the referential and eventive readings that I will generally be concerned with, I set evaluatives aside here. Generally, the affixes I will consider here are the ones discussed in Chapters 10–12 of Bauer et al. (2013).

The list of readings atop the columns in Table 4.1 is not meant to be exhaustive. There are minor readings or sense extensions for individual items derived with particular affixes that will be glossed over here and that likely are the product of lexicalization (for example, according to the *OED* there are apparently a number of nouns in *-age* like *ballastage* or *housage* that denote kinds of taxes, but this reading is rarely found and almost always archaic); the rubrics in Table 4.1 are ones that should be familiar from the literature on syntax and morphology. Of the readings indicated in the columns, the “event, state” column corresponds to what we referred to in Chapter 3 as the E reading. Everything else represents varieties of R or referential readings that nouns may express. So all affixes with E readings also have some (possibly more than one) R reading, but not all R affixes have E readings as well. The column labeled “inanimate patient” is meant to subsume products and things or stuff affected by the verb, as opposed to “animate patients,” by which I mean humans (and maybe higher animals) affected by the verb.³ We will return shortly to the issue of whether “inanimate patient” even constitutes a unitary category, but for now we will treat it as such.

Table 4.2 illustrates the readings available for each affix with an example from the corpus.

Figure 4.1 is an attempt to show schematically the extent of overlap among the readings of the nominalizing affixes. Affixes which express a reading only secondarily or occasionally are rendered in gray; types whose primary role is in expressing a reading are printed in black. The box within the agent/experiencer category shows the agentive affixes with evaluative overtones. Close proximity or contiguity of boxes is intended to suggest the extent to which various readings seem to overlap. So, for example, agent/experiencer readings and instrument readings are often, but not always, expressed by the same primary set of affixes, as are collective and behavior readings, and so on.

Figure 4.1 illustrates that, not surprisingly, the general rubrics under which types of nominalizations have been classified are not fictions, but neither are

³ Note that under the term “product,” I mean to subsume both direct products like *construction* (that is, the thing constructed) and what we might call copy products like *translation* which is not the thing translated, but in a sense a copy of it.

Table 4.2 *Attested readings of affixes*

Affix	Reading	Word	Example in context
-al	event	portrayal	<i>Africa Today 1994</i> : Ezeulu's desire to preserve this concept becomes the core of Achebe's portrayal of duality in Igbo thought.
	result	acquittal	<i>ABA Journal 1995</i> : In January 1992, seven years after Jackson's acquittal , a resident of California's Antelope Valley was digging a drainage ditch in his yard when he unearthed human bones.
	inanim. patient	rental	<i>Stay at home dead 2012</i> : "Yes," I said. "I got Cedric to take us over to get the rental ."
-ance	event	avoidance	<i>Style 2003</i> : Bambara's avoidance of eye dialect gives Sylvia more dignity than the black characters of white authors like Joel Chandler Harris and Mark Twain.
	result	acceptance	<i>The invisible bridge 2010</i> : He thought it might take six months to get his acceptance and student visa.
	instrument	conveyance	<i>The call of the wild 2005</i> : The next he knew, he was dimly aware that his tongue was hurting and that he was being jolted along in some kind of a conveyance .
	inanim. patient	inheritance	<i>Commentary 2012</i> : Sometimes Lenny drifts into thoughts of what he would do if he had a million, or even three-quarters of a million dollars, or whatever his share of the inheritance from his father will turn out to be.
	location	residence	<i>Newsweek 2012</i> : As his session with Newsweek neared conclusion, Dolan moved the conversation into a room toward the rear of the residence , near a back-door passageway leading to St. Patrick's Cathedral.
	path	ascendence	<i>PBS_Newshour 1991</i> : If Mengistu's departure means that the government's prepared to meet many demands of the EPLF and the TPLF, who are now on

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Table 4.2 (cont.)

Affix	Reading	Word	Example in context
-ment	event	appointment	the ascendence militarily, then I think we've got a chance. <i>San Francisco Chronicle 1990</i> : Bennett said there are indications that DeConcini did not exercise an option to block the Reagan administration's appointment of a controversial judge in exchange for the White House naming Keating's choice to the bank board.
	result	impeachment	<i>New York Times 2011</i> : Mr. Blagojevich's impeachment , removal from office and evolution into a punch line on late-night television threatened the Democratic Party's political hold on the state
	instrument	adornment	<i>Callaloo 2006</i> : As an adornment for his new muscles, he wanted an Aztec and an ankh to symbolize his mixed Mexican and black heritage.
	inanim. patient	investment	<i>11th hour 2012</i> : He had kept the Ellsworth compound as an investment while he lived on a yacht at a country club marina a few miles away.
	location	development	<i>Associated Press 2007</i> : The Conroy Development Co. plans call for rubber-tire trolleys, jitneys and buses to provide connections to the Naugatuck stop on the commuter rail line that runs into New York, so that cars won't be necessary for those working, living and shopping in the development .
-ure	event	closure	<i>Archaeology 2009</i> : Archaeologists are sidelined not just by the Israeli-Palestinian conflict, but by a lack of funding, equipment, and expertise resulting from Israel's closure of the Gaza-Israel border crossings and the Israeli-Egyptian blockade of Gaza's Mediterranean coast.

Table 4.2 (cont.)

Affix	Reading	Word	Example in context
	result	exposure	<i>Fantasy & Science Fiction 2009</i> : A different day, and you and your brother both would have died of exposure .
	inanim. patient	sculpture	<i>CBS_ThisMorning 2012</i> : I came rushing in and I saw the sculpture totally destroyed and in pieces on the – on the floor.
	location	enclosure	<i>Alpha 2012</i> : They stop outside the enclosure to the Clip Flashman show in Terra Space, where it's paired with a tower ride done up as a 1950s rocket ship, the Star System Alliance Defense.
-ation	event	invasion	<i>Washington Monthly 2004</i> : The administration's invasion of Iraq seems to have given bin Laden a historic gift.
	result	assassination	<i>PBS_NewsHour 2009</i> : Syrian agents are suspected in the assassination .
	agent	administration	<i>Associated Press 2012</i> : The administration denied speculation that the sessions were moved for security reasons.
	instrument	decoration	<i>Country Living 2007</i> : Rather than being painted by hand, the decoration was likely a decal outlined with hand coloring.
	inanim. patient	acquisition	<i>Inc. 1996</i> : So Smith is shopping for an acquisition .
	location	exhibition	<i>Magazine Antiques 2000</i> : This too is now in the Victoria and Albert Museum, which also owns a tazza by Deck entitled La Belle Marguerite bought at the exhibition .
	path	continuation	<i>Adolescence 2005</i> : Figure 2 shows the results for the female adolescents, and again we use the frequency of delinquency in late adolescence to study the continuation of the different trajectories.
-ing	event	handling	<i>San Francisco Chronicle 2004</i> : Lacampagne, however, says she's

Table 4.2 (cont.)

Affix	Reading	Word	Example in context
	result	understanding	profoundly disturbed by the archdiocese's handling of her case. <i>U.S. Catholic 2010</i> : She's come to her understanding – or acknowledgment of her lack of understanding – of God over a lifetime of religious experiences.
	agent	following	<i>San Francisco Chronicle 2000</i> : Her following is small but loyal.
	instrument	kindling	<i>Field & Stream 2011</i> : Break off a piece and save the rest, light with a match or lighter, add kindling , and voila, instant heat.
	inanim. patient	washing	<i>The dubious salvation of Jack V 2011</i> : Take the washing off the line.
	location	dwelling	<i>Fantasy & Science Fiction 2012</i> : As a dwelling it was pretty basic, but as a hideout, Brown thought, you couldn't ask for anything better.
conversion	event	climb	<i>Denver Post 2003</i> : Last year, just before the 50th anniversary of Sir Edmund Hillary's climb of Mount Everest, the Sherpas wanted to put up an Internet cafe at 18,500 feet, base camp on Everest.
	result	surrender	<i>MHQ: The Quarterly Journal of Military History 2012</i> : As I was looking over my prize I saw a white flag go up at the kraal and another from the farmhouse, so I hastened to be present at the surrender .
	agent	flirt	<i>The Virginia Quarterly Review 2011</i> : He refused to change his bachelor ways: he was still a flirt and a heavy drinker.
	instrument	wrap	<i>Motor Boating 2011</i> : Nusser says a wrap of blue painter's tape covered with a ring of Vaseline around dock lines and shore cords repels most unwanted boarders.
	inanim. patient	nosh	<i>Motor Boating 2010</i> : There's something about being able to pull right up to the

Table 4.2 (cont.)

Affix	Reading	Word	Example in context
	location	dump	dock and enjoy a nosh of comfort food – and possibly a libation – while taking in the waterfront scene.
			<i>The Kenyon Review</i> 2012: Even the smell from the barn – because of the cost of gasoline, I drive to the dump every two weeks – no longer tempts him down those stairs alone.
	path	decline	<i>American Journal of Public Health</i> 2012: However, the slope of the decline was similar in the 2 groups, as evidenced by the largely parallel curves.
	measure	pinch	<i>Harper's Bazaar</i> 2012: Before bed, skip the tea and instead have a thermogenic brew made with the juice of one lemon, hot water, a tablespoon of chopped, potassium-rich parsley, and a pinch of cayenne.
	-er	shooter	<i>CBS_ThisMorning</i> 2012: We have an active shooter at the high school.
		shooter	<i>Outdoor Life</i> 2010: The end result was a rifle that's uniquely mine. It's a shooter , too.
		shooter	<i>Outdoor Life</i> 2005: I didn't have to think twice about this bear. It was a shooter .
		loaner	<i>Chicago Sun Times</i> 2000: Dean was in the shower, but he agreed to meet us at the dealership to get us a loaner .
		diner	<i>CNN_Burnett</i> 2012: Powell left the diner with the kids before they even ate.
		20-pounder	<i>CBS_Early</i> 2008: All right, let's say it was a bigger turkey, let's say you had a 20-pounder , just kind of go with . . .
		New Yorker	<i>Commentary</i> 2012: Now 53, he considers himself a naturalized New Yorker .
	-ant	accountant	<i>Chicago Sun-Times</i> 2007: The accountant should be willing to give you some time (at no charge) to discuss and assess your situation.
		relaxant	<i>San Francisco Chronicle</i> 2007: A glass of wine is a relaxant , "said Madras,

68 *Nominalizations as a Derivational Ecosystem*Table 4.2 (*cont.*)

Affix	Reading	Word	Example in context
-ist	agent	bigamist	who is on leave as a professor of psychiatry at Harvard University.” <i>Ploughshares 2001</i> : Edwin would have preferred to be a bigamist , not a deceiver.
	adherent	Buddhist	<i>The fourth wall 2012</i> : Over the years he’s been a Buddhist and a Catholic and a kabbalist and a pothead.
-an	agent	contrarian	<i>Commentary 2011</i> : Nor should you have to be a great intellectual contrarian to ask: Why is it that these programs that we are told will help blacks in fact hurt them?
	adherent	Marxian	<i>Southwest Review 2005</i> : See, these are the clothes of any self-respecting Marxian .
	inhabitant	Bolivian	<i>Anthropological Quarterly 2006</i> : Of course, I was not the “real” foreigner the Japanese expected – not a Bolivian .
-eer ⁴	agent	budgeteer	<i>CBS_FaceNation 1995</i> : Well, I’m going to leave that question to my friend John Kasich who’s the budgeteer because he looks at the overall numbers.
-meister	agent	trashmeister	<i>Ploughshares 1997</i> : On any other show, this would have made a grand season finale, but Phil was a trashmeister of the first degree, and he and his team whipped this trap up on a weekly basis.
-ster	agent	fraudster	<i>CBS_SunMorning 2011</i> : He even handled the auction of financial fraudster Bernie Madoff’s yachts.
-ee	agent	returnee	<i>America 2008</i> : I feared the story of another returnee to Rome who

⁴ As Bauer et al. (2013) point out, -eer, -meister, and -ster express agentivity with added evaluative nuances.

Table 4.2 (cont.)

Affix	Reading	Word	Example in context
			immediately begins railing for the exclusion of others, forgetting his/her own long journey and misgivings on the way back to the church.
	anim. patient	snubbee	<i>Today's Parent</i> 2000: Whether your child is the snubber or the “ snubbee ,” your discreet guidance now is going to go a long way toward laying the ground-work for the turbulent teens.
	inanim. patient	climbee	<i>Horticulture</i> 1991: When a host shrub is not furnished with branches to the ground, or when the chosen tree branch is out of easy reach, the gap between the climber and the climbee must be artificially but unobtrusively bridged.
-ery	collective	jewelry	<i>E The Environmental Magazine</i> 2012: MaHarry never studied jewelry design, even though it had been her passion since childhood, when she used to fashion jewelry out of found items like rusty bottle caps and feathers.
	event	bribery	<i>American Heritage</i> 1990: We may lack the decisiveness and cohesion to make effective limited war on cruel and cold-blooded forces; the Reagan administration's bribery of and fawning upon some of its Middle Eastern adversaries (Iran, Syria, and Iraq all had a turn) are a particularly discouraging memory.
	location	fast foodery	<i>The Crow</i> 1994: MICKEY is the grease-aproned entrepreneur of MAXI DOGS, a steamy open-front fast foodery .
	behavior	clownery	<i>San Francisco Chronicle</i> 1999: Robin Williams is perfectly cast in this story based on a real doctor who uses clownery to reach out to patients.
-age	event	concubinage	<i>Theological Studies</i> 2008: Among the consummationists, for instance, a

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Table 4.2 (cont.)

Affix	Reading	Word	Example in context
			serious problem proved to be how to distinguish marriage from concubinage , which was lawful in Roman jurisprudence and had been tolerated in the church for centuries.
	inanim. patient	package	<i>Immortal Hope 2012</i> : She dropped the package into her purse.
	location	orphanage	<i>CNN Newsroom 2012</i> : When he was six months old, he was put in an orphanage in Hawaii but he never knew why.
	measure	acreage	<i>Smithsonian 2012</i> : In Peru alone, while no one knows for certain the total acreage that has been ravaged, at least 64,000 acres -possibly much more- have been razed.
	collective	signage	<i>New York Times 2012</i> : Pfizer slogans and signage still line the walls.
	behavior	vagabondage	<i>Hispanic Review 2002</i> : When Don Quijote's neighbors reprehend this vagabondage , insisting that each and everyone occupy the place and role that is his by the common accord of tradition, Don Quijote responds negatively, asserting instead the force of his will, and the right that he believes is his and his alone to determine the course of his own existence.
-ness	abstract	happiness	<i>Bicycling 2012</i> : I felt that particular, simple type of happiness cyclists experience when they are suddenly aware they are lucky enough to be able to ride.
-ity	abstract	purity	<i>Redbook 2012</i> : It's clean, it's crisp, and, sure, it's the universal color of purity .
	collective	humanity	<i>The Christian Century 2012</i> : He cries and weeps and prays for us, for all humanity .
-dom	abstract	geekdom	<i>Southwest Review 2007</i> : The role filled a need for me: it lent style to what otherwise was the absence of style,

Table 4.2 (cont.)

Affix	Reading	Word	Example in context
	collective	bullydom	cool to what otherwise was sheer geekdom . <i>U.S. Catholic</i> 2005: Unlike most bully films, Mean Creek isn't a formulaic revenge-fest in which the downtrodden victims of bullydom rise up to crush their tormentor.
-ship	abstract	guruship	<i>Atlanta Journal Constitution</i> 1993: Still, a busy life and impending guruship do have a downside.
	collective	membership	<i>Denver Post</i> 2012: The membership includes everyone from middle-aged women who summit Himalayan peaks to young dads looking for quick day-hikes in the foothills.
-hood	abstract	studenthood	<i>American Scholar</i> 2004: Compare, for a cultural reality check, the Hindu concept of studenthood as a stage of acquiring knowledge and discipline.
	collective	brotherhood	<i>ABC</i> 20/20 2012: He's also a member of the brotherhood who give away their sperm rather than earn thousands of dollars selling it to sperm banks.
-ite	inhabitant	Manhattanite	<i>San Francisco Chronicle</i> 2011: Now a Manhattanite , Maroulis is an avid Yankee fan although he enjoyed watching the Giants win the World Series and can probably rattle off the name of every player on the roster right now.
	adherent	Trotskyite	<i>Succes d'Estime</i> 2002: The gentleman turned out to be a Trotskyite , and our dinner conversation took on a surprising character.
-ish	inhabitant	Irish	<i>Skiing</i> 2006: Yet Flake – who's quite fond of gorging on raclette (a plateful of molten cheese) – would argue the Swiss do spuds and fromage as well as even the Irish .
-ese	inhabitant	Japanese	<i>USA Today</i> 2012: After almost a month, he was discovered by natives, who

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Table 4.2 (cont.)

Affix	Reading	Word	Example in context
-i	inhabitant	Israeli	tended his wounds and, rather than have their village destroyed, gave him to the Japanese .
			<i>Time</i> 2006: I was disappointed to learn that Spielberg considered the heart of his movie to be a fictionalized incident in which a Palestinian terrorist engages in a civil discussion with an Israeli .
-ism	behavior	barbarianism	<i>Scandinavian Review</i> 2002: Here come to Rome was the incarnation of the man who had as a merchant escaped from Constantinople and traveled to the land of the caliph while Europe lay in the grip of barbarianism ...
	belief	atheism	<i>U.S. Catholic</i> 2011: I've spoken to a Chinese physicist who converted from atheism to Christianity because ice floats.

there firm boundaries between them. The general rubrics we discern are the familiar ones: E/R nominalizations, personal and participant nominalizations, collective nominalizations, abstract nominalizations, and inhabitant/language nominalizations. But within each of these general rubrics just about every morphological type encroaches beyond the boundaries of its cohort. There are clusters of morphological types that share one or two primary readings but may differ from one another in small ways. For example, while most of the agent/experiencer-forming affixes also produce instrument nouns, the suffix *-ist* seems not to. Most of the abstract-forming affixes also have secondary uses as collectives, but *-ness* does not. Lots of affixes produce location nouns or inanimate patient nouns, but there are no affixes whose primary function is to produce nouns of these sorts. What emerges is that we almost never find one-to-one relationships between affixes and readings. Most nominalizing affixes are polysemous to some extent, but some are not as polysemous as others; for example, the three affixes *-ite*, *-ish*, and *-i* seem not to go beyond the inhabitant/language reading. There is one reading, namely “system of belief” that is expressed by only one affix, namely *-ism*, but *-ism* itself is polysemous, also

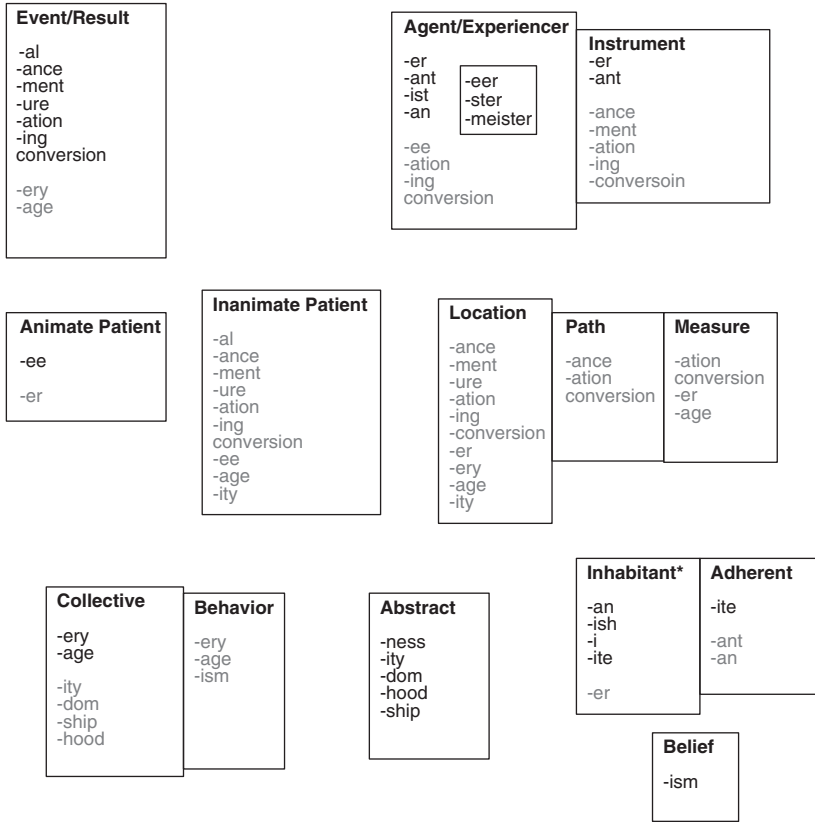


Figure 4.1 Habitats and their occupants

* Among the Inhabitant affixes, -an, -ish, and -i also form names for the corresponding languages.

forming nouns with “behavior” readings (for example, *absenteeism* or *barbarianism*). As Bauer et al. (2013) point out, nouns in *-ism* can also refer to modes of language (*colloquialism*) or types of disease (*alcoholism*). So *-ism*, while being the sole occupant of the “system of belief” niche, also occupies other habitats as well. What emerges strongly from the data in Tables 4.1 and 4.2 is that the many-to-many relationship between morphological forms and readings is very much the norm.

Returning to the data in Table 4.2, another observation that we might make is that within each word formation type, there are individual lexical

items that may be more malleable than others. For example, the word *brotherhood* is probably more often construed as a collective than other random nouns in *-hood* (*guruhood*, *childhood*). The word *loaner* is certainly more often construed as an inanimate patient than other random nouns in *-er*. But this is not to say that other nouns in *-hood* couldn't be construed as collectives or other nouns in *-er* as inanimate patients given the right context. The three examples of the word *shooter* in Table 4.2 show this nicely: although our expectation of the word *shooter* when it is taken out of context is that it would be read as an agent, it can just as easily be read as an instrument (a type of gun) or a patient (something which is destined to be shot), given the appropriate context. We might view the tendency of individual words within a morphological type to gravitate toward particular readings as a matter of lexicalization or institutionalization.

Before I go on to look at inanimate patient nouns in more detail, there is one digression that I need to make. Specifically, although I illustrate a wide variety of readings for *-er* nominalizations, among them I do not include an eventive reading. This requires some explanation, as it has been claimed in Rappaport Hovav and Levin (1992) that *-er* nominals do display a distinction between eventive and non-eventive readings. The eventive reading, they say, arises when the *-er* nominalization occurs syntactically with a complement, as in (1):

- (1) a. a teacher of history
 b. a history teacher

According to Rappaport Hovav and Levin, the phrase in (1a) is obligatorily read as implying an actual event of teaching: one cannot be called a *teacher of history* if one has never taught history, but one can be called a *history teacher*, that is, someone who has trained as a teacher of history but does not actually work as a history teacher. However, as Alexiadou and Schäfer (2010) have argued, it is not at all clear that the distinction being evoked here is between an eventive and a non-eventive reading. As Rappaport Hovav and Levin (1992: 137–138) themselves point out, the *-er* nominal and its complement can be modified by temporal adverbs like *frequent*, but cannot take other modifiers that are diagnostic of eventivity, as *ATK*, *-ing*, and conversion nominalizations can.⁵ Alexiadou and Schäfer (2010) argue that the distinction between (1a)

⁵ Recall that we have shown in Chapter 3 that simplex nouns with an eventive flavor can be modified by temporal adverbs as well.

and (1b) should better be seen as distinction between a dispositional reading, which we get with the compound in (1b), and what they call an episodic reading, which we find when the *-er* nominalization occurs with a complement, as in (1a). The dispositional reading, also referred to as one of dynamic modality (Cohen 2014), expresses essential qualities of the referent or something that the referent is intended to do.

I believe that Alexiadou and Schäfer are correct in saying that the distinction in question has nothing to do with eventivity. But I disagree with them that the distinction between dispositional and non-dispositional readings correlates consistently with the syntactic structure in which the *-er* nominalization is found. We will look in detail at the interpretation of nominalizations in synthetic compounds in Chapter 8, but it seems clear to me that synthetic compounds with *-er* nominalizations as heads do not inevitably receive the dispositional reading. As the examples in (2) show, neither (2a) nor (2b) seems likely to receive a dispositional/dynamic reading, as being a murderer is not something that cannot be predicated of an individual who has not actually (or allegedly) committed a murder:

- (2) a. a murderer of children
- b. a child murderer

And further, although the dispositional reading seems less likely with a phrasal complement than with the compound, it does not seem impossible, as the example in (3) suggests:

- (3) *San Francisco Chronicle* 2006: Just inside the door at Calmart, Calistoga's one and only supermarket and deli since Palisades Market closed last year, sits **a dispenser of sanitizing towels**, so customers can wipe off shopping cart handles and child seats.

Both Rappaport Hovav and Levin (1992) and Alexiadou and Schäfer (2010) claim that instrumental *-er* nominals never have the non-dispositional reading, and that indeed they cannot take complements. But examples like the one in (3) suggest that this is not the case. Like instrumental *-er* nominals in general, the instrument *dispenser* requires the dispositional reading, but it does occur with a complement. My conclusion is that there is a tendency toward a correlation between the dispositional reading in the synthetic compound structure and a non-dispositional reading with the *of*-phrase complement, but that the correlation is not a hard and fast one. We will return later in this chapter to the dispositional reading of *-er* nominalizations, and we will revisit the interpretation of *-er* nominals in synthetic compounds in Chapter 8.

4.3 *Inanimate Patient Nouns*

In this section, I will focus on a particular semantic habitat. Specifically, I will explore the way that speakers of English form inanimate patient nouns, that is, nouns that are interpreted in context as meaning roughly “that which is verb-ed.” I will first look in [Section 4.3.1](#) at the range of morphological types which secondarily or occasionally derive nouns of this sort. In [Section 4.3.2](#), I will argue further that although there is no overt morphological type whose primary role is to derive nouns of this type, English may be in the process of evolving one. Specifically, I will try to establish that *-ables* (*burnables*, *affordables*) is such a suffix, and I will try to show how it fits semantically into the complex picture I have painted in [Section 4.2](#).

Before I discuss inanimate patient nouns in detail, however, it is worth exploring briefly in what sense there is even a coherent class of “inanimate patient nouns.” Looking at affixes or morphological types from a syntactic point of view, patient nouns are those that make reference to the object or internal argument of the base verb. As is well known, in English these split between the suffix *-ee*, which, as argued by Barker (1998) mostly forms animate patient nouns, and a ragbag of other affixes that form inanimate patient nouns.⁶ Semantic nuances of *-ee* nouns have been well studied, but those of inanimate patient nouns have been largely neglected.⁷

In fact, in lexical semantic terms the derived inanimate patient nouns actually have a variety of different readings. To begin with, looked at from a lexical semantic perspective inanimate patient nouns, as Melloni (2011, chapter 3) has pointed out, can make reference to the internal argument of the verb in a number of different ways. For example, some clearly denote products in the sense of an entity that comes about as a result of the action of the verb. A *construction* in the product sense is the thing constructed – that is, it directly denotes the internal object of the verb *construct*. The noun *filling*, however, does not directly denote the internal object of the verb *fill*, but rather refers to the stuff with which that internal argument is filled; it forms, in effect, part of the thing denoted by that internal argument. Nor does a *translation* or a *copy* directly denote the internal argument of the base verb; a *translation* or *copy* is not the thing translated or copied, but rather an entity

⁶ It has, of course, been pointed out that there are a number of forms in *-ee* that denote inanimates, especially technical terms like *governee* or *raisee* coined by linguists (Barker 1998: 710).

