Two Generalizations Regarding Agentive Subjects are False; and, How to Encode Subject Requirements of Verbs

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Abstract

A putative generalization that has been very prominent in the literature is that verbs that alternate between transitive and unaccusative necessarily impose no restrictions on the subject in the transitive alternant (Levin & Rappaport Hovav [1995] 102–106). Folli & Harley (2005) also claim that many verbs which require agentive subjects no longer do when a particle is added. I show that both generalizations are false. There are verbs that alternate but do impose restrictions on the subject in the transitive, and there are verbs that do not impose subject restrictions without a particle but do with one. Verbs are able to impose arbitrary restrictions on the external argument, in any syntactic frame. This appears to be at odds with the view that external arguments are not arguments of the verb but are instead projected by a functional head like Voice (Kratzer 1996). I show that some limited instances of non-local selection have to be countenanced, and a verb must be able to impose restrictions on the argument of Voice. Implementing selection as feature checking permits this while still capturing the local nature of selection. It also accounts for the cases of derivational morphology discussed by Merchant (2019), without the need for functional heads to select the root and its complement.

1 Introduction

Some recent literature has put forward two putative generalizations regarding verbs that do and do not allow non-agentive subjects. I show here that both generalizations are spurious.

First, building on observations in Smith (1970) and Hale & Keyser (1986), Levin & Rappaport Hovav (1995 102–106) claim that verbs which require agentive subjects when transitive do not have an unaccusative intransitive alternate, while alternating unaccusatives necessarily permit non-agentive subjects in their transitive use. For instance, assassinate and mow require agentive subjects and do not have intransitive variants, while break and heat up allow non-agentive subjects and do alternate:

(1)  a. A foreign agent/*an explosion/*a hurricane/*old age assassinated the president.  
     *The president assassinated.

   b. The farmhand/*the wind/*the army’s passage mowed the hay.
     *The hay mowed.
This putative generalization has been very prominent in the literature. See, for example, Rein-hart (2002), Folli & Harley (2005), Levin & Rappaport Hovav (2005), Alexiadou et al. (2006, 2015), Schäfer (2008, 2009, 2012), Koontz-Garboden (2009), Rappaport Hovav (2014), Cuervo (2015), Lavine & Babby (2019). Some of this literature has built theoretical apparatus on the basis of this putative generalization (e.g., Reinhart 2002, Alexiadou et al. 2006).

Folli & Harley (2005) claim that there is another generalization that also involves allowing non-agentsive subjects. According to them, certain consumption verbs do not allow non-agentsive subjects in their base use, but they do if a resultative particle is added.¹


I show here that both of the putative generalizations above are false. All theoretical proposals based on them are therefore unmotivated. I start with the generalization about alternating un-
accusatives (section 2), and then address the generalization concerning consumption verbs with resultative particles (section 3). Along the way, I note that a simple distinction between agents and non-agentsive causers is not sufficient, nor is the very notion of agency. Different aspects of agency can be required by different verbs (section 2.2).

The findings of sections 2 and 3 have important theoretical consequences. First, existing propos-
sals are inadequate (section 4). Second, we need to be able to model subject restrictions in a moti-
vated theory of grammar. Section 5 discusses this issue, and the nature of selection. It first shows that subject restrictions are often arbitrary and have to be stipulated in the lexical entries of verbs. This seems to be at odds with the view that underlying subjects are not arguments of lexical verbs, but are projected by a functional head like Voice (Kratzer 1996). I show that having the functional head select V does not work, contra Merchant (2019). Some limited instances of non-local selection have to be countenanced, meaning that there is independent need for a model where a verb can impose restrictions on the argument of another head that it combines with. Implementing selection in terms of feature checking (Adger 2003, 2010, Müller 2011, Bruening 2013) can permit the right instances of non-local selection while still imposing limits on selection. This also works for the cases of derivational morphology discussed by Merchant (2019).
2 The Alternating Unaccusative Generalization is False

