I. Introduction

A defining feature of Distributed Morphology (DM) is that there is only one generative engine for building complex structure out of smaller pieces, namely the syntax. On this approach, if derivational morphology involves complex structure-building, it must be part of the same system that builds phrases and sentences. Addressing this issue, Marantz (2000) asks, "Should we really be doing derivational morphology in the Syntax?"[1] But much as the notion of "subject" has no primitive status in Government-Binding Theory and its descendants, the traditional notion of "derivational morphology" has no primitive status in DM. This may well be a good thing, since the properties characterizing derivation have always been difficult to pin down in practice, leading to the idea that it is at best a "fuzzy" rather than a discrete category (Bybee 1985; Payne 1985; Plank 1991; Manova 2004).[2] From a DM perspective, the reason it appears fuzzy is that it is not a category in the first place, and the characteristics that supposedly define it emerge independently from the theory. They may sometimes all appear with a single form, but they need not.

Thus, there is no single way that "derivational morphology" works in DM, and different phenomena that fall under this heading may receive different treatments. Of course, many of these treatments have been influenced by analyses and insights developed in other theoretical frameworks, whether lexicalist or syntactic. However, in this chapter, for reasons of space and scope, we do not attempt to provide a DM analysis of everything that has been called "derivation" in morphological theory. Instead, we outline some of the main ways that phenomena traditionally referred to as "derivation" have been treated in DM, focusing on the general issue of how the characteristics of derivation emerge from the grammar.[3]

We begin in the first half of the paper (section 2) by discussing the status of derivation, focusing on criteria that classically distinguish between derivation and inflection, on the one hand, and derivation and compounding, on the other. We also discuss the relevance of the distinction between "words" and "phrases" to widespread notions of what counts as derivational morphology. The thrust of this section is to explain why "derivation" is not a primitive notion in DM, and to give a first sense of how DM handles phenomena traditionally treated as derivational. In the second half of the paper (section 3), we turn to a structural distinction that does fall out from the architecture of grammar adopted in most work within DM—specifically, the distinction between inner and outer affixation. We focus primarily on category-changing morphology and different proposals for what, structurally, counts as "inner" vs. "outer", and what empirical effects this distinction corresponds to. We also discuss some ways in which "category change" is not necessarily a structurally unified notion. Finally, we turn to various (mostly

---

[1] Although Marantz 2000 is an unpublished talk handout, it is widely cited and widely distributed. The issues raised there are discussed in detail throughout the DM literature cited in this chapter, ranging from Marantz 1997, through Arad 2003, 2005, all the way up to the most recent work cited here.

[2] Thus, it is common to encounter studies whose primary research question is to determine if a particular form in a particular language is a derivational or inflectional morpheme (e.g. Kibrik 1995, Say 2004, Stump 2004), or a part of a compound (e.g. Amiot 2004; see Marchand 1969 for early discussion). See also the discussion of "affixoids" in Ralli (2010).

[3] We also touch only briefly on many issues that are dealt with in more detail in other chapters, such as productivity, blocking, locality, phasehood, argument structure, and allosemy.

prepositional) prefixing phenomena and discuss how these may reflect the inner/outer distinction as well.

2. The status of derivation

As noted above, one of the main tenets of DM is that there is a single generative engine responsible for both word and phrase construction. In DM, then, the generative processes that traditionally fall under the rubric of "derivational" morphology are syntactic ones. However, since the notion of "derivation" (as opposed to "inflection") has no primitive status in the theory, it is not necessary (or even likely) that everything that has been called "derivation" will correspond to the same process in DM. As discussed below, we take this to be a welcome conclusion, because in general it has been difficult to show that a binary distinction between "derivation" and "inflection" corresponds to anything fully predictive, that warrants direct encoding in the theory of grammar.

2.1 Derivation vs. inflection

2.1.1 Properties that (don't) distinguish between derivation and inflection

The traditional division between derivation and inflection reflects, first and foremost, the idea that words are primitives of grammar, and secondly, that the forms of words—whether derived by concatenative or non-concatenative processes—reflect two different kinds of processes.[4] First, affixes (or stem changes) may reflect the building of one word (or 'lemma' or 'lexeme') from another, distinct word. Alternatively, they may reflect a choice among a set of form classes associated with every word in a given category. The first case is known as derivation, and the second as inflection. Thus, the noun *runner* is built by adding *-er* to the verb *run*, deriving a new word, a noun. The *-er* suffix is thus regarded as a derivational affix. This noun is then able to take the pluralizing *-s* suffix, creating *runners*. *Runners* is not considered a 'new word'; rather, it is a form of the word *runner*. The *-s* suffix is thus an inflectional affix.

Disregarding for the moment the question of whether 'wordhood' is at the heart of the issue in the first place (though see section 2.1.2 below), we must ask what it means to 'create a distinct word', and what properties of grammar refer to, or are corollaries of, this notion. There are unquestionably differences between agentive *-er* and pluralizing *-s*, and these differences must emerge from the structure of the grammar. But do these differences reflect a broader classification corresponding to "derivation" and "inflection," with predictable characteristics for any affix or process that falls into one or the other? And, to the extent that such characteristics exist, do they arise because different components of the grammar are responsible for the different classes of morphological phenomena?

[4] It appears that "derivation" can be expressed by various morphological mechanisms, including stem readjustment, infixation, reduplication, subtraction, and so forth. We do not discuss these in detail here because they are not specific to derivation: these processes can characterize classically "inflectional" processes as well. The issue of how to treat these kinds of formal mechanisms within DM is thus a general issue of how hierarchical structures are expressed morphophonologically, not an issue specific to derivational morphology.

A variety of properties have been claimed to distinguish derivation from inflection. Derivation is said to create new words, potentially change a word's category, have unpredictable semantics, and be non-paradigmatic and non-productive. By contrast, it is postulated that inflection creates forms of a word (for example, to fit its syntactic context), does not change category, has predictable semantics, and is paradigmatic and productive.

Immediately, however, even the simple, intuitive description above runs into problems. Why does *runner* count as a new word, while *runners* does not? *Runner* means something different from *run*, but *runners* also means something different from *runner*. In this case, both complex words are compositional and predictable. Plural inflection may have unpredictable semantics, as seen in *pluralia tantum* nouns like *odds* (as in *The odds are against you*). The *-er* suffix is also highly productive, and "paradigmatic", in the sense that for any verb, we can ask what its "-*er* form" is. Certain verbs (such as *be*) may have no such form, but likewise, many nouns (such as abstract nouns like *sincerity*) have no plural form. Moreover, individual plural affixes are not necessarily productive. For example, the *-en* in *ox-en* would certainly not be considered productive, so it should be derivational. On the other hand, it has—or, more accurately for DM, reflects—plural features that trigger agreement, so it should be inflectional. By contrast, *-er* does not trigger some kind of "agent noun agreement." Likewise, *-er* changes category, in a way that plural *-s* does not.[5]

However, what has been called derivation does not always change category. Diminutives and affixes like *-ship* (in *friendship*) derive nouns from nouns, and in English, prefixes generally do not change category: for example, *rebuild* is a verb just like *build* is. Moreover, some category-changing "derivational" morphology comes with features that do affect agreement, such as gender. It is an important feature of grammars that certain features (such as gender, number, person, and case) enter into agreement relations, while other semantic subcategories of nouns do not. But does this distinction systematically correlate with other distinctive properties, indicating that there are truly two categories of morphology? As shown above for the English plural, morphology triggering agreement may be non-productive or semi-productive, may be associated with paradigm gaps (where there is no available form), and may have unpredictable semantic effects. Conversely, morphology that does not trigger agreement may be fully productive, may have predictable semantics, and need not change category.

Some linguists (e.g. Booij 1996) distinguish between *contextual* and *inherent* inflection. On this approach, contextual inflection is required for a particular syntactic slot, and does not change the meaning of the base, while inherent inflection is a form that is "chosen" for its meaning or use. For example, plural marking on nouns is considered inherent inflection, while plural agreement on verbs is contextual inflection. However, this distinction does not clarify the taxonomy of forms. As predicted,

[5] It is worth mentioning, though, that the claim that singular and plural nouns are of the same category may reflect the bias that we are starting with. Singular and plural nouns do not have the same syntactic distribution, although they have much in common. Even more extremely, finite verbs do not distribute syntactically like infinitival verbs, or progressive or past participle verbs. We may say that verbs, as a category, can be embedded under a tense/aspect structure, but that is precisely the point: we may likewise say that verbs, as a category, can be embedded under a nominalizing structure. The inflected forms themselves are syntactically distinct, just as the derived forms are.

contextual inflectional morphology does not affect the meaning of the stem; less expectedly, however, it need not be productive, as shown by irregular agreement forms, like the present- and past-tense forms of the English verb *be*. The features themselves may also be associated with "paradigm gaps". For example, in the Chawchuwen dialect of Koryak, verbs show singular, dual or plural agreement with objects and intransitive subjects, but only distinguish singular and plural agreement for transitive subjects (Žukova 1972: 233, 307–8, Spencer 2000:205). Certainly, the grammar needs to generate some forms that affect meaning and others that do not, and needs to generate agreement relations between some kinds of features and not others. But these notions do not appear to correspond to a taxonomic division that distinguishes inflection from derivation—or contextual inflection from derivation and inherent inflection—in a way that is predictive of other properties these forms may have.

In DM, the starting assumption is that all morphological complexity is generated syntactically. On this approach, the interesting and relevant question is not how to distinguish between derivation and inflection, but rather how to understand the properties that have been attributed to this distinction. For example, what are the syntactic domains for idiosyncratic meaning, and in what structural environments is the semantics necessarily predictable and compositional? What features enter into agreement relations, and what is their distribution? Are they structurally or distributionally distinct from non-agreeing features? What are the different grammatical categories, and how are they determined?

Considerable work in DM has been devoted to the issue of idiosyncratic meaning. The general approach has been to propose that idiosyncratic, unpredictable, and hence unproductive semantics can be triggered only within a certain syntactic domain, and not outside of it. The syntax combines a set of primitive units, and at some point, those units are assigned an interpretation—which may be compositional, semi-compositional, or totally idiosyncratic. From that point in the derivation onwards, that interpretation is fixed. Anything subsequently added to the structure will be built on the assigned interpretation and perceived as semantically compositional. If past tense morphology never triggers an idiosyncratic meaning of the verb root, it is not because tense is inflectional; it is because tense is outside the domain of idiosyncratic meaning—high enough in the structure that the interpretation of the root has already been fixed. The same can be true of category-changing derivational morphology, such as agentive *-er*. However, derivational morphology can also occur within the domain of idiosyncratic meaning, allowing for the possibility of unpredictable semantics; the same is true of morphology that might be regarded as inflectional on other grounds, like the plural in *pluralia tantum*. Thus, in DM, what has traditionally been called derivational morphology describes a heterogeneous range of phenomena, whose properties depend heavily on their syntactic structure. These properties are not in principle restricted to word-sized units, let alone to the outputs of a particular subtype of word formation.