⁷ The notable exception here is Melloni (2007, 2011).

apart from the thing translated or copied, in some sense a doubling of those things. In other words, while all inanimate patient nouns make some reference to the internal argument of the verb, they can make reference to that argument in different ways, either directly by denoting that argument or indirectly by having some relationship with that argument that follows from the semantics of their base verbs.

My preliminary conclusion then is that in a syntactic sense, we can regard inanimate patient nouns as a coherent category, but we must acknowledge that their ultimate readings may be quite diverse. In the course of this chapter, I will try to argue that there are other ways in which inanimate patient nouns must be distinguished as well, beyond those that Melloni discusses.

4.3.1 Secondary Types

Table 4.2 offers several examples of inanimate patient nouns derived with conversion as well as with a variety of affixes: *nosh*, *rental*, *inheritance*, *investment*, *sculpture*, *acquisition*, *washing*, *loaner*, *climbee*, *package*. This short list gives some idea of the range of morphological types that can express some variety of an inanimate patient reading. But it does not fully reveal their complex ecology. For one thing, it turns out not to be complete: there are a few other ways of forming inanimate patient nouns in English. Second, it does not reveal the relative frequency or ease with which particular morphological types are used with this reading. And finally as I alluded to above, it presupposes that all inanimate patient nouns are roughly equivalent in meaning, something which is not in fact the case. What I will try to show in this section is that there is no predominant derivational means in English for creating inanimate patient nouns, although some morphological types are more prone than others to give rise to them. Rather there are a number of ways in which a noun can be formed that makes reference to the internal argument of the verb when it is inanimate and that there are a number of aspectual and modal nuances that can be expressed by such nouns that have not hitherto been carefully examined.

In Table 4.3, I give a fuller set of data, with all the affixes from Table 4.1 that can express the inanimate patient reading.⁸

For some morphological types, namely *-ation*, *-ing*, and conversion, there are many more exemplars than I have listed in Table 4.3. For others, the

⁸ The careful reader will note that I have left the affixes *-er* and *-ee* out of this table. This is deliberate, and we will return to inanimate patient nouns of these morphological types below.

Table 4.3 *Affixes with inanimate patient readings*

<i>-ation</i>	<i>-ment</i>	<i>-al</i>	<i>-ance</i>	<i>-ure</i>	<i>-ing</i>	conversion N
accumulation	agreement	proposal	allowance	enclosure	babbling	babble
acquisition	allotment	rental	coalescence	erasure	baking	boast
addition	announcement	withdrawal	entrance	mixture	blathering	brag
adhesion	arrangement		inheritance	sculpture	boasting	brew
admission	assignment		occurrence	seizure	borrowing	buy
adoption	attachment		performance	conjecture	building	catch
agglomeration	development		preference	forfeiture	canning	chant
aggregation	disbursement		reference		carving	chew
allocation	enactment		remembrance		casting	claim
appropriation	endowment		remittance		clearing	cull
assertion	enlargement				clipping	dip
assumption	establishment				cooking	display
calcification	improvement				drawing	drink
collation	investment				drooling	empty
collection	pavement				dusting	exhibit
combination	payment				engraving	fancy
compilation	pronouncement				etching	float
composition	reimbursement				feeling	grant
concoction	settlement				filing	haul
condensation	statement				gathering	isolate
confederation					hanging	like
confession					ironing	loan
construction					kindling	love
creation					knitting	melt
declaration					mailing	mix

examples listed are the only ones I have found, although I cannot claim that my list is in any way exhaustive.

The first thing that is clear from the Table 4.3 is that any morphological type that creates E/R nominalizations can be recruited to express an inanimate patient noun, but the likeliest morphological types to be recruited are the ones that are overall the most productive. Bauer et al. (2013) find only a small degree of productivity in affixes like *-ment*, *-ance*, *-al*, and *-ure*, but a higher degree in *-ation*, *-ing*, and conversion nouns; consequently, we find these more often expressing the inanimate patient reading than the less productive members of their cohort. There is nothing surprising in this finding; it's exactly as we would expect. The second thing that is clear is that which morphological type is recruited for any given verb depends to some extent on the etymological origins of the verb. Specifically, *-ation* forms are largely confined to non-native bases. Inanimate patient nouns based on native verbs are therefore concentrated in the *-ing* and conversion categories, although non-native verbs can also occur as *-ing* or conversion forms.

It is also interesting that in addition to the morphological types illustrated in Table 4.3, there are other morphological types that express the inanimate patient noun reading but that are not usually recognized as distinct types. Consider the forms in Table 4.4:

With nouns in *-ive(s)*, the inanimate patient reading is typically available in either the singular or the plural, whereas for *-ables*, as we will see below, the inanimate patient reading is peculiar to the plural.⁹ What makes these somewhat surprising is that *-ive* and *-able* are affixes that typically derive adjectives rather than nouns. We will therefore look more carefully at them in the next section.

4.3.2 Nouns in *-ables* and *-ives*

As Bauer et al. (2013: 549–551) point out, it is not unusual in English for adjectives, both simple and complex, to occur in contexts where we would expect to find nouns. They distinguish two cases, one in which the only possible determiner is *the* and the other in which the choice of determiner is free. Some of their examples from BNC are given in (4):

⁹ There are arguably two other cases where a plural noun expresses an inanimate patient reading where the corresponding singular noun typically does not. For example, nouns in *-ings* like *savings* or *winnings* are typically construed as inanimate patients as are conversion nouns like *remains* or *sprinkles*.

Table 4.4 *Forms in -ives and -ables*

<i>-ive (s)</i>	<i>-ables</i>
additive(s)	acceptables
derivative(s)	actionables
elective(s)	adaptables
explosive(s)	adjustables
initiative(s)	adorables
narrative(s)	affordables
	allowables
	billables
	biodegradables
	breakables
	breathables
	burnables
	buyables
	changeables
	charitables
	cherishables
	chewables
	clickables
	collectables
	compostables
	consumables
	degradables
	deliverables
	disposables
	drinkables

- (4)
- a. deadjectival nouns always preceded by *the*
Ring of Fire 1988: Neither **the demonic** nor **the angelic** is suppressed.
Today 1985–1994: Now, however, **the outrageous** is expected.
Daily Mirror 1993: only **the strong** survive.
 - b. deadjectival nouns preceded by any determiner
the/a round, the/an Australian, the/a bilingual, the/a daily, the/an executive

Bauer et al. (2013: 549) suggest that examples like those in (4a) are not cases in which derived adjectives have become nouns, but rather cases of adjectives in noun phrases from which the noun has been elided – that is, we do not seem to find examples such as *This is an angelic* or *Some angelics arrived*, which we would expect if *angelic* were a noun as well as an

adjective. They will therefore not be of relevance here, as they don't count as bona fide nominalizations. The examples in (4b) do seem fully nominal, however, as they occur with any determiner, and in either the singular or the plural (*three rounds, several Australians, a few executives*, etc.). Bauer et al. assume these to be the result of adjective-to-noun conversion, which in this guise seems equally amenable to simplex adjectives (*round*) or complex ones (*Australian, bilingual, comic, daily, executive*). Interestingly, Bauer et al. point out that there is a third category as well – that is, there are cases of plural nouns that correspond to adjectives, but for which singular forms seem not to occur. For simplexes, there are a few lexicalized examples, like *news* or *greens* (i.e., leafy vegetables), but for complex adjectives there is one case that is especially interesting for our purposes, namely nouns in *-ables*, some of which are given in the final column of Table 4.3. (5) gives several examples in context:

- (5) *Fortune* 1993: The “great **affordables**” package advertised by a marketing group called Leading Hotels of the World includes a host of frills like free champagne and breakfast, and a price break at many hotels, including Claridge’s and the Savoy in London and the Hotel de Crillon in Paris.

Analog Science Fiction & Fact 2004: If the door had a lock, and if the lock held, they could hide here as long as their **breathables** held up.

E: the Environmental Magazine 2008: Discarded food, utensils, cups, clam-shell containers and other **compostables** are fed through a new on-site food pulper to remove water and dramatically shrink the volume.

These items are definitely nouns, as their ability to occur in the plural suggests, but they do not seem to be simple cases of conversion like those in (2b).

My argument here is based on a careful examination of data from COCA, comparing the distribution of forms in *-ables* to forms in *-ives* (e.g., *sedatives, executives, causatives*). If nouns in *-ables* were simply the plurals of conversion nouns in *-able*, we might expect to find them in the singular as well as in the plural, and with both definite and indefinite determiners, in other words, in a full range of nominal environments. This is not, however, what we find. Of over two hundred nouns in *-ables* that I was able to find in COCA (N = 205), only 20 occurred as singular nouns with both definite and the indefinite articles.¹⁰ More than half of the *-ables* nouns did not occur in

¹⁰ In order to make reasonably accurate counts, I used the following procedure. I gathered nouns in *-ables* by searching for **ables* in COCA and followed usual data-cleaning procedures. In this case, I made the decision to eliminate items in *-ables* that were brand names (e.g., *Lunchables*) or other proper nouns on the logic that they would be unlikely to appear in the singular in any

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the singular at all ($N = 115$). The remaining ones did occur in the singular, but interestingly, only 10 of them occurred with the indefinite article. And those singular forms that occurred with only the definite article frequently did not have the same interpretation as the plural form, but rather looked more like cases of the sort of elision illustrated in (4a).¹¹

As a point of comparison, the number of nouns in *-ives* that I was able to find in COCA is roughly comparable to that of nouns in *-ables* ($N = 191$). Almost half of these are grammatical terms (*ablatives*, *accusatives*, *demonstratives*), terms for drugs or chemicals (*contraceptives*, *fixatives*), or high-frequency and item familiar forms (*executives*, *collectives*, *conservatives*, *narratives*, *objectives*) that are also item familiar in the singular. Interestingly, roughly half of the *-ives* forms are also found in the singular with both the definite and indefinite determiners (96/191), as compared to *-ables*, where only 20 of 205 occurred in the singular with both determiners. Only 47 of the 191 *-ives* forms do not occur in the singular at all. In other words, it seems that items in *-ives* have more of the profile that we would expect of nouns that are formed from adjectives by conversion, whereas nouns in *-ables* look rather different.

Something else suggests that *-ables* nouns are not simple cases of conversion from adjectives, namely their high productivity as compared to nouns in *-ive* or *-ives*. If both forms in *-ives* and forms in *-ables* were formed by the same means (that is, by conversion), we would expect them to be of roughly equal productivity. Using the Corpus of Historical American English (COHA), I calculated P, Baayen's measure of productivity (Baayen 1989, Baayen & Lieber 1991), decade by decade from 1840 through 2000 for both *-ables* and *-ives*.¹² P is a ratio of the number of hapaxes (items that occur only once in a corpus) for a given morphological type to the total number of tokens exhibited for that morphological type. Figure 4.2 shows the results of this comparison:

If nouns in *-ables* and *-ives* were all cases of adjectives undergoing conversion to nouns (that is, outputs of the same process), we would expect

case. I included items with prefixes (*untouchables*, *semi-unwrinkleables*). For each of the 205 remaining items I did a string search for *the Xable* and *a/an Xable*, hand-checking hits to see if the *Xable* form was in the syntactic context of a noun. If there were more than 300 hits for a given search, I hand-checked only the first 300 hits.

¹¹ Consider, for example, the plural form *desirables*, which in context is interpreted as “things that are desirable,” as opposed to the singular *desirable* in the following: *ReVision 1990*: It is what anthropologist Victor Turner (1967) has called “transforming the obligatory into the desirable.”

¹² In order to do this, I extracted all forms in *-ables* and *-ives* from COHA, looked at the overall number of tokens per decade, and how many of the hapaxes occurred in that decade.

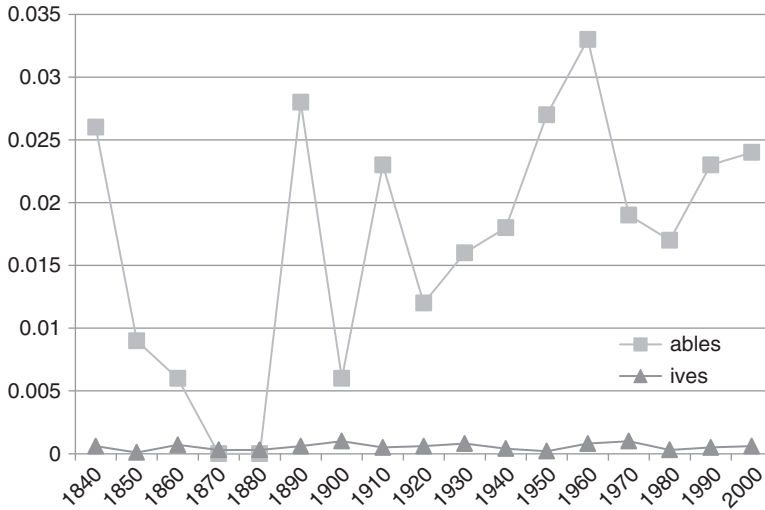


Figure 4.2 *P* for -ables and -ives

that their productivity profiles would be rather similar; in other words, we would not expect conversion to affect adjectives in *-able* differently than adjectives in *-ive*. However, Figure 4.2 suggests that this is not what we find. Rather it shows that *-ables* and *-ives* have different historical trajectories. Whereas items in *-ives* have remained relatively stable over the last 150 years, exhibiting a large number of high-frequency items and a rather modest number of hapaxes, *-ables* exhibits a generally higher value of *P*, which in turn reflects a larger number of hapaxes and a lower number of high-frequency items. Note that although COHA covers the period of 1810 through 2000, Figure 4.1 gives figures only from 1840 on; the reason for this is that there are very few attestations of *-ables* forms up until 1840. For example, in the decade from 1810–1820, there are only 4 types and 4 tokens for forms in *-ables*, compared to 16 types and 398 tokens for forms in *-ives*. Interestingly, even with so few forms, *-ables* exhibits one hapax and *-ives* exhibits none.

What the comparison between nouns in *-ables* and nouns in *-ives* suggests is that nouns in *-ables* are not items derived from adjectives via conversion and then pluralized. Rather, I suggest that *-ables* seems to have become (or at least to be on the road to becoming) a nominalizing affix in its own right in contemporary English. As such, it is no longer analyzable into *-able* plus a

plural *-s*. And although I do not have the means to show this unequivocally, I suspect as well that this development is a relatively recent one. My evidence for this claim is that the majority of forms that occur in COCA (138/205) do not have entries in the OED, and of the 68 *-ables* words that do appear in OED entries, 52 of them are first attested in the eighteenth century or later. There are very few examples of forms in *-ables* that appear before the eighteenth century. The earliest from the fifteenth century are probably borrowings from Anglo-Norman French (*culpables*, *moveables*, *notables*). Interestingly, several of the items that occur in the OED are marked with designations like “chiefly U.S.” or “orig. U.S.,” suggesting the possibility that the pattern may be one that is stronger in North American English than in British English.

The last point I need to make in this section concerns the coherence of the semantic territory that this possible new suffix *-ables* occupies. Not surprisingly, the semantics of *-ables* is largely predictable from the semantics of its original component parts, adjective-forming *-able* and the nominal plural inflection. Like adjective-forming *-able*, *-ables* references the object/internal argument of the base verb – that is, it is paraphrasable as “things or stuff that can be verb-ed.” The modal reading of the suffix is similar to that of the modal *can*, which allows epistemic (possibility), deontic (permission), or dynamic (disposition toward) overtones depending on the syntactic context in which it is found.¹³ In some cases, both the modal *can* and the modal affix seem to have a stronger force, verging on a reading of necessity or obligation. For example, the form *burnables* can certainly be construed as “stuff that can be burned,” but more frequently it refers to “stuff that must be burned.”¹⁴ From the plural *-s* we get a consistently collective reading. The main variation that we find in individual items in *-ables* is the animacy of their referent. While the vast majority have the inanimate patient reading, there are some whose verbal bases predispose them to animate referents, for example, *employables*, *electables*, or *hypnotizables*, where the base verb requires an animate (human) patient.

In contrast, if *-ive* is not a nominalizing suffix in its own right, but rather forms in *-ive(s)* are formed by conversion, we would expect that the semantic profile would be rather different. Like adjective-forming *-ive*, the vast majority of *-ive* nouns are subject-referencing; so, for example, *abrasives* are (roughly) things which abrade, and *detectives* are people who detect. But not all *-ive*

¹³ My use of the terminology is based on that of Huddleston and Pullum (2002: 178–184).

¹⁴ See Bauer et al. (2013: 308) for a similar observation regarding adjective-forming *-able*.

nouns are subject-referencing (or exclusively subject-referencing), as the object-referencing examples in Table 4.4 suggest; forms like *narrative* (things which are narrated) and *initiative* (things which are initiated) can be object-referencing.¹⁵ And a reasonable portion of these nouns are highly lexicalized, among them all the grammatical terms and terms for substances.

What is the upshot of this? I propose here that nouns in *-ables* are no longer formed as a result of conversion from adjectives, although they may have started out that way, but rather that *-ables* has evolved, or is in the process of evolving into an independent collective, object-referencing modal affix whose primary semantic territory is that of inanimate patient nouns. The relatively recent appearance of this new affix (if indeed that is what it is) suggests that it is possible that morphological types can arise to fill a void.

4.3.3 The Semantics of Inanimate Patient Nouns

We now turn to the semantic properties of words in *-ables* to see where this affix fits relative to other nominalizing affixes. I will try to show that inanimate patient nouns display modal and aspectual nuances that have hitherto not been clearly recognized. What this suggests is that although English does not generally provide us with established primary affixes for expressing the inanimate patient reading, speakers of English do not extend other nominalizers at random but call upon one or another nominalizing affix (or morphological type) depending on the modal or aspectual nuance they need to express. My approach here might be seen as onomasiological in nature, in the sense that I am looking at nominalizations more from the point of view of the readings that speakers need to express, as opposed to the forms that express them (Štekauer 1998). One way of probing the modal and aspectual nuances of inanimate patient nouns is to look at sets of derivational doublets –that is, cases where different nominalizing affixes have attached to the same base, with both members of the doublet expressing an inanimate patient reading.

Let us start with doublets of *-ing* nominalizations and conversion Ns. There seem to be only very rare cases where we have *-ing* and conversion nouns doublets that can share the inanimate patient reading, and in these cases there does not seem to be a substantial difference in reading in those pairs. In other words, where we find attested pairs like *wash* and *washing*, *print* and *printing*,

¹⁵ *Narrative* can also be subject referencing, as the following COCA example suggests: *Critical Matrix 1994*: This theory explains why the **narrative** tells its audience that any woman who claims to be really valuable, like Custance, must behave as a passive commodity rather than an active producer and distribute of merchandise.

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both convey the reading “stuff that is being or has been washed,” “stuff that is or has been printed.”

- (6) *A Heart Most Worthy 2011*: That night, she knew she would have to coax Stefano to do his english lessons and try to persuade Theresa to help her pull in **the wash**.

India Currents 2007: She is at the well wringing the water out of **the washing**, or bent over the mud hearth blowing into the fire, and serving me buttermilk pancakes with liquid jaggery.

- (7) *Newsweek 2005*: Joking about his Council on Foreign Relations speech, Bush suggested to his speechwriters that, as a gag, he should hold up a copy of Foreign Affairs, the council’s worthy, dry publication, and say, “I tried to read it once but **the print** was too small and there weren’t enough pictures.”

Drifter 1991: Troon’s **printing** was neat and even.

The members of these pairs seem virtually interchangeable with at most a slightly different aspectual flavor in the sense that the *-ing* forms might be taken as slightly more durative and the conversion forms slightly more punctual in nuance; but the difference, if it is there at all, is minuscule.

However, there do seem to be substantial differences when we find doublets of *-ables* nouns with ATK, *-ing*, conversion nouns, or other nominalizers, as the examples in (8) suggest:

- (8) a. collectables vs collection(s)
 deliverables vs delivery(deliveries)
 injectables vs injection(s)
 payables vs payment(s)
 allowables vs allowance(s)
 quotables vs quotation(s)
- b. desirables vs desire(s)
 likeables vs like(s)
 meltables vs melt
 mixables vs mix(es)
 noshables vs nosh(es)
 washables vs wash(es)
- c. printables vs printing(s)
 recyclables vs recycling
- d. breakables vs breakage

Those in (8a) contrast *-ables* forms with ATK nominalizations, in (8b) with conversion Ns, and in (8c) with *-ing* nominalizations. (8d) contrasts an *-able* noun with an inanimate patient noun in *-age*. Unlike the *-ing*/conversion

doublets illustrated in (6) and (7), the pairs in (8) do seem to consistently convey different readings, and in ways that appear to be attributable to the difference in their affixes. As argued in section 3.3.2, forms in *-ables* carry both modal and quantitative nuances. Specifically, *X-ables* are things that might never actually be *X-ed*, but that nevertheless have the potential to be *X-ed*. The *ATK*, *conversion*, and *-ing* nominalizations, in contrast, do not convey potentiality, but rather have more of a flavor of actuality, by which I mean something that has either come into being or is in the process of coming into being. So, for example, a *collection* consists of items that are or have been collected, the *wash* of things that are being washed or that have been washed, the *recycling* of things that are or have been recycled. In other words, in terms of modality they are rather more neutral than forms in *-ables*.¹⁶ The pair in (8d) also contrast on the dimension of potential versus actual, although not on the dimension of quantity: both *-ables* and *-age* forms convey a similar collective flavor.

It seems then that speakers have a choice between *-ables* nominalizations for inanimate patients that express potentiality, and other nominalizers for inanimate patients that express actuality (or modal neutrality). But there is a third possibility that has been remarked upon in the literature, namely cases of *-er* nouns that denote non-sentient patients rather than agents, instruments, or experiencers. What I have in mind here are cases like *shooter* or *loaner*, in the examples given in Table 4.2, repeated here as (9):

- (9) *Outdoor Life* 2005: I didn't have to think twice about this bear. It was a **shooter**.
Chicago Sun Times 2000: Dean was in the shower, but he agreed to meet us at the dealership to get us a **loaner**.

Cases like these have been deemed problematic, as they can be accommodated within most formal frameworks only with difficulty (see Booij 1986, Levin & Rappaport Hovav 1988, Ryder 1999, Heyvaert 2001). Booij and Lieber (2004), for example, postulate that they arise as a result of what they call paradigmatic pressure. Given the lack of affixes whose primary role is to derive inanimate patient nouns, they argue, speakers recruit another – highly productive – affix to cover the missing slot in the paradigm. The normally subject-referencing *-er* is highly productive, so according to their story this is the affix that gets extended.

¹⁶ Pustejovsky (1998: 337) notes that *-ation* “serves the same function as the imperfect, perfect, and simple tenses” in the corresponding verbal form.

But seen in a wider context, there are other productive affixes that might be extended as well and Booij & Lieber's analysis is therefore incomplete (and as I will argue in [Chapter 7](#), ultimately inadequate). We see now, that given the whole picture of nominalizations in English, inanimate patient nouns do not constitute a single "slot" in a paradigm, but a rather complex habitat. They are unitary only in the sense that they refer to inanimates and reference the internal argument of the base verb. But they are semantically diverse in a number of ways. We have the potential collective *-ables*, the extension of ATK, *-ing*, and conversion nouns to cover the "actual" inanimate patient cases. So why, then, do speakers also coin items like *shooter* and *loaner*? The answer seems to bring us back to the ability of *-er* nominals to carry what we called the dispositional or dynamic modal reading. What the examples in (9) illustrate is that there is a need in these contexts for a patient noun that does not imply an actual accomplished action, but rather the propensity toward that action. Analogous to the *history teacher* example discussed above, a *loaner* may never actually be loaned, but it must be designated for that purpose. A *shooter* in the sense illustrated in (9) is something whose inherent or essential qualities make it suitable for being shot, even if the hunter misses and the bear ambles away unharmed. So while *loaner* and *shooter* do not share the subject-referencing characteristic with most *-er* forms, they share the dispositional reading that is possible with those forms, and thus it is in these contexts that the *-er* form undergoes extension rather than an *-ables*, ATK, *-ing* or conversion form. Speakers of English clearly exploit these hitherto unrecognized semantic nuances in filling the niche of inanimate patient nouns in any given case.

4.4 *Conclusion*

In this chapter I have tried to give a broad overview of the relationship between form and meaning in English nominalizations. Going beyond the E/R nominalizers of [Chapter 3](#), I have looked at the various ways in which personal/participant nominalizers, collective nominalizers, and inhabitant/language nominalizers can be construed. We find that there is rarely, if ever, a one-to-one relationship between form and reading. Morphological types may have primary or predominant readings, but they almost always allow for secondary readings as well. Further, looking from the point of view of meanings that need to be expressed, we find several areas of nominal semantics where there is no affix or set of affixes "in charge" of deriving that sort of noun. Concentrating on

one of these, inanimate patient nouns, I have suggested that various morphological types that typically derive E/R nominals can be extended to the inanimate patient noun reading, but that one affix *-ables* seems to have evolved (or to be evolving) to express a particular modal nuance of potentiality in inanimate patient nouns. And normally subject-referencing *-er* may also occasionally be recruited to express a patient reading when a dispositional nuance needs to be expressed.

This picture gives us a deeper understanding of the complexities of nominalization in English, but it raises serious theoretical challenges. That is, once we have identified the mutability and adaptability of morphological types to different readings, we must attempt to model this lexical semantic lability within a theoretical framework. It is to this task that I turn in [Chapter 5](#).

Part III

Nominalization in LSF

5 *A Lexical Semantic Approach to Nominalization*

The Basics

In this chapter, I will take on the theoretical questions raised at the end of [Chapter 4](#): simply put, how do native speakers of English (or presumably of any other language) represent the lexical semantics of complex words such that they are able to take on different readings in different syntactic contexts? In order to answer this question in [Section 5.2](#), I will briefly review the basics of LSF (Lieber [2004](#), [2006](#), [2009](#), [2010a](#), [2010b](#), [2016](#), [forthcoming](#)), making a number of clarifications and modifications as I go. In [Section 5.3](#), I will turn to E/R nominalizations and propose a basic distinction between E skeletons and R skeletons. Two more small modifications to the theory, Feature Value Matching and Contextual Coercion, will be introduced as well. Thus, this chapter sets the stage for a closer inquiry into eventive readings of nominalizations in [Chapter 6](#), referential readings in [Chapter 7](#), and of argumental compounds in [Chapter 8](#).