I start with the putative generalization concerning alternating unaccusative verbs. The generalization is supposed to be that alternating unaccusative verbs necessarily permit non-agentive subjects in the transitive. Verbs that require agentive subjects in the transitive do not alternate. As mentioned in the introduction, this generalization has been very prominent in the theoretical literature (see the references above). Despite this prominence, the generalization is already known to have counterexamples in one direction. There are numerous transitive verbs that permit non-agentive subjects, but nevertheless do not alternate (e.g., Levin [1993], Reinhart [2002], Härtl [2003], Alexiadou et al. [2006], Koontz-Garboden [2009]; note 8, Schäfer [2009], Rappaport Hovav & Levin [2012], Rappaport Hovav [2014]):

(4) a. The hurricane destroyed the city. *The city destroyed.
   b. Falling ash killed the inhabitants. *The inhabitants killed.
   c. Tons of whipped cream smothered the victim. *The victim smothered.
   d. Centuries of wind-blown dust covered up the marker. *The marker covered up.
   e. A sandstorm buried the ruins. *The ruins buried.

This means that permitting a non-agentive subject cannot be a sufficient condition for permitting the unaccusative alternation, but it could still be a necessary one.

2.1 Novel Counterexamples

What has not been observed before, to my knowledge, is that there are also counterexamples in the other direction. There are verbs that do alternate, but nonetheless do not allow a non-agentive subject in the transitive. Drown and starve are of this sort, at least for many speakers (see section 2.2 on drown): as transitives, they require a volitional human agent, just like other verbs of deliberate killing like assassinate and murder. However, these two verbs also have intransitive unaccusative uses, unlike assassinate and murder:

(5) a. The victim drowned. The murderer drowned the victim.
   *Carelessness/Falling out of the canoe drowned the victim.
   b. The villagers starved. The occupying army starved the villagers.
   *Famine/Crop failure starved the villagers.

These two verbs show that permitting non-agentive subjects in the transitive cannot be a necessary condition for the unaccusative alternation, any more than it can be a sufficient condition.

Counterexamples are not limited to these two verbs. There are others as well:

(6) a. The plane landed. The pilot landed the plane.
   *The wind/A hurricane landed the plane.
   b. The children hurried. The teacher hurried the children.
   *Concern/Eagerness hurried the children.

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2 See section 2.2 for some relevant observations from the previous literature.
Some other verbs seem to require agentive subjects for some speakers. I have received mixed reactions to the following examples, with some speakers allowing the non-agentive subjects, and some not.

(7) a. Tomatoes grow quickly. This gardener grows tomatoes quickly.
   %Rain grows tomatoes quickly.
b. The soldiers marched into battle. The general marched the soldiers into battle.
   %Fear marched them back off the battlefield.
c. The film began. The projectionist began the film.
   %A power surge unexpectedly began the film.
d. The bells sounded. The hunchback sounded the bells.
   %The wind/A hurricane sounded the bells.

So, while there is some speaker variation, there are quite a few verbs that undergo the unaccusative-transitive alternation, but require an agentive subject in the transitive alternant.

What these data show is that the claimed generalization is false, in both directions. There are verbs that permit non-agentive subjects but do not alternate (e.g., destroy), and there are verbs that do alternate but do not permit non-agentive subjects (e.g., drown). Permitting a non-agentive subject cannot be either a necessary or a sufficient condition for alternation, then. In fact it seems to be completely irrelevant.

2.2 Further Examples and the Notion of ‘Agent’

While examples like the above have not been noted in the previous literature, some other potential counterexamples have been noted before. For instance, Schäfer (2008) says that manner of motion verbs like rollen, ‘roll’, alternate in German but do not allow non-agentive causer subjects (English is similar). However, Schäfer (2012) points out that inanimate causer subjects are allowed with

Rappaport Hovav (2014) notes that grow does not allow non-agentive subjects:

(i) (Rappaport Hovav 2014, 13, (22a–b))
a. John grew tomatoes.
b. *Fertile soil/dedicated care/this machine grew John’s tomatoes.