2.1.2 "Derivation" in phrasal syntax: light verbs, particle verbs, and prepositional prefixes

Arguably the primary intuition behind the idea that derivation creates new words is the idea that derivational morphology changes the meaning of a word, often in a semantically unpredictable way. However, as mentioned above, in DM word-building is part of the same system as phrase-building. On this theoretical approach, then, investigating the domains of idiosyncratic versus compositional meaning pushes us beyond the morphological word, only to reveal that the properties attributed to "derivation"

are found at the phrasal level as well. For example, while light verb constructions, verb-particle constructions, and certain verb-preposition combinations are clearly phrasal, they are not entirely semantically predictable. For example, just as *jeopardize* is a unit built by combining *jeopardy* and *-ize*, *take a risk* is a unit built by combining the DP *a risk* with the verb *take*. DM maintains that both types of units are built syntactically, not in a generative lexicon—hence the possibility of phrasal idioms.

Similarly, consider the verb-particle combination *look up*, as in *look a word up in the dictionary*. If *up* were affixed to the verb *look*, in traditional terms it would be considered a derivational affix, creating a new word with a distinct and unpredictable meaning. However, *look* and *up* are clearly two separate words. *Up* can even be modified, as in *She looked it right up*. Within DM, such phrasal expressions pose no problem, since idiosyncratic meaning is not restricted to the domain of the word. Thus, the relationship between *look* and *look up* is directly on par with the relationship between *look* and an affixed counterpart, such as *overlook*. Both are constructed in the syntax, and in both cases, the P element (*up* or *over*) must be in the same domain as the root element (*look*). The distributional distinction between the two examples may reflect a difference in their syntactic structure—for example, that *over* is adjoined to the v head while *up* is not. Yet there is no sense in which the idiosyncratic semantics of *overlook* indicates a special morphological process of derivation. Thus, DM does not face the problem of having to extend such a process to obviously phrasal units such as *look up*.

In many cases, whether something counts as a word or not may have to do with tradition more than grammar. For instance, it has been argued that Germanic separable particles are really XPs that happen to end up next to a verb (Lüdeling 2001; Zeller 2001).[6] They are "separable" because they do not always end up adjacent to the verb. They have the same interpretation whether or not they are adjacent to the verb, but when they are, they behave phonologically like prefixes. Svenonius (2008) argues for a parallel analysis of a set of Russian prefixes, discussed further below: they are phrasal, but happen to end up next to the verb. In short, it turns out that the distinction between words and phrases is orthogonal to the domain of idiosyncratic meaning.

The irrelevance of the word/phrase distinction for this aspect of derivational morphology is nicely illustrated by a certain subtype of prepositional prefixing in Icelandic. Wood (2019) discusses cases in Icelandic where a verb has a special meaning in the context of a particular preposition. For example, *gera við bílinn*, literally 'do with the car', actually means 'repair the car'. The preposition cannot be prefixed to the verb.

(1) a. Guðrún **gerði við** bílinn.
Guðrún did with car.the.ACC
'Guðrún repaired the car.'

b. * Guðrún **við-gerði (við)** bílinn.
Guðrún with-did with car.the.ACC
INTENDED: 'Guðrún repaired the car.'

[6] See Julien 2002 for the claim that all "words" are like this—that is, entities corresponding to the descriptive notion of a "word" are simply sequences of morphemes that always, or nearly always, happen to end up next to each other. For Julien, complex head formation is one way that morphemes can end up next to each other—but only one of several ways.

However, when the verb is nominalized, the preposition must be prefixed to the derived noun in order to mean 'repair': *við-ger-ð* 'repair'.[7]

(2) a. * ger-ð { á bílnum / bílsins / við bílinn }
do-NMLZ { on car.the.DAT / car.the.GEN / with car.the }
INTENDED: 'repair of the car'

b. við-ger-ð { á bílnum / bílsins / *við bílinn } tók langan tíma
with-do-NMLZ { on car.the.DAT / car.the.GEN / *with car.the } took long time
'Repair of the car took a long time.'

By any traditional set of criteria, the prefix *við-* has the properties of a derivational prefix; yet it has the same semantic effect on the verb when it is a free-standing preposition. That is, the idiosyncratic semantics of combining the preposition *við* 'with' and the verb *ger-* 'do' cannot be attributed to a word-internal derivational process. Rather, idiosyncratic semantic effects obtain within a particular structural domain, one that is defined independently of the word/phrase distinction.

Thus, when approaching a DM analysis of some derivational phenomenon, one must investigate the structural relation between the "derivational" morphology in question and the base. What is required in order to distinguish between predictable and idiosyncratic combinations is a theory of syntactic locality for allomorphy and allosemy. The answer to Marantz's question ("Should we be doing derivation in the syntax?") appears to be "Yes." The issues that arise at the word level are the same issues that we have to understand at the phrasal level.

2.2 Derivation vs. Compounding

Derivational morphology is often contrasted with compounding (see Olsen 2014 for a recent example). Distinguishing the two usually depends on determining whether a complex word involves a derivational affix or a second lexical root. Derivational affixes are typically described as being members of a closed class of bound elements having a more general meaning than lexical roots, which are described as belonging to an open class of elements that can occur as words on their own, or with inflectional morphology. However, in practice it can be difficult to draw a clear distinction between the two. Many examples may be straightforward; most morphologists would agree that *-er* in *driver* is a suffix, while *truck-driver* is a compound. However, other cases are less clear—is *happy* in *trigger-happy* a suffix or the head of a compound? What about neoclassical combining forms like *democracy*, involving two closed-class bound elements with root-like meanings? What about verbs formed with a closed class of bound "lexical affixes" in a noun-incorporating language, which appear in the same position as an incorporated free noun (Mithun 2000)? Diachronically, of course, what looks like the head of a compound can be reanalyzed as an affix, for example in the history of English, where the adverb-forming suffix *-ly* developed from what were arguably compounds headed by *-like*. An early step in this process is "demotivation", where the compound head loses its independent meaning. This might signal a reanalysis

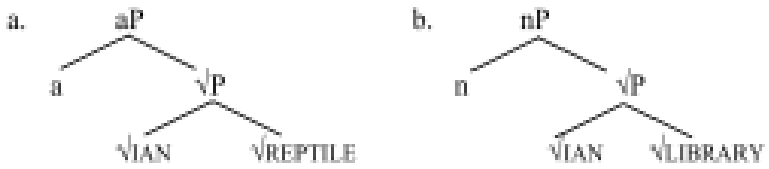
[7] Note that (a) may be grammatical with other, irrelevant meanings. Some speakers do not accept the genitive in (b), but many do, and attested examples can be found.

of a lexical root into a functional head, or it might simply indicate a semantic shift from an inherent meaning to a contextually determined meaning. All of these are open research questions in DM.

As noted above, one criterion taken to be characteristic of derivational morphology is the ability to change the category of the stem it attaches to. Certainly there is what appears to be "category-changing" or "category-determining" morphology. For example, in English, *-ness* productively attaches to adjectives to derive nouns. On one common approach within DM, category-changing affixes are realizations of functional heads like *a*, *v*, and *n* (Arad 2003, 2005; Embick & Marantz 2008; see also Panagiotidis 2011, who proposes that such heads are necessary for determining root semantics). This type of DM analysis would take *-ness* to be the realization of a nominal functional head (little *n*) that selects an adjective. Similarly, the verbal suffix *-ify* (as in *solidify*) would be the realization of a verbal functional head (little *v*), while *-able* (as in *readable*) would be the realization of an adjectival functional head (little *a*). The realizations of category-determining functional heads are subject to allomorphy; for example, *-ity* and *-ness* might be suppletive allomorphs of the same head. Their function in syntax is predominantly to establish category, and thus the syncategorematic distribution of the constituents they form. However, they may also identify the locus of "derivational meaning" at the interface between syntax and semantics. As discussed below, such heads can combine with either category-neutral roots or categorized constituents.

Treating category-changing morphology as the realization of a functional head is not the only option within DM. Some recent work has argued instead that derivational morphemes are actually bound roots, which co-occur with a null categorizer. For example, Lowenstamm (2015) proposes the following structures for the adjective *reptilian* and the noun *librarian*, both of which end with the suffix *-ian*.

(3)



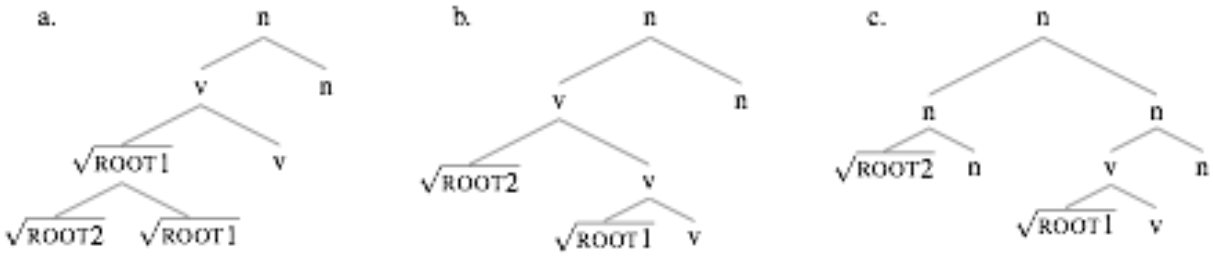
In fact, nothing in DM forces the same analysis for all apparent category-changing morphology. Indeed, Creemers et al. (2018) argue, based on data from Dutch, that both analyses above are attested: some derivational morphemes are little x heads, while others are bound roots. If such an approach is correct, it might account for the challenging nature of trying to develop criteria that distinguish systematically between derivation and compounding. It would suggest that there is no primitive difference between derivation and compounding; moreover, a given form may be ambiguous—both to the linguist and to the language learner—between realizing a bound root and realizing an affixal functional head.

For space reasons, we will not attempt to do justice to the full range of approaches to compounding. However, a brief review of compounding analyses in DM supports the view that there is no primitive distinction between derivation and compounding. As above, DM assumes syntactic principles of structure-building, as well as principles that determine the pronunciation and interpretation of a structure. Compounds—that is, word-sized units including two independent lexical roots—may not be a

structurally homogeneous class. Moreover, they may not be systematically distinct from phrasal units, nor from structures that have been analyzed as involving morphological derivation.