This chapter also marks the point at which we begin to deploy the ecological metaphor in a slightly different way. Rather than looking at the ways in which particular morphological types express particular semantic niches (on analogy to organisms exploiting particular habitats), we will look at ways in which words derived by affixation or conversion take on semantic characteristics on the basis of their sentential or discourse contexts and therefore come to express a variety of readings. The ecological analog here might be something like Darwin's finches developing different sizes and shapes of beaks in response to the availability of different food sources on different islands. This use of the metaphor is perhaps a bit problematic, of course: the adaptation of finches to their ecological context was a process that took place over a few million years, whereas the kind of adaptation that I will model in the coming chapters takes

place on the fly in the course of language production or comprehension. As I suggested in [Chapter 1](#), metaphors are never perfect. But to the extent that the ecological metaphor again allows us to think of meaning of derived nouns in a new light, it might nevertheless be of use.

5.1 *Recap of LSF*

In Lieber (2004, 2006, 2009, 2010a, 2010b, 2016, *forthcoming*), I develop a system of lexical semantic representation that allows us to answer a fundamental question about the semantics of complex words, specifically why the relationship between form and meaning is frequently not one-to-one in languages. On the one hand, morphological types are often polysemous, and on the other, different meanings (or readings) can be expressed by a range of morphological types. In the above-mentioned works, I develop the outline of LSF, a framework that allows us to characterize the meanings both of simple lexemes and affixes and to show how such meanings can be integrated in the derivation of complex words. The semantic representation of morphemes in LSF consists of what I call the semantic/grammatical skeleton and the semantic/pragmatic body.

The skeleton is comprised of those semantic features that are of relevance to the syntax in a specific language. Those given in (1) are relevant in the analysis of English:

- (1) Semantic features (Lieber 2009: 80)
 - [**+/-material**]: The presence of this feature defines the conceptual category of SUBSTANCES/THINGS/ESSENCES, the notional correspondent of the syntactic category Noun. The positive value denotes the presence of materiality, characterizing concrete nouns. Correspondingly, the negative value denotes the absence of materiality; it defines abstract nouns.
 - [**+/-dynamic**]: The presence of this feature signals an eventive or situational meaning, and by itself signals the conceptual category of SITUATIONS. The positive value corresponds to an EVENT or Process, the negative value to a STATE.
 - [**+/-IEPS**]: This feature stands for “Inferable Eventual Position or State.” Informally, we might say that the addition of [IEPS] to a skeleton signals the addition of a path. The positive value implies a directed path, and the negative value a random or undirected path.¹
 - [**+/-Loc**]: Lexical items that bear the feature [Loc] for “Location” are those for which position or place in time or space is relevant. For those items

¹ See Lieber and Baayen (1997) and Lieber (2004) for a more formal definition of this feature.

which lack the feature [Loc], the notion of position or place is irrelevant. Further, those which bear the feature [+Loc] will pertain to position or place. [−Loc] items will be those for which the explicit lack of position or place is asserted.

- [+/-B]: This feature stands for “Bounded.” It signals the relevance of intrinsic spatial or temporal boundaries in a SITUATION or SUBSTANCE/THING/ESSENCE. If the feature [B] is absent, the item may be ontologically bounded or not, but its boundaries are conceptually and/or linguistically irrelevant. If the item bears the feature [+B], it is limited spatially or temporally. If it is [−B], it is without intrinsic limits in time or space.
- [+/-CI]: This feature stands for “Composed of Individuals.” The feature [CI] signals the relevance of spatial or temporal units implied in the meaning of a lexical item. If an item is [+CI], it is conceived of as being composed of separable similar internal units. If an item is [−CI], then it denotes something which is spatially or temporally homogeneous or internally undifferentiated.
- [+/-Scalar]: This feature signals the relevance of a range of values to a conceptual category. With respect to [−dynamic] SITUATIONS it signals the relevance of gradability. Those SITUATIONS for which a scale is conceptually possible will have the feature [+scalar]. Those SITUATIONS for which a scale is impossible will be [−scalar]. With respect to SUBSTANCE/THING/ESSENCES the feature [scalar] will signal the relevance of size or evaluation (i.e., this will be the feature which characterizes augmentative/diminutive morphology in those languages which display such morphology).

As we will see in what follows, these features are very likely not exhaustive of those needed for English and certainly not for other languages. Depending on what sorts of distinctions are syntactically active in English, other features might be called for. For example, as we will see below, the feature [+/-animate] will prove critical to my analysis of nominalization in English. Further, animacy is otherwise relevant with regard to the agreement of pronouns in English, where the distinction between *he/she* on the one hand and *it* on the other depends on animacy. So a good case might be made for the syntactic relevance of this feature and therefore for adding it to the ones above:

- (2) • [+/-animate]: This feature signals the relevance of animacy (that is, basic characteristics of living organisms) in a SUBSTANCE/THING/ESSENCE.

Whether this feature is relevant to all languages remains to be explored.²

² A question that clearly deserves more attention is what constitutes syntactic relevance for the purposes of determining skeleton features in LSF in any given language. This is an enormous question which I can't begin to do justice to here. Roughly, features that figure in agreement (for

The features in (1) define functions that take arguments. Functions and their arguments are organized hierarchically, as shown in (3):

- (3) a. $[F_1 ([\text{argument}])]$
 b. $[F_2 ([\text{argument}], [F_1 ([\text{argument}])])]$

Both lexical bases and affixes have skeletons that consist of features that take one or more arguments. In this system, SUBSTANCES/THINGS/ESSENCES are the notional equivalent of nouns and are characterized by at least the feature [material] and possibly also the feature [dynamic], if they are processual in nature. Nouns that are [+material] may be specified as well as [+/-animate], although not all nouns will be so specified (4) gives the skeletons of some typical SUBSTANCES/THINGS/ESSENCES:

- (4) a. truck $[+\text{material}, -\text{animate} ([_R])]$
 b. time $[-\text{material} ([_R])]$
 c. chef $[+\text{material}, \text{dynamic}, +\text{animate} ([_R])]$
 d. war $[-\text{material}, \text{dynamic} ([_R])]$
 e. author $[+\text{material}, \text{dynamic}, +\text{animate} ([_R], [])]$

The first argument of SUBSTANCES/THINGS/ESSENCES is the so-called R argument (Higginbotham 1985), which establishes referentiality in this class of lexemes. We will henceforth annotate this argument with a subscript R. SUBSTANCES/THINGS/ESSENCES may of course have more than one argument:³

The presence of the feature [dynamic] without [material] defines the class of SITUATIONS, the notional equivalent of both verbs and adjectives. Both adjectives and stative verbs are characterized by the negative value of this feature; adjectives are differentiated from verbs by the presence of the feature [scalar], which encodes gradability:

- (5) a. love $[-\text{dynamic} ([], [])]$
 b. red $[-\text{dynamic}, +\text{scalar} ([])]$
 c. pregnant $[-\text{dynamic}, -\text{scalar} ([])]$

Eventive verbs may be characterized by the feature [+dynamic] alone, when they are simple activity verbs. Coupled with some value of the feature [IEPS],

example, the quantitative features [B] and [CI], or [animate] as argued here), or in verb classes that figure in syntactic operations (for example, [IEPS], which distinguishes unaccusatives from unergatives), and so on, would be candidates for skeletal features. In what follows, I try to stick to features that seem fairly uncontroversial in their relevance to syntactic operations.

³ Note that we will modify this slightly in Section 5.3.

[+dynamic] signals verbal meanings that involve change of state or change of path, either directed (with the [+IEPS] value) or random (with the [-IEPS] value).

- | | | | |
|-----|--------------------------|---------|------------------------------|
| (6) | a. simple activity verb: | kiss | [+dynamic ([], [])] |
| | b. change of state: | grow | [+dynamic, +IEPS ([])] |
| | c. change of place: | descend | [+dynamic, +IEPS ([], [])] |
| | d. manner of change: | walk | [+dynamic, -IEPS ([])] |

In this system, affixes are assumed to have skeletons, just as simplex lexemes do and to fall into the lexical semantic classes defined by the system of skeletal features. For example, in Lieber (2004) I argue that the personal/participant suffixes *-er* and *-ee* are both characterized by the semantic features [+material, dynamic]; they differ in the semantic restrictions placed on the R argument of *-ee*. The affix *-er* has no restrictions on its R argument, while *-ee* requires this argument to be nonvolitional:

- | | | |
|-----|--------|--|
| (7) | a. -er | [+material, dynamic ([_R], <base>)] |
| | b. -ee | [+material, dynamic, +animate ([_R -<nonvolitional>], <base>)] |

Here, I will modify my original analysis by adding the feature [+animate] to the skeleton of *-ee*, which signals that the referents of personal nouns in *-ee* are generally animate (but see discussion in Barker (1998) and Chapter 4 for exceptions). Affixes are integrated with their bases to form a single referential unit. This referential integration is effected by the Principle of Coindexation, which matches an affixal argument to a base argument as follows:

- (8) **Principle of Coindexation:**
In a configuration in which semantic skeletons are composed, co-index the highest nonhead argument with the highest (preferably unindexed) head argument. Indexing must be consistent with semantic conditions on arguments, if any.

Semantic headedness is assumed to follow from syntactic headedness. The coindexation of the complex words *writer* and *employee* are shown in (9):

- | | |
|-----|--|
| (9) | a. [+material, dynamic ([_{R-i}], [+dynamic ([_i], []))] |
| | <i>-er</i> <i>write</i> |
| | b. [+material, dynamic, +animate ([_R -<nonvolitional>-i], [+dynamic ([_{<volitional>}], [_{<nonvolitional>-i}]))] |
| | <i>-ee</i> <i>employ</i> |

The affix *-er* has no special requirements on the semantics of its coindexed argument, and therefore it is coindexed with the highest argument of its base; from this it follows that the complex word is generally interpreted as bearing

one of the thematic relations associated with external arguments (most frequently agent, instrument, experiencer, etc.). The suffix *-ee*, however, must be coindexed with a base argument that can be interpreted as nonvolitional; since the highest argument of the verb *employ* must be volitional, the affix therefore coindexes its argument with the internal argument of *employ*, therefore giving rise to the patient or theme interpretation.

Features such as [Loc], [B], [CI], and [scalar] will only figure to a small extent in the analyses that follow. Suffice it to say here that [Loc] is of use in characterizing not only spatial meaning but also temporal meaning, and the meaning of negative and privative items. [B] and [CI] serve to characterize quantificational and aspectual meanings. And [scalar] helps to distinguish adjectives from stative verbs and within adjectives to distinguish gradable from non-gradable adjectives. The interested reader is referred to Lieber (2004) for further explanation and justification.

The semantic/pragmatic body will also figure to some extent in the sections to follow, so it requires some elaboration here. In Lieber (2009) I suggested that the semantic body has two parts. One part consists of purely random encyclopedic information pertaining to a morpheme. Such random information can concern color, shape, manner of motion, special functions, origins, and just about any other encyclopedic information that might be part of our lexical knowledge. This part of the body is unsystematic and will inevitably vary from one speaker to another. We will have little further to say about it here.

The second part of the body is somewhat more systematic and will be more directly relevant to the analyses in subsequent chapters. The features listed in (1) and (2) are features that I would argue are syntactically relevant for English. There may be other features, however, that are syntactically relevant for other languages, but not for English, for example, those in (10):

- (10)
- <volitional>
 - <sentient>
 - <human>
 - <female>
 - <age>
 - <artifact>
 - <n dimension>
 - <orientation>
 - <consistency>
 - <function>
 - <contact>
 - <motion with respect to focal point>

(To distinguish skeleton features from body features, in Lieber (2009) I introduced the notational convention of marking the former with square brackets and the latter with angle brackets.)

Let us now clarify the distinction between skeleton features and body features. Consider, for example, a hypothetical language that has noun classes based on sentience, with a class designating humans and higher animals and another designating snakes, reptiles, insects, viruses and so on. Suppose further that those noun classes trigger agreement of some sort, say between determiners and nouns. Such a language might require a semantic feature [+/-sentient] to serve as a function within skeletons. For English, where sentience does not govern noun classes or trigger agreement, this feature would be superfluous as a skeletal feature. But sentience might nevertheless be relevant in English in lexical semantic terms, say, for purposes of selectional restrictions on the arguments of verbs. For example, the subject of *realize* must denote a sentient being. Features that are not syntactically active in English would not appear as functions in skeletons but might nevertheless appear annotated as subscripts on arguments within skeletons to signal the semantic restrictions on specific arguments. So the highest argument of *realize* might be annotated with the feature <sentient>. Indeed, careful readers will have noted that the skeleton for *-ee* in (7b) has a subscript <nonvolitional> in the R argument of the affix. This means that whatever that argument is linked to must match this body characteristic or at least be semantically non-distinct from it. I will assume then that there is some sort of universal store of features that may or may not be syntactically active in any given language. Features that are not syntactically active in a particular language may nevertheless figure in the semantic bodies of lexical items and might be relevant with regard to selectional restrictions.⁴

The sketch of the theory so far is largely the same as what has appeared in previous works, albeit with a number of points more carefully developed. For the extensive examination of nominalizations in the chapters to follow, I need now to clarify one more point. In previous work, I have left the operation of the Principle of Coindexation rather vague. Given the distinction made above regarding skeletal and bodily features, and the way in which the latter may

⁴ I have added two features to the (2009) list here, <sentient> and <volitional>, which figure in the representations of some of the nominalizing affixes in English. What the ultimate array will be of features that can figure in the lexical semantics of the languages of the world is an open question, and one that perhaps cannot be answered in any easy way. I leave it aside here, as the features that will figure in what follows are relatively uncontroversial ones.

figure in the satisfaction of selectional restrictions, I can now make more explicit the mechanism by which affixal arguments come to meet the semantic conditions on the arguments of their bases. Let us assume that by “semantic conditions” I mean selectional restrictions in the traditional sense of the term, which in LSF will be represented by the features in (1) and (10).⁵ Let us say, as well, that both affixal and base arguments may have selectional requirements designated by these features. Finally, I will slightly rephrase the Principle of Coindexation as in (11):

(11) **Principle of Coindexation** (revised):

In a configuration in which semantic skeletons are composed, co-index the highest nonhead argument with the highest (preferably unindexed) head argument. Indexing must be consistent with semantic conditions (that is, selectional features) on arguments, if any.

The operation of the Principle of Coindexation that we saw in the skeletons in (9) presupposed something like this; so in effect, this just makes clear an assumption that I have made in the framework all along. Selectional requirements of nouns, verbs, affixes, and so on, are satisfied by the workings of the Principle of Coindexation.

5.2 *E versus R Skeletons: A First Pass*

In this section, I will sketch the basic analysis that will allow us to arrive at the varied readings of nominalizations within LSF. This analysis will require two small extensions of the framework sketched in Section 5.2, which I will develop as I go along. My analysis starts with the fundamental distinction between E and R skeletons.

Following Melloni (2011), I propose that the E and R readings are distinguished by different but closely related skeletons, although the nature of the two skeletons in LSF will differ from Melloni’s proposal for reasons I will return to below. (12) gives a schematic representation of the E and R skeletons I will assume. These are distinguished by the presence of the R argument in referential readings and its absence in eventive readings.

- | | | |
|------|--------------------------|--|
| (12) | a. schema for E skeleton | [α material, β dynamic (<base>)] |
| | b. schema for R skeleton | [α material, β dynamic ([_R], <base>)] |

⁵ I assume here that skeleton features as well as body features can sometimes figure in selection, as we will see with the feature [animate] below.

The specific skeletons that I propose for an E/R nominalization in *-ation* are shown in (13); the identical skeleton could serve for any of the other ATK nominalizers as well, as we will see.

- (13) a. *-ation* (E reading) [-material, α dynamic (<base>)]
 b. *-ation* (R reading) [α material, β dynamic ([_R], <base>)]

Let us assume further that a verb like *construct* will have the skeleton in (14):

- (14) [+dynamic ([<sentient>], [<artifact>])

The careful reader will note two further differences between the skeletons in (13) and skeletons that I have proposed before. The first is the introduction of variables over feature values (represented by the Greek letters α and β) in the skeletons of the affix. The Greek letters α and β will be used to range over positive and negative values, although features might remain unvalued under some circumstances. In earlier versions of LSF, the feature [dynamic] in nominal affixes was always left unvalued and the feature [material] was always fixed as either [-material] or [+material]. I will argue in what follows that while features bearing the Greek letter variables may be lexically unspecified, there are mechanisms by which they can sometimes be fixed in context.

The second and more significant difference between (12) and what I have proposed in earlier work (see, for example, Lieber & Baayen 1999) is the absence of the R argument for the eventive skeleton. I will argue in what follows that the key to understanding the interpretation of event nominalizations lies in their status as non-referential items. I will elaborate on each of innovations in turn.

In the E skeleton, the value of the feature [material] is fixed as [-material], as nominalizations in their eventive readings are always abstract nouns. In the R skeleton, this feature is underspecified, as represented by the variable α , rather than a positive or negative value. Referential nominalizations can be either abstract or concrete, a point that I will illustrate in detail in Chapter 7. The determination of this feature is sometimes dependent on the particular affix involved and sometimes set within the larger context in which the nominalization occurs by a process that I will call Contextual Coercion. We will look at Contextual Coercion in some detail as our analysis develops.

The value of the feature [dynamic], on the other hand, will depend on the value of the feature [dynamic] in the base. Fabregas and Marin (2012) have argued that nominalizations of state nouns have slightly different properties

than nominalizations of event nouns; for example, while the latter can be the subject of the predicate *take place* (*The construction took place last summer*), the former cannot (**His preoccupation took place last summer*). In other words, an E nominalization of a stative verb like *preoccupy* maintains the stative properties of its base verb and a nominalization of an eventive verb like *construct* maintains the eventive properties of its base as well.⁶ (15) formalizes this principle:

(15) **Feature Value Matching:**

If a function contains a feature with an unspecified value and the same feature occurs with a value in one of its arguments, copy the value of the argument feature to the outer feature.

(16) gives the E and R skeletons for the word *construction*, reflecting the prior operation of Feature Value Matching:⁷

- (16) a. construction (E reading)

$$[-\text{material}, +\text{dynamic} ([+\text{dynamic} ([<\text{sentient}>], [<\text{artifact}>]))]$$

-ation
construct
- b. construction (R reading – first version)

$$[\alpha \text{ material}, +\text{dynamic} ([_R], [+ \text{dynamic} ([<\text{sentient}>], [<\text{artifact}>]))]$$

-ation
construct

How the R argument in the referential reading of the suffix gets coindexed with an argument of the base verb will be discussed in detail in Chapter 7.

The second innovation illustrated in (12) is the absence of an R argument in the eventive skeleton. This is a proposal that requires some justification. As mentioned above, in postulating two different (but related) skeletons for E/R nominalizations, I am echoing the analysis of Melloni (2011). My precise skeletons, however, are rather different from Melloni's. Melloni's E skeleton includes a Davidsonian event argument in place of the R argument, which occurs as the highest argument in the skeleton for the referential interpretation. The E argument serves to mark the eventive reading in Melloni's skeleton (2011: 158):

- (17) $[-\text{material}, +/\text{-dynamic} ([]_E, <\text{base}>)]$

⁶ For an extended treatment of state nominalizations, see Fabregas and Marin (2012).

⁷ As we will see below, there are a number of referential readings possible for a nominalization like *construction*, some of which clearly express the eventive character of the verb more than others. The product reading of *construction* (that is, *construction* = building) is not overtly eventive. Nevertheless, the base verb is an eventive rather than a stative one.

It is not clear to me, however, that the E argument in (17) serves anything but a diacritic function in marking the affixal skeleton as semantically eventive. In frameworks like model theoretic semantics that make use of the Davidsonian event argument, that argument occurs in verbs and can be bound in the larger syntactic context by elements of tense, aspect, or mood (Wunderlich 2011: 2226). An E argument in a nominal skeleton clearly cannot be bound in the syntactic context by a tense, aspect, or mood feature. Its only use, as far as I can see, is to signal the eventive reading.

How then do we formally distinguish the E reading from the R reading in LSF if we reject the use of the Davidsonian event argument? I suggest that the distinction between eventive and referential readings in complex nouns lies precisely in the absence of referentiality in the former. In my version of the two-skeleton analysis, I propose that the eventive skeleton is simply non-referential, which is to say that it lacks the R argument entirely; the complex noun has only the arguments provided by the base verb, so its semantic value is basically that of a verb. The eventive reading emerges from the semantics of the verb in the absence of referentiality. I will argue in what follows that the behavior of eventive nominalizations in their syntactic context follows straightforwardly from an analysis in which E skeletons have only the arguments provided by their base verbs and that all of those arguments are available to be coindexed with DPs in the larger syntactic context in which the nominalization finds itself.⁸

In the skeleton for the R reading in (16b), the underspecified value of the feature [material], represented as [α material], will remain underspecified until the referential form of *construction* finds itself in a syntactic context – that is, out of context, referential *construction* is neither abstract nor concrete, but simply unspecified. As we will see in Chapter 7, the value of [material] will arise from the syntactic context in which *construction* is used, so that, for example, in a sentence like (18a), the concreteness of *construction* is inferred from its being equated with ruins and from being placed at a physical location, whereas in (18b) no such inferences are possible, and a default abstract reading results.

⁸ This evades the question of whether verbal skeletons in LSF might need the equivalent of a Davidsonian event argument to effect linking in the larger syntactic context to tense, aspect, or mood features. The answer to this question is not clear to me, but it is orthogonal in any case to the issue at hand here, which is the representation of complex nouns. It seems clear to me that whatever the status of the Davidsonian event argument in LSF, it should not be used diacritically to signal the event reading in nominalizations.

- (18) a. The construction on the hill was in ruins.
b. Not long after the bridge's construction it was already obsolete.

In other words, the feature [material] is fixed on the basis of inferences from the immediate syntactic context in which the complex noun is found, from its wider syntactic context, from the overall discourse, and from encyclopedic knowledge. This is what I will call Contextual Coercion.⁹ In [Chapter 7](#), I will look at Contextual Coercion in more detail.

This constitutes the bare outline of the analysis of E/R nominalizations, specifically the ATK affixes, the *-ing* nominals, and conversion Ns. The skeleton in (12b), repeated here in (19a), will also be the basis of many of the other referential nominalizers that we have identified in [Chapter 4](#), including the personal and participant nominalizers, the inhabitant/language nominalizers, and several others. Collectives and abstracts will differ only in being variations on the skeleton in (19b), which is identical to (19a) except for the absence of the feature [dynamic] and in the case of the collectives the addition of quantificational features. The two basic R skeletons can be collapsed using the familiar parentheses notation, as shown in (19c):

- | | | |
|------|------------------------------|---|
| (19) | a. R nominalizers in general | [α material, β dynamic ([_R], <base>)] |
| | b. collectives and abstracts | [α material ([_R], <base>)] |
| | c. generalized R skeleton | [α material, (β dynamic) ([_R], <base>)] |

Individual affixes will differ from one another in the values of the feature [material] and whether those values are fixed lexically or are context dependent, the presence or absence of the feature [dynamic], the semantic requirements on the R arguments, and in the possible addition of one or another extra skeleton features. We will develop the details of this analysis in [Chapter 7](#).

In [Chapters 6 and 7](#), I will argue that the lexical semantics of nominalizing affixes is as malleable as it seems to be because ultimately the core semantics of these affixes is severely underspecified. What is not fixed lexically must be fixed within a larger syntactic context, and therefore any complete theory of derivational semantics cannot ignore these larger syntactic contexts.

⁹ Contextual Coercion is rather like what Pustejovsky (2011: 1411) calls “accommodation subtyping.”

6 *The Eventive Reading*

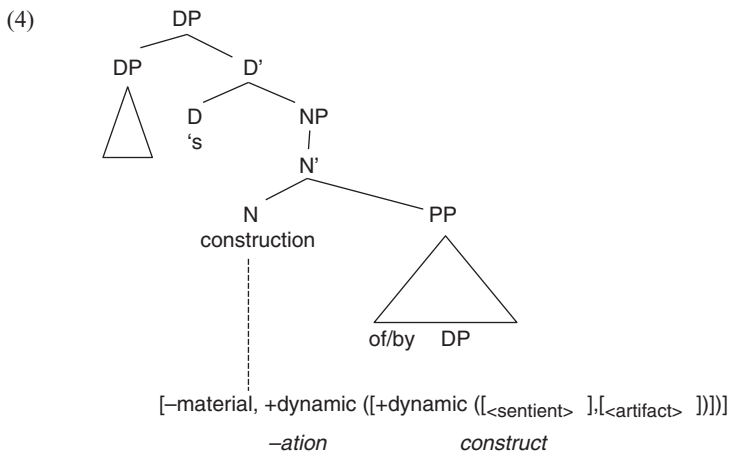
In this chapter, I will concentrate on the eventive or E interpretation of E/R nominalizers, postponing a treatment of the more intricate referential readings to [Chapter 7](#). We start with a review of the descriptive profile of ATK, *-ing*, and conversion nominalizations that emerged from the corpus study outlined in [Chapter 3](#). (1) summarizes the contexts in which eventive readings can arise:

- (1)
 - a. All three types of nominalization (that is, ATK, *-ing*, and conversion nouns) can express eventive readings.
 - b. All three appear in both the active and the passive configurations with eventive readings.
 - c. All three can appear with the eventive reading both with full argument structure and without.
 - d. All three can occur with a full array of event diagnostics (that is, temporal adverbs, aspectual modifiers, purpose clauses, and agent-oriented adjectives).
 - e. All three can occur with all sorts of verbs (all the Vendler classes, unaccusative, unergatives, causatives, etc.).
 - f. All three can occur in the plural or with either the definite or indefinite article.
 - g. All three are found in predicative contexts.

In effect, the conclusion that we reached in [Chapter 3](#) was that eventive readings occur in a far wider range of syntactic contexts than previous literature has led us to believe. I will now show that the LSF analysis outlined in [Chapter 5](#) is well suited to account for this array of properties. We begin with ATK nominalizations in [Section 6.2](#), and follow with *-ing* nominalizations and conversion nouns in subsequent sections. [Section 6.3](#) briefly considers the appearance of eventive readings in simplex nouns.

Interpretation of complex nouns does not involve complex layers of functional structure within the DP or movement of affixes, as in DM or exo-skeletal-style analyses (Harley 2009, Borer 2013). Rather, in LSF, interpretation of the complex noun is a matter of lexical semantics, specifically of resolving skeletal underspecification and indexing skeletal arguments.