However, she then dismisses this verb as non-representative.

An additional problem for the putative generalization is pointed out in Schäfer (2009). This is that some languages have been reported to disallow non-agentive subjects across the board with transitive verbs, for instance Jacaltec (Craig 1976) and Japanese (Yamaguchi 1998). Yet these languages still have the causative-inchoative alternation.
these verbs when a PP is added (e.g., *the wind rolled the ball across the goal line*). These verbs may or may not be counterexamples to the generalization, then, depending on how one looks at it. Schäfer [2012] claims that the lifting of the agent restriction when a PP is added is a case of the second generalization, discussed in section[3] As we will see, this generalization is also false[5].

Additionally, Schäfer (2009: 654) notes two verbs in German that alternate but only allow causers and not agents: *anwehen* (‘drift’, which takes subjects like ‘the wind’) and *anschwemmen* (‘wash ashore’, which takes subjects like ‘the river’; English *wash ashore* is similar). Similarly, Rappaport Hovav & Levin (2012: 161–162) note that verbs like *blossom* take only non-agenteive causer subjects. These are not counterexamples to the generalization if it is stated such that alternating verbs must allow non-agenteive causers in the transitive. They are counterexamples if the generalization is claimed to be that alternating verbs can impose no restrictions on the subject of the transitive. See section[4] for previous literature that has stated the generalization this way.

This raises another point, concerning the form subject restrictions take. Previous literature has made only a two-way distinction, between agents and non-agenteive causer subjects. Most previous literature has also assumed that if there is any restriction, it is against non-agenteive causer subjects. On this view, a verb will either impose no restrictions, and so allow both agents and non-agents, or it will restrict its subject to agents. However, we now see that there are transitive verbs that actually restrict their subjects to non-agents, too.

Further inspection shows that even the notion of ‘agent’ is probably not what is relevant. Particular verbs can impose far stricter requirements than ‘agentivity.’ Consider the verb *murder*, which requires not just agentivity but moral culpability on the part of its subject. Other verbs can require only some aspects of agentivity. Julie Legate (email communication, June 9, 2020) points out that some speakers apparently allow *waves* as the subject of transitive *drown*, since examples occur on the internet (e.g., “not only would such high-velocity flood waves drown animals,” in Paul A. LaViolette, *Earth Under Fire: Humanity’s Survival of the Ice Age*, accessed via Google Books). In my own lexicon, transitive *drown* requires an intentional agent, just like *assassinate*. It appears that other speakers only require that the subject be capable of action or motion, like waves. Julie Legate reports that she finds NPs like *falling out of the boat* bad as the subject of transitive *drown*, but *rough waves* fine. I take this to indicate that, for speakers like her, what *drown* requires of its subject is that it be capable of motion or action. Intentionality is not necessary, for these speakers.

I take this to indicate that there is no linguistically relevant notion of an ‘agent.’ The components that are thought to make up agentivity, like being capable of action or motion, having intentions, and so on, are actually distinct and can be required independently of each other. All verbs of motion, for instance, probably only require motion ability, and not intention (*The wind-up toy walked down the hall*). Verbs of thinking and feeling require sentience, but not other aspects of agentivity (*Even a brain in a vat would fear this*). Consumption verbs require the ability to ingest, but again not other aspects of agentivity like intention (*This mindless organism eats everything in its path; I accidentally drank urine*). Even intentionality is not sufficiently fine-grained, as verbs like *murder* require moral culpability, not just intentionality.

Other examples making the same point come from alternating verbs that typically do permit non-agenteive subjects, but do not just with particular types of direct objects. These verbs

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5It is also not correct that the PP is necessarily resultative, as Schäfer [2012] claims; the atelic particle *around* also allows a non-agent, as in *the wind rolled the ball around for a while*. Schäfer [2012] claims that resultatives can be atelic, but this just seems to make the term *resultative* vacuous. There is no sense in which the particle *around* is resultative.
then do not permit the unaccusative version with that particular (underlying) direct object, either (Brousseau & Ritter 1992: 60, Levin & Rappaport Hovav 1995: 85, 105, Rappaport Hovav & Levin 2012):

(8) a. She/The earthquake broke the vase/the window/the glass.
   b. The vase/the window/the glass broke.