Within DM, there have been a number of approaches to compounding, with some researchers proposing that compounds are built from phrases, sometimes via head-movement (Harley 2009; Alexiadou 2017; Iord ă chioaia et al. 2017), while others are built by combining heads directly (Harðarson 2016, 2017, 2018). Cross-cutting this distinction, however, we can ask about the structural size of the constituents of a compound. In principle, either constituent could be a root or a larger, categorized constituent.[8] For example, Iordăchioaia et al (2017) argue that nominal synthetic compounds in Greek may have one of two different structures, (4a) and (4b) below, whereas most nominal synthetic compounds in English have the surface constituent structure in (4c).

(4)



In both (4a) and (4b), the (entity-denoting) nonhead √ROOT2 is not expected to have overt categorizing morphology, since it is just a root. Moreover, the compound is predicted to exist as an independent noun-verb (NV) compound, since both roots are exhaustively dominated by a *v*. In (4b), the head √ROOT1 merges with *v* before merging with √ROOT2, so it is expected to exist independently as a verb. In (4a), however, √ROOT1 is not necessarily expected to exist as an independent verb, since it does not combine with *v* until it has merged with √ROOT2. Even if the head in (4a) does exist as an independent verb, it may not have the same declension class or stress pattern it has in the compound. In effect, the structure in (4a) is a compound that forms a new verb from two roots, while the structure in (4b) forms a compound from an independently existing verb. By contrast, Iord ă chioaia et al (2017) propose the structure in (4c) for most English nominal synthetic compounds, such as *truck-driver*. In this structure, the nonhead may have overt categorizing morphology (as in *attention-seeker*), and the compound will not exist as an independent NV compound (**truck-drive*, **attention-seek*), though the head will exist as an independent verb. Iord ă chioaia et al. propose that something similar to the (4a) structure also exists in English, for compounds like *babysitter*, which have a backformed verb *babysit*.

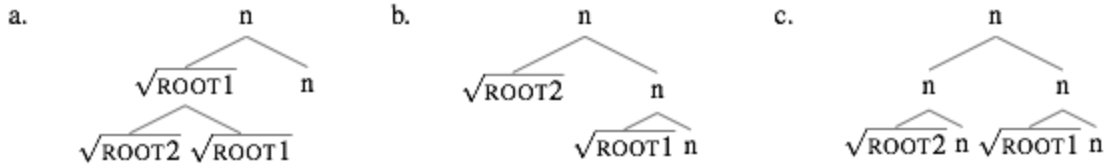
The existence of root-root compounds, possibly alongside root-*x* and *x*-*x* compounds (where *x* = *a*, *v* or *n*), has been posited by a number of researchers for a variety of languages (Zhang 2007; Newell & Piggott 2014; De Belder & van Koppen 2016; Harðarson 2016, 2017; Lai 2016; De Belder 2017; Loureiro Soares 2018; Xuhui & Perry 2018, inter alia). However, as mentioned above, root-root analyses have also been proposed for some derivational phenomena. Suppose both lines of analyses are

[8] Harðarson (2016, 2017) proposes that there is a Matching Condition, such that both constituents must be of the same size; he distinguishes at least three, possibly four different levels of structure. However, the (b) structure below would violate this condition.

correct, at least some of the time. The difficulty in distinguishing derivation from compounding in some cases may be due to a substantial overlap in structure. Put another way, the same syntactic structure can have different morphological realizations, which may look like compounding in one case, and like derivation in another. To the extent that there is a difference between the two cases, it may be an epiphenomenal one, roughly associated with the phonological characteristics of the root, its frequency, its distribution, and the consistency of its semantic contribution across structures. In other words, there may be no primitive grammatical distinction between some compounding structures and some derivational structures.

In addition to explaining why researchers might have trouble identifying hard-and-fast criteria to distinguish between compounds and derived words, this analysis suggests a potential path for the well-attested diachronic reanalysis of a compound constituent into a derivational affix (see Bauer 2004, Trips 2009, among others). Suppose we start with a compound like (5c) below, in which the *n* head combined with √ROOT2 happens to be phonologically null.

(5)



Such a form could easily be reanalyzed as having the structure in (5a) or (5b). If √ROOT2 comes to be used substantially less frequently in isolation than in the compound, while √ROOT1 continues to be used in isolation with the meaning it has in the compound, speakers are likely to analyze its structure as in (5b). On the other hand, if the compound is used substantially more frequently than the head √ROOT1 in isolation, it would be more likely to be analyzed as having the structure in (5a). This structure is ambiguous between compounding and derivation, according to the view of derivation outlined above.[9]

As noted above, whether a form with this structure is thought of as a compound or a derived word will depend on properties of the head √ROOT1. If the distribution of √ROOT1 becomes restricted to the context of such compounds, or if its meaning or phonological form becomes so specialized as to lose its resemblance to the root in isolation—especially if its compound usage becomes semantically bleached or phonologically reduced—it may be reanalyzed as a little-*x* functional head combining with √ROOT2. The morphemes in a given speaker's grammar may have any of these characteristics, arguably associated with different diachronic stages; some may even be ambiguous, associated with more than one status or stage. This approach would account for the difficulty of definitively pinning down the difference between derivation and compounding. Some forms will clearly involve the addition of a functional head ("derivation"); others will clearly involve the addition of a root, with or without accompanying functional heads ("compounding"); but the structural basis of intermediate forms will be less clear.

[9] See Trips 2009 for a study of *-dom* (*kingdom*), *-ship* (*friendship*), and *-hood* (*childhood*), all of which developed from free morphemes into compound-heads and then derivational affixes.

In short, a DM perspective can make sense of why the distinction between derivation and compounding is less than straightforward—namely, because these are not primitives of natural language. Instead, the grammar makes available a variety of different structures combining roots and functional heads, subject to general constraints on semantic interpretation and phonological realization.

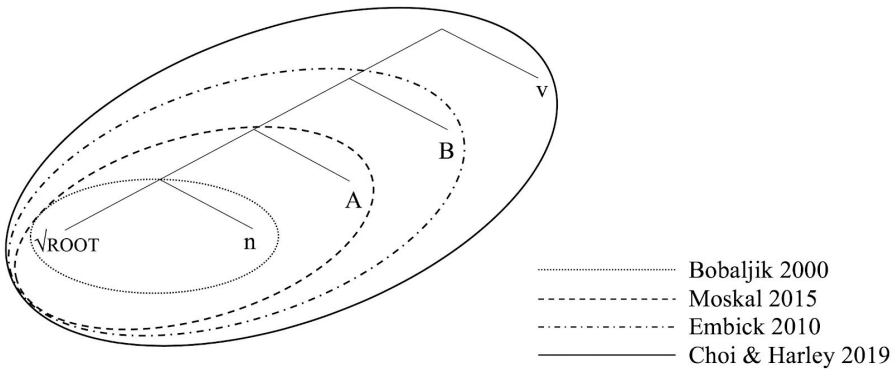
3. Inner versus Outer Affixation

An opposition between "inner" and "outer" affixation is pervasive throughout the DM literature. This contrast stems from distinctions that are not specifically associated with the DM framework. The traditional distinctions between "lexical" and "syntactic" processes, or between "derivation" and "inflection", have largely been understood as reflecting this basic distinction.[10] The DM conception of the inner/outer distinction is that there are certain points at which the syntactic structure receives an interpretation, phonologically and semantically. This conception has generally been connected with the theory of "phases" proposed for syntax by Chomsky (2001, 2002, 2008).[11] The first phase dominating a lexical root is the stage at which root-conditioned idiosyncratic semantics and phonology are determined. Additional structure is built on top of the meaning and phonology assigned to the preceding phase; it is impossible to turn the derivation back and retroactively change these assignments. Within DM, the exploration of inner versus outer attachment goes back at least to Marantz (1997), and gained special attention in the work of Arad (2003, 2005).

A major issue, on which there is no full consensus, involves what exactly counts as "inner" and "outer". Categorizing heads like *n* and *v* play a major role in this discussion. Harðarson (2018) provides the diagram below to schematize a range of views that have been proposed.[12] Arad (2003) argues that the nearest categorizing head c-commanding the root defines a strict boundary for the locality of special meaning and special phonology (see also Bobaljik 2000). This is the strongest position. As diagrammed below, there have also been a variety of other proposals: that the first non-categorizing head above the categorizer can fall into the domain of the root (Moskal 2015); that all non-categorizing heads above the categorizer can do so, potentially depending on the phonological or semantic properties of the categorizer (Embick 2010, Marantz 2013, Ingason 2016); or that a full complex head can do so, regardless of how many categorizers it contains (Choi & Harley 2019).

[10] The difference between Level 1 and Level 2 phenomena in Lexical Phonology and Morphology (Kiparsky 1982) is also related. However, note that in that theory, both derivation and inflection could occur at either of these levels, which is consistent with the architectural claim that "derivation" is not a primitive or privileged notion in grammar.
[11] See Ingason (this volume) for an overview.
[12] Harðarson himself proposes a different analysis of morphophonology, based on a particular definition of extended projections.

(6)



In the present context, then, it is important to note that "inner" versus "outer" does not necessarily correspond to the first versus the second (or higher) head attaching above the root: the identity and cyclic status of the head also matter. Assuming with Arad that categorizing heads are cyclic nodes, in principle a root could combine with several heads before being categorized. In this case, the categorizing head would still be "inner", even if it attaches outside some other head. Similarly, cyclic versus non-cyclic "outer" affixes could differ in their observable properties.

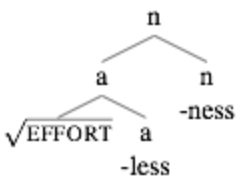
In what follows, we do not adjudicate between the different proposals in the literature regarding the exact nature of the inner/outer distinction. Rather, we discuss how this distinction provides insight into the traditional empirical domain of derivational morphology. We note in particular the striking pervasiveness of distinctions corresponding to inner versus outer affixation, which span a wide variety of structures and phenomena.

3.1 Category-changing affixes

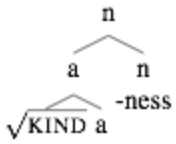
The canonical example of a "derivational" morpheme is one that changes the category of its base. For example, at a descriptive level, an adjective can be changed to a noun by adding the suffix *-ness* (*kind/kindness*). But what does it mean to "change" the category? The preceding description assumes that the base *kind* is an adjective, and that adding *-ness* changes the adjective to a noun. However, within a DM analysis, the first assumption is not self-evident, and the second is inaccurate.

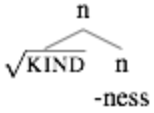
As for the category of the base, on a DM approach this is not always obvious from the surface form. A noun like *effortlessness* is unambiguously derived from an adjective. The *-less* affix overtly indicates that the root combines with an *a* head before the *n* head attaches to this base.