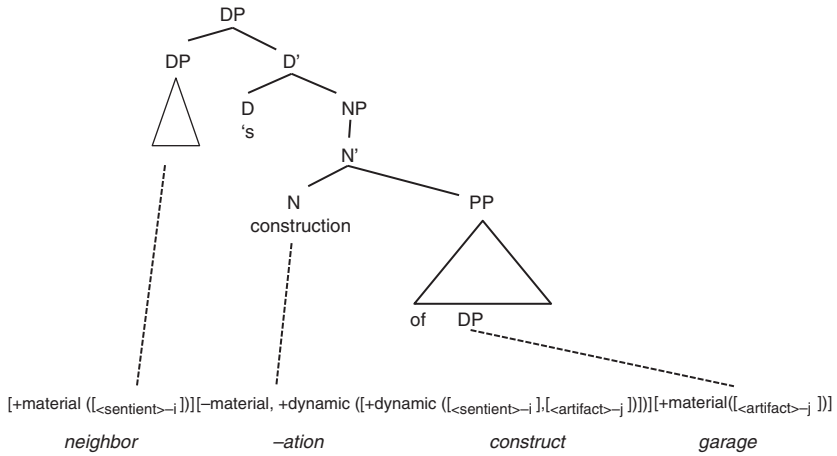
Let us consider the eventive interpretation of the DPs *the neighbor's construction of the garage* and *the garage's construction by the neighbor*, that is, the active and passive configurations that we discussed in Chapter 3.¹



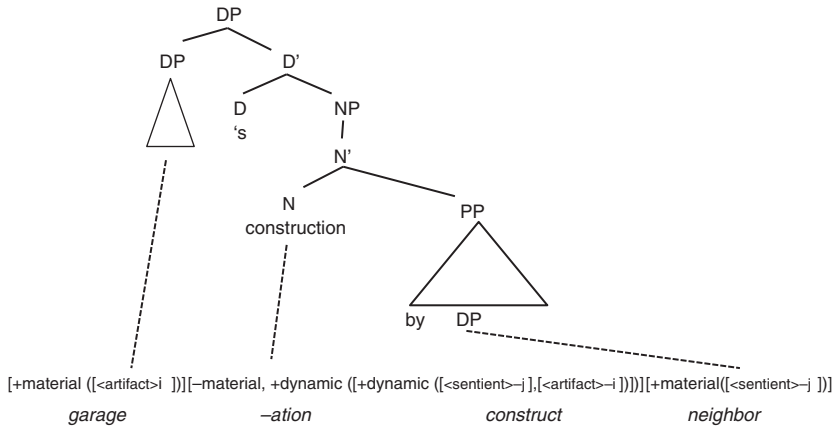
We look first at how the active and passive eventive interpretations of *construction* arise in this syntactic context. Given the lack of an affixal argument in the E skeleton for *construction*, the Principle of Coindexation has literally no work to do word-internally in terms of integrating the affix and the skeleton. But in the wider syntactic context, there is nevertheless the possibility of coindexing the possessive phrase and the prepositional phrase in the DP to the arguments of *construct*. Consider what the Principle of Coindexation will do depending on the semantic characteristics of different possessives and prepositional phrases:

¹ Using dotted lines to show the correspondence between parts of the skeleton and parts of the syntactic structure is a matter of convenience. I do not mean to claim here that the linking of syntactic structures with semantic skeletons has any theoretical status.

- (5) a. the neighbor's construction of the garage



- b. the garage's construction by the neighbor



The Principle of Coindexation, in effect, permits unindexed arguments of the base verb to be coindexed with syntactically expressed DPs displaying appropriate selectional characteristics; coindexation gives preference to indexing that satisfies selectional restrictions.² In (5a), the <sentient> noun is coindexed with the first argument of *construct* and the <artifact>

² Note that the order of the skeletons is irrelevant for the purpose of resolution of under-specification and indexing.

noun with the second argument. The indexation is reversed in (5b). The co-indexed skeleton in (5a) corresponds to the active configuration and the co-indexed skeleton in (5b) to the passive configuration for eventive nominalizations. The active or passive configuration, in essence, is the result of the feature-matching function of the Principle of Coindexation.³

(4) illustrates the process of coindexation when semantic arguments are available within the DP to link to unindexed arguments within the complex noun. Note, however, that neither the possessive nor the *of* or *by* PPs are obligatory in DPs, so it is possible for one or even both of the arguments of the base verb in the nominalization to remain unindexed if no appropriate argument is available within the local context of the DP, as we see in the examples in (6).

- (6) a. the construction of the garage
- b. the construction by the neighbor
- c. the neighbor's construction
- d. the garage's construction

Arguments are never obligatory within DPs, and complex nominals are no different than simplex nouns. The fewer arguments available for coindexing, however, the harder it becomes to get the eventive reading. Nevertheless, as we saw in Chapter 3, eventive readings are possible even in the absence of any arguments. With full indexation of the base verb's arguments, as in (4), we get what Grimshaw (1990) refers to as the complex event reading. With no arguments indexed, as we would find with a nominal like *the construction* in the sentence in (7), we get what Grimshaw would refer to as the simple event reading:

- (7) Construction went on night and day for months.

In effect, the strength of the eventive reading is initially correlated with the number of arguments, but it can be intensified or even entirely determined as well by the addition of event diagnostics like temporal adjectives and aspectual modifiers or even by the choice of verb in the larger sentential context.

³ There is, of course, one more syntactic configuration in which we find the eventive interpretation, that is, a DP with two prepositional phrases, as in (i):

- (i) construction of the garage by the neighbor

Note that although the syntactic structure for (i) will differ from those for the items in (5), the lexical semantic structure will be identical to that of (5a), keeping in mind that the ordering of the skeletons in (5) is arbitrary.

- (10) a. active configuration the General's killing of the prisoner
 b. passive configuration the prisoner's killing by the General
- (11) a. the General's killing of the prisoner
[+material ([_i])] [-material, +dynamic ([+dynamic ([_i],[animate-j]))][+material ([_j])]
General -ing kill prisoner
- b. the prisoner's killing by the General
[+material ([_j])] [-material, +dynamic ([+dynamic ([_j],[animate-i]))][+material ([_i])]
prisoner -ing kill *General*

Again, the analysis here is surprisingly simple, but it correlates with the pattern of data uncovered in [Chapter 3](#).⁷

6.3 Conversion Nouns

We turn finally to the analysis of conversion Ns. As we saw in [Chapter 3](#), these behave in the same way as ATK and *-ing* nominalizations, so we might expect that the same lexical semantic analysis should suit them as well. This would give us the basic skeletons illustrated in (12):

- (12) a. conversion nouns (E reading) [-material, α dynamic (<base>)]
 b. conversion nouns (R reading) [α material, β dynamic ([_R], <base>)]

The conversion noun *defeat* would then have the E skeleton illustrated in (13):

- (13) [-material, +dynamic ([+dynamic ([animate],[animate]))]
defeat

(14) gives us examples of the conversion noun *defeat* in both an active and a passive configuration, and (15) provides the LSF analysis:

- (14) a. active configuration Reagan's defeat of Carter
b. passive configuration Carter's defeat by Reagan
- (15) a. Reagan's defeat of Carter
[+material ([_i])] [-material, +dynamic ([+dynamic ([animate-i],[animate-j])))] [+material ([_j])]
Reagan *defeat* *Carter*
- b. Carter's defeat by Reagan
[+material ([_i])] [-material, +dynamic ([+dynamic ([animate-j],[animate-i])))] [+material ([_j])]
Carter *defeat* *Reagan*

⁷ Note that since order is irrelevant here and both nouns share all selectional features, the indexing could just as well be reversed, with the result being *the prisoner's killing of the General* and *the General's killing by the prisoner*. The same is true of example (15) as well.

We can see that adopting the same sort of skeleton for conversion nouns that we found suitable for ATK and *-ing* nominals allows us to arrive at the needed active and passive eventive readings.

The question naturally arises what, if anything, this analysis implies about the structural (as opposed to semantic) analysis of conversion Ns. That is, does treating the semantics of verb to noun conversion as the subordination of a verbal skeleton to a nominal skeletal layer imply an analysis involving zero affixation? Does the addition of semantic features inevitably imply the addition of something morpheme-like? I believe that the answer to these questions is no – there is no reason to believe that the lexical semantic composition of a conversion noun is tied to the structural analysis. Indeed, I would argue that the lexical semantic analysis proposed here does not commit us to any specific structural analysis of conversion. It reflects only the semantic properties of nouns that have been derived from verbs, in this case that they are complex nouns, that they are abstract, and that by virtue of lacking an R argument in this particular version, they are eventive nouns. It also reflects the intuition that we have that the verb is basic in these cases and the semantics of the noun is dependent on that of the verb rather than the other way around (as we might find, for example, with verbs such as *hammer* or *saddle*). But it says nothing about whether these semantic functions come along with a structural change, which would be the addition of a zero affix. Indeed, I see no reason why this semantic analysis could not be compatible with the relisting analysis of conversion that I have advocated elsewhere (Lieber 1992, 2004).

6.4 *A Note on Simplex Nouns*

Any treatment of the eventive reading would not be complete without a consideration of simplex nouns with an eventive flavor, such as *effort*, *war*, *sunset* and the like. To what extent do they display eventive readings, and how do those readings arise? I begin by reviewing my observations about eventivity in simplex nouns from Chapter 3.

First, it is not completely clear such nouns occur in the active configuration. We do find examples like the one in (16) where there is a possessive that has the flavor of an agent and an infinitival complement:⁸

- (16) Ashcroft's effort to block tax reform

⁸ This is a simplified version of the corpus example given in Chapter 3.

What I have not found is the full active configuration with a possessive determiner and an *of*-PP, in other words, something like (17). Note that I use the symbol 🖐 as it is used in Bauer et al. (2013) to indicate that I have been unable to find an attestation of this sort:

- (17) 🖐 Ashcroft's effort of tax reform

As I argued in [Part II](#) of this book, the fact that I haven't found examples like (17) doesn't mean that they do not exist, but we will see that the LSF analysis that I will provide below in fact predicts that indeed they should not exist. In [Chapter 3](#), I also note that I was unable to turn up any examples of an eventive simplex noun in the passive configuration, that is, something like the example I have constructed in (18):

- (18) 🖐 Tax reform's effort by Ashcroft

What we do find, however, are simplex nouns occurring with temporal adjectives, aspectual modifiers, purpose clauses, and agent-oriented adjectives, in other words, with the full array of event diagnostics used to identify the eventive reading with complex nominals. Examples are provided in (19):⁹

- | | | |
|------|------------------------------|------------------------------------|
| (19) | a. temporal adjectives | the constant noise inside a prison |
| | b. aspectual modifiers | my home for four years |
| | c. purpose clauses | the event to select the dance team |
| | d. agent-oriented adjectives | the intentional retro-utopian town |

Why do simplex eventive nouns behave differently from complex eventive nouns? The obvious difference between simplex and complex eventive nouns is that simplex nouns, not being based on verbs, do not have embedded verbal skeletons, and therefore do not have participant arguments that can become indexed in the context of the DPs that they head. The feature [dynamic] in the nominal skeleton allows participants in the event to be implicit but does not by itself allow them to be expressed explicitly. The lack of participant arguments in the simplex skeleton therefore suggests that our inability to find examples like those in (17) and (18) is no accident.

Why then do we find the other event diagnostics occurring with simplex nouns? I would argue that the inherently processual nature of these nouns, which is signaled by presence of the feature [dynamic] in their skeletons, is enough to permit the occurrence of temporal adjectives, aspectual modifiers, etc., and that the presence of such modifiers in turn enforces and strengthens the

⁹ Again, these are simplified versions of the corpus examples in [Chapter 3](#).

effect of the feature [dynamic]. So simplex nouns are at best weakly eventive, but not eventive in the way that complex nominalizations are. This seems intuitively to be the right result.

6.5 Conclusion

What I have argued here, then, is that LSF treats all of the ATK, *-ing*, and conversion nouns identically. The active and passive eventive interpretations are a function of the verbal arguments remaining unindexed within the complex noun, and therefore available for coindexing to other DPs within the DP that they head. Coindexation is constrained by the selectional properties of the verbal arguments.

What may not be obvious from this analysis, however, is that while the eventive interpretations allowed are analogous to active and passive interpretations in sentences, they do not, in fact, imply any sort of actual passivization within DPs. The syntactic mechanisms that ensure that verbal arguments occur in the appropriate configurations in passives (theta theory, case marking, feature checking, movement, or whatever current formalism dictates) do not need to carry over to the DPs in which the corresponding nominalizations find themselves. For example, in a standard Principles and Parameters analysis of passive sentences (admittedly dated, of course, but sufficient for illustrative purposes), there are thematic restrictions and matters of case marking and feature checking that motivate a movement analysis. In frameworks that subscribe to something like the Uniformity of Theta Assignment Hypothesis, there is a requirement that the theme or patient must underlyingly be a complement of the verb. If the verb occurs in a morphologically passive form, however, the theme/patient cannot have its case checked in its underlying position and must therefore be moved to a specifier position to have the feature checked. No such thematic restrictions are associated with positions within the DP, however. It is well known that possessives can have a wide range of interpretations, thematic and otherwise (Huddleston & Pullum 2002: 475–476). Further, although the passive in the sentential context is marked by special morphology that ultimately motivates the movement analysis, there is no morphological distinction between the “active” and “passive” nominalization in the DP. It therefore seems to be an advantage of the LSF analysis that we can arrive at the different eventive interpretations without recourse to distinct syntactic structures and movement rules.¹⁰

¹⁰ In a recent minimalist/distributed morphology analysis of passive nominalizations, Bruening (2013) postulates a structure in which the verbal root is dominated by a VoiceP, which in turn is

The fundamental claim that I have tried to establish here is that the interpretation of complex nominalizations is just that – interpretation. It is not a matter of syntax but rather of conceptual structure, in other words, of lexical semantics. Oddly, a careful reading of some of the seminal work on nominalization in syntactic frameworks reveals several points at which theorists are compelled to appeal to conceptual structure or lexical semantics as well. For example, in trying to answer the question of why simple event nominalizations seem to be interpreted in ways similar to complex event nominalizations, Grimshaw (1990: 98–104) suggests that although simple event nominals do not have arguments (in her technical sense), they nevertheless do have complements. Further, she suggests that the interpretation of complements must be a matter of lexical conceptual structure. What those lexical conceptual structures look like and how the interpretation of nominalizations is arrived at are never explained. Similarly, Fabregas (2012: 70) suggests that the tendency to interpret underived nouns as if they have arguments in cases like *the constant mischief by the boy* is entirely a matter of conceptual structure. Again, what this conceptual structure looks like is left unexamined. And, finally, Borer makes a similar point in her treatment of synthetic compounds.¹¹ For reasons that need not concern us here, even in a theory in which the interpretation of complex nominalizations as eventive or referential is a matter of their syntactic derivation, Borer (2013: 598–604) claims that the argument-like interpretation of the non-head in synthetic compounds is a matter of implicature, by which she apparently means a matter of conceptual structure, rather than a matter of syntactic structure. The formal nature of the semantic analysis that these theorists would appeal to remains unexplored, however.

Theorists like Grimshaw, Fabregas, and Borer must appeal to conceptual structure in any case. If the interpretation of nouns – both complex and simple – sometimes requires appeal to conceptual structure even in strictly syntactic frameworks, it seems worth asking whether a conceptual or lexical semantic

dominated by the nominalizing affix *-tion* with a PRO subject/specifier. Movement is not required under this analysis. However, Bruening (2013: 32) continues to subscribe to many of the claims discussed in Chapter 3 that ATK, *-ing*, and conversion nouns display different syntactic properties, so his analysis would still not accommodate the full range of facts covered here. In addition, it does not extend in any obvious way to the referential readings of E/R nominalizations.

¹¹ I will discuss the interpretation of synthetic compounds in some detail in Chapter 8. For now, it is sufficient to know that the second element (or head) of a synthetic compound is typically a nominalized verb.

account can explain the interpretation of nouns without appeal to syntax. This is what I have set out to do in this book. The picture of how E interpretations arise in LSF is ultimately quite a simple one, but it covers a wide range of observations. Ultimately, an eventive interpretation is the result of lack of an R argument in the affixal skeleton, along with mechanisms of indexing that operate freely in matching unindexed arguments within the nominalization with selectionally compatible arguments. We will now go on to see how the analysis sketched here allows us to account for a full range of R interpretations as well.

7 *Referential Readings*

In this chapter, we turn to the wide array of referential readings that complex nouns can convey. Here, I will cover not only the result and product readings that are typically discussed in the context of ATK, *-ing*, and conversion nouns, but also agent, instrument, and experiencer nouns, patient nouns (both animate and inanimate), locatives, collectives, abstracts, and a variety of miscellaneous nominalizations.¹ My reason for treating all of these together is that, as I tried to show in [Chapter 4](#), there is such a great degree of overlap, polysemy, and general malleability of reading in such nouns that we need to consider the ecosystem of nominalizations as a complex, interdependent whole. I will start [Section 7.1](#) by proposing a schematic skeleton for all referential nominalizations and by proposing how this skeleton can be varied in a few minimal ways to allow for ranges of readings that get fixed only in syntactic context. In [Section 7.2](#), I will look at the R readings that are available for the E/R nominalizers discussed in [Chapter 6](#). [Section 7.3](#) will consider the basic personal/participant nominalizers as well as nominalizers that derive inhabitant/language nouns, and [Section 7.4](#) will discuss abstract nominalizers. [Section 7.5](#) will take up collective nominalizations as well as other nominalizers, which require more complex skeletons than the E/R, personal/participant, and abstract ones. In [Section 7.6](#), I will look more broadly at kinds of noun for which English provides no primary means of derivation – location and inanimate patient nouns – arguing that these are not to be treated in the same way.² In [Section 7.7](#), finally, I will return to the subject of evaluative and modal overtones in nominalizations, raising the question whether either necessitates extensions to LSF.

To guide the discussion that follows, I repeat [Table 4.1](#) below, so readers may remind themselves of the intricate range of readings available for each nominalizing affix that we will discuss in what follows.

¹ I exclude, as explained in [Chapter 4](#), purely evaluative affixes and affixes that are unproductive in contemporary English.

² Recall that my category of “inanimate patient nouns” is rather heterogeneous, subsuming direct products, copy products, things affected by an action, and so on.

Table 7.1 *Affixes, bases, and potential readings*

afx	C ₁	C ₂	E	R	inst,		inhab,		path	meas	col	abst	behv	lang	blf	adhr
			event, state	res	ag, exp	means	pat anim	pat –anim								
-al	V		1	1				2								
-ance	V	BB	1	1		2		2	2	2						
-ment	V	A, N, BB	1	1		2		2	2							
-ure	V	N, BB	1	1				2	2							
-ation	V	A, N, BB	1	1	2	2		2	2	2						
-ing	V		1	1	2	2		2	2							
convers	V		1	1	2	2		2	2	2	2					
-er	V	N, Adv, Num,			1	1	2	2	2		2					
-ant	V	BB			1	1										2
-ist	N	V,A			1											
-an	N	A ³			1									1		2
-eer	N	V, BB			1											
-meister	V,N	A			1											
-ster	N	V, A			1											
-ce	V	N			2		1	2								
-ery	V,N		2						2			1		2		
-age	V,N		2					2	2		2	1		2		

³ The suffix *an* attaches to derived adjectives in *-ary* and *-ic*, but apparently not to simplex adjectives (Bauer et al. 2013: 224).

-ness	A	N							1		
-ity	A	BB, N		2		2			1		
-dom	N	V,A				2			1		
-ship	N	V,A				2			1		
-hood	N	V,A				2			1		
-ite	N									1	1
-ish	N								1		
-ese	N	A							1		
-i	N								1		
-ism	N	BB, A						2			1

Note: C₁ = primary category of base, C₂ = secondary categories of base, BB = bound base, res = result, ag = agent, exp = experiencer, inst = instrument, pat = patient, loc = location, meas = measure, col = collective, abst = abstract, behv = behavior, anim = animate, -anim = inanimate, inhab = inhabitant, lang = language, blf = belief, adhr = adherent or follower, 1 = primary or predominant reading, 2 = secondary or occasional reading.

7.1 Basic Skeletons

In [Chapter 5](#), I proposed that the basic skeleton on which all referential interpretations of complex nouns are built is that in (1):

- (1) $[\alpha \text{ material}, \beta \text{ dynamic } ([_R], <\text{base}>)]$

This is not quite correct, however, as there are some nominalizations that are not processual in nature, namely nouns in *-ness*, *-ity*, *-dom*, *-hood*, and *-ship*. For these, we need the skeleton in (2):

- (2) $[\alpha \text{ material}, ([_R], <\text{base}>)]$

The skeletons in (1) and (2) can be collapsed, using the familiar parenthesis notation, as in (3):

- (3) $[\alpha \text{ material}, (\beta \text{ dynamic}) ([_R], <\text{base}>)]$

As outlined in [Chapter 5](#), this basic skeleton can be varied in a number of ways besides the presence or absence of the feature [dynamic]. First, for processual complex nouns, the value of the feature [dynamic] may be fixed by means of Feature Value Matching, if the base bears that feature. In other words, if the base is a verb and the verb is eventive, the affixal [dynamic] feature receives the [+dynamic] value. If the base is a stative verb, β will be [-dynamic]. This captures the observations of Fabregas and Marin (2012) that nominalizations of event and state verbs display slightly different properties (see [Chapter 5](#)). If, however, the base is a noun, the value of [dynamic] will simply not be specified, although the feature will be there. Second, the value of the feature [material] may be lexically fixed for some affixes or may remain unspecified lexically for others, to be fixed within syntactic context by means of Contextual Coercion. Third, the R argument of particular affixes may be specified with selectional features that restrict the reference of the noun. If, for example, the R argument is specified as <sentient> or <volitional>, it is preferably coindexed with a compatible argument according to the Principle of Coindexation as revised in [Chapter 5](#). The fourth and final way in which the basic skeleton in (3) can be varied is by the addition of other features.

In (4), I sketch the lexical contents of a range of nominalizing affixes in English:

- (4)
- | | |
|--|---|
| a. ATK, <i>-ing</i> , conversion | $[\alpha \text{ material}, \beta \text{ dynamic } ([_R], <\text{base}>)]$ |
| b. <i>-er</i> , <i>-ant</i> , <i>-ist</i> , <i>-an</i> , <i>-ite</i> , <i>-ish</i> , <i>-i</i> | $[+\text{material}, \beta \text{ dynamic } ([_R], <\text{base}>)]$ |
| c. <i>-ee</i> | $[+\text{material}, \beta \text{ dynamic}, +\text{animate } ([_R- <\text{nonvolitional}>], <\text{base}>)]$ |

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- d. *-ness, -ity, -dom, -ship, -hood* [−material ([_R], <base>)]
 e. *-ery, -age* [α material, β dynamic, +B, +CI ([_R], <base>)]

In what follows, I will try to show that the wide range of readings that can be expressed by ATK, *-ing*, and conversion nouns in their referential guise can be accommodated by the skeleton in (4a), with underspecification resolved in a number of possible ways in syntactic context. Similarly, I will show that the polysemy of personal/participant and inhabitant/language affixes can be accommodated by the skeletons in (4b,c). The abstract noun-forming suffixes *-ness*, *-ity*, *-dom*, *-ship*, and *-hood* will all bear the skeleton in (4d), differing only in the nature of their bases. And, finally, the collectives *-ery* and *-age* will require the addition of the quantificational features [B] and [CI], as in (4e). In many respects, my analysis of the personal/participant affixes will be an extension of that developed in Lieber (2004), but the analysis of the other noun-forming affixes is largely new. The reader will note that there are a number of affixes mentioned in Table 7.1 that I have not included in (4). These are all affixes that have nuances of meaning that require further discussion, so I will return to them in Section 7.7.

7.2 Referential Readings for ATK, -ing, and Conversion Ns

We begin with the wide range of referential readings available for ATK, *-ing*, and conversion Ns. The most frequent of these are the result, product, and inanimate patient readings, with instrument, agent, and location readings arising rather less frequently for these morphological types, and measure, means, and other readings being rather rare. The first question that I raise here is whether all of these distinctions are to be attributed directly to individual affixes. It seems clear that the distinction between the product reading and the inanimate patient reading is not a function of particular affixes or morphological types per se, but rather is a function of the semantic class of the verbal base on which the complex noun is derived, as Melloni (2011) has pointed out. We find product readings for verbs of creation such as *construct* or *build* and inanimate patient readings for other sorts of verbs such as *eat* or *wash*. Neither is the distinction between instrument and agent to be attributed to the semantic contents of the affix. Rather, it is largely a function of the animacy and sentience of the referent: the conversion noun *lead*, for example, can be construed as an agent or an instrument depending on whether it refers in context to the head of a group of people or to a leash

Let us now proceed with the construal of *construction* in the context we find in (5a). In this syntactic context, we know that *construction* is being equated with *the Guggenheim*, and encyclopedic knowledge, plus the presence of the definite article with a proper noun, suggests that the intended referent here is a building. A bit of extra encyclopedic knowledge suggests that the referent in this case is a museum. Contextual Coercion, then, allows us to infer that the referent of the word *construction* is concrete, and more specifically inanimate, which in turn allows us to fix the feature [material] as [+material] as in (8):

- (8) [+material, +dynamic ([_R], [+dynamic ([animate, <sentient>], [inanimate]))]
-ation construct

What remains to happen at this point is the integration of the affixal skeleton with the base skeleton, a process effected by the Principle of Coindexation, repeated for convenience as (9):

- (9) **Principle of Coindexation** (revised):
In a configuration in which semantic skeletons are composed, co-index the highest non-head argument with the highest (preferably unindexed) head argument. Indexing must be consistent with semantic conditions (that is, selectional features) on arguments, if any.

Given the requirement that indexing must be consistent with selectional properties of arguments, and that we know in context that *construction* is identified with a building (the Guggenheim), which is an inanimate object, the only indexing possible for *construction* in (5a) is what we see in (10):

- (10) [+material, +dynamic ([_{R-i}], [+dynamic ([animate, <sentient>], [inanimate-i]))]
-ation construct

In other words, given its context, *construction* is taken to be a product.

Let us now look at the construal of *administration*, as in the example in (6a). We start with the skeleton in (7) again, and given the context – the fact that *administration* is syntactically conjoined with nouns whose referents are concrete, animate, and sentient – the logical inference is that *administration* is intended as a concrete, animate, and sentient noun as well. This allows us by Contextual Coercion to fix the value of [material] as positive. The word *administration* in this sense, prior to coindexation, therefore has the same skeleton as *construction* in (5a), namely (8). Where the interpretations of the two nouns diverge, however, is in indexing. If *administration* is animate and sentient, in this syntactic

- (13) [-material, +dynamic ([_{R-i}], [+dynamic ([_{animate, <sentient>}], [_{nonanimate-i}]))]
-ation construct/administer

The claim, then, is that in the abstract result reading of the nominalization, the second argument of the verb is construed as an outcome or result rather than as a thing.

The question arises, however, whether this is notational sleight of hand. I think there is evidence that it is not a trick, but in fact that it explains something that I noted in passing in [Chapter 3](#). Recall that one of the questions I raised in that chapter was whether nominalizations with R readings can nevertheless have arguments, or put differently, whether the presence of possessives, *of*-PPs, or *by*-PPs automatically forces an E reading. As I noted there, it is possible to find possessives and *of*-PPs with R nominalizations but apparently only when the nominalization is one that has a lexicalized product/inanimate patient reading like *carving* or *concoction*. The ATK example that I gave there is repeated in (14). I also noted there that in these cases possessives are interpreted as possessors, creators, or authors rather than as subjects or objects of the verbal base. What I did not note there is that the object of the *of*-PP in effect is a semantic doubling of (or elaboration on) the nominalization itself. So in the example in (14), *Cherry 7-Up and grain alcohol* is the *concoction*. All of the examples that I provide in [Chapter 3](#) in fact have the product/inanimate patient reading, rather than the result reading.