(9) a. He/*The earthquake broke his promise/the contract/the world record.
   b. * His promise/the contract/the world record broke.

The claim made by at least some of this literature is that promises, contracts, and world records can only be broken by agents, and not by non-agentive causers (e.g., Reinhart 2002, Koontz-Garboden 2009). However, the restriction is actually different, and has nothing to do with agency. First, world records can be broken by non-agents:

(10) a. A giant pumpkin broke the world record at the Topsfield Fair Friday night.
   b. The Houston Chronicle reported that the hurricane broke the record for heaviest rainfall ever logged in the United States during a tropical storm,…
   (https://regionslead.org/hurricane-harvey-recovery/)

Nevertheless, break the world record does not alternate, as (9b) shows.

As for promises and contracts, the restriction on them is much tighter than agency. They can only be broken by the person who made the promise or was a party to the contract:

(11) a. * I broke Mary’s promise.
   b. * I broke Mary’s contract with the CIA. (if I am not a party to the contract)

A first-person argument can certainly be agentive, so agentivity is not the requirement on breaking promises and contracts. The restriction here is not about agentivity, but about our world knowledge regarding promises and contracts.

What this shows is that a two-way distinction between agents and non-agent causers is far too simplistic, and probably not relevant at all. The notion of agentivity needs to be broken down, as what particular verbs (and verb-object combinations) require can be very particular. Allowing a non-agent causer is also not a default or the absence of restrictions, since some verbs require a causer and do not allow an intentional agent.

### 2.3 Summary

To sum up this section, the generalization about alternating unaccusatives permitting non-agentive subjects in the transitive is false in both directions. Permitting a non-agentive subject in the transitive is neither a necessary nor a sufficient condition for alternation. It seems to be completely

Levin & Rappaport Hovav (1995: 85–86) mention a few other cases where a certain NP can be the direct object of an alternating verb but does not make a good subject of the intransitive: The waiter cleared the table. *The table cleared. The dressmaker lengthened the skirt. *The skirt lengthened. On these, see Rappaport Hovav (2014), and the discussion in section.⁶
irrelevant, in fact. In addition, the notion of ‘agent’ has turned out not to be helpful at all in describing restrictions; rather, verbs can impose very particular requirements on their subjects, like moral culpability or the ability to move.

3 Subject Restrictions and Resultative Particles

The second generalization is presented by Folli & Harley (2005). They claim that certain verbs of consumption do not permit non-agentive subjects:

(12) (Folli & Harley 2005: (24))
  a. * The sea ate the beach.
  b. * The wind carved the beach.
  c. * Erosion nibbled the cliff.
  d. * The washing machine chewed the laundry.

However, if a resultative particle is added, then they do:

(13) (Folli & Harley 2005: (24))
  a. The sea ate away the beach.
  b. The wind carved the beach away.
  c. Erosion nibbled away the cliff.
  d. The washing machine chewed up the laundry.

As stated in the introduction, Folli and Harley design a constructional theory of verb meaning wherein consumption verbs combine with a light verb, v_{DO}, which requires animate agents. When they combine with a resultative particle, in contrast, they combine not with v_{DO} but with v_{CAUSE}, which requires only a causer, animate or inanimate. Schäfer (2012) proposes a modification of this account, but maintains that the generalization is correct.

However, it is not true that verb-particle combinations uniformly lack subject restrictions. Consider the consumption particle verb put away. With this verb, the subject restriction actually holds of the particle use, and not the non-particle use:

(14) a. His phone records put the suspect in Manhattan at 12:03 AM.
    b. The groom put away thirteen helpings of wedding cake. (= The groom ate thirteen helpings of wedding cake.)