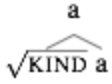
(7)



In contrast, a word like *kindness* is in principle structurally ambiguous. It could be derived from a categorized adjective, as in (8a). Alternatively, its connection to the adjective can be simply that the root √KIND can combine directly with either an *n* head, as in (8b), or an *a* head, as in (8c). Because *kind* has no overt adjectival suffix, the noun *kindness* may or may not contain an adjectival head.

(8) a. 

b. 

c. 

As for the idea that a category-marking morpheme changes the category of a word, this formulation makes little sense on a DM analysis. First of all, such morphemes often attach directly to roots, as in (8b) above. In such cases, they are not in any sense changing the category of the base, since they are not derived from a base that has a category in the first place. Secondly, even when a category-marking morpheme attaches to a categorized structure, as in (8a), there is really no sense in which it changes the category of what it attaches to. Just as combining a verb with a DP to form a VP does not change the DP into a VP, combining an *n* head with a *v*P (or a root) does not change the *v*P (or the root) into a noun. Instead, the *n* head projects as the label of the combined structure, so the maximal category is a noun phrase, and a complex head formed from the root and its local c-commanding category heads is a noun.

Much contemporary work in DM treats these categorizing heads as grammatical primitives, although earlier work in DM did not always make this assumption. It is a mainstay of the theory that roots are category-neutral.[13] However, it has sometimes been proposed that roots are embedded directly in the broader syntax without the intervention of category-marking heads, and that the notion of "category" simply refers to the distribution of roots. For example, Marantz (1997) proposes that the words *destruction* and *destroy* both involve a root √DESTROY. When this root is embedded directly under a D head, it is pronounced as *destruction*; the word-final morphology reflects the application of a readjustment rule, rather than the realization of a separate morphosyntactic head. This approach was also pursued by Alexiadou (2001), and is also adopted by Borer (2005a,b,2013) in an "exoskeletal" framework that shares many assumptions with DM. However, investigations of the locality of idiosyncratic meaning and morphological form, such as the pioneering studies of Arad (2003, 2005), suggested the existence of categorizing heads like *n*, *a*, and *v* (and even *p*; see Wood & Marantz 2017, and references cited therein).

If we assume the existence of such categorizing heads, the question arises of how they correspond to the morphophonological pieces that reflect their presence. For example, *-ness* and *-ity* both appear to correspond to *n* heads that attach to adjectives (*effortlessness, sensibility*). What then is the difference between them? There are at least two possibilities. One is that the two suffixes correspond to morphosyntactically distinct subcategories, call them *n1* and *n2*, with *n1* realized as *-ness* and *n2* realized as *-ity*. Another possibility is that both suffixes are realizations of the same *n* head.

[13] On the other hand, it has been proposed that roots fall into different semantic subtypes connected with their syntactic categorization (e.g. Harley 2005, Levinson 2007).

In a late-insertion theory like DM, the second possibility is the null hypothesis. The fact that *-ness* and *-ity* have distinct forms is not sufficient reason to conclude that they correspond to distinct syntactic entities. Typical evidence for a syntactic distinction would be that two forms (like *-ness* and *-ity*) are not only phonologically distinct, but semantically distinct as well. This would mean that the semantics and the morphophonology are sensitive to the same distinction. Within a Y-model (or a Minimalist T-model) of grammar, the most straightforward conclusion would be that both LF and PF are reflecting a single underlying syntactic distinction, namely syntactically distinct subcategories.[14]

Nevertheless, both possibilities have been explored in the DM literature. For example, work on argument structure has proposed distinct subcategories of v corresponding to inchoative (vGO/vBECOME), activity (vDO), stative (vBE) and causative (vCAUSE) meanings within verb phrases (Harley 1995; Cuervo 2003; Folli & Harley 2004; Schäfer 2008; see also Ingason 2016). However, Harley (2009b) has pointed out that these distinctions generally don't correspond in a predictive way to phonological forms: English suffixes like *-ate*, *-ify,* and *-ize* can realize causative, inchoative, or activity readings, and *-en* can realize at least inchoative and causative readings. Moreover, these readings are largely in complementary distribution, so the semantic interpretation of the suffixes is predictable from their syntactic context. Based on considerations like these, Wood (2012, 2015), Myler (2014, 2016), and others consider an alternative view, by which there are no distinct subcategories of *v*. Instead, the interpretation of *v* is subject to late insertion, conditioned by syntactic context.[15]

Even where there do turn out to be distinct interpretations corresponding to distinct realizations of a category-changing head, it is theoretically possible to maintain that there is only one underlying head. For example, Embick & Marantz (2008) consider the possibility that the nouns *cover* (where *n* is phonologically null, Ø) and *coverage* (where *n* is realized as *-age*) are syntactically identical, even though they mean quite different things. The two nouns could be optional realizations of the same structure, freely generated by the grammar, but occupying distinct semantic spaces. Embick (2016) further pursues the idea that there are multiple morphophonological realizations of a single syntactic/semantic structure associated with the same root, a concept he calls "polymorphy". He postulates that polymorphy is restricted to the local domain of the root, since the semantic contribution of the polymorphous affix varies depending on the root, and vice versa.

We now turn to a discussion of root-attaching versus "word-attaching" categorizers. The latter term is frequently used to identify "outer" attachment of categorizers—that is, attachment to a structure that already has a category.

3.1.1 Root-attaching categorizers

A signature feature of DM is the thesis that lexical roots are category-neutral; category distinctions are obtained by combining such roots with category-determining functional heads in the syntax. This

[14] See Baeskow 2012 for a discussion of *-ness* and *-ity* in this context.
[15] See Marantz & Myler (this volume) on the subject of allosemy.

proposal entails that an apparently simple word like *cat* is really bimorphemic, consisting of a root √CAT and a nominalizer *n* that is not overtly pronounced. This analysis opens the door to a different view of "conversion": rather than say that the verb *hammer* is derived from the noun, or vice versa, it is possible that the root √HAMMER can be combined with either a silent *v* head, creating the verb [$_v$ √HAMMER v], or a silent *n* head, creating the noun [$_n$ √HAMMER n] (Rimell 2012). On a DM analysis, true noun-to-verb conversion would involve a categorized noun combining with a *v* head, with both *v* and *n* heads silent, as in [$_v$ [$_n$ √HAMMER n] v]. In many cases there is no reason to adopt this analysis (Ingason 2016; see also Harley & Haugen 2007). In fact, it has even been proposed that *v* could not be null in such a structure, following Myers' Generalization (Myers 1984), though this proposal is controversial (Harley 2009b, Iord ă chioaia 2019, to appear).

Another consequence of the thesis that roots are category-neutral is that morphologically complex forms are potentially ambiguous. For example, a word like *government* is traditionally regarded as a deverbal noun, derived from the verb *govern* by adding the derivational suffix *-ment*. However, as pointed out by Lieber (2016), this noun is somewhat exceptional. Deverbal nouns in *-ment* are generally event nouns, as in *The assessment of the patient took an hour*, or result nouns, as in *This doctor makes very careful assessments*. However, on the most common reading, *government* appears to refer to an agent: *the government* is the body of individuals that does the governing. This is not a consistent result of *-ment* suffixation: the agent reading arises only with a select few roots, including √GOVERN. Thus, *the assessment* never refers to a body of individuals charged with assessing patients. Now, consider the structure of *government* if it is deverbal: [$_n$ [$_v$ √GOVERN v] n/-ment]. If this is the correct structure, then the meaning of the *n* head (*-ment*) must be sensitive to the fact that it has combined with the root √GOVERN, and not √ASSESS. This has implications for the locality of special meaning: *n* must be able to "see" the root past an intervening *v* head, contradicting the Arad/Marantz locality hypothesis, and Embick's analysis of little *x* heads as phase boundaries.

Within DM, however, there is no need to assume that *government* is truly deverbal. Another possible analysis is that it is a root-derived noun, with the structure [n √GOVERN n/-ment]. If so, there is no locality problem: the agentive meaning of the *n* head *-ment* becomes available when it combines directly with select roots, such as √GOVERN. A similar analysis applies to other exceptionally agentive nouns sharing a root with a verb; for example, few nouns with the *n* head *-ation* permit an agentive reading, but *the administration* can be the body of individuals that does the administering. In DM, generalizations about the meanings of deverbal nouns must be based primarily on forms that are unambiguously deverbal. For example, the noun *solidification* cannot be root-derived. It consists of a root (√SOLID), an overt verbalizer (*-ify*) and an overt nominalizer (*-ication*). Like *assessment*, *solidification* never refers to an agent. There is no reading of *solidification* that means 'the individual or body of individuals that solidifies things'. Indeed, a review of the results from the OneLook Dictionary (https://www.onelook.com/) turns up no nouns ending in *-ification* with an agentive reading. On a locality account, this gap exists because the intervening *v* head *-ify* blocks the root from conditioning this agentive meaning for *-ication*.

The general question is whether the agent reading that we see in *government* ever shows up on unambiguously deverbal nouns in a way that depends on the root. Even more broadly, many exceptions

to generalizations about deverbal nominalization involve cases lacking an overt verbalizer, like *government*, rather than cases like *solidification*, which must be deverbal. Taking seriously the distinction between root-based and category-based derivation may well yield an empirical picture very different from the one that emerges if lexical roots are taken to be inherently categorized. This hypothesis is worth testing within any theoretical framework, in order to achieve a more complete empirical picture.

3.1.2 "Word"-attaching categorizers

Categorizing morphemes that attach to an already categorized structure are traditionally known as word-attaching categorizers. Probably the most widely discussed case of this sort involves deverbal nominalization, where a nominalizing head may be inner-attaching, outer-attaching, or both. Marantz (1997) considers the nominalizing head to be inner-attaching in nouns like *destruction* (in *their destruction of the town*), and outer-attaching in gerunds like *destroying* (in *their destroying the town*). In this analysis, the internal syntax of the gerund is exactly that of a verb phrase, while the *-ation* type nominalization lacks a verbal base. However, subsequent work, including Alexiadou (2001, 2017), draws a different kind of distinction, based on Grimshaw (1990). Grimshaw proposes that nominalizations like *destruction* are systematically ambiguous. In the Complex Event Nominal (CEN) reading, the noun has the same properties as the corresponding verb phrase, including the obligatoriness of arguments. In the Result Nominal (RN) reading, the noun has more or less the properties of an ordinary noun.[16] Some differences between CEN and RN readings are as follows:

(9) Some differences between RNs and CENs (Alexiadou & Grimshaw, 2008)

	RNs	**CENs**
a.	Non-θ-assigner, No obligatory arguments[1]	θ-assigner, Obligatory arguments
b.	No event reading	Event reading
c.	No agent-oriented modifiers	Agent-oriented modifiers
d.	Subjects are possessives	Subjects are arguments
e.	*by* phrases are non-arguments	*by* phrases are arguments
f.	No implicit argument control	Implicit argument control
g.	No aspectual modifiers	Aspectual modifiers
h.	Modifiers like *frequent*, *constant* only with plural	Modifiers like *frequent*, *constant* appear with singular
i.	May be plural	Must be singular

The distinction is not characterized by vagueness, or drift between two extremes. Any mixing of properties leads to ungrammaticality, as shown in the following examples:

[16] We set aside the Simple Event reading; see Roy & Soare (2013) for some discussion.