- (14) *USA Today 1999*: That girl's mix of Kool-Aid and Bacardi rum, along with **Lisa's concoction of** Cherry 7-Up and grain alcohol, created quite a stir in the school cafeteria as students passed the drinks around.

Indeed, it turns out that product/result readings of this sort can occur even with non-lexicalized ATK nominalizations like *translation*, just as long as they express a doubling of the verbal object.

- (15) *National Review 1998*: President Clinton, in his December 11 non-apology, quoted a stanza of Edward Fitzgerald's **translation** of the The Rubaiyat of Omar Khayyam.

It seems, then, that the result reading is not attested with an *of*-PP that expresses the second (object) argument of the verbal base unless the object of the preposition is interpreted as a doubling of the verbal object. We might wonder why this is so. If we say that this argument is designated as nonanimate, and that it is indexed with the R argument of the nominalizing affix as in (13), we can explain why result interpretations generally seem not to occur with *of*-PPs: this argument is already associated with the R argument of the affix and

interpretations are not so straightforward, however. There is no reason to believe that verbs like *reserve*, *dump*, or *moor* necessarily have as part of their lexical meaning a [+Loc] function which hosts an argument with which the R argument affixal skeleton can be coindexed.⁷ So as yet we have no analysis of their locational interpretation. However, we will see as this chapter progresses that location nouns can be derived with a number of different affixes besides these – *-er*, *-ery*, and *-age*, for example – and that in general they raise interesting questions. Location nouns, it will be recalled, are one of those areas for which English has no primary means of derivation. We will therefore postpone further discussion of them until [Section 7.6](#).

We see, then, that the lexical semantic skeleton for ATK, *-ing*, and conversion nominalizations can be the same, that it can be quite simple, and that by virtue of several characteristics of LSF, some already present in the theory, some newly developed here, a surprisingly wide range of readings can be arrived at, even for a single complex word. The features of the theory that allow us to arrive at a range of meanings for a single complex nominal are these:

- The postulation of related E and R skeletons for E/R nominalizers, with the E skeleton lacking the R argument.
- The possibility of underspecification in the features [material] and [dynamic] for the nominalizing affixes.
- The fixing of the feature [dynamic] by Feature Value Matching.
- The fixing of the feature [material] by Contextual Coercion.
- The use of the selectional requirements of affixal and base arguments to effect coindexation.

A note about Contextual Coercion before I go on to discuss the other referential nominalizations. The mechanism of coercion is a familiar one from Pustejovsky's (1995) Generative Lexicon framework. Pustejovsky's theory makes use of what he calls "type coercion," which he defines as "a semantic operation that converts an argument to the type which is expected by a function, where it would otherwise result in a type error" (1995: 111). In Pustejovsky's framework, nouns may have stable types (for example, they may be inherently count or mass nouns), but nevertheless can be

⁷ Verbs like *dwell* or *reside* are odd without a locational argument (*?We dwelled; ?We resided*), but verbs like *reserve* , *dump* , or *moor* take theme arguments, with location arguments at best implicit.

forced into a reading as another type, given the right context. A mass noun, for example, can be coerced into being a count noun by pluralizing it (*five milks, a few different rices*). The mechanism that I have in mind here is not like Pustejovsky's type coercion. Rather, it is closer to what Pustejovsky (2011: 1411) calls "accommodation subtyping," which he defines as a mechanism by which "The target type a function requires is inherited through the type of the argument." What I am calling Contextual Coercion involves the fixing of an inherently underspecified or unspecified semantic feature in context on the basis of other information available in syntactic context, although not necessarily information confined to the arguments taken by the complex noun in question. A referential noun like *construction* is neither inherently abstract nor inherently concrete, but only is fixed as one or to other given its wider context.

7.3 *Personal and Participant Nominalizations*

The nominalizing affixes that we will examine next are the personal/participant nominalizers *-er*, *-ant*, *-ist*, *-an*, and *-ee*, affixes that I have written about at some length in Lieber (2004), as illustrated in the examples in (20a,c). I will also look at affixes that derive inhabitant/language/adherent nouns, including *-ite*, *-ish*, *-ese*, and *-i*, as illustrated in (20b).

- (20)
- | | |
|---------|--|
| a. -er | writer, printer, loaner, diner, fiver, insider, villager |
| -ant | accountant, decongestant |
| -ist | balloonist, extremist, conformist |
| -an | comedian, clinician, grammarian |
| b. -ite | Berkeleyite Manhattanite |
| -ish | Danish, English, Finnish |
| -ese | Burmese, Lebanese |
| -i | Iraqi, Israeli |
| c. -ee | employee, biographee |

The basic skeleton that they all share is that in (21):

- (21) [+material, β dynamic ([_R], <base>)]

The suffix *-ee* distinguishes itself from the others by having a [+animate] feature as part of its skeleton and a selectional restriction on its R argument, as in (22a); *-ist* also bears a [+animate] feature, but without the selectional restriction:

- (22)
- | | |
|---------|--|
| a. -ee | [+material, β dynamic, +animate ([_R -<nonvolitional>], <base>)] |
| b. -ist | [+material, β dynamic, +animate ([_R], <base>)] |

Among the affixes in (20), *-ant* is restricted to verbal bases and *-an* to nominal bases. The affixes *-ite*, *-ish*, *-ese*, and *-i* distinguish themselves by attaching primarily to proper nouns.⁸ The affix *-ee* takes either verbs or nouns as bases, with nouns being relatively rare. The affixes *-er* and *-ist* take a wide variety of bases – verbs, nouns, numbers, adverbs for *-er* and verbs, nouns, and adjectives for *-ist*. The reader is referred to Bauer et al. (2013: chapter 11) for further details of the formal characteristics of these affixes.

For the most part, the construal of personal nouns with the affixes in (20a) is straightforward, requiring less resolution of underspecification than the E/R nominalizers discussed in the [previous section](#). All such nouns are concrete, so the feature [material] is always [+material] and is not determined on the basis of context. The fixing of the feature [dynamic] depends here, as it did with the E/R nominalizers, on the value of [dynamic] in the verbal base, if there is one. If there is no verbal base, the feature [dynamic] simply remains unspecified. In most contexts, the indexing of the R argument of the affix is straightforward. Consider the examples in (23) (simplified examples from COCA):

- (23) a. Can you find the manuals for your particular **printer**, monitor, and digital camera?
b. James, a retired **printer**, popped into the welcome center Tuesday morning.

In both cases, the skeleton of *printer* is as in (24).

- (24) [+material, +dynamic ([_R], [+dynamic ([_i], [nonanimate]))]
-er print

As the R argument of the affix has no selectional requirements, the Principle of Coindexation simply coindexes it with the highest base argument, namely the first argument of *print*, identifying it with the subject of the base and fixing its reference as subject-oriented. We will see that although this is the default indexing for *-er* nominals, there is nevertheless reason that it cannot be fixed outside of a specific syntactic context.

- (25) [+material, +dynamic ([_{R-i}], [+dynamic ([_i], [nonanimate]))]
-er print

The LSF representation of *printer* is the same regardless of whether it is read as an agent or an instrument, the choice between the readings being dependent

⁸ The affix *-ite* also attaches to bound bases to form technical terms in geology, chemistry, and biology, and only very rarely to common nouns or adjectives (see Bauer et al. 2013: 228).

on contextual details and encyclopedic knowledge – for example, that monitors and cameras are inanimate, so that the likelihood of *printer* being inanimate in the context in (23a) is high as well, or that in (23b) *James* is the name of a human, and the action of “popping in” is not one expected of an inanimate object. In other words, what I assume is that the R argument of the suffix *-er* is unspecified for features like [animate], but that given its syntactic context, we can assume semantic characteristics of the intended referent. This is yet another effect of Contextual Coercion – an inference of animacy that can be drawn from general context.

Indexing of the affixes in (20a) when they attach to bases other than verbs is also straightforward. Consider the skeletons for *villager*, *balloonist*, *extremist*, *Manhattanite*, and *Spanish* in (26):⁹

- (26)
- a. villager
[+material, β dynamic ([_{R-i}], [+material ([_i]])]
-er village
 - b. balloonist
[+material, β dynamic, +animate ([_{R-i}], [+material ([_i]])]
-ist balloon
 - c. extremist
[+material, -dynamic, +animate ([_{R-i}], [-dynamic ([_i]])]
-ist extreme
 - d. Manhattanite
[+material, β dynamic ([_{R-i}], [+material ([_i]])]
-ite Manhattan
 - e. Spanish¹⁰
[+material, β dynamic ([_{R-i}], [+material ([_i]])]
-ish Spain

As the nominal bases in (26a,b,d,e) do not have the feature [dynamic], the affixal [dynamic] feature remains unspecified. Since the adjectival base in (26c) is specified as [-dynamic], the value of that feature is copied to the affix.

In all of the cases in (26), there is only one available indexing. Construal of such forms then depends on the semantics of the base, as well as on context and encyclopedic knowledge: *villagers*, *balloonists*, and *extremists* are people (or potentially things) that have or do something related to *villages*,

⁹ The analysis of *-er* forms like *fiver* or *insider* would be similar to that provided for the denominal and deadjectival forms.

¹⁰ Nouns in *-ish* might also require the features [+B, +CI] that signal collectivity. Note that *the Spanish* can only refer to a group, whereas *the Manhattanite* or *the Israeli* can refer to an individual.

balloons, and *extremes*, respectively. Such forms may have lexicalized meanings of course, but construal of novel forms will always require the support of context and sometimes encyclopedic knowledge. Consider the form *saloonist*, which occurs as a hapax in COCA. Outside of context, all we can tell is that it refers to someone who has something to do with saloons. But the extended context in which we find the word gives us everything else we need to know:

- (27) *San Francisco Chronicle* 1995: If the party reaches its expected level of indulgence tonight, gregarious **saloonist** Harry Denton will climb up and dance on the highest bar that has ever withstood his girth, 21 floors above Union Square at Harry Denton's Starlight Room in the Sir Francis Drake Hotel.

Apparently, *saloonist* in this context refers to someone who spends time at saloons, not to someone who owns them or writes about them.

For the nouns based on names (*Manhattanite*, *Israeli*, *Spanish*, *Nepalese*, and so on), construal depends on finding something processual that has to do with the place name – so in context, someone associated with the country or by extension a language that they speak. In effect, inhabitant affixes do not differ from other personal affixes in terms of their skeletons, but rather in terms of the bases that they choose. Indeed, we find that the affix *-er* can denote inhabitants as well as ordinary personal nouns when it occurs on a base that is a place name, as we find in forms like *New Yorker* or *Londoner*. And at least some of the inhabitant affixes can have a reading that we might refer to as “adherent of” when the proper noun that they attach to denotes a person rather than a place – for example, a *Chomskyite* or a *Bakhtinian*.

The analysis needed for nominals derived with *-ee* is substantially the same here as that given in Lieber (2004) and the reader is referred to that work for an explanation of the selectional requirements on the R argument of the affix, based on the analysis of Barker (1998). Briefly, the referents of *-ee* nominalizations are almost always people and most often the undergoers of an event or action rather than its initiator. In LSF, the R argument of *-ee* selects for a referent that is sentient but nonvolitional. The form *employee* begins with the composed skeleton in (28):

- (28) [+material, +dynamic, +animate ([_R-<nonvolitional>], [+dynamic ([<volitional>], [<nonvolitional>]))]
-ee employ

The value of the affixal [dynamic] feature is fixed as [+dynamic] on the basis of the base verb's value for that feature. Given the selectional requirement on the R argument of the affix, the only indexing possible is the one in (29):

- c. *Outdoor Life* 2005: I had taken bears before and had been hunting for several years for a truly outstanding bear, and here one was standing broadside at 20 yards. I didn't have to think twice about this bear. **It was a shooter.**

The form *shooter*, regardless of whether it is ultimately to be construed as an agent, an instrument, or a patient, always starts with the same basic underspecified skeleton, that in (32). The verb *shoot* allows for a subject argument that may be either animate or inanimate, but that must be able to bring about the action.¹¹ The feature I choose to represent this is characteristic based on a thematic role proposed by Borer (2013: 74), namely “originator,” which she defines as “a broad role, which within events roughly corresponds to ‘internal causers’ . . . but with the understanding that ‘external’ causers are always ‘internal causers’ as well, insofar as they are the internal causers of their own causing action.” The skeleton of the verb *shoot* will therefore be as in (32a). (32b) shows the composed skeleton for *shooter*, regardless of its eventual construal.

- (32) a. shoot [+dynamic ([<originator>], [])]
 b. [+material, βdynamic ([_R], [+dynamic ([<originator>], []))]
 -er *shoot*

The value of [dynamic] is set as [+dynamic] for all three construals, based on the value of the feature for *shoot*. For the readings in (31a,b), the expected indexing occurs, with the interpretation of agent in (31a) and instrument (31b) being determined by Contextual Coercion:

- (33) [+material, +dynamic ([_{R-i}], [+dynamic ([<originator>-i], []))]
-er shoot

The construal of *shooter* in the context illustrated in (31c) again starts with the skeleton in (32), but the extended context sets the referent of *shooter* as an animal, and encyclopedic knowledge rules out bears (as opposed to humans or guns) as originators of a shooting event. The only possible indexing consistent with our knowledge of bear-capabilities is the one in (34):

- (34) [+material, +dynamic ([_{R-i}], [+dynamic ([_{R-<originator>}], [_i]))]
 -er shoot

In the context of cartoon bears or supernatural bears, of course, the default indexing would be no problem, and the *-er* form would be easily construed as

¹¹ For example, we find an animate subject in *I shot the bear* and an inanimate one in *This gun only shoots blanks*.

agentive. But given the present context, within a framework like LSF that allows for underspecified skeletons and construal in context, the problematic patient interpretation is no longer problematic.¹²

We are left to explain the occasional use of *-er* forms as location nouns (*diner, sleeper*). As was the case with some of the ATK, *-ing*, and conversion location nouns mentioned in [Section 7.2](#), these remain somewhat of a mystery, as verbs like *dine* or *sleep*, in contrast to *dwell*, lack an obligatory location argument. In terms of argument structure, they are unergative; semantically a location argument might be at most implicit for them. We will therefore leave these aside here and postpone the discussion of these examples until [Section 7.6](#).

7.4 *Abstract Nominalizations*

The abstract nominalizing affixes in English include *-ness* and *-ity*, both of which attach mainly to adjectives, and *-dom*, *-hood*, and *-ship*, which attach primarily to nouns, but very occasionally to verbs and adjectives. As Bauer et al. (2013: chapter 12) point out, *-ness* is also rather productive on nouns, both simplex and compound, and even on phrases. In what follows, I will treat *-ness* and *-ity* on the one hand and *-dom*, *-hood*, and *-ship* on the other as sets of affixes that are semantically equivalent (just as I treat the ATK affixes as a set of semantically equivalent forms). This decision might seem controversial in light of the work of Riddle (1985) and Baeskow (2012), who treat *-ness* and *-ity* as semantically distinct, and Trips (2009), who treats *-dom*, *-hood*, and *-ship* as semantically distinct. However, as has been argued elsewhere (Lieber 2010b, Bauer et al. 2013), attempts to ascribe different semantics to affixes belonging to these cohorts can be called into question by corpus data such as the following in which forms seem completely interchangeable:

- (35) *Bicycling 2009*: The **purity** of having climbed Galibier is almost too much to bear – so raw, so honest that we need to step away, walk off and again convince ourselves that our jobs are important and our world depends, after all, on paying our phone bills and washing our cars and answering our e-mails.

New York Times 1998: And when the show is over, even if some of us think it maybe isn't so hot that night, there is Harvey clapping and cheering like a fan. He is a fan, and it is the **pureness** and passion of his enthusiasm that has defined his accomplishment.

¹² We will return shortly to the question of why the *-er* nominalization, as opposed to other conceivable nominalizations, might be chosen in this context.

- (36) *Newsweek 2003*: But despite the lure of full-time **gurudom**, Christensen says he finds B-school life too invigorating to give up.

People 1996: Now the doc is approaching **guruhood** as another chubster, Bill Clinton, signed on, and Hillary asked him to rework the White House menu.

Atlanta Journal Constitution 1993: That's Charles. He'll go out of his way to do something for a friend, even a stranger. Still, a busy life and impending **guruship** do have a downside.

While individual pairs of nouns in *-ness* and *-ity* (for example, *curiousness* and *curiosity*) or in *-dom*, *-hood*, and *-ship* (*kingdom*, *kinship*) may convey slightly different nuances, for the most part semantically equivalent doublets or triplets such as the ones illustrated in (35) and (36) are the norm rather than the exception. Differences in individual doublets can be attributed to lexicalization, while the core semantics of the affixes is the same.

In terms of lexical semantic interpretation, all of these are relatively straightforward, with little variation and the reason for this is rather simple, namely that their basic skeletons contain no underspecification and allow little, if any, variation in coindexation.

Typical forms derived with these affixes are given in (37):

- (37) a. *-ness* wildness, fullness, babeness
 -ity purity, complexity
 b. *-dom* geekdom, squirreldom
 -hood buddyhood, moviehood
 -ship guruship, queenship

As these uniformly derive abstract, non-processual nouns, the skeleton we would expect for them is the one in (38):

- (38) [−material ([_R], <base>)]

With the subordination of the base skeleton and operation of the Principle of Coindexation, we get skeletons like the ones illustrated in (39):

- (39) a. [−material ([_{R-i}], [−dynamic ([_i])))]
 -ness *wild*
 -ity *pure*
 b. [−material ([_{R-i}], [+material ([_{R-i}])))]
 -dom *squirrel*
 -hood *movie*
 -ship *guru*

What we find with these is that the affixal feature is fixed in value and the coindexation possibilities, given the nominal and adjectival bases that the

merchants, raising forces to make war on rival countries and also to strengthen the crown by putting down **brigandage** and local disorders.

San Francisco Chronicle 1999: Robin Williams is perfectly cast in this story based on a real doctor who uses **clownery** to reach out to patients.

- c. E/R ‘the event/state/result of Xing, being an X’

ENT: Ear, Nose & Throat Journal 1998: Bone dust is easily obtained during electronic implant surgery, since the temporal bone has to be drilled to create a mastoidectomy and a bed on the skull for **anchorage** of the receiver unit.

Denver Post 1997: After months of tense negotiations, the accord reached last week in Frankfurt, Germany, calls upon 29 industrialized Asian and European nations – ranging from Japan to Finland – to treat international bribery as a criminal act, just like they would **bribery** of one of their own officials.

- d. location ‘place where we X or find Xes’

San Francisco Chronicle 1991: Notwithstanding the few problems, residents living near the **anchorage** of the Bay Bridge say they like the renovations.

Fantasy & Science Fiction 1999: It has white clapboard siding, conservatively painted dark green shutters, the original eighteenth-century well, a floral clock, a flourishing herb garden, a **rockery**, and a paid-up mortgage.

In Lieber (2004: 148–151), I analyzed these affixes as bearing only the quantity features [+B, +CI]. The feature [+B] signals that the referent is limited spatially or temporally and [+CI] signals that the referent is composed of separable similar units. Together, these features signal that the referent is a group or collective noun. Their skeleton in Lieber (2004) is the one in (43):

(43) [+B, +CI ([], <base>)]

Within the analysis of Lieber (2004), the main reason for confining the skeleton to quantity features alone was that it was not possible within that version of LSF to give them the ontological features of SUBSTANCES/ THINGS/ESSENCES without setting the value of the feature [material] as either [+material] or [–material]. But some nouns in *-ery* and *-age* are concrete and others abstract. Eliminating the ontological features from their skeleton skirted the problem.¹³

¹³ In Lieber (2004), I also did not consider that the E/R nominalizers in their referential readings are also not consistently concrete or abstract, something that we have dealt with earlier in this chapter.

This cannot be the correct analysis, however. Very simply, some nouns in *-age* and *-ery* have bases that are unambiguously verbal and therefore the affixes must sometimes be category-changing. As the derived forms are always nouns, their basic skeletons must contain at least the feature [material]. Further, their ability to bear behavior and E/R readings suggests that the feature [dynamic] needs to play a role as well. The variability of *-ery* and *-age* words with respect to concreteness no longer poses a problem, though, since the feature [material] may be left underspecified and its value fixed on the basis of syntactic context and encyclopedic information. I therefore propose that *-age* and *-ery* have the skeleton in (44), rather than the one in (43):

- (44) *-age, -ery*
[α material, β dynamic, +B, +CI ([_R], <base>)]

Our task now is to see how to arrive at the readings we find for various forms via resolution of the underspecification of features and coindexing.

To a large extent the collective, E/R, and behavior readings follow straightforwardly from the proposed skeleton if we also take into account the category of the base (N or V), and for nominal bases, the type of noun. On verbal bases (or ones that are ambiguously nominal or verbal), such as *forge* or *stop*, the E/R reading seems more readily available. With bases that are nonanimate nouns such as *sign* or *word*, there is a tendency toward a collective reading, and this reading is especially prominent when the noun denotes a measure (*ton, acre*). With nouns denoting humans like *clown* or *brigand*, there is a tendency toward behavior readings. Of the two affixes, *-ery* is more amenable to the behavior reading and *-age* to the E/R reading, but as the examples in (41) illustrate, either may be found with either reading, so it is not clear that any distinction in the basic skeleton is merited.¹⁴ Location readings can appear with most kinds of bases: verb for *anchorage*, inanimate noun for *rockery*, human noun for *orphanage*.

I start here with *-age* and *-ery* forms on verbal bases, for example, the nouns *stoppage* or *forgery*, which generally display the E/R reading. Composing the affixal skeleton with the verbal base skeletons, we initially get the representations in (45):¹⁵

¹⁴ Indeed, it's possible to question whether the behavior reading and the E/R reading are really distinct readings or whether they are nuances of a more fundamental processual reading where modes of doing are highlighted in the former (*clownery* emphasizes what clowns do), whereas a state of being is highlighted in the latter (*concubinage* emphasizes the status of being a concubine). I leave this issue open here.

¹⁵ In the E reading, the skeletons in (45) would of course lack the affixal R argument.

- (45) a. [α material, +dynamic, +B, +CI ([_R], [+dynamic, +IEPS ([] , [])])] stop
 -age
- b. [α material, +dynamic, +B, +CI ([_R], [+dynamic ([animate], [nonanimate])]))] forge
 -ery

The dynamic feature gets the [+dynamic] value from the verbal base. Resolving the value of the feature [material] must be done in context, and, as the examples in (46) show, given the right context these nouns might be either abstract or concrete:

- (46) a. stoppage (abstract)
Journal of Information Systems 2002: Another by-product of **the stoppage** of jobs due to lack of materials is the creation of large work-in-process inventory of stacks of wood for individual customer's orders at various workstations because the order could not be completed.
- b. stoppage (concrete)
CNN_Cooper 2006: Here is Zarqawi, the ultimate warrior, trying to shoot his machine gun. He's shooting single shots. He looks down, can't figure it out. Calls his friend to come unblock **the stoppage**.
- c. forgery (abstract)
Atlanta Journal Constitution 2012: The "smart on crime" bill is expected to relax laws on theft, shoplifting and **forgery** by changing dated thresholds at which those crimes become felonies.
- d. forgery (concrete)
Washington Post 2011: McIntosh typed up the **forgery** and had a Japanese POW write the order in calligraphy to bolster its verisimilitude.

With the contexts in (46a,c), the feature [material] would get the negative value and with the contexts in (46b,d), the positive value.

We now come to indexing. For the skeleton in (45a), the indexing is straightforward, as there are no selectional restrictions on either argument: either argument may be animate or inanimate, sentient or non-sentient, and so on (e.g., *I stopped her*; *the barrier stopped the traffic*). The Principle of Coindexation therefore indexes the R argument of the affix with the highest argument of the base, as illustrated in (47a). For (45b), we have a more complicated situation. Note that the R argument of these affixes has no semantic restriction, so the Principle of Coindexation would, all other things being equal, coindex the affixal R argument with the highest verbal argument. That verbal argument is designated with the feature [animate], though, whereas in context the referent of the complex noun is clearly nonanimate. The only indexing that is semantically compatible is the one

As I suggested earlier, the behavior reading often occurs when these affixes are attached to nominal bases denoting types of people. Again, the basic skeleton in (44) allows us to derive this reading. Let us assume that nouns like *brigandage* and *clownery* have the composed skeleton in (50):

- (50) [α material, β dynamic, +B, +CI ([_R] , [+material, dynamic (_R)])]
 -age *brigand*
 -ery *clown*

Nouns such as *clown*, *brigand*, *midwife*, or *geek* are defined by what they do – in other words, they are inherently concrete and processual in nature. Given the composed skeleton in (50), the resolution of underspecification in context would be straightforward. The affixal value of the feature [dynamic] will remain unvalued, as the value of that feature in the base is itself unvalued. Recall that the feature [dynamic] in a processual noun is only valued if it receives a value from a verbal base via Feature Value Matching. Indexing is unproblematic here, as it was in the denominals discussed earlier: the affixal R argument is coindexed with the R argument of the base noun. The final point that needs to be discussed here is the valuation of the feature [material]. Presumably, the feature might be set as either positive or negative in any given context. If it is set as [+material], we would have a collective interpretation; potentially, in some context *brigandage* might refer to a bunch of brigands. If, however, the value of material is set as [−material], the behavior interpretation arises; that is, we construe an abstraction based on a type of person as something having to do with that person's behavior. Which we get will depend on the larger context in which the noun finds itself.

The last reading that we must consider for *-ery* and *-age* is the location reading, as we find in cases like *nunnery* or *orphanage*. In Lieber (2004), I treated this reading as a matter of sense extension from the collective reading to the place reading. There are a number of reasons why that analysis requires review here. First, we have managed to treat all the other readings of *-ery* and *-age* nouns, disparate though they seem at first, as variations on the same affixal skeleton on a variety of different bases together with the resolution of underspecification in the wider syntactic context. It is worth revisiting the location reading here to see if it is amenable to a treatment that does not require appeal to sense extension. The second reason for reviewing the forms with locational readings here is that, as we've seen in earlier sections, the derivation of place nouns in English generally proves to be

- (52)
- b. washing
[+material, +dynamic ([_{R-nonanimate-i}], [+dynamic ([<sentient>], [_{nonanimate-i}]))]
-ing *wash*
- c. loaner
[+material, +dynamic ([_{R-i}], [+dynamic ([_{animate}], [_i]))]
-er *loan*
- a. Lisa's **concoction** of 7-Up and grain alcohol created quite a stir in the cafeteria.
- b. Take the **washing** off the line.
- c. We pulled into the parking lot in our **loaner**.