Folli & Harley (2005) also claim that this class of verbs all require an incremental theme object. However, this is false. While eat, carve, and drink take incremental theme objects, nibble, chew, and suck do not (see their paper for examples with the verbs just listed that are not illustrated here). There are also consumption verbs like devour that take incremental themes, but have no subject restriction:

(i) a. I devoured two pies in/??for half an hour. (quantized object: telic)
    b. I devoured pies for/??in half an hour. (non-quantized object: atelic)
    c. The tsunami devoured the coastal resort.

(Objects can be identified as incremental themes if they make the VP telic when quantized; see Krifka 1992.)
c. * The sea put away the beach. (≠ The sea ate (up) the beach.)

Other particle verbs also have subject restrictions, and only permit agentive subjects:

(15)  
   a. Bumping this door will lock it.  
   b. The authorities locked me up.  
   c. * Bumping this door locked me up.  
   d. * The earthquake locked me up. (situation: I’m touring a jail with self-locking doors when an earthquake hits, causing the door of the cell I’m in to close)

(16)  
   a. A drifting boat bumped the dock.  
   b. The gangster bumped off his rivals.  
   c. * The tsunami bumped off the sunbathers.

(17)  
   a. Natural atmospheric phenomena can explain crop circles.  
   b. The speaker explained away the exceptions.  
   c. * Natural atmospheric phenomena can explain away the exceptions.

Note that the non-particle uses of these verbs have no subject restrictions (the (a) examples).

These data indicate that the generalization proposed by Folli & Harley (2005) is also not correct. There are verbs that require agentive subjects when they combine with a resultative particle, even ones that do not require agentive subjects without the particle. It therefore appears that there is no correlation between particles and subject restrictions, or more generally between a resultative interpretation and subject restrictions.

4 Discussion: Previous Proposals

Sections 2 and 3 showed that two putative generalizations concerning subject restrictions are not correct. The unaccusative alternation has nothing to do with subject restrictions. The addition of particles also has nothing to do with subject restrictions. Additionally, a two-way distinction between agents and non-agent causers is too simplistic, as verbs can impose very particular requirements on their subjects. These findings have implications for theory and how we should model subject restrictions. This section discusses previous proposals, while section 5 discusses how to model subject restrictions given the data uncovered here.

4.1 Restrictions Do Not Reveal the Base Form

Let me begin with Levin & Rappaport Hovav (1995: 86), who take restrictions to indicate which use of an alternating verb is basic, and which derived. They assume that the basic use of the verb will impose less stringent restrictions on its arguments. Consider the verb clear, which, as Levin & Rappaport Hovav (1995: 85–86) observe, seems to impose more requirements on its underlying object in the intransitive than it does in the transitive:

(18)  
   a. The waiter cleared the table.  
   b. * The table cleared.
c. The computer programmer cleared the screen.

d. The screen cleared.

Levin & Rappaport Hovav (1995: 86) state the basis for their assumption as follows: “if intransitive *clear* were the basic form of this verb, it would be difficult to derive the transitive use in *The waiter cleared the table*, which has no intransitive counterpart, short of asserting that the transitive and intransitive uses of a verb like *clear* are not related.” In contrast, if the transitive use were basic, then there would be no problem: additional restrictions could be imposed on the derived intransitive, without incorrectly affecting the underived transitive.

Levin & Rappaport Hovav (1995) thought that the alternating unaccusative generalization was correct, and thought that it was of a piece with this same data point. It seems consistent with the quote just reproduced that alternating unaccusatives would have to impose no restrictions on the transitive, since that is the basic, underived form.

If we accept their assumption, then we have to conclude that different alternating unaccusatives have different directions of derivation in English. This is because alternating verbs can impose more restrictions in either the intransitive alternant (*clear*) or the transitive alternant (*drown*). If we accept Levin and Rappaport Hovav’s assumption, then verbs like *clear* would have the transitive use as basic, while verbs like *drown* would have the intransitive use as basic. This is a possibility, but it seems highly unlikely. Furthermore, the particle facts indicate that the assumption cannot be maintained: particles are clearly added to basic, non-particle uses of verbs, so the direction of derivation could only be one-way. The particle verb has to be derived from the bare verb. However, some verbs impose more restrictions in the basic non-particle use (*eat*), while others impose more restrictions in the derived particle use (*put away*). This means that the assumption is incorrect: a verb can impose more restrictions in either an underived or a derived environment.