(10) a. * Mary's deliberate collection.
b. * The collection to document the disappearance of mushrooms.
c. * The examination by the teacher.
d. * The destruction in a day.

(11) a. Mary's deliberate collection of illegal data cost her the job.
b. Mary's collection of samples to document the disappearance of mushrooms.
c. The examination of the student by the teacher.
d. The destruction of the city in a day.

The validity of some of these diagnostics, as well as Grimshaw's claim of a distinction, have been called into question; see Lieber (2016) and Grimm & McNally (2013) for broad criticisms. Alexiadou et al. (2010) point out some constrained cases where CENs can be plural, for example. However, the distinction is still widely assumed, and some diagnostics still resist counterexamples. Telicity PPs such as *in a day*, for example, really do seem to entail an obligatory internal argument.

Beyond the distinctions noted above, it has also been pointed out that RNs are subject to idiosyncratic meaning in a way that CENs are not. Borer (2014) emphasizes this point, arguing that CEN readings in nominals always entail the availability of an identical reading in an attested, morphologically-related verb. Thus it is a widely adopted analysis that the CEN reading arises from outer-attaching nominalization, where the nominalizer combines with a full verb phrase, while the RN reading derives from inner-attaching nominalization, where the nominalizer combines with the root, or at least some constituent excluding the external argument. This analysis has been proposed both within and outside the DM literature (Borer 1997, 2012, 2013, 2014; Roeper & van Hout 1999, 2009; Fu et al. 2001; Alexiadou 2001, 2017b; Roßdeutscher & Kamp 2010; Bruening 2013, 2018; and Pross 2019).

However, there are several remaining issues with such an analysis. First of all, in English, some morphological markers in both RNs and CENs show properties of inner attachment: they are idiosyncratically sensitive to the root, and disallow a causative reading for internally caused change-of-state roots like *growth*. Moreover, such an analysis makes various syntactic predictions that do not seem to be borne out, such as the impossibility of ECM and raising in CENs (although see Bruening 2018 for a reassessment of the empirical claim). Wood (2019) shows several ways in which an analysis with an embedded verb phrase makes the wrong predictions for Icelandic CENs, and proposes that such nominalizations involve *n* attaching to a verb, instead of a verb phrase.[17] McGinnis (to appear) argues that both Georgian CENs and RNs involve *n* attaching outside a verbal projection, but not outside a full verb phrase (VoiceP) with an external argument. Note that, by contrast with English and Icelandic, nominalizing morphology in Georgian is arguably never root-conditioned.

[17] The issue of idiosyncratic morphology may still be a problem on this analysis, depending on the locality of the inner/outer distinction.

One challenge for phase-based locality is that the availability of CEN or RN readings for Georgian nominalizations is sensitive to the choice of root, despite an intervening *v* head. In fact, verb-derived nominalizations in English also vary as to whether they allow only a CEN reading (e.g. *globalization*), or both CEN and RN readings (e.g. *dramatization*)—a variation that also appears to depend on the root, across intervening category heads. One approach to this problem would be to treat the restriction as a pragmatic one, such that if multiple globalization events were to occur, they could be called *globalizations*. Another would be to extend Embick's (2016) theory of polymorphy to a locality domain larger than the phase. Embick does not treat polymorphous nominalizers as allomorphs conditioned by the root, so it would be logically possible to extend the domain of polymorphy without losing an account of phase-based locality effects in allomorphy. We leave a detailed exploration of this possibility for further research.

Many, perhaps most of the issues that arise in deverbal nominalization show up in other domains of category "change" as well, and therefore many of the same solutions have been proposed.[18] For example, Alexiadou & Iord ă chioaia (2014) argue that deadjectival nominalizations in German, Romanian and Greek involve a nominalizing head that can attach either to the root, or to a PredP containing an *a*P. The syntactic productivity and semantic predictability of inner-attaching nominals is restricted, while the outer-attaching nominals are productive and predictable, with the derived noun inheriting the argument of the embedded adjective. For related discussion, see Roy (2010) and Alexiadou (2013).

Deadjectival nominalizations can also be distinguished based on higher functional projections. Alexiadou (2013) gives this type of analysis for a distinction between zero-derived neuter color nominalizations and overtly suffixed color nominalizations in Greek. She argues that both types of color nominalizations have the same *n*P-internal structure—an *a*P embedded in a PredP—but they differ in the structure above *n*P. The overtly suffixed type has the structure and interpretation of a stage-level count noun, including a ClassP, which allows pluralization, a #P, which allows modification by numerals and quantifiers, and a DP. By contrast, the zero-derived neuter type are individual-level mass nouns, lacking ClassP and #P. Alexiadou & Martin (2012) offer a similar proposal to account for the different aspectual values associated with different deadjectival nominalizing suffixes in French when these are attached to evaluative adjectives: *-isme* is primarily dispositional, *-erie* is primarily eventive, *-itude* primarily denotes habits or attitudes, and *-ité* is underspecified. Again, they propose that these different suffixes are associated with the availability of different functional projections above nP.[19]

Turning to adjectivization, the most widely discussed cases are adjectival passives (as in *a well-written book*) and ability adjectives (like *readable*). Here again, there is debate in the DM literature about whether these phenomena involve inner or outer attachment. For ability adjectives, it seems fairly clear that both possibilities exist, with the expected properties correlating with the height of attachment (Kayne 1981:140–142; Nevins 2002; Volpe 2005; Oltra-Massuet 2010, 2014; Wood and Sigurðsson 2014; Alexiadou 2018). For adjectival passives, some have proposed that at least some, and possibly all, are outer-attaching (McIntyre 2013, Bruening 2014; Alexiadou et al. 2014), while others have argued

[18] However, see Roy 2010 on the absence of true result readings for deadjectival nominals.
[19] See Fabregas 2013 for a similar approach from a nanosyntax perspective.

that at least some are inner-attaching (Marantz 2000, 2013; Embick 2003, 2004; Kastner 2016). Embick (2004) argues that there is an intermediate category of "resultative" passives that involve attachment outside the verb phrase; stative passives are truly inner morphology, while verbal passives attach outside the head introducing the external argument, and are thus fully outer-attaching. (See Kastner 2016 for a similar analysis applied to Hebrew.)

Anagnostopoulou and Samioti (2014) argue that at least some adjectival passives are outer-attaching, in the sense that the categorizer is higher than *v*. However, observing that "special meanings" can occur for adjectival passives, they argue that these can only come about when *v* is semantically empty—contributing no eventive meaning, only verbal category. Marantz (2013) extends this analysis, to establish an intriguing parallel between the phonological and semantic domains: just as a phonologically empty category head permits contextual allomorphy between a root and a higher non-phasal head (Embick 2010), so a semantically empty category head permits contextual "allosemy" between a root and a higher non-phasal head. If so, the local domain for idiosyncratic morphophonology and idiosyncratic semantics are parallel, but distinct—a direct challenge to the traditional view that the lexicon (or the "word") constitutes the unique domain for both.

Verbs derived from verbs face the same set of issues as well, the best-studied case being causatives. A classic distinction contrasts "lexical" with "syntactic" causatives, the former being inner-attaching (to a root, or something that is smaller than a full verb), and the latter being outer-attaching (on top of a verb phrase) (see Harley 1995, 2013; Pylkkänen 2002, 2008; Volpe 2005; Oseki 2017; Tyler 2020). The causative element is often analyzed as a verbal functional head that takes complements of different sizes. However, one challenge for this approach is to account for why morphological outer-attaching causatives are generally not recursive. In this regard, Harley (2017) discusses the potential benefits of a cartographic view of causative heads, where they are part of a verb's extended projection (see, most recently, Myler and Mali 2020 for an analysis of isiXhosa causatives along these lines). Several researchers have recently argued that causative morphemes are in fact not "verbalizers" at all, and that some or all syntactic causatives are built by stacking Voice heads (Nash 2017; McGinnis 2019; Nie to 2020; E.F. Sigurðsson & Wood 2020). On this approach, syntactic causatives are still outer-attaching, but are part of a verb's extended projection, rather than heading a new verb phrase that takes a verb phrase or VoiceP complement.

Similar issues arise for other types of category derivation, though they may manifest in different ways. Among others, see Arad (2003, 2005), Harley (2004, 2005), Levinson (2007), Rimell (2012), Oltra-Massuet & Castroviejo (2013), and Wood (2015, chapter 6) on deadjectival and denominal verbs in DM.

3.1.3 Other structures

The preceding overview of category-determining morphology covers the most common and most frequently discussed kinds of cases. However, the descriptive notion of "category-changing morphology" will not always involve such heads, at least not in the way outlined above.

For example, it has been proposed that the *-ing* in gerunds permitting an accusative DP complement (sometimes known as ACC-*ing* gerunds) is not actually a nominalizing *n* head, and that in fact, such structures have no *n* head (Alexiadou et al. 2010, 2011; Iord ă chioaia 2014). Instead, this construction is argued to involve a D head taking a full extended verb phrase complement, with *-ing* realizing the D head. Support for this analysis comes from the observation that only possessors, and no other determiners, can occur with this construction. This restriction is predicted if *-ing* blocks the insertion of other determiners into the D head. Of course, this analysis implies that genitive *-s* is generated on the possessor (Abney 1987), not as a realization of the D head (Abney 1986).

(12) { Mary's / *the / *that / *a / *some / etc. } reading the book bothered Sally.

The whole gerundive phrase is nominal in the sense that externally it distributes like a DP, and internally it allows a genitive possessor. But, on this analysis, it is not a nominalization in the sense of including an *n* head.

In a similar spirit is Harizanov's (2018) analysis of Bulgarian denominal adjectives. These are possessive adjectives derived from pronouns, proper names or kinship terms (e.g. *tvoj* 'your', *Ivanov* 'Ivan's', *baštin* 'father's'). Harizanov argues that they are derived from a structure in which the possessor occupies the head of a DP in the specifier of a functional head (F), which is part of the extended projection of the possessed *n*P. The D and F heads are rebracketed by morphological merger (m-merger; see Matushansky 2006) to form a morphological "adjective".