In (51a,b), the value of the feature [dynamic] is based on that of the base verb, and the value of [material] is coerced by the contexts in which we find the nouns. The indexing is the only one that allows for consistency between the affixal R argument and the verbal skeleton, given the particular syntactic context. In (51c), the feature [dynamic] is again set on the basis of the feature in the verbal base and the value of the feature [material] in this case is lexically fixed for the affix *-er* as [+material], but again the indexing is the only one that is allowed by a context in which *loaner* refers to an inanimate object. In each case, the resolution of the underspecified parts of the affixal skeleton is driven by elements of the syntactic context in which the derived nominal occurs, helped along in this case by encyclopedic knowledge.

Derivation of location nouns in English is not nearly as systematic. We have seen that in some cases, the verbal skeleton arguably contains a [Loc] feature, which when indexed with the affixal R argument can account for the location reading. I repeat the skeleton proposed earlier for *dwelling* in (53):

- (53) [+material, -dynamic ([_{R-i}], [-dynamic ([animate], [+Loc ([nonanimate-i])]))]
 -ing dwell

Other verbs might have [Loc] features as well, for example, *reside*, from which we get a locational noun *residency*. But many of the derived nouns lexicalized with locational readings do not obviously require a [Loc] feature in the skeletons of their bases; consider nouns like those in (54):

- (54) a. ATK reservation, enclosure
-ing mooring
conversion dump, roost
-er diner, sleeper
-age anchorage
-ery eatery

- | | |
|----------|-------------------|
| b. -age | orphanage |
| -ery | nunnery |
| -dom | chiefdom, kingdom |
| -hood | neighborhood |
| -ship | dealership |
| c. -ness | fastness |

The nouns in (54a) are based on verbs, but unlike the verb *dwell* , a location argument is not a required element of the verb's skeleton. For example, the object of *dump* is the stuff dumped, that is, an inanimate patient. Similarly, the object of *enclose* is the stuff enclosed, again an inanimate patient. In the context of a sentence one can add a location to these, but as an adjunct rather than as a complement. Adjuncts, of course, would not be represented in the skeleton. The verb *sleep* is unergative, and therefore has only one argument, an agent. Again, a location might be added in the sentential context, but as an adjunct.

The derived nouns in (54b) are even more problematic, as their bases are nouns rather than verbs, and specifically nouns that do not themselves denote locations. The affixes are ones that we have seen give rise to abstract nouns or collective nouns, and only occasionally and sporadically to location nouns. The bases do not have a [Loc] feature, and there is no reason to think that the affixes themselves bear one. Of course, we could modify the skeleton of *-age* or *-ery* (repeated below in (55a)) to contain the [Loc] feature as in (55b), but if we did so, we would in essence be claiming that *-ery* and *-age* are homophonous rather than polysemous:

- (55) a. [α material, β dynamic, +B, +CI ([_R], <base>)]
 b. [α material, β dynamic, +Loc ([_R], <base>)]

There is reason to believe, however, that this is not a good solution. First, we might wonder why both *-age* and *-ery* display the same homophony; if they are homophonous, why not homophonous in different ways? We might further wonder why the locational versions of the affixes are both so unproductive. Postulating the two separate skeletons in (55) leaves these questions unanswered. I suggest that it would be preferable to treat each of these affixes as polysemous, and to seek a better explanation for the sporadic locational readings that we do find.

If polysemy cannot be attributed to the skeleton though, how does it arise? As I argued in Lieber (2004: 74–75), there are two sorts of polysemy that correspond to what Copestake and Briscoe (1996) call “constructional

polysemy” and “sense extension.” What they call constructional polysemy corresponds in LSF to polysemy that arises from different ways of resolving underspecification in skeletons in context (using Feature Value Matching, Contextual Coercion, the Principle of Coindexation). Sense extension, on the other hand, arises by inferences that we draw from context and does not involve variations on the skeleton. Note that the bases for these locational nouns are all ones that to some extent invite spatial inferences. For example, enclosing something implies a space in which that enclosing occurs. Dumping requires a place in which the dumped stuff lands. The nominal bases in (54b) are processual in nature, and although the spatial inference might be more remote, it is arguably there. If you have a group of orphans or nuns by inference they must be located somewhere. My point, then, is that the locational reading arises by inference from the general scenario evoked by the base. As long as the verb or noun allows a spatial inference in the scenario it evokes, a locational meaning is possible for the derived noun. Arguably, the more remote the spatial inference, the less likely it might be for the locational reading to occur.

The extent to which this spatial inference is possible is illustrated nicely by the example in (54c). This example has the suffix *-ness*, which takes adjectival bases, and almost never gives rise to locational nouns; indeed, this is the only such example I can find. Adjectives are perhaps naturally less likely to evoke scenarios that permit spatial inferences (think of adjectives like *happy* or *rich*, for example).¹⁷ But the adjective *fast*, in its reading of “firmly attached” or “fixed in place,” does seem more amenable to a spatial inference, and from that we can apparently get the (somewhat archaic) meaning of *fastness* as “stronghold” or “place that can be defended.” My point is that the locational reading can arise by sense extension with just about any noun-forming affix if its base allows some sort of spatial inference.

That said, some affixes are clearly more prone to spatial inferences than others and therefore more frequently give rise to location nouns. Perhaps the largest group of location nouns are derived with *-ery*. There are a handful with *-age*, but only *-ery* seems to give rise to novel location nouns with any frequency. For *-ery* novel forms like *boozery*, *dispatchery*, *feedery*, *meatery*, *roastery*, *weavery* can be found in COCA. The majority

¹⁷ The one sort of adjective that might require its own [+Loc] feature is ornative *-ed* (*bearded*, *wheeled*). I will not deal with these here, as I am interested for the most part in nouns denoting locations.

of novel *-ery* nouns that we find in COCA are proper nouns, specifically names of stores, restaurants, and businesses (*The Brown Dog Barkery*, *Murray's Toggery*).

7.7 *Modal and Evaluative Elements of Affixal Meaning*

We come finally to what may be uncharted territory. There are several areas of derivational semantics in English nominalizations that I have mentioned in the descriptive sections of this book, but which as yet have received no formal analysis in LSF, or indeed within any other formal treatment of derivational semantics that I know of. First, there is the affix *-ables* mentioned in [Chapter 4](#), which I argued is, or is in the process of evolving into a nominalizer that creates inanimate patient nouns with collective and deontic modal nuances that contrast with the dispositional/dynamic modal reading of inanimate patient nouns in *-er* and the modal neutrality of other inanimate patient nouns. Then, there are a number of affixes in contemporary American English that derive agentive nouns with an evaluative flavor, specifically *-eer*, *-ster*, and *-meister*. Thus far, LSF gives no way of representing anything of affixal meaning beyond ontological category (expressed by the features [material], [dynamic], and [IEPS]), quantity (expressed by the features [B] and [CI]), location, privation, and negation (expressed by the feature [Loc]), and gradability (expressed by the feature [scalar]). We must therefore raise the question whether additional features might be needed for characterizing modal and evaluative nuances of affixes, and if they are, what they might be. Alternatively, we might also consider whether the nuances of meaning that we see in these affixes might better be accounted for in ways other than the addition of features, for example, by attributing features or encyclopedic information to their bodies. What I will argue in this section is that the modals and evaluatives require different analyses, namely, the addition of a feature for *-ables* and of bodily characteristics for the evaluative agentive affixes.

An analysis of the nominalizing suffix *-ables* must begin by acknowledging that whatever its status in contemporary English, its origin must lie in the adjective-forming suffix *-able* plus the plural suffix *-s*, so it would make sense to begin our analysis with a consideration of the plural and the adjective-forming *-able*. In Lieber (2004: 151), I suggested that the plural inflection supplies the features [+B, +CI], and I will continue to assume this analysis in what follows. As for the adjective-forming suffix *-able*, in Lieber (2004) I suggested that adjectives are designated as [−dynamic], as stative verbs are, but are distinguished from stative verbs by the presence of the

feature [scalar], with the [+scalar] value indicating a gradable adjective and a [−scalar] adjective indicating a non-gradable adjective. I had little to say, however, about the semantics of adjectival affixes beyond the basics. A digression on this topic will therefore be necessary here, before we can proceed to the nominalizer *-ables*.

Consider three adjective-forming affixes in English, *-able* (as in *a protectable environment*), *-ive* (as in *a protective parent*), and *-ed* (as in *a protected environment*). As affixes that form adjectives from verbs, all three will share the basic skeleton in (56):¹⁸

(56) [-dynamic, +scalar ([], <base>)]

Clearly, the three affixes must be distinguished somehow, as they create different kinds of adjectives. The suffix *-ive* is distinguished from *-able* and *-ed* in being what Bauer et al. (2013) call subject-referencing; that is, assuming a verbal base *V*, if *p Vs q*, then *p* is *V-ive*. The affixes *-able* and *-ed*, in contrast, are object-referencing; again if *p Vs q*, then *q* is *V-able* or *V-ed*. Minimally, then, the affixal argument of *-ive* would require a different indexing than that of *-able* and *-ed*. Specifically, the Principle of Coindexation links the affixal argument for *-ive* with the first argument of the verb, but links the argument of *-able* and *-ed* with the second argument of the verb. This is reminiscent of the difference in indexing between *-er* and *-ee*, as we have seen in Section 7.4, and can be achieved by adding a selectional feature to the affixal arguments of *-able* and *-ed*; if we say that the argument of *-ive* has no particular semantic requirements, but that the affixal arguments of *-able* and *-ed* are designated as <nonvolitional>, we effect the desired indexing, as illustrated in (57):

(57) a. -ive [-dynamic, +scalar ([i], [+dynamic ([i],[i]))]
 -ive *protect*

b. -ed, -able [-dynamic, +scalar ([nonvolitional-i], [+dynamic ([i],[nonvolitional-i]))]
 -ed, -able *protect*

But this still does not allow us to differentiate *-ed* and *-able*, which clearly are not identical in meaning. That is, *-able* and *-ed* are not “rival” affixes like *-ness* and *-ity* or *-ation*, *-ment*, *-al*, and *-ure*. They are semantically distinct, differing

¹⁸ I leave aside the issue here of whether adjectival participles are formed with their own affix or are derived via conversion from verbal participles, as nothing in what follows hinges on this decision. I also leave aside the case of *-able* adjectives that are derived from nouns, either simplex ones (*brillable*) or based on deverbal nouns (*marriageable*, *pleasurable*). Such nouns are described in Bauer et al. (2013: 308).

base verb requires. The verb *burn*, for example, requires a concrete (nonanimate, and hence nonvolitional) object. The first argument of *burn* on the other hand must be an originator (an agent or instrument as discussed in [Chapter 3](#)). Since the R argument of the affix must be linked with a nonvolitional argument, and the concrete argument fits that bill, the value of the feature [material] must be set as [+material]. In other cases, the value might be set in context. Consider the word *desirables*. The verb *desire* requires an animate first argument, but its second argument might be anything, and it is the second argument that the affixal R argument will be linked to:

- [illegible]

The value of [material] must then be set in context, according to the intended referent of *desirables*. Consider, for example, the two contexts in (61):

- (61) *Anthropological Quarterly* 2008: Conversely, before my departure, I also received generous gifts of kamka (toasted corn flower), canned tuna, and sukrinha (sugar candy), despite the fact that these **desirables** were not consumed regularly in my neighborhood.
- Anthropological Quarterly* 1998: Hidden messages of morality – as a code that ritualizes, hierarchizes, organizes, and demarcates the social world – are embedded in the method. The way and how, not just the what of events, impart knowledge about cultural **desirables**.

Context makes it clear that in the first example, *desirables* refers to something concrete, but in the second to something intangible. The value of [material] must be set accordingly.

We turn now to evaluative agentive affixes like *-eer*, *-ster*, and *-meister* and ask whether we can find similar justification for distinguishing them skeletally from evaluatively neutral affixes like *-er* and *-ant*. In Chapter 4 (Table 4.2), I gave a single example for each of them. I give several more examples here to illustrate their evaluative nuances:

- (61) -eer
Washington Post 2005: A day after the cook-off, **brisketeer** Barsky had a chance to savor the victory with his family and put together his prize, a Weber smoker. “I knew it was pretty good,” he said modestly. “I wondered whether my win might have upset all those congregation ladies who are great cooks.

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New York Times 1992: Mr. O’Keefe, a **budgeteer** who has yet to sit for Senate confirmation of his post and who has never served in the military, decided after conferring with Defense Secretary Dick Cheney, who likewise has never served, that he has the moral authority to discredit the cultural ethos of the entire Navy based on the conduct of a group of drunken aviators in a hotel suite.

New York Times 2004: He has plenty of stories about seemingly luckless clients: the pimple-faced Republican **conventioneer** mistaken for a protester and arrested at Madison Square Garden when he entered an “off-limits” area; the wealthy businessman in town to close a big deal who was booked for stepping into a taxi with an empty wallet.

(62) -ster

Forbes 1996: The remaining stake is owned by **dealster** Michael Dingman, now a taxpatriate in the Bahamas (FORBES, Nov. 18), and by Unexim Bank, one of Russia’s homegrown merchant banks.

American Scholar 2012: Ethnicity, here, is a **hipster** with a food cart selling nouvelle Asian-fusion jerk chicken: a set of sensations uprooted from their context, to be mixed, matched, tweaked, twisted, and twirled.

Ebony 1995: Shaquille O’Neal, the 23-year-old Orlando Magic megastar center and master **dunkster**, is tossing a miniature basketball through one of the many hoops positioned throughout his sprawling, two-story, \$7 million home in an exclusive Orlando, Fla., suburb.

(63) -meister

Ploughshares 1997: On any other show, this would have made a grand season finale, but Phil was a **trashmeister** of the first degree, and he and his team whipped this trap up on a weekly basis.

T H E Journal 2007: When he’s not being a **cafemeister**, Strawn conducts classes, guides students who drop in for help with research, and leads a workshop for parents on how the teenage brain works.

Atlanta Journal Constitution 2005: Are we to believe that **coalitionmeister** Ralph Reed expects Georgians to entrust him with the office of lieutenant governor? When swine take flight!

All three of these are subject-referencing, specifically agentive, and all three are at least somewhat productive in contemporary English. In novel examples like these, the suffix *-eer* most often carries with it a nuance that suggests competition, sometimes playful (as in the case of *brisketeer*) and sometimes slightly disparaging (as in *budgeteer* and *conventioneer*). We might speculate that the nuance of doing something competitively carries over from some established examples like *musketeer* or *mountaineer*; although not all established examples are equally evaluative (*wagoneer*, for example, is not). The *-ster* suffix is no longer the historical feminine suffix (as in *spinster*), but

rather is an agentive with a flavor that is sometimes derogatory (*dealster*, *hipster*) and sometimes slightly admiring (*dunkster*). The suffix *-meister* is clearly borrowed from German and is also at least somewhat productive in contemporary English. Its nuance is, more often than not, one of positive evaluation, but not always as the *coalitionmeister* example suggests. What these examples illustrate is that there is always some sort of evaluative nuance with these suffixes, but the specific nuance is not necessarily the same from one item to the next. Compare this to the stability of the modal nuance of nouns in *-ables*: all nouns in *-ables* convey a nuance of deontic modality, another reason for attributing this aspect of meaning to the skeleton. The variability of the evaluative nuance, in contrast, suggests to me that it would be better to treat the evaluative component of the meanings of these suffixes as a matter of encyclopedic knowledge, as part of their bodies, that is, rather than building evaluation into their skeletons.

Note that the treatment of the evaluative nuances of *-eer*, *-ster*, and *-meister* is not meant to extend to the analysis of bona fide evaluative affixes – diminutives and augmentatives – in languages that exhibit such morphology. The semantic effects of diminutives and augmentatives are notoriously subject to polysemy, but in some languages they bear a consistent gender or trigger agreement with other elements in the sentence, suggesting that evaluation needs to be represented as part of the skeleton in those cases. As this seems not to be the situation in English, I leave the representation of pure evaluatives to further research.

7.8 Conclusion

In this chapter, I have tried to cover a wide range of referential readings that derived nouns can bear, from the result, product, and inanimate patient readings that are most typical of ATK, *-ing*, and conversion nouns in their non-eventive guise to personal and participant nouns of various sorts, to abstracts, collectives, and even oddball outliers such as *-ables*, *-eer*, *-ster*, and *-meister*. I have tried to look at nominalization not only from the point of view of the morphological types (various affixes, conversion) that English makes available to speakers but also from the perspective of nominal meanings that speakers need somehow to express. My overall goal has been to show that LSF is capable of explaining how a limited range of morphological types can be adapted to a wide range of semantic territories. Nominalizations share a core of semantic skeletons that can be lexically underspecified in several ways: the feature [dynamic] can be present or absent; if present, the value of the feature

can be fixed by feature matching or not; the value of the feature [material] can be lexically fixed, as with the personal/participant affixes, or not, as with the referential reading of ATK, *-ing*, and conversion Ns; the affixal arguments can be specified for features of animacy, sentience, or volitionality, or not. Whatever lexical underspecifications we find in the composed skeletons of nominalizations must be resolved in context via Contextual Coercion and coindexation. The vast majority of readings we find for complex nouns, both the expected ones and the unusual ones, can be attributed to the same range of mechanisms. There are only a few cases (in English) that we must attribute to sense extensions. The ultimate conclusion we draw is that both eventive and referential readings are a matter of lexical semantics but that lexical semantics is never purely lexical. As Hanks (2013: 65) puts it, lexical items have meaning potential rather than meaning. The meaning potential of a complex noun starts as a function of the combination of affixal and base skeletons, but the actualization of the ultimate reading of the complex noun requires the use of syntactic context as well as encyclopedic information.

8 *Nominalization and Compounding in LSF*

One final aspect of nominalization in English that remains to be examined is the behavior of complex nouns in compounds, more specifically the interpretation of what Bauer et al. (2013) call “argumental compounds.” These include what in the English tradition have traditionally been referred to as “synthetic compounds,” in which the second element is typically an *-er*, *-ee*, *-ing*, or ATK nominalization, and the first element is interpreted as an argument of the verbal base of the nominalization, most often the object/internal argument, for example, *truck driver*, *city employee*, *truck driving*, *resource allocation*, *cost containment*, and the like. But they also include compounds that have only rarely been discussed in the literature, which in previous works I have called non-affixal (de)verbal compounds (henceforth NDVCs) (Lieber 2010a, 2016).¹ NDVCs are derived with one element that is a conversion noun (*dog attack*) or is indeterminately a verb or its corresponding conversion noun (*attack dog*). The other element of the compound is typically interpreted as an argument of the (de)verbal element. I refer to the traditional synthetic compounds and NDVCs together as argumental compounds.

Although NDVCs have received little attention, the analysis of synthetic compounds has been a subject of interest for many years, both to syntacticians (Lees 1960, Grimshaw 1990, Alexiadou & Schäfer 2010, Borer 2013, among others) and to morphologists (Roeper & Siegel 1978, Selkirk 1982, Lieber 1983, 1992, 2009, 2010a, 2016, forthcoming, Bisetto & Scalise 2005, Scalise & Bisetto 2009, among others). As was the case with the E/R nominalizations discussed in Chapter 3, a number of claims have been made in the literature based on linguists’ intuitions, and theoretical accounts have been built on the

¹ There is some mention of compounds of this sort in Jespersen (1943) and Marchand (1969), and more recently in Bauer and Renouf (2001) and Jackendoff (2009).

basis of those claims. In this chapter, I will begin in [Section 8.1](#) by reviewing some of the common claims in the literature. In [Section 8.2](#), I will explore the extent to which data from COCA corroborate those claims. Finally, in [Section 8.3](#) I will provide an LSF analysis for the data that we find. We will see that the analysis of argumental compounds in LSF follows straightforwardly from the analysis of nominalizations I have developed in [Chapters 5–7](#).

8.1 *Claims*

As was the case with nominalizations in general, several claims have been made about the behavior of nominalizations in the context of synthetic compounds. From early works in generative morphology such as Roeper and Siegel (1978), Selkirk (1982), and Lieber (1983) through more recent syntactically oriented works such as Grimshaw (1990), Alexiadou and Schäfer (2010), and Borer (2013), we find claims like these:

- (1) Synthetic compounds
 - a. *No subject arguments*: The first element in synthetic compounds cannot be construed as the subject argument of the verb (**girl-swimming*) (Selkirk 1982: 34, Grimshaw 1990: 15).
 - b. *No unaccusative verbs*: The single argument of an unaccusative verb cannot be expressed in a synthetic compound (**leaf-falling makes a big mess*) (Grimshaw 1990: 17).
 - c. *First sister*: The first element of the synthetic compound must be the “closest sister” of the verbal base and all internal arguments of the verb must be satisfied within the compound (**tree eating of pasta*, **book giving to children*, **child-giving of books*) (Selkirk 1982: 37, Grimshaw 1990: 14).
 - d. *Transitivity*: If the deverbal head of the compound is based on a causative/inchoative verb, a synthetic compound cannot have the inchoative interpretation (e.g., *tomato growing* must mean “the growing of tomatoes by someone” and not “tomatoes grow”) (Borer 2013: 587).
 - e. *By-PPs and event diagnostics*: Synthetic compounds do not tolerate *by*-PPs or event diagnostics like temporal adverbs, aspectual modifiers, or purpose clauses (e.g., *the emperor stabbing (*by Brutus) (*for ten minutes) (*in order to eliminate him from Roman public life)* (Borer 2013: 581).
 - f. *Achievement verbs*: Synthetics in *-ing* cannot have achievement interpretations (e.g., **summit reaching*, **task finishing*) (Borer 2013: 618).
 - g. *No pluralization*: Synthetic compounds in *-ing* resist pluralization (e.g., **decision makings*, **face liftings*) (Borer 2013: 618).
 - h. *Dispositional readings*: Synthetic compounds in *-er* have dispositional readings rather than episodic readings. That is, it is claimed that whereas

someone can be a *history teacher* without ever having taught history, one cannot be a *teacher of history* without actually having taught history (Rappaport Hovav & Levin 1992, Alexiadou and Schäfer 2010). The latter can only refer to an actual event.

It would take us too far afield to explain exactly why the patterns enumerated in (1) are claimed to be unacceptable: in most cases the reasons given by Selkirk, Grimshaw, Borer, Alexiadou and Schäfer, and others who ascribe to them are theory-internal. Generally such predictions of ungrammaticality follow from the nature of the particular structure that is associated with the synthetic compound in question. As I have done in previous chapters, rather than taking on all the previous analyses that have been based on claims like those in (1), I will try to show that the empirical claims themselves are incorrect, and therefore that previous analyses based on them cannot be correct either. In the [next section](#), I use corpus evidence to explore the claims in (1), looking in some detail at the syntactic environments in which argumental compounds are found and at their construal in those environments.

8.2 The Corpus Data

Given what we saw in [Chapter 3](#), it should not come as a surprise that it is possible on the basis of corpus data to call many of the claims (1) into question. As was the case in the discussion in [Chapter 3](#), I concentrate here on claims of unacceptability for some pattern or reading. In such cases, it is clear how the claim in question can be falsified – we have only to find attested examples in the corpus. We look at each of the claims in (1) in turn.

8.2.1 No Subject Arguments

Early literature on synthetic compounds in the generative tradition (e.g., Roeper & Siegel 1978, Selkirk 1982, Lieber 1983, DiSciullo & Williams 1987) consistently claims that the subject cannot be expressed as first element of synthetic compound, a claim that Grimshaw (1990) picks up as well. As the examples in (2) show, this is not the case for any of the three basic types of E/R nominalization:

(2) a. *-ing*

Journal of Environmental Education 1997: However, when we analyzed the effect of **teacher rating of** the experimental children (i.e., most interested, least interested, not rated), the results showed a significant relationship between teacher rating and the extent to which parents

reported talking with their children about the environment, $F(2, n. 44) = 4.42, p = .013$.

b. ATK

PBS_Newshour 1991: Mr. Veliotis, isn't that one of the other arguments that is behind **administration refusal** to get involved, that success by either the Kurds or the Shiites would mean either an administration by one of them or the dismemberment of Iraq?

c. conversion noun

CNN_LiveSat 2005: Her face was severely disfigured in a **dog attack**.

We find that in argumental compounds whose head is an ATK, *-ing*, or conversion noun, the first element can indeed bear a subject interpretation. I should point out that the No Subject generalization has been disputed in the literature for some time now – Bauer and Renouf (2001) give examples from their own corpus work, and I have argued the falsity of this claim as well in Lieber (2009, 2010a, 2016, *forthcoming*). Examples like those in (2) are not at all rare, and they give further evidence that this claim should be put to rest.

Note that we would not expect the first element of the compound to be interpreted as subject if the second element is a nominalization in *-er*. As we saw in Chapter 7, the R argument of the *-er* skeleton is typically coindexed with the subject argument of the base verb, so that argument is unavailable to appear as the first element of the compound. On the other hand, as the subject argument of the base verb is typically unindexed in *-ee* nominalizations, we should expect the subject interpretation to be the norm when argumental compounds are formed with *-ee* nominalizations. This is indeed the case, as the example in (3) suggests:

- (3) *Denver Post 2012*: Ludwig Diaz Montenegro was a Cuban guide and **government employee**; . . .

8.2.2 *No Unaccusative Verbs*

Prior literature has also extended the putative prohibition on having an external argument as the first element of a synthetic compound to the single argument of an unaccusative verb, so that, for example, it is said that we should not find cases like **leaf-falling makes a big mess* (Grimshaw 1990: 17). But again, such cases can easily be found and seem unproblematic in context:

- (4) *Newsweek 1997*: And it is already happening: seas have risen by almost 10 inches this century, and more thermal expansion of seawater and **glacier melting** will push oceans up even farther.

Omni 1994: Cold water has long been used as a remedy for fevers and as an agent for **blood coagulation**, and for years physicians have suspected it could be harnessed for more advanced procedures.

Fortune 2001: TO ENSURE THAT YOUR BAGGAGE TRAVELS WITH YOU WE MUST CLOSE OFF BAGGAGE CHECK IN 10 MINUTES BEFORE **flight departure**.

Diablo 2010: The **train arrival** was always a big event in town.

Note that we find both unaccusatives that occur as members of inchoative/causative pairs (*melt, coagulate*) and unaccusative verbs of directional motion (*depart, arrive*) in synthetic compounds with subject interpretation.²

The original reason for this claim is no doubt linked to the classic derivation of unaccusatives in generative theory in which the single argument of the unaccusative starts as the complement of the verb and is moved to subject position via a DP Movement rule. There is no reason to believe that the syntactic analysis of unaccusatives is flawed – but by the same token, if the subject interpretation in synthetic compounds is unproblematic for other verbs, it should be unproblematic for unaccusative verbs as well.