(13) $[_{FP}$ DP F $[_{nP} \ldots]] \rightarrow [_{FP} [_{F}$ D F] $[_{nP} \ldots]]$

However, there is never any addition of an adjectivizing head. Instead, the DP is put in a configuration where it bears a certain relation to the nP, and morphological operations end up marking this configuration as an adjective. Descriptively, the form resembles the result of adjectivization, but if Harizanov's analysis is correct, it arises from quite different structures and operations.

Kim (2015) argues that Spanish possessive pronouns are formed from the combination of a root and its DP complement, merged first with a functional head F and then with an adjectivizing little-*a* head:

(14) $[_{aP}$ a $[_{FP}$ F $[_{\sqrt{P}} \sqrt{}$ DP]]]

This structure does include an adjectivizer, but not one that attaches to either a root or another category-determining head.

The examples in this subsection demonstrate several alternatives to a direct syntactic representation of category. As these examples show, there are potentially different structures underlying the same surface categories, sharing an external distribution according to the principles of headedness. Thus, the study of what appears to be category-changing morphology reminds us that no phenomenon wears its analysis on its sleeve. Demonstrating that an expression has the external distribution of a given category does not

entail a particular DM analysis; the analysis will depend on a wider range of syntactic and morphological observations.

This is an important point, since it opens up new possibilities for resolving apparent empirical inconsistencies. For example, Marantz (2013) examines cases from several languages that seem to involve adjectivizing morphology attached to an overtly verbalized stem, yielding idiosyncratic meanings not predictable from the meaning of the verb. If the visible adjectivizing morpheme is a little-*a* head, these cases pose a problem for the current understanding of the inner/outer distinction (e.g. see Embick 2010, Ingason 2016). On this understanding, the domain of idiosyncratic form and meaning cannot extend past the first phase head c-commanding the root—here, the visible little-*v*—to include a higher phase head, such as a little-*a*. Marantz postulates that, in the problematic examples, the "adjectivizing" morpheme is actually not a categorizer, but a participle head in the extended projection of the verb. This analysis is supported by the systematic generalization, across several unrelated languages, that the overt "adjectivizing" morpheme is also used as an unambiguous participle marker. Marantz proposes that, in the adjectival uses of this participle, a null adjectival head attaches outside it; but the domain of idiosyncratic meaning extends only as far as the non-phasal participle head, not up to the phasal adjectival head. This analysis makes it possible to maintain a consistent theory of the inner/outer distinction, with coherent implications for the locality conditions on both contextual allomorphy and contextual allosemy. Thus, this example illustrates the potentially crucial importance of not taking apparent category-changing morphology at face value.

3.2 Prepositional prefixes

The concept of "prefix" is not a syntactic primitive in DM, since prefixes can correspond to a variety of syntactic categories, and hierarchical structures can apparently be linearized in a number of ways. Nevertheless, we discuss here a number of phenomena that have been argued to involve prefixing a preposition to a verb, a common instance of derivational morphology. Such cases raise many of the issues reviewed in the subsections above.

Many languages appear to build verbs with prefixes that resemble free-standing prepositions elsewhere in the language. The best-known cases of this kind come from Slavic languages, where such prefixes convey a robust set of aspectual distinctions. Like the category-changing morphemes discussed above, Slavic prepositional prefixes can be either high-attaching or low-attaching. The high-attaching prefixes, known as "super-lexical" prefixes, contribute predictable, compositional meaning, while the low-attaching prefixes, known as "lexical" prefixes, can yield unpredictable, idiosyncratic meanings. In some cases, the same prefix can be used in both ways. For example, the Russian prefix *pere-*, corresponding to a preposition meaning 'across', can be lexical in a word like *pere-bit'* 'interfere' and superlexical in a word like *pere-kusat'* 'bite one by one' (cf. *pere-kidat'* 'throw one by one', *pere-bit'* 'beat one by one'; examples from Svenonius 2008). Svenonius (2004) argues that the lexical prefixes originate within the verb phrase, much as Germanic particles do, while the superlexical prefixes originate outside the verb phrase. Though not presented in a DM framework, this analysis supports the DM contention that lexical idiosyncrasy is associated, not with a word-building module, but with a

particular syntactic domain local to a lexical root. The inner/outer distinction observed in Russian prefixes reflects the boundaries of this domain.

A related distinction can be found in Icelandic prefixes, albeit in the context of a less productive phenomenon. Many verbs in Icelandic bear a prepositional prefix, which may or may not be repeated as an independent preposition in the verb phrase. These prepositional prefixes are somewhat idiosyncratic, and lack the general aspectual effects found in Slavic. This has been taken to indicate that they are attached low, within the verb phrase. However, Icelandic verbs can also take compositional prefixes with aspectual meaning, such as *marg-* 'many' in *margþvo* 'wash many times' or *ný-* 'new' as in *nýbyggt* 'recently built', which have been argued to attach outside vP (E.F. Sigurðsson 2015, 2017).

It has also been proposed that morphologically complex words in some languages have prepositional prefixes, even when the proposed prefixal form of the preposition lacks an independent usage. Such cases can be analyzed as involving contextual allomorphy among the forms of the preposition. In DM, morphology is inserted "late"—at the end of the syntactic derivation—so syntactic context can condition the choice among allomorphs. For example, Biskup & Putnam (2012) propose that when the German preposition otherwise realized as *aus* 'out' is incorporated into a verb, it is spelled out as *ent-* instead. Thus, in the verb *entsteigen* 'climb out', the prefix *ent-* is a contextually-specified allomorph of the preposition *aus* 'out'. A contextually-restricted prepositional analysis has also been proposed for Latinate prefixes in English, like *de-* in *destroy* or *con-* in *construct* (Harley 2008; Punske 2012).

4. Conclusion

This chapter provides an overview of various phenomena that have traditionally been treated as cases of derivational morphology. However, it argues that derivational morphology is not a primitive category of the grammar. This accounts for the persistent difficulty of empirically distinguishing derivational morphology from inflectional morphology on one hand, and from compounding on the other. The properties that have traditionally been attributed to derivation (and potentially extended to inherent inflectional morphology) are not necessarily associated with particular functions, such as category-determining morphology, nor are they restricted to the word domain. Instead, they appear to be associated with a syntactic domain local to the lexical root—a domain that cross-cuts the distinction between words and phrases, and the distinctions between different functional types of morphemes. There is evidence that this local, "inner" domain is linked to the phasal status of syntactic heads, including category-determining heads.

The chapter explores a variety of differences between "inner" and "outer" morphology, a distinction found across a wide range of phenomena. Despite strong similarities between inner-attaching morphology and the traditional conception of derivational morphology, it appears that the locality domain for lexical idiosyncrasy cannot be directly translated from the traditional lexicalist approach to the syntactic DM approach. For example, one well-supported view is that the domain for idiosyncratic morphophonology and semantics includes the nearest phase head attaching above a lexical root, and possibly higher non-phasal heads, but not a higher phasal head. However, while the conditions permitting higher non-phasal heads within this domain are parallel for contextual allomorphy and

contextual allosemy, it appears that they are crucially distinct, depending on a phonologically empty phase head in one case, and a semantically empty phase head in the other. If so, then "lexical" idiosyncrasy cannot be attributed to a single component (the lexicon) or generative subsystem (derivational morphology). Instead, it arises organically from relevant properties of the syntactic derivation.

5. References

Alexiadou, Artemis. 2001. *Functional structure in nominals*. Philadelphia/Amsterdam: John Benjamins.

Alexiadou, Artemis. 2013. Deriving color adjectival nominalizations. *Linguística: Revista de Estudos Linguísticos da Universidade do Porto*, 8, 143-158.

Alexiadou, Artemis. 2017. On the complex relationship between deverbal compounds and argument supporting nominals. In A. Malicka-Kleparska & M. Bloch-Trojna (eds.), *Aspect and valency in nominals*, 53–82. Mouton de Gruyter.

Alexiadou, Artemis. 2018. -able adjectives and the syntax of psych verbs. Glossa: a journal of general linguistics 3.

Alexiadou, Artemis & Jane Grimshaw. 2008. Verbs, nouns and affixation. In Florian Schäfer (ed.), SinSpeC (1): Working Papers of the SFB 732, 1–16. Stuttgart: University of Stuttgart.

Alexiadou, Artemis & Martin, Fabienne. 2012. Competing affixes as aspectual morphemes: The case of deadjectival nominalizations. Mediterranean Morphology Meetings 8: 8-21.

Alexiadou, Artemis, Gianina Iord ă chioaia & Elena Soare. 2010. Number/aspect interactions in the syntax of nominalizations: A Distributed Morphology approach. *Journal of Linguistics* 46(3). 537–574.

Alexiadou, Artemis, Gianina Iord ă chioaia & Florian Schäfer. 2011. Scaling the variation in Romance and Germanic nominalizations. In Petra Sleeman & Harry Perridon (eds.), The Noun Phrase in Romance and Germanic: Structure, variation, and change, 25–40. John Benjamins.

Alexiadou, Artemis, Berit Gehrke, and Florian Schäfer. 2014. The structure of adjectival participles revisited. Lingua 149:118–138.

Amiot, Dany. 2004. Between compounding and derivation: Elements of word-formation corresponding to prepositions. In Wolfgang U. Dressler, Dieter Kastovsky, Oskar E. Pfeiffer and Franz Rainer (eds.) *Morphology and its demarcations: Selected papers from the 11th Morphology Meeting, Vienna* (February), 183-195. Amsterdam/Philadelphia: John Benjamins.

Anagnostopoulou, Elena & Panagiota Samioti. 2014. Domains within words and their meanings: A case study. In Artemis Alexiadou, Hagit Borer & Florian Schäfer (eds.), The syntax of Roots and the roots of

Syntax, 81–111. Oxford: Oxford University Press.

Alexiadou, Artemis, and Gianina Iord ă chioaia. 2014. Two syntactic strategies to derive deadjectival nominals. *Anglica Wratislaviensia* 52: 65-83.

Arad, Maya. 2003. Locality constraints on the interpretation of roots: The case of Hebrew denominal verbs. *Natural Language & Linguistic Theory* 21. 737–778.

Arad, Maya. 2005. *Roots and Patterns: Hebrew Morpho-syntax*. Dordrecht: Springer.

Baeskow, Heike. 2012. *-Ness* and *-ity*: Phonological exponents of n or meaningful nominalizers of different adjectival domains? *Journal of English Linguistics* 40:6–40.

Bauer, Laurie. 2004. The borderline between derivation and compounding. In Wolfgang U. Dressler, Dieter Kastovsky, Oskar E. Pfeiffer and Franz Rainer (eds.) *Morphology and its demarcations: Selected papers from the 11th Morphology Meeting, Vienna* (February), 97-108. Amsterdam/Philadelphia: John Benjamins.

Biskup, Petr & Michael Putnam. 2012. One P with two Spell-Outs: the ent-/aus- alternation in German. Linguistic Analysis 38(1-2).

Bobaljik, Jonathan. 2000. The Ins and Outs of Contextual Allomorphy. *University of Maryland working papers in linguistics*.

Booij, G. 1996. Inherent vs. contextual inflection and the split morphology hypothesis. In G. Booij & J. van Marle (eds), *Yearbook of Morphology* 1995, Dordrecht, Kluwer, pp. 1-16.

Borer, Hagit. 1997. The morphology-syntax interface: A study of autonomy. In Wolfgang U Dressler, Martin Prinzhorn & John R. Rennison (eds.), Advances in morphology, 5–30. The Hague: de Gruyter.

Borer, Hagit. 2005a. Structuring sense, Volume 1: In name only. Oxford: Oxford University Press.

Borer, Hagit. 2005b. Structuring sense Volume 2: The normal course of events. Oxford: Oxford University Press.

Borer, Hagit. 2012. In the event of a nominal. In Martin Everaert, Marijana Marelj & Tal Siloni (eds.), The Theta System: Argument Structure at the Interface, 103–149. Oxford: Oxford University Press.

Borer, Hagit. 2013. Structuring Sense Volume 3: Taking Form. Oxford: Oxford University Press.

Borer, Hagit. 2014. Derived nominals and the domain of content. *Lingua* 141. 71–96.

Bruening, Benjamin. 2013. By phrases in passives and nominals. Syntax 16(1). 1–41.

Bruening, Benjamin. 2014. Word formation is syntactic: Adjectival passives in English. Natural Language and Linguistic Theory 32:363–422.

Bruening, Benjamin. 2018. Word formation is syntactic: Raising in nominalizations. Glossa: a journal of general linguistics 3(1). 102. doi:http://doi.org/10.5334/gjgl.470.

Bybee, Joan L. 1985. Morphology. A study of the relation between meaning and form. Amsterdam: Benjamins.

Choi, Jaehoon, and Heidi B. Harley. 2019. Locality domains and morphological rules: Phases, heads, node-sprouting and suppletion in Korean honorification. *Natural Language & Linguistic Theory*. (Online first) https://doi.org/10.1007/s11049-018-09438-3

Chomsky, Noam. 2001. Derivation by phase. In Michael Kenstowicz (ed.), *Ken Hale: A Life in Language*, 1–52. Cambridge, MA: MIT Press.

Chomsky, Noam. 2008. On phases. In *Foundational issues in linguistic theory: Essays in honor of Jean-Roger Vergnaud*, eds. Robert Freidin, Carlos P. Otero, and Maria Luisa Zubizarreta, 133–166. Cambridge: MIT Press.

Creemers, Ava, Jan Don & Paula Fenger. 2017. Some affixes are roots, others areheads. *Natural Language & Linguistic Theory* 36(1). 45–84.

Cuervo, María Cristina. 2003. Datives at Large. MIT Doctoral Dissertation.

De Belder, Marijke. 2017. The root and nothing but the root: primary compounds in Dutch. *Syntax* 20 (2): 138-169.

De Belder, Marijke, and Marjo Van Koppen. 2016. One module, different levels of merge: AN(N) compounds in Dutch. *Studia Linguistica* 70 (1): 1-33.

Embick, David. 2003. Locality, listedness, and morphological identity. Studia Linguistica 57(3). 143–169.

Embick, David. 2004. On the structure of resultative participles in English. Linguistic Inquiry 35(3). 355–392.

Embick, David. 2010. *Localism versus Globalism in Morphology and Phonology*. Malden, MA: MIT Press.

Embick, David. 2016. Approaching Polymorphy. Sociedad Argentina de Análisis Filosófico (SADAF).

Fábregas, A. 2013. Towards a Syntactic Account of Affix Combinations: From Nouns to Adjectives and Viceversa. In: Iordăchioaia, G., I. Roy and K. Takamine (eds.) Categorization and Category Change. Newcastle upon Tyne: Cambridge Scholars Publishing, 95–122.

Folli, Raffaella, and Heidi Harley. 2004. Flavors of v: Consuming results in Italian and English. In *Aspectual inquiries*, eds. Roumyana Slabakova and Paula Kempchinsky, 95–120. Dordrecht: Kluwer.

Fu, Jingqi, Thomas Roeper & Hagit Borer. 2001. The VP within Process Nominals: Evidence from Adverbs and the VP Anaphor Do-So. *Natural Language & Linguistic Theory* 19(3). 549–582. doi:10.1023/A:1010654105760.

Grimm, Scott & Louise McNally. 2013. No ordered arguments needed for nouns. In M. Aloni, M. Franke, and F. Roelofsen (eds.) *Proceedings of the 19th Amsterdam Colloquium*, 123-130.

Grimshaw, Jane. 1990. *Argument Structure*. Cambridge, MA: MIT Press.

Harðarson, Gísli Rúnar. 2016. Peeling away the layers of the onion: On layers, inflection and domains in Icelandic compounds. *Journal of Comparative Germanic Linguistics* 19 (1). 1–47.

Harðarson, Gísli Rúnar. 2017. *Cycling through grammar: On compounds, noun phrases and domains*: University of Connecticut Doctoral Dissertation.

Harðarson, Gísli Rúnar. 2018. Forming a compound and spelling it out. *University of Pennsylvania Working Papers in Linguistics* 24(1). 11.

Harizanov, Boris. 2018. Word formation at the syntax-morphology interface: Denominal adjectives in Bulgarian. *Linguistic Inquiry*, 49(2), 283-333.

Harley, Heidi. 1995. Subjects, Events and Licensing. MIT Doctoral Dissertation.

Harley, Heidi. 2004. Merge, Conflation and Head Movement: The First Sister Principle Revisited. In Moulton, Keir and Matthew Wolf (eds.), Proceedings of NELS 34, Amherst: UMass, GSLA, pp. 239–54.

Harley, Heidi. 2005. How Do Verbs Get their Names? Denominal Verbs, Manner Incorporation and the Ontology of Verb Roots in English. In Erteschik-Shir, Nomi and Tova Rapoport (eds.), The Syntax of Aspect, Oxford: Oxford University Press, 42–64.

Harley, Heidi. 2008. The bipartite structure of verbs cross-linguistically, or, Why Mary can't exhibit John her paintings. In *Conferências do V Congresso Internacional da Associação Brasileira de Lingüística*, ed. Thaïs Cristófaro Silva and Heliana Mello. Belo Horizonte, Brazil: ABRALIN and FALE/UFMG, 45–84.

Harley, Heidi. 2009a. Compounding in Distributed Morphology. In Rochellei Lieber & Pavol Stekaur (eds.), *The Oxford Handbook of Compounding*, 129–144. Oxford: Oxford University Press.

Harley, Heidi. 2009b. The morphology of nominalizations and the syntax of vP. In Anastasia Giannakidou & Monika Rathert (eds.), *Quantification, Definiteness, and Nominalization*, 321–343. Oxford: Oxford University Press.

Harley, Heidi. 2013. Getting Morphemes in Order: Merger, Affixation, and Head Movement. In Diagnosing Syntax, ed. Lisa Lai-Shen Cheng and Norbert Corver, 44–74. Oxford: Oxford University Press.

Harley, Heidi and Jason D. Haugen 2007 Are there really two different classes of instrumental denominal verbs in English? *Snippets* 16:9−10.

Hu, Xuhui, and J. Joseph Perry. 2018. The syntax and phonology of non-compositional compounds in Yixing Chinese. *Natural Language & Linguistic Theory* 36 (3): 701-742.

Ingason, Anton Karl. 2016. Realizing noun phrases in the Icelandic noun phrase: University of Pennsylvania Doctoral Dissertation.

Iord ă chioaia, Gianina. 2014. The interaction between nP and DP in nominalizations. In Proceedings of NELS 43, ed. Hsin-Lun Huang, Ethan Poole, and Amanda Rysling, vol. I, 179–190. Amherst: GLSA.

Iord ă chioaia, Gianina. 2019. Event and argument structure in English zero-derived nominals. Talk given at Comparative Germanic Syntax Workshop 34 University of Konstanz, June 14-15, 2019.

Iordachioaia, Gianina. To appear. Categorization and nominalization in zero nominals, in A. Alexiadou & H. Borer (eds.), *Nominalizations: 50 Years on from Chomsky's Remarks*. Oxford: Oxford University Press.

Iord ă chioaia, Gianina, Artemis Alexiadou & Andreas Pairamidis. 2017. Morphosyntactic sources for nominal synthetic compounds in English and Greek. *Journal of Word Formation* 1. 47–71.

Julien, Marit. 2002. Syntactic heads and word formation. Oxford: Oxford University Press.

Kastner, Itamar. 2016. Form and meaning in the Hebrew verb: Doctoral Dissertation, New York University.

Kayne, Richard S. 1981. Unambiguous paths. In Levels of Syntactic Representation, ed. R. May and J. Koster, 143–183. Dordrecht: Foris.

Kibrik, Andrej A. 1995. Inflection versus Derivation and the Template for Athabaskan Verb Morphology. Paper presented at the Workshop onthe Morphology-Syntax Interface in Athapaskan Languages, University ofNew Mexico, Albuquerque.

Kim, Sangyoon. 2015. On Spanish possessive formation: A DM-based account. In Enoch O. Aboh, Jeannette Schaeffer and Petra Sleeman (eds.) *Romance Languages and Linguistic Theory 2013: Selected papers from 'Going Romance' Amsterdam 2013*, 261–276. https://doi.org/10.1075/rllt.8.14kim

Lai, Jackie Yan-ki. 2016. DM Analysis of Simple and Complex VO Compounds in Mandarin Chinese. 생성문법연구 (*Studies in Generative Grammar*) 26 (3): 299-323.

Levinson, Lisa. 2007. The roots of verbs. Doctoral Dissertation, New York University.

Lieber, Rochelle. 2017. English nouns: The ecology of nominalization. Cambridge: Cambridge University Press.
Loureiro Soares, Catarina. 2018. Compounding in European Portuguese – a Distributed Morphology approach: M.A. Thesis, University of Amsterdam.

Lowenstamm, Jean. 2015. Derivational affixes as roots: Phasal spell-out meets English stress shift. In *The syntax of roots and the roots of syntax*, eds. Artemis Alexiadou, Hagit Borer, and Florian Schäfer, 230–259. Oxford: Oxford University Press.