8.2.3 First Sisters

Moving to the claim in (1c), it has also been common since the early literature on synthetic compounds to claim that the first element of a synthetic compound should be the closest complement of the verbal base of the nominalization; that is, we should find compounds like *pasta-eating in trees*, but not **tree-eating of pasta*. This generalization has been encoded, for example, in Selkirk's First Sister Principle, and again is a claim that is repeated by Grimshaw (1990). Once again, it is a generalization that is easily falsified with corpus data:

- (5) *San Francisco Chronicle 2009*: But one thing the automakers have learned is that it helps to have widespread **field testing of unfamiliar cars** by fleet operators before trying to sell them to the public.

CNN_LiveSat 2001: Right, she's also featured in the magazine, in the special issue which, by the way, is the single largest **print celebration of Black History Month** in the country because our circulation at "USA Weekend" is 25 million.

In the first example in (5), the complement of *test* would be *unfamiliar cars*, with *field* being an adjunct. Similarly, in the second example, *print* is an adjunct, whereas the complement of *celebrate* is *Black History Month*.

² Many thanks to Ingo Plag for pointing out the *flight departure* and *train arrival* examples to me.

8.2.4 Transitivity

The claim in (1d) refers to what Borer (2013: 587) calls the Transitivity Effect: if the head of the synthetic compound is based on a causative/inchoative verb like *grow*, *boil*, or *sink*, the synthetic compound must have a causative/transitive interpretation, rather than an inchoative/ intransitive one. So *tomato growing* must be interpreted as “someone grows tomatoes” rather than “tomatoes grow.” But again, this seems not to be the case, as the example in (6) suggests:

- (6) *Science News 1993*: A number of researchers riding the waves near the fires also expressed bewilderment at how quietly the fire burned. Absent were the roar and explosive popping characteristic of tank fires. Moreover, Fingas says, peak temperatures appear to have reached about 2,000 degrees F, yet failed to induce the **water-boiling** typically seen in those smaller fires.

Here, the context makes it clear that the boiling event described in this passage is not caused by the researchers, but is induced by surrounding conditions; this is an inchoative interpretation of *boil*, rather than a causative one. The first two examples in (4) are relevant here as well. The Transitivity Effect seems not to be corroborated.

8.2.5 By-PPs and Event Diagnostics

Borer makes several other claims as well, which are summarized in (1e). She suggests, for example, that synthetic compounds do not tolerate *by*-PPs or event diagnostics such as temporal adverbs, aspectual modifiers, or purpose clauses; her example is the composite *the emperor stabbing (*by Brutus) (*for ten minutes) (*in order to eliminate him from Roman public life)*, where the * inside the parentheses indicates that the phrases in question cannot occur with the synthetic compound (Borer 2013: 581). But *by*-PPs and event diagnostics do seem to be attested in the corpora (albeit not all at once!). Synthetics based on ATK and *-ing* nominalizations occur in both the active and passive configurations, as the example in (7) illustrate:

- (7) a. passive configuration:
Adolescence 2008: These procedures were part of the regular program protocol and allowed for continuous **data collection by trained observers** who were present and collecting this data within the naturally occurring environment of the facility.
- b. active configuration:
Journal of Instructional Psychology 2011: It has been reported that both announced and unannounced quizzes increase attendance (...), increase

student reading of assigned material (...) and increase studying in between exams as opposed to “cramming” (...).

The passive configuration, of course, is the one in which a *by*-PP occurs.

It is also possible to find synthetic compounds with event diagnostics such as temporal modifiers, aspectual PPs, purpose clauses, and agent-oriented adjectives, at least when the nominalizers are *ATK*, *-ing*, or conversion nouns. Only temporal modifiers occur with *-er* nominalizations.

- (8) event diagnostics
- a. temporal modification:
Sporting News 2006: But if you look at his history with the chemistry issues with his last two quarterbacks and the fact he is a **constant attention getter** and when things don't go well, problems occur with him, you don't want that with a young team.
Practice Nurse 2011: In psychiatric practice, long-acting preparations can be used to avoid **frequent drug administration** to patients who find it difficult to remember, or who refuse to take their medications by the oral route.
 - b. aspectual modifiers:
Atlanta Journal Constitution 1991: A trip to mediation didn't resolve their differences, and both landed in **in-school suspension for several days**.
Orthopaedic Nursing 2003: They are treated with **neck immobilization for 6 weeks**.
 - c. purpose clauses:
IBM Journal of Research & Development 1999: The most important aspects dealt with are the following: Compatible speed for all chips which are tied together in the processor cycle domain. Chip design improvements via logic and physical design for the slowest chips in the set. **Chip characterization to identify limitations** (voltage, line center, burn-in, etc.).
 - d. agent-oriented adjectives
Washington Post 1991: Bush is also resisting extending to women the ability of racial minorities to collect monetary damages for **intentional job discrimination**.
American Craft 2005: Nonetheless, the potential of glass from the vantage of surface field and **deliberate mark making** is evident in several untitled works from 1998 and 1999, in which colored glass rods are fused into a panel of thick glass to suggest hand-drawn marks or a mottled and layered mosaic effect.

As mentioned in [Chapter 3](#), it is difficult to find examples with aspectual PPs and purpose clauses that clearly modify the head of the synthetic

compound (i.e., the nominalization) rather than a preceding verb, but the examples in (8) seem to suggest the correct interpretation. Assuming that, for example, the bolded sequences in (8b) are meant to be read as a suspension of several days in length or an immobilization lasting six weeks, or in (8c) that the reason for characterizing chips is to identify limitations, we do find aspectual PPs and purpose clauses of the relevant sort. It seems, then, that event diagnostics can indeed occur with synthetic compounds.

8.2.6 No Achievement Verbs

Moving on to the claim in (1f), according to Borer (2013: 618), synthetics in *-ing* should not be available with achievement verbs, but again typical achievement verbs like *explode* and *reach* do seem to occur unproblematically in synthetics whose second element is an *-ing* nominalization.

- (9) *Cosmopolitan* 2010: Stick to crowd-pleasing classics like nachos, and present a selection of hot sauces that range from flaming to **face-exploding**.
Art Bulletin 2008: Neither Wood nor other Regionalists, however, took the proactive role that Benton did in promoting the movement's **section-reaching** mission.

8.2.7 No Pluralization

The last of Borer's claims in (1) (2013: 618) is that synthetic compounds in *-ing* resist pluralization. But here also examples of pluralized synthetics in *-ing* can readily be found:

- (10) *Current Psychology* 1995: Investigations of the desire for control construct have shown that individuals with high **achievement strivings** also have a high desire for control.
PBS_Tavis 2006: And in fact, in those days, what we really looked at were **aircraft hijackings**.

In this regard, synthetics whose second element is a nominalization in *-ing* behave no differently than any other argumental compound.

8.2.8 Dispositional Readings

The final claim we test here is the one found in Alexiadou and Schäfer (2010) to the effect that synthetic compounds in *-er* typically have dispositional readings. This claim seems plausible enough with the examples that recur frequently in the literature – a *lifesaver* need never have saved a life, a *history teacher* might never have been able to get a job teaching history. Some *-er* argumental compounds clearly do have dispositional readings. But this seems more like a

tendency than a strict rule. Indeed, for *-er* nominals that do not express occupations, the non-dispositional reading is easy enough to find, as we see in (11) with the compound *child murderer*:

- (11) *Walking to Gatlinburg 2010*: The article reported that the five escaped war criminals were the worst dregs that the conflict between the states had produced. Their numbers included a slave killer, a **child murderer**, an unfrocked minister, and a disbarred army doctor who, so far from healing the wounded soldiers under his care, had practiced vivisection upon them.

Further, as we saw in [Chapter 4](#), the configuration in which the *-er* noun is followed by a complement in the form of an *of*-PP can have either dispositional or non-dispositional readings as well.

- (12) *San Francisco Chronicle 2006*: Just inside the door at Calmart, Calistoga's one and only supermarket and deli since Palisades Market closed last year, sits a **dispenser of sanitizing towels**, so customers can wipe off shopping cart handles and child seats.

Given that *dispenser* here is an instrument noun, and that instrument nominalizations always allow dispositional readings, we must allow for dispositional readings with *of*-PPs as well. So it seems that the interpretation of *-er* forms is not strictly correlated with the configuration in which the *-er* nominal is found. To the extent that there is a tendency toward the dispositional reading in argumental compounds in *-er*, however, there may be something to be said, and we will return to this point later.

What we find, then, is that the claims that have been made in the literature regarding argumental compounds fail to stand up when we look for corpus examples, just as we found with the claims we explored in [Chapter 3](#) with regard to nominalizations in general.

8.2.9 Interim Summary

What, then, are the generalizations that an analysis of argumental compounds actually needs to account for? I set these out in (13):

- (13)
- a. The first element in argumental compounds whose second elements are ATK, *-ing*, or conversion nominalizations can be construed as any argument of the base verb. That is, neither the No Subject nor the First Sister generalizations obtain.
 - b. The first element in argumental compounds whose second elements are personal or participant nominalizations is generally restricted in interpretation as follows:
 - i. For those whose second element is a nominalization in *-er*, the first element is typically interpreted as object.

- ii. For those whose second element is a nominalization in *-ee*, the first element is typically interpreted as subject.
- c. Argumental compounds whose second elements are ATK, *-ing* or conversion nominalizations are compatible with all kinds of event diagnostics. When the second element is an *-er* nominalization, temporal modification seems to occur, but not the other diagnostics.
- d. The interpretation of argumental compounds whose second elements are ATK, *-ing*, and conversion nouns is not limited according to verb type. For an argumental compound based on a causative/inchoative base, the compound may have either the transitive or intransitive interpretation in appropriate contexts. Achievement interpretations are possible in *-ing* compounds.
- e. Argumental compounds in *-ing* can be pluralized in appropriate contexts. Argumental compounds are no different from other compounds or from non-compounded nouns in terms of pluralization.
- f. Argumental compounds in *-er* can have either dispositional or non-dispositional readings.

The upshot of (13) is that synthetic compounds are amenable to a far wider range of interpretations than hitherto assumed, in terms of the argumental interpretation of the first element of the compound, in terms of the interpretation of the nominalizations themselves, and in terms of the eventive interpretations open to the compounds as a whole. As we found at the ends of [Chapters 3](#) and [4](#), the landscape for argumental compounds turns out to be somewhat different than has been claimed in the literature. It remains to be seen whether this altered landscape is amenable to treatment within LSF. It is to this task that we turn in [Section 8.3](#).

8.3 *The LSF Analysis*

In this section, I will argue that LSF makes available the means to account for the generalizations we have been led to on the basis of corpus data. I will begin first with a brief introduction to compounding in LSF, and then go on to look at argumental compounds in some detail. Much of the analysis to be presented below is based on Lieber (2009, 2010a, 2016, [forthcoming](#)).

8.3.1 *Compounding in LSF*

Compounds differ from derived words in LSF in that they involve the concatenation of two lexical semantic representations (skeletons and bodies), rather than the subordination of a base representation by an affixal representation as we find with derivation. But the Principle of Coindexation serves to integrate skeletons in the same way, regardless

of whether they are composed by concatenation or subordination. Non-argumental compounds include both attributive compounds (typically called “root compounds” in the English tradition) and coordinative compounds, as illustrated in (14):

- (14) non-argumental compounds
 a. attributive: day bed, sky blue, blackboard
 b. coordinative: scholar-athlete, blue-green, Austria-Hungary

For an attributive compound like *day bed*, the representations of *day* and *bed* will be concatenated, as we see in (15). The Principle of Coindexation straightforwardly indexes the R argument of *day* and the R argument of *bed*, which indeed are the only arguments available for coindexing.

- (15) day bed
 [−material([_{R-i}])] [+material ([_{R-i}])]
- | | |
|------------------|-----------------|
| <i>day</i> | <i>bed</i> |
| <temporal> | <artifact> |
| 24 hour interval | <3-dimensional> |
| opposed to night | <function> |
| | for sleeping |
| | flat |
| etc. | soft |
| | etc. |

The coindexation in (15) signals that the compound is referentially integrated. That is, a *day bed* refers to a single entity, rather than two separate entities signaled by *day* and *bed*. Included in the representation in (15) are both the more formal features belonging to the body and some of the encyclopedic information that might occur in speakers’ representations. As compounds in English are right-headed, the unified referent of the compound is concrete and an artifact, characterized by the rest of the features and encyclopedic bits in the body of *bed*. The remainder of the interpretation of the compound is a matter of the speaker or hearer finding some contextually plausible relationship between the semantic representations of *day* and *bed*. It is well known that the interpretations of attributive compounds are highly dependent on context and encyclopedic knowledge, so I will not elaborate further on this point here. The reader is referred to Lieber (2016) for a more complete discussion.

Coordinative compounds like *student-athlete* receive a similar analysis within LSF. The lexical semantic representations of the individual bases are concatenated, as in (16):

- (16) student athlete
 [+material, dynamic ([R-sentient-i])] [+material, dynamic ([R-sentient-i])]
- | | |
|----------------|----------------|
| <i>student</i> | <i>athlete</i> |
| <animate> | <animate> |
| <human> | <human> |
| goes to school | plays sports |
| etc. | etc. |

As was the case with the attributive compound, the indexing is straightforward. In this case, however, the skeletons of *student* and *athlete* are identical, as are the more formal features that make up their semantic bodies. The differences lie in the less formal, encyclopedic bits comprising their bodies. The referential integration of the two nouns is quite straightforward, then, as little negotiation is required to arrive at an interpretation. The two nouns can be equated with one another – which is what the coordinative interpretation is in coordinative noun–noun compounds in English.³

The main subject of this chapter is, of course, the interpretation of argumental compounds. When we come to these, we find that referential integration of the compounded elements involves more work for the Principle of Coindexation than is the case for attributive and coordinative compounds, and it is somewhat less dependent on context and the encyclopedic knowledge encoded in the semantic body. We will see in the [next section](#) that these compounds nevertheless receive a straightforward analysis in LSF.

8.3.2 Analyzing Argumental Compounds: Synthetic Cases

In one sense, argumental compounds are actually the most straightforward type of compounds to account for, as their interpretation is least dependent on aspects of the semantic body. Rather their interpretation generally arises from the effects of indexing on the base skeletons.

I begin with argumental compounds whose heads are personal nominalizations in *-er* and *-ee*; for example, *truck driver* and *city employee*. Assuming that the complex word *driver* has the skeleton in (17a) and *truck* has the skeleton in (17b), the Principle of Coindexation would give us the composed skeleton in (17c).

³ This is somewhat simplified. Coordinative compounds can of course involve interpretations other than the strict “and” interpretation. These include an additive interpretation, as we find in *Austria-Hungary* and a mixture interpretation as we find in *blue-green*, among others. As the nuances available to coordinative compounds are not directly germane to the subject of this chapter, however, I refer the reader to Lieber (2016) for a more thorough treatment.

- (17) a. driver
 [+material, dynamic ([_{R-i}], [+dynamic ([animate-i], [nonanimate]))]
 -er drive
- b. truck
 [+material ([_{R-nonanimate}, <artifact>])]
 truck
- c. truck driver
 [+material ([_{R-nonanim}, <artifact>-j])] [+material, dynamic ([_{R-anim-i}], [+dynamic ([anim-i], [nonanim-j]))]
 truck -er drive

Because the suffix *-er* has already indexed the highest argument of *drive*, the R argument of *truck* is then preferentially coindexed with the second argument of *drive*, and *truck* therefore comes to be interpreted as complement of *drive*.

However, given a deverbal noun that has a different indexation pattern, the first element of a compound might be given a subject interpretation, rather than a complement interpretation. Consider, for example, the suffix *-ee*, which requires its R argument to be coindexed with a verbal argument that is sentient but nonvolitional. When a deverbal noun like *employee* is compounded, the only argument left available to be coindexed by the first element of the compound is the highest argument of the verb.

- (18) city employee
 [+material ([_{R-j}])] [+material, dynamic, +animate ([_{R-sentient}, nonvolitional-i], [+dynamic ([_{vol-j}], [_{sentient-i}]))]
 city -ee employ

The resulting interpretation is that *city* receives the subject/agent interpretation.

The properties of compounds like *truck driver* and *city employee* have been covered extensively in the literature on synthetic compounds. Less well understood are the properties of synthetics based on ATK and *-ing* nominals. We begin with argumental compounds based on ATK nominalizations; for example, *hospital construction*, *birthday celebration*, or *family celebration*. If ATK nominalizations can have either E or R readings, we might expect that argumental compounds based on them might have either E or R readings as well.

Not surprisingly, we do find E interpretations with argumental compounds based on ATK nominalizations. Indeed, we find with the E interpretation that the first element of the compound can receive either a subject or an object interpretation, contrary to the claim in (1a), and also, perhaps more surprisingly, that with the first element of the compound interpreted as an object a *by*-PP can occur, and with the first element interpreted as a subject an *of*-PP can appear. Consider the examples in (19):

- (19) a. *CBS_Morning 2001*: It's a 50th **birthday celebration by The Nature Conservancy**, which commissioned 12 great photographers, to chose a favorite spot from among the many The Conservancy protects and then photograph it each in his or her own way.
 b. *Associated Press 2000*: One of them, Philipsburg Manor in Sleepy Hollow, N.Y., begins the season with a Dutch-style **family celebration of St. Nicholas Day**, Dec. 5 and 12.

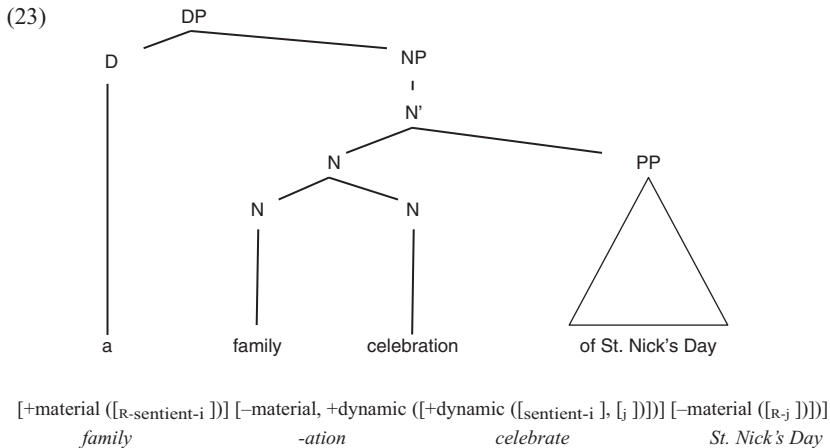
These patterns can be accounted for if we assume that *celebration* in the examples in (19) has the E skeleton proposed in Chapter 5 and discussed at length in Chapter 6. We repeat that skeleton here as (20). When the E skeleton is combined with a verbal base, there is no process of coindexation, as there is no affixal R argument that needs to be integrated into the composite skeleton. The composed skeletons for *birthday celebration* and *family celebration* are illustrated in (21).

- (20) celebration (event reading)
 [−material, +dynamic ([+dynamic ([_{sensient}], []))]
 -ation celebrate
- (21) a. [−material ([_R])] [−material, +dynamic ([+dynamic ([_{sensient}], []))]
 birthday -ation celebrate
 b. [+material ([_R])] [−material, +dynamic ([+dynamic ([_{sensient}], []))]
 family -ation celebrate

We must now consider how the syntactic context allows us to resolve the remaining underspecification in this representation, which is the indexing. Let us assume the structure in (22) for the DP *a birthday celebration by the Nature Conservancy*:

- (22)
-
- DP
 / \
 D NP
 | |
 a N'
 / \
 N PP
 / \
 N N
 | |
 birthday celebration
 by the Nature Conservancy
- [−material ([_{R-nonanimate-i}])] [−material, dynamic ([+dynamic ([_{sensient-j}], [i])))] [+material ([_{R-sensient-j}])]
 birthday -ation celebrate N.C.

If *celebration* is compounded with *birthday*, and if we assume further that *birthday* is an abstract noun and that *Nature Conservancy* (an environmental organization) is composed of sentient beings, the Principle of Coindexation produces the indexing in (22). On the other hand, if *celebration* is compounded with *family* (composed of sentient beings) and the PP found in its DP is an abstract one like *St. Nicholas's Day*, we get the opposite indexing, as (23) illustrates.⁴



We can see that either the subject interpretation of the synthetic compound (19b) or the object interpretation (19a) is possible, depending on the semantic characteristics of the R argument of the first element of the compound and of the *of*-PP or *by*-PP.

Note as well that the E pattern is available not only for argumental compounds based on ATK nominalizations but also for ones based on *-ing* nominalizations, as the examples in (24) suggest:

- (24) a. *African Arts 2005*: The end of the era of collecting has probably seen the last of the powerful and passionate collectors, such as Max Stanley,

⁴ It is interesting to note that synthetic compounds in which the first element is construed as subject tend not to have the left stress that is sometimes said to be the hallmark of compounding in English. It is well known, however, that left stress is by no means criterial for compounds in English, as well-known pairs like *apple pie* and *apple cake* attest. I have no explanation for this observation, but point it out in order to eliminate the possibility of dismissing examples like *city employee* or *family celebration* on the grounds that they are not compounds.

Nelson Rockefeller, Katherine White, or Charles Benenson, among others, whose **activist backing of Iowa**, the Metropolitan, Seattle, and the Museum for African Art in New York respectively impelled those institutions to create influential installations, scholarly projects, and lasting centers of activity.

- b. *Forbes 1994*: Or consider the sophisticated 401(k) marketing and **account servicing by Boston**'s Fidelity Investments, which manages \$75 billion in 401(k) money for 3 million workers, giving it about a 15% share of the market.

The analysis of the compounds *activist backing* and *account servicing* would be parallel to that of *family celebration* and *birthday celebration* in (23) and (23).

Any nominalization that can have an E reading can, of course, also have an R reading. Consider the compounds *adult construction* and *airport construction* in the examples in (25):

- (25) a. *Style 2001*: Yet the scene as a whole unmasks the child narrator as an **adult construction**; Mrs. Leslie's ability to speak as a child, for the express amusement of children, invites readers to recognize the artificiality of Oswald himself.
b. *Denver Post 2000*: Webb attended a symposium on **airport construction** on Kyushu, and he and city officials also talked with Japanese airlines about getting direct flights from Denver International Airport to Japan, said Bernstein.

In (25a) *adult construction* has a subject construal and in (25b) *airport construction* an object construal, but both are R nominalizations, as *construction* is interpreted as an inanimate patient (or perhaps in a more abstract sense as the result of constructing) rather than as an event.

For these we would require the nominalization *construction* to have its R skeleton, as illustrated in (26):

- (26) construction (R skeleton)
[α material, +dynamic ([_R], [+dynamic ([animate], [nonanimate]))]
-ation construct

Assuming that here we are looking at DPs that contain the compound noun with no syntactic complement (i.e., no *of*-PP or *by*-PP), the indexing would go on entirely internal to the compound, but determining whether the referent of the compound is concrete or abstract can only be done with the help of context and encyclopedic knowledge.

Let us look at the compound *adult construction* first, in its context in (25a). The context in which the compound finds itself suggests that construction is

being used to refer to something abstract rather than concrete, so the value of [material] must be [-material].

$$(27) \quad \begin{array}{ccccc} [-\text{material} ([_{R-\text{animate}}])] & [-\text{material}, +\text{dynamic} ([_R], [+ \text{dynamic} ([_{\text{animate}}], [_{\text{nonanimate}}])])] & & & \\ \text{adult} & \text{-ation} & & & \text{construct} \end{array}$$

As the referent of *construction* is abstract, the affix can only be indexed with the second argument of *construct*. The first element of the compound, being animate, is compatible with the remaining argument of *construct*, and we arrive at the indexing in (28):

$$(28) \quad \begin{array}{ccccc} [+ \text{material} ([_{R-\text{animate-i}}])] & [-\text{material}, +\text{dynamic} ([_{R-j}], [+ \text{dynamic} ([_{\text{animate-i}}, [_{\text{nonanimate-j}}])])] & & & \\ \text{adult} & \text{-ation} & & & \text{construct} \end{array}$$

The compound *airport construction* adds a small wrinkle. Unlike *adult construction*, context suggests an inanimate patient reading for *construction*, so its [material] feature will be set as [+material]. The affixal argument must therefore be indexed with a compatible base argument, namely the second (nonanimate) one. However, the first element of the compound in this case is not compatible with the unindexed first argument of the verbal base, as that first verbal argument requires indexing to an animate noun. The only possible indexing is to index it with the suffix and the second argument of the verbal base, as illustrated in (29):⁵

$$(29) \quad \begin{array}{ccccc} [+ \text{material} ([_{\text{nonanimate-i}}])] & [+ \text{material}, +\text{dynamic} ([_i], [+ \text{dynamic} ([_{\text{animate}}, [_{\text{nonanimate-i}}])])] & & & \\ \text{airport} & \text{-ation} & & & \text{construct} \end{array}$$

The Principle of Coindexation gives preference to indexing to an otherwise unindexed argument, but allows the sort of indexing that we see in (29) if indexation would otherwise lead to semantic incompatibility of coindexed arguments. What we find here is that *airport* is equated with the outcome or result of constructing, another example of the sort of doubling that we saw in Chapter 7. But this seems intuitively to be the right result.

I will not go through the exercise here of showing the LSF representations assigned to compounds containing analogous *-ing* compounds (*computer printing* versus *book printing*). Suffice it to say that they work the same way as the ATK examples we have looked at in detail here.

8.3.3 The Remaining Argumental Compounds: NDVCs

So far we have looked at synthetic compounds based on the personal/participant nominalizers *-er* and *-ee* and at the ATK and *-ing* nominalizers; that is,

⁵ I ignore here the fact that *airport* is itself a compound and would therefore require a more complex skeleton than that in (29), as this is not relevant to the point at hand.

argumental compounds whose heads contain an overt nominalizing affix. What remains is to see the extent to which conversion nouns in argumental compounds behave the same way as compounds in which the deverbal element has an overt affix. Recall, however, that we have two cases to consider here, the one that is analogous to the ATK and *-ing* nominalizations discussed above (30a), in other words, where the conversion noun is the head of the compound, and the one in which the (de)verbal element is the first one in the compound; that is, the non-head (30b). Together I have referred to these as Non-affixal (De)Verbal compounds or NDVCs.

- (30) a. dog attack, bee sting, landslide, snowdrift, birth control, haircut, bloodshed, boat ride, moon walk, pub crawl
b. attack dog, slide rule, scrubwoman, drawbridge, rowboat, drawstring, bake house

In items like those in (30a), it is clear that the second element is a conversion N, since the compounds are themselves nouns; however, for those in (30b) it is less clear whether the first element is a verb or the corresponding conversion N. We will begin with the type in (30a) and return to those in (30b) later on.

Compounds of this sort have been noted at least by Jespersen (1943), Marchand (1969), Bauer and Renouf (2001), Huddleston and Pullum (2002), and Jackendoff (2009), but they are frequently ignored in theoretical treatments of synthetic compounding. They pose no difficulties for LSF, however, and indeed their analysis works very much as the analysis of ATK and *-ing* argumental compounds worked earlier. As with those compounds, we find that either subject or object interpretations are available for the first element of the compound:

- (31) a. subject interpretation: dog attack, bee sting, Israeli claim
b. object interpretation: clam bake, interest-rate cut

And although it is rather difficult to find examples parallel to those in (19) and (24) in which *of*-PPs and *by*-PPs occur, it is not impossible to find them, as the examples in (32) attest:

- (32) a. *US News & World Report 1992*: But David Warren, one of the fund's eight managers, expects the percentage to grow in anticipation of an **interest-rate cut** by the Bundesbank that could drive down the Continent's prevailing 8 and 9 percent rates and accelerate economic growth.
b. *CNN_SatMorn 2001*: we're going to insist on having an **Israeli claim of** sovereignty over – over the Haram Ash-Sharif or Noble Sanctuary

The examples in (32) suggest not only that subject and object interpretations are both available in this kind of NDVC, but also that they may have an eventive reading that is signaled by the presence of the *of*-PP or *by*-PP.

Recall that I argued in Chapter 6 that conversion nouns have E and R skeletons that are identical to the E and R skeletons that we assume for ATK and *-ing* nominalizations. Let us assume, then, that the conversion nouns *cut* and *claim* in their contexts in (32) have the E skeleton in (33):

- (33) a. *cut* [-material, +dynamic ([+dynamic ([_{originator}], [])])]
 b. *claim* [-material, +dynamic ([+dynamic ([_{sentient}], [])])]

The interpretation of the relevant DPs in (33) is straightforward. The feature *material* is set as [-material] as it is with all eventive nominalizations, and the feature [dynamic] receives the positive value of its verbal base. I will not provide the syntactic tree that goes with the DPs *an interest-rate cut by the Bundesbank* or *an Israeli claim of sovereignty*, as they are identical to the ones in (22) and (23), but (34) provides the elements of the lexical semantic representations that allow us to arrive at the correct indexings.^{6,7}

- (34) a. *an interest-rate cut by the Bundesbank*
 [+material ([_{R-originator-i}])] [-material, +dynamic ([+dynamic ([_{originator-i}], [_j]))] [-material ([_{R-j}])]
Bundesbank *cut* *interest-rate*
 b. *an Israeli claim of sovereignty*
 [+material ([_{R-sentient-i}])] [-material, +dynamic ([+dynamic ([_{sentient-i}], [_j]))] [-material ([_{R-j}])]
Israeli *claim* *sovereignty*

Assuming that *Bundesbank* is interpretable as an agent or instrument (recall that I use the feature <originator> to cover the common semantic characteristic of these roles), and that the first argument of *cut* requires an <originator> argument, the Principle of Coindexation will yield the indexing in (34a). And assuming that *Israeli* is interpreted metonymically as a collection of sentient beings, and the verb *claim* requires its first argument to be sentient, we will again get the indexing we require in (34b).

⁶ Again, I ignore the fact that *interest-rate* is itself a compound, as it is irrelevant to the point I'm making here.

⁷ Note that I am assuming that *Israeli* in this context is a noun, rather than an adjective. My reason for doing so is that nouns are clearly possible in these contexts (e.g., *Hitlerite* or *government* could be substituted), and the interpretation is clearly one which favors interpretation as an originator of the action, that is, those making the claim.

The conversion nouns in this type of NDVC can of course have R readings as well; indeed, their reading is more often than not the referential one. Consider, for example, compounds like *Israeli claim* and *sovereignty claim* in (35):

- (35) a. *CNN_NewsSun 1990*: Because what is happening right now is that, in fact, we are enforcing the radicals by the inability of America to move towards some medium position between the **Israeli claim** and the Palestinian claim and move towards moderating for peace.
 b. *Journal of International Affairs 2006*: The solution to the **sovereignty claim** according to Tamil separatists, is for believers in the distinctness of cultures to divide the country on ethnic or cultural lines, instituting a more or less advanced federal constitutional arrangement.

The conversion noun *claim* would, in these cases, have its R skeleton, as in (36):

- (36) claim (R skeleton)
 [α material, +dynamic ([_R], [+dynamic ([_{sentient}],[]))]

In the examples in (35), context in both cases suggests that *claim* is an abstract noun (“that which is claimed”), so the feature [material] gets its default negative value. The indexing of *Israeli claim* is as in (37a) and that of *sovereignty claim* as in (37b):

- (37) a. Israeli claim
 [+material ([_{R-sentient-i}])] [−material, +dynamic ([_{R-j}], [+dynamic ([_{sentient-i}],[_j])))]
Israeli *claim*
 b. sovereignty claim
 [−material ([_{R-i}])] [−material, +dynamic ([_{R-i}], [+dynamic ([_{sentient}],[_i])))]
sovereignty *claim*

In (37a), the R argument of the nominalization must be coindexed with the second argument of the verbal base. The noun *Israeli* is semantically compatible with the first argument of the verbal base, so is indexed to it. The resulting interpretation is the subject interpretation. With (37b), the R argument of the nominal *claim* must be indexed to the second argument of the verbal base, as was the case in (37a), but the first element of the compound is not compatible with the remaining verbal argument. Here, the Principle of Coindexation allows the R argument of the noun *sovereignty* to receive the same index as the R argument of *claim*, which itself is coindexed with the second argument of the verbal base. The result is an interpretation in which *claim* and *sovereignty* are identified.

We must now look at the other variety of NDVC, those like *attack dog* or *row boat* in which it is the first element of the compound that is (de)verbal. As mentioned above, one of the difficulties with this sort of compound is that it is not always possible to determine whether the first element is a verb or its corresponding conversion noun. For example, what reason do we have to assume that *attack* in *attack dog* is a conversion noun rather than the verb *attack*? One argument might be that English compounding is not particularly productive with verbs, so treating *attack* in *attack dog* as a noun might be preferable from a typological point of view. On the other hand, we do sometimes find verbs being compounded in English: there are of course isolated examples like *pick pocket* and *drawbridge* on the Romance pattern of compounding, and we have at least some productivity in verb–verb compounding (*stir fry*, *blow dry*). So treating *attack* as a verb would not be entirely out of the question. Further, we encounter cases like *scrub woman*, *drawstring*, or *row boat*, where there is no item-familiar conversion noun corresponding to the verbs *scrub*, *draw*, or *row*; such cases give this option further plausibility. Let us assume, for the moment, that the first elements in these compounds are verbs, rather than the corresponding conversion nouns. The compounds *scrub woman* and *row boat* would have the LSF representations in (38):

- (38) a. scrub woman
 [+dynamic ([animate-i], [])] [+material ([R-animate-i])]
scrub *woman*
- b. row boat
 [+dynamic ([animate],[i])] [+material ([R-nonanimate-i])]
row *boat*

Given the requirement of an animate subject for *scrub* and *row* (or maybe an originator subject for *scrub*), the only compatible indexings are the ones in (38), giving *scrub woman* the subject reading and *row boat* the object reading.

Would there be anything lost if we were to go with the conversion noun analysis in cases in which the first element of the compound is ambiguously a conversion noun or a verb? Consider the representations in (39) for the compound *attack dog*:

- (39) a. attack dog⁸
 [-material, +dynamic ([R-i], [+dynamic ([sentient-j], [i]))]) [+material ([R-sentient-j])]
 attack *dog*

⁸ I have given the conversion noun *attack* at R skeleton here, but an E skeleton would yield the same results.

- Subject interpretations are possible in ATK, *-ing*, and conversion noun argumental compounds (NDVCs), as well as in synthetics with the personal suffix *-ee*. They are not possible in synthetics with the personal suffix *-er*.
- If the subject interpretation is possible in synthetic compounds, then the First Sister generalization obviously cannot hold.
- There are no apparent restrictions on the kinds of verbs that can occur in argumental compounds. Unaccusative verbs can be found, intransitive interpretations are possible, and achievement verbs are possible, regardless of the nominalizer.
- Event diagnostics of all kinds can be found. Eventive interpretations of synthetic compounds are possible.
- Pluralization is possible for all sorts of argumental compounds if the second element of the compound can be construed as a count noun.
- Either dispositional or non-dispositional readings can be found in synthetic compounds based on *-er* nominals.

I have also tried to show in some detail that LSF allows us to account for these generalizations over a wide range of data that include both the synthetic compounds that are frequently discussed in the literature and NDVCs, which have received far less attention. The analysis that was developed in [Chapters 6 and 7](#) for the eventive and referential readings that nominalizations can display extends easily to the argumental compounds that we find attested in English. LSF predicts that the subject interpretation should be unproblematic, that both eventive and referential interpretations can occur with synthetics just as they can with nominalizations that are not a part of compounds, and that we should find the same behavior for argumental compounds based on all kinds of verbs. Nominalizations are nouns, just like other nouns, and we expect to find them in the plural if they denote count nouns.

There are a couple of loose ends that still remain to be cleared up. First, the careful reader will note that I have debunked the No Subject generalization and that this in turn automatically discredits the First Sister generalization. But I have so far said nothing about whether or not we should expect to find examples such as the putatively ungrammatical **tree-eating of pasta*, and, if we find them, how they should be analyzed. These are cases in which the complement of the base verb occurs as an *of*-PP and the first element of the compound is construed as some sort of adjunct of the base verb. Second, although I have argued that synthetic compounds may have either dispositional or

non-dispositional readings, they do seem to have a tendency toward the dispositional reading, and we might ask why. I will take up each of these loose ends in turn.

First, regarding **tree-eating of pasta*, the point of such examples is that we should not expect to find synthetic compounds in which the first element of the compound is construed as an adjunct of the verbal base, while the complement of the verbal base is realized as an *of*-PP. Not surprisingly, however, such examples are easy enough to find:

- (41) *American Heritage 1990*: An important feature of the SMSG effort was the **classroom testing of** its courses and a recognition that what worked for some students might not work for all.

In the example in (41) the first element of the compound is receives an adjunct construal and the *of*-PP is construed as the complement of the verbal base; in other words, this is most naturally construed as “testing of courses in the classroom.”

How do we arrive at this sort of interpretation in LSF? Assuming that *testing* in this context has a referential rather than an eventive reading, let us assume the array of skeletons in (42):⁹

- (42) classroom testing of courses¹⁰
 [+mat ([nonanimat])] [α mat, +dyn ([_R], [+dyn ([anim, < vol >], [])] [-mat, dyn ([_R])]
 classroom -ing test courses

The feature [dynamic] is set as [+dynamic] on the basis of the feature of the verbal base. The feature [material] is given the negative value, as there is nothing in context to suggest a concrete reading. This gives us the representation in (43):

- (43) classroom testing of courses
 [+mat ([nonanimat])] [-mat, +dyn ([_R], [+dyn ([anim, < vol >], [])] [-mat, dyn ([_R])]
 classroom -ing test courses

What now remains is coindexation. The verb *test* requires not only an animate subject, but one that is volitional. The suffix *-ing* is incompatible

⁹ We get more or less the same analysis with the eventive reading, except that the first element of the compound must be coindexed directly with one of the verbal arguments, there being no affixal R argument. Since the first element of the compound is a selectional mismatch for either of the verbal arguments once *courses* has been coindexed with the second verbal argument, the root interpretation of the compound becomes necessary, exactly as in the referential analysis.

¹⁰ Since nothing hinges on it, I represent *classroom* in (42)–(45) as a simplex rather than a complex noun here.

with the first argument of *test*, as an abstract noun cannot refer to something animate and volitional. The affix will therefore get coindexed to its second argument of *test*, which has no particular selectional requirement. The noun *courses* is clearly compatible with the second argument of *test* (which can be anything), so will be coindexed with that argument.

Our problem comes when we look at the first element of the compound, *classroom*. This is clearly also incompatible with the first argument of *test*. It is also, however, incompatible with the R argument of the affix, which is already indexed with the second argument of *test*, a noun which is abstract. But given that the compound must be referentially integrated somehow, coindexing the R argument of *classroom* with that of the affix is the best option we have:

- (44) classroom testing of courses
 [+mat ([_R-nonanim-i])] [-mat, +dyn ([_R-i], [+dyn ([anim, volitional],_i)])] [-mat, dyn ([_R-i])]
classroom -ing test courses

This may seem quite odd, but it is precisely the same sort of indexing that we find in an attributive (root) compound like *classroom party*. Consider the skeleton of that compound in (45):

- (45) classroom party
 [+material ([_R-anim-i])] [-material, dynamic ([_R-nonanim-i])]
classroom party

There is only one possible indexing in a simple noun–noun compound like this, so the R arguments of both nouns are coindexed, and the interpretation of the compound is driven by context and encyclopedic knowledge. A *classroom party* might be one that is located in a classroom or might denote a celebration for a new classroom, or any other plausible interpretation we can come up with. Similarly, given the only possible indexing for *classroom testing of courses* in the context in (41), the interpreter of the compound negotiates some reading that is plausible based on encyclopedic knowledge together with context. In this case, the most plausible interpretation is one in which the testing is done in the classroom. The upshot of this is that compounds like *tree-eating of pasta* or *classroom testing of courses* should be perfectly possible, and indeed that they come to be interpreted in the same way that we interpret root compounds.

The same sort of analysis is open to a wide range of cases in which the second element is deverbal, but the first element is not amenable to an argumental interpretation. It has long been pointed out that compounds like

Sunday driver or *afternoon departure* are perfectly normal. Similarly, as Bauer et al. (2013: 471) point out, an NVDC like *government claim* could theoretically refer to a claim sent to the government, rather than one made by the government. I assume that in such cases the first element of the compound is of a sort (a time or place noun, for example) that is or could be selectionally incompatible with all of the arguments of the base verb, therefore forcing the compound into a root interpretation. Indeed with regard to NDVCs, it can be the first element that is (de)verbal and the second one that is not amenable to an argumental interpretation, as in the case of a compound like *scrub Sunday*.¹¹

Our final loose end concerns the preference for the dispositional reading in synthetic compounds. Recall that much of the literature on synthetic compounds claims that the dispositional reading is obligatory for compounds like *truck driver*. In other words, someone can be a *truck driver*, even if she has never actually had a job driving trucks. This cannot be correct, as there are certainly synthetic compounds like *child killer* that are odd on a dispositional reading. But to the extent that the dispositional reading is at least a strong tendency in synthetic compounds, it is worth a word. The reason for the preference for the dispositional reading, I think, is that the first element of a compound is typically generic in interpretation. So a *dog bed* is not typically construed as a bed for some particular dog (compare *the dog's bed*), but rather a bed that is intended for dogs in general. A *truck driver* is someone who drives trucks, but not a specific truck. It is the genericity of the first element of *-er* synthetics combined with the tendency of some *-er* nominalizations to denote occupations or avocations (Rappaport Hovav & Levin 1992: 133) that conspires to make the dispositional reading a more prominent one in synthetics. In a phrase like *a driver of trucks*, the complement *trucks* is more amenable to a non-generic interpretation, and the phrase as a whole is less amenable to the dispositional reading.

¹¹ Thanks again to Ingo Plag for bringing such examples to my attention. Presumably this could mean something like the day on which one does heavy cleaning, although I have not seen it attested with that meaning.

9 *Nouns in the Wild*

I hope to have shown in the course of this work that the meanings of complex nouns are interesting in a number of ways that have not hitherto been recognized or if recognized, have not been taken seriously enough. Far from having stable meanings or even being mildly polysemous, complex nouns are much more adaptable in meaning than our intuitions might suggest. We have long known that individual morphological types can express a range of meanings. And individual forms derived according to those types can often vary between concrete and abstract, or express events, products, results, locations, agents, patients (animate or inanimate), and so on, given the right context. But I don't think that we have adequately recognized the extent to which affixes and particular words formed with those affixes can cover a range of semantic territories and the extent to which the meanings – or readings – of different morphological types are interdependent. The scope of possible readings of complex nouns of one type can only be understood in the context of other morphological types, and the syntactic and discourse contexts in which those complex nouns are found.

One way or another, the range of meanings that speakers of English need to express must be accommodated by the means our language makes available to express them. We could simply invent new simplex nouns (and sometimes we do), or we can create new affixes to fill a niche that is unfilled (as I argued was the case with the suffix *-ables*). But more often than not we stretch the morphological types we have to fit the meanings we need to express. We only begin to understand the extent of this phenomenon when we look at the meanings of nouns in their natural habitat. Or to put it less metaphorically, we only begin to see the full complexity of nominal meaning when we look at nouns in the contexts that corpus-based examples afford us. The possibilities offered by our own intuitions, not bound by context, somehow always turn out to be more limited than what we find occurring in nature.

Once we recognize that complex nouns do not have rigid meanings, but rather have readings that are adapted to or constructed in context, the theoretical question that arises is how meaning happens: what is the semantic representation of complex nouns like such that some ranges of readings are available for one morphological type but apparently not others? How does the “meaning potential” of complex nouns (Hanks 2013) lead to particular construals in context? What precisely do we mean by “meaning potential” and how does potentiality become actual in context? To return to the metaphor, how do complex nouns adapt to their habitats? This is an issue of theoretical modeling that I have tried to explore using LSF. I look at this problem from the perspective of a generative morphologist, one who believes that only a carefully crafted formal system can yield precise predictions that can be tested against linguistic data.

The solution that I propose is that both bases (or roots) and affixes have meaning in the form of skeletons, but that affixal skeletons can be underspecified in precise ways. Affixal skeletons consist of features and their arguments. The features associated with some affixes are valued positive or negative; for others, their values can only be set in the context of discourse. Affixal arguments must be integrated with base arguments. The mechanisms that interact to flesh out underspecified representations in context are Feature Value Matching, Contextual Coercion, and the Principle of Coindexation. A key claim that I argue for this book is that some nominalizations have paired skeletons, one skeleton that gives rise to an eventive reading and another related one that gives rise to one or more referential readings. The eventive reading is eventive precisely because it lacks the R (or referential) argument that is typical of nouns.

Lots of questions remain. As I see it, there are empirical, methodological, and theoretical issues that still beg to be explored.

With regard to empirical matters, this book has of course investigated nominalization in only one language. Granted, I have tried to cover a wider range of nominalizations than is typically covered, and in greater depth. And I have tried to look at all of these nominalizations as they occur in syntactic contexts. One would hope that the conclusions I have drawn concerning the malleability of nominal readings in English would extend to other languages as well, but this remains to be shown. One question that might be asked is whether the semantic malleability of English complex nouns is typical of nominal behavior cross-linguistically. Is there any correlation between the size of the affixal inventory in a language and the degree to which individual affixes display polysemy? In other words, in

languages which have a larger inventory of noun-forming affixes (or other processes) than English does are individual morphological types less subject to radical polysemy than English nouns are? What about languages (such as Mandarin) that are comparatively poor in affixes but rely on other word-formation strategies like compounding? Are nouns less subject to polysemy in such languages? I hope this work will inspire others to pursue these questions.

With regard to methodological matters, we need to further study the role of intuition in the analysis of word formation. Among generative morphologists (and among these I include adherents of Distributed Morphology), it has generally been assumed that theoretical analyses can be based on linguists' intuitions about whether X is a word, whether X can occur in a given syntactic context, and what X can mean in one context or another. In other words, morphologists have largely followed generative syntacticians in this regard. But it is becoming increasingly clear in the study of morphology that reliance on intuition as the sole source of data and acceptability judgments is problematic.

In fact, the reliance on intuitions has long been questioned by syntacticians. Early on in the history of generative grammar, structuralists such as Bolinger (1968), Householder (1973), and Greenbaum (1976, 1977) noted the pitfalls of relying exclusively on data from intuitions. Even from within the generative tradition, there has been a thread of discontent about this methodology for some time. For example, Schütze (1996), Gibson et al. (2011), and Sprouse and Almeida (2012) (and literature cited in those works) ask whether the acceptability judgments of a single linguist, or even a small handful of linguists, are trustworthy: to what extent are such judgments idiosyncratic or subject to bias; to what extent does the specific lexical content of an example affect our judgments; to what extent does the frequency of a construction affect our reaction to it? Schütze argues convincingly that we would be wise to obtain acceptability judgments experimentally using disinterested participants, accepted practices of experimental design, and analysis by rigorous quantitative standards. He is less clear on the status of examples drawn from language use; for example, those that might come from corpora.

But Wasow and Arnold's comments touch upon the status of corpus examples, as they suggest that another problem with intuition is that examples are decontextualized (2005: 1484–1485):

Consulting primary intuitions unavoidably involves attempting to assign a meaning and to imagine a context in which the expression

under consideration might be used. By leaving all contextual factors up to the imagination, the use of primary intuitions regarding sentences in isolation is arguably more subject to irrelevant interference than an experimental method that explicitly controls context.

Using corpus data, they argue, could counter the problem with decontextualization; however, syntacticians, they note, have been reluctant to make use of corpora (2005: 1486):

Another type of evidence that has been largely ignored in the theoretical syntax literature is usage. With the increasing availability of large on-line corpora of both written and spoken text, it is possible for linguists working on certain languages to check whether their primary intuitions are in accord with what people actually say and write. As in the case of psycholinguistic data, however, usage data gets almost no attention from generativists.

The corpus study I have reported in this book suggests that investigating the role of intuitions is, if anything, even more important for those studying derivational morphology than it is for syntacticians. In their study of acceptability judgments from a popular syntax textbook (Adger 2003), Sprouse and Almeida (2012) report that judgments obtained in a carefully constructed experiment turn out to be generally in accord with individual intuitions. Wasow and Arnold's (2005) findings in their corpus investigation of verb particle and dative constructions are somewhat less supportive of individual intuitions; they argue that the relationship between length, complexity, and word order in the verb particle and dative constructions turns out to be far more complicated than intuition alone would suggest.

In contrast, the results that I obtained looking only at negative intuitions about E/R nominalizations suggest a strong discrepancy between what theorists have previously thought about the acceptability of decontextualized examples and the appearance of comparable examples in a corpus. Nearly every negative claim (by which I mean a claim that *xyz* is unacceptable or cannot occur) that has been common in the literature on E/R nominalizations turns out to be falsifiable by corpus data, specifically that the pattern exemplified by *xyz* does occur and seems unexceptional in context. Why is there such a discrepancy in this case? We simply do not know enough at this point to answer the question. So here is another issue that begs to be investigated in more detail.

The last question that I raise in this conclusion is theoretical. Specifically, it concerns the nature of word meaning. I have tried in this book to model how nominal polysemy arises. My ideas, as I have mentioned in passing, owe much to the thinking of the lexicographer Patrick Hanks (2013: 73):

What, then is a word meaning? It is reasonable to assume that in the everyday use of language, **meanings are events**, not entities (see Hanks 1994). Do meanings also exist outside the transactional contexts in which they are used? I would argue that they do not. It is a convenient shorthand to talk about “the meanings of words in a dictionary,” but strictly speaking these are not meanings at all. Rather, they are **meaning potentials** – potential contributions to the meanings of texts and conversations in which the words are used, and activated by the speaker who uses them.

Hanks is not concerned in particular with complex nouns, nor is he concerned with modeling the “coming into being” of nominal meaning in any formal sense, as his primary goal is the construction of dictionaries. But as a theorist I nevertheless find it compelling to think of the “meaning” of complex nouns as having two parts – their potential and the actualizing of that potential in context. I have argued that the “meaning potential” of complex nouns is what is formally constructed (and perhaps stored) in the mental lexicon – the skeleton and body of base, affix, and possibly of the complex word as a whole. The other part of meaning, what I have been calling “reading,” is what comes about in the context of a sentence or even of an entire discourse. This part of meaning is operationalized in LSF as the filling in of the underspecified portions of the skeleton and the coindexation of arguments.

I have been primarily concerned with complex nouns in this work, and to a much lesser extent with simplex nouns that are inherently eventive in meaning. It remains to be seen how (or whether) this bipartite approach to meaning should be extended to the sorts of polysemy that are common among other simplex nouns – for example, that nouns like *window* can simultaneously refer to the whole object (*We put in a new window*) or just to an aperture (*I climbed in through the window*), or that nouns like *report* can refer to both a physical object (*The report weighed half a pound*) and an informational object (*The report detailed violations of city ordinances*). These are the sorts of regularly occurring polysemies that Pustevovsky (1995) treats as “dot objects.” It is not clear to me that any sort of underspecification of skeletons could or should be used to model these sorts of polysemy. But this question remains for further research.

In any case, an analysis of the sort of polysemy exhibited in complex nouns is clearly available in LSF. It remains to be seen whether the data I have discussed in [Chapters 3 and 4](#) might be accommodated within other frameworks. To take just one currently popular framework, I would argue that a great deal of modification and development would be required in Distributed Morphology (DM) to model the complex and intricate range of polysemy we find in English nominalizations. DM analyses of nominalization have concentrated on the E/R alternation, without paying much attention to the full range of polysemy of those nouns, much less their relationship to personal, collective, or abstract-forming affixes. Harley (2009) is unusually attentive to affixal polysemy among DM adherents, but even her work does not acknowledge the extent of the problem. She does assume, for example, that verb-forming affixes like *-ize* or *-ify* are subject to polysemy such that they occur in what she calls different “flavors” – which she represents as a set of v° heads dominating different sets of features; for example, [+dynamic], [+change of state], [+cause] for causative v° s, or [+dynamic], [+change of state], [–cause] for inchoative v° s (2009: 333). However, her discussion of the polysemy of eventive versus result readings in nominalizations is considerably less nuanced. If I understand her analysis correctly, the so-called result interpretation of nominalizations is the effect of taking eventive nouns which are mass nouns and coercing them to count interpretations, possibly by embedding them under a higher functional projection (2009: 339). Such a broad-brush analysis does not begin to do justice to the facts. Not all non-eventive (or referential) readings of nominalizations are count nouns. Even among the ATK nominalizations referential readings range from result to inanimate patient to product to agent. Some are mass and some are count. It is conceivable that the n° nominalizing node of Harley’s syntactic structures might come in different “flavors” just as the verbalizing node v° does, and that the flavors might be distinguished featurally, but if so, it remains to be seen what those “flavors” are and what features represent them. And even then it remains to be seen how context might affect ultimate readings.

In the end, I keep returning to the ecological metaphor which inspires this work. I believe that the metaphor has been a useful device to make us see the complex and systematic ways in which nominalization works. Just as there may be habitats that are exploited by several organisms and habitats that are not well-exploited, there may be semantic areas that can be expressed by several morphological types and semantic areas that beg for expression. The relationship between form and meaning is many-to-many and dynamic.

Further, in the same way that adaptation to multiple environments can happen with organisms, interpretations of derived nouns may adapt to their sentential and discourse context (noting, of course, that the former takes place over many years, the latter more or less instantaneously in the course of language production and perception). The meanings of derived nouns are not generally fixed in mental representation, but instead constitute a dynamic system. What I have argued in this book is that lexical items, both simple and complex, have representations that are comprised of a number of different layers, and that in complex nouns the skeleton – the most rigid of the layers – can be underspecified in a number of ways that can only be fixed in context. It is by specifying the lexically underspecified aspects of the representation that the speaker ultimately arrives at a reading of a complex noun. In short, I believe that studying complex nouns in their natural habitats – nouns in the wild, as it were – leads us to understand the workings of derived nouns in a much deeper way. If this is so, the ecological metaphor has served us well.

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