Lüdeling, Anke. 2001. On Particle Verbs and Similar Constructions in German. Stanford, Ca.: CSLI.

Manova, Stela. 2004. Derivation versus inflection in three inflecting languages. In Wolfgang U. Dressler, Dieter Kastovsky, Oskar E. Pfeiffer and Franz Rainer (eds.) Morphology and its demarcations: Selected papers from the 11th Morphology Meeting, Vienna (February), 233-252. Amsterdam/Philadelphia: John Benjamins.

Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. *University of Pennsylvania Working Papers in Linguistics* 4(2). 201–225.

Marantz, Alec. 2000. Words. Manuscript, MIT.

Marantz, Alec. 2013a. Locality domains for contextual allomorphy across the interfaces. In Ora Matushansky & Alec Marantz (eds.), Distributed Morphology Today: Morphemes for Morris Halle, 95–115. MIT Press.

Marchand, Hans. 1969. The categories and types of present-day English word-formation. München: Beck.

McGinnis, Martha. To appear. Cross-linguistic contrasts in the structure of causatives in clausal nominalizations. *Contrast and Representations in Syntax*, ed. Bronwyn Bjorkman and Daniel Currie Hall, Oxford University Press.

McGinnis, Martha. 2019. The Voice/v distinction is configurational: evidence from Georgian causatives. Poster presented at the Annual Meeting of the Canadian Linguistics Association. University of British Columbia, Vancouver. 1–3 June.

McIntyre, Andrew. 2013. Adjectival passives and adjectival participles in English. In Non-canonical passives, ed. Artemis Alexiadou and Florian Schäfer, 21–42. Philadelphia/Amsterdam: John Benjamins

Mithun, Marianne. 2000. Incorporation. In Morphology: A Handbook on Inflection and Word Formation, ed. by Geert E. Booij, Christian Lehmann and Joachim Mugdan. Berlin: Walter de Gruyter, 916–928.

Moskal, Beata. 2015. Domains on the border: between morphology and phonology. Doctoral dissertation, University of Connecticut, Storrs.

Myers, Scott. 1984. Zero-derivation and inflection. In Papers from the January 1984 MIT Workshop on Morphology, ed. by Margaret Speas and Richard Sproat, 53–69. MIT Working Papers in Linguistics 7. Cambridge, MA: MIT, MIT Working Papers in Linguistics.

Myler, Neil. 2014. Building and Interpreting Possession Sentences: New York University Doctoral Dissertation.

Myler, Neil. 2016. Building and interpreting possession sentences. Cambridge, MA: MIT Press.

Myler, Neil and Zoliswa Mali. 2020. Two Places for Causees in Productive isiXhosa Morphological Causatives. *Syntax* (in press).

Nash, Léa. 2017. Causees are not agents. Linguistic Perspectives on Causation. HUJI, June 30th. URL https://causalityconference.files.wordpress.com/2017/06/lea-nash-handout.pdf

Nie, Yining. 2020. Morphological causatives are Voice over Voice. *Word Structure* 13 (1): 102-126. Available at https://ling.auf.net/lingbuzz/004446

Nevins, Andrew. 2002. One -able, two attachment sites. Manuscript, MIT.

Newell, Heather, and Glyne Piggott. 2014. Interactions at the syntax–phonology interface: Evidence from Ojibwe. *Lingua* 150: 332–362.

Olsen, Susan. 2014. Delineating derivation and compounding. In The Oxford Handbook of Derivational Morphology, ed. By Rochelle Lieber and Pavol Štekauer, 26–49. Oxford: Oxford University Press.

Oltra-Massuet, Maria Isabel. 2010. On the Morphology of Complex Adjectives. Doctoral Dissertation, Universitat Autònoma de Barcelona.

Oltra-Massuet, Maria Isabel. 2014. Deverbal Adjectives at the Interface: A Crosslinguistic Investigation into the Morphology, Syntax and Semantics of -ble. Mouton de Gruyter.

Oltra-Massuet, Isabel, and Elena Castroviejo. 2013. Approaching results in Catalan and Spanish deadjectival verbs. *Catalan journal of linguistics* 12: 131-154.

Oseki, Yohei. 2017. Voice Morphology in Japanese Argument Structures. Unpublished Manuscript, New York University. Available online at http://ling.auf.net/lingbuzz/003374.

Payne, Doris. 1985. Inflection or derivation: is there a difference? In: S. DeLancey and R. Tomlin (eds.) Proceedings of the First Annual Meeting of the Pacific Linguistics Conference. U. of Oregon, 247-260.

Panagiotidis, E. Phoevos. 2011. Categorial features and categorizers. *The Linguistic Review* 28 (3): 365-386.

Plank, Frans. 1991. Inflection and derivation. EUROTYP Working Papers. Noun phrase structure. Working paper No 10.

Pross, Tillmann. 2019. What about lexical semantics if syntax is the only generative component of the grammar? A case study on word meaning in German. Natural Language & Linguistic Theory 37(1). 215–261. doi:https://doi.org/10.1007/s11049-018-9410-7.

Punske, Jeffrey. 2012. Aspects of the internal structure of nominalization: Roots, morphology and derivation. Doctoral Dissertation, University of Arizona.

Pylkkänen, Liina. 2002. Introducing Arguments. Doctoral Dissertation, MIT.

Pylkkänen, Liina. 2008. Introducing Arguments. Cambridge: MIT Press.

Ralli, Angela. 2010. Compounding versus derivation. In Sergio Scalise & Irene Vogel (eds.) Cross-disciplinary issues in compounding. Amsterdam: John Benjamins, 57–76.

Rimell, L. D. 2012. Nominal roots as event predicates in English denominal conversion verbs. New York University Doctoral Dissertation.

Roeper, Thomas & Angeliek van Hout. 1999. The Impact of Nominalization on Passive, -able, and Middle: Burzio's Generalization and Feature-Movement in the Lexicon. MIT Working Papers in Linguistics 35. 155–211.

Roeper, Thomas & Angeliek van Hout. 2009. The representation of movement in -ability nominalizations.
Evidence for covert category movement, Edge phenomena, and local LF. In Anastasia Giannakidou & Monika Rathert (eds.), Quantification, Definiteness and Nominalization, 344–364. Oxford University Press.

Roßdeutscher, Antje & Hans 2010 Kamp. 2010. Syntactic and semantic constraints on the formation and interpretation of ung-Nouns. In Artemis Alexiadou & Monika Rathert (eds.), The semantics of nominalisations across languages and frameworks, de Gruyter.

Roy, Isabelle. 2010. Deadjectival nominalizations and the structure of the adjective. In Artemis Alexiadou & Monika Rathert (eds.) *The Syntax of Nominalizations across Languages and Frameworks*, 129-158.

Roy, Isabelle & Elena Soare. 2013. Event-related nominalizations. In Gianina Iord ă chioaia, Isabelle Roy & Kaori Takamine (eds.), *Categorization and Category Change*, 123–152. Cambridge Scholar Publishing.

Say, Sergey. 2004. Antipassive *sja*-verbs in Russian: Between inflection and derivation. In Wolfgang U. Dressler, Dieter Kastovsky, Oskar E. Pfeiffer and Franz Rainer (eds.) *Morphology and its demarcations: Selected papers from the 11th Morphology Meeting, Vienna* (February), 253-275. Amsterdam/Philadelphia: John Benjamins.

Schäfer, Florian. 2008. *The Syntax of (Anti-)Causatives*. Philadelphia: John Benjamins.

Sigurðsson, Einar Freyr. 2015. Particle incorporation, resultatives, and 're-' prefixation. Qualifying Paper, University of Pennsylvania.

Sigurðsson, Einar Freyr. 2017. *Deriving case, agreement and Voice phenomena in syntax*: University of Pennsylvania Doctoral Dissertation.

Sigurðsson, Einar Freyr and Jim Wood. 2020. On the implicit argument of Icelandic indirect causatives. *Linguistic Inquiry* (just accepted) https://doi.org/10.1162/ling_a_00384. Available on https://ling.auf.net/lingbuzz/005020

Spencer, Andrew. 2000. Agreement morphology in Chukotkan. In Morphological Analysis in Comparison, ed. Wolfgang U. Dressler, Oskar E. Pfeiffer, Markus A. Pöchtrager and John R. Rennison. Amsterdam: John Benjamins Publishing Co., 191–222.

Stump, Gregory T. 2004. Delineating the boundary between inflection-class marking and derivational marking: The case of Sanskrit *-aya*. In Wolfgang U. Dressler, Dieter Kastovsky, Oskar E. Pfeiffer and Franz Rainer (eds.) Morphology and its demarcations: Selected papers from the 11th Morphology Meeting, Vienna (February), 293-309. Amsterdam/Philadelphia: John Benjamins.

Svenonius, Peter. 2004. Slavic prefixes inside and outside VP. Nordlyd 32(2). 205–253.

Svenonius, Peter. 2008. Slavic prefixes are phrasal. In Proceedings of formal descriptions of Slavic languages 5, eds. G. Zybatow, L. Szucsich, U. Junghanns, and R. Meyer, 526–527. Frankfurt am Main: Peter Lang.

Tyler, Matthew. 2020. Argument structure and argument-marking in Choctaw. Yale University Doctoral Dissertation.

Trips, Carola. 2009. *Lexical Semantics and Diachronic Morphology: The development of -hood, -dom and -ship in the History of English*. Tübingen: Niemeyer.

Volpe, Mark J. 2005. Japanese Morphology and its Theoretical Consequences: Derivational Morphology in Distributed Morphology. Doctoral Dissertation, State University of New York, Stony Brook.

Wood, Jim. 2012. Icelandic Morphosyntax and Argument Structure: New York University Doctoral Dissertation.

Wood, Jim. 2015. Icelandic Morphosyntax and Argument Structure. Dordrecht: Springer.

Wood, Jim & Alec Marantz. 2017. The interpretation of external arguments. In Roberta D'Alessandro, Irene Franco & Ángel J. Gallego (eds.), The verbal domain, 255–278. Oxford: Oxford University Press.

Wood, Jim, and Einar Freyr Sigurðsson. 2014. Building deverbal ability adjectives in Icelandic. University of Pennsylvania Working Papers in Linguistics 20:351–360.

Wood, Jim. 2019. Icelandic nominalizations and allosemy. Manuscript, Yale University.

Zeller, Jochen. 2001. Particle Verbs and Local Domains. Amsterdam: John Benjamins.

Zhang, Niina Ning. 2007. Root merger in Chinese compounds. *Studia Linguistica* 61(2): 170–184.

Žukova, Aleftina N. 1972. Grammatika korjakskogo jazyka. [A Grammar of Koryak.]. Leningrad: Nauka.