This point can also be made with double object verbs. There are many verbs that seem to be basically transitive, as they do not entail a third argument if it is not present. Yet a third argument can be added, with the interpretation as an intended recipient of the original object:

(19) a. The chef boiled a pot of water. (no entailment of an intended recipient)
   The chef boiled me a pot of water.

b. The waiter cleared off a table. (no entailment of an intended recipient)
   The waiter cleared me off a table.

c. The guide broke off a branch. (no entailment of an intended recipient)
   The guide broke me off a branch (to use as a walking stick).

These verbs do not require an intentional subject as basic transitives, but they do as derived ditransitives:

(20) a. The close proximity of the lava boiled a pot of water.
   *The close proximity of the lava boiled me a pot of water.

b. The wind cleared off a table.
   *The wind cleared me off a table. (on intended recipient interpretation; acceptable if I am blown off the table)

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8In addition to verbs like *drown*, which impose restrictions on the subject of the transitive, Folli (2003) notes verbs like *collapse*, which impose restrictions on the object of the transitive: *The tent/Mary collapsed. Sue collapsed the tent/*Mary. See also Ramchand (2008), Rappaport Hovav (2014).
c. The wind broke off a branch.
   *The wind broke me off a branch (to use as a walking stick).

It is therefore clear that more stringent requirements can be imposed in a derived environment than in a non-derived one.

Given that Levin and Rappaport Hovav’s assumption is incorrect, we cannot conclude anything regarding the direction of derivation of alternating unaccusatives in English. The selectional restriction facts are compatible with either the transitive or the intransitive form being basic (or neither). (As will be discussed in section 4.2, Rappaport Hovav 2014 shows that restrictions like those on clear are not quite as characterized by Levin & Rappaport Hovav 1995.)

4.2 Existing Proposals

I now turn to some existing theoretical proposals regarding alternating unaccusatives. None of them can be maintained given the facts presented above. First, Reinhart (2002) proposes that the transitive is the base for alternating verbs, and there is a rule removing the external argument to derive the intransitive. This rule only applies to underspecified external arguments (which she notates “[+c]”), and not to those that are specified as agents (“[+c,+m]”). Clearly this cannot be right, as drown must be able to have its agent argument removed, since it can alternate. But if we allow the rule to apply to agents, then we have no explanation for why verbs like murder and assassinate do not alternate. This proposal fails. Reinhart’s feature system is also far too simplistic, as it distinguishes only agents from causers. It cannot capture the range of restrictions that we have seen.

In a different approach, Alexiadou et al. (2006) propose that verb roots fall into different categories. In English, there are ones that must occur in the transitive, ones that must occur in the intransitive, and ones that are underspecified and can occur in both. The underspecified roots are the alternating ones; being underspecified, they can never impose restrictions on the subject of the transitive. The data shown above indicate that this cannot be the right characterization: Verbs like drown do alternate, but are just like murder in specifying agentivity of their transitive subject. This theory also has to be rejected. (See also Rappaport Hovav 2014 for criticism of the categorization based on internal versus external causation.)

Rappaport Hovav (2014) makes a very minimal and therefore attractive theoretical proposal: “all alternating verbs are lexically associated with the internal argument(s) only” (p.21). According to Rappaport Hovav (2014), verbs like murder and destroy are lexically specified as taking two arguments, a subject and an object. They differ in that murder imposes an agent restriction on the subject but destroy does not. In contrast, all alternating verbs only take one argument, their internal argument. The external argument in the transitive is added in the syntax. Accordingly, no alternating verb can impose a restriction on the external argument, because it does not have one in its lexical representation. This also cannot be right: as we have seen, verbs like drown do impose selectional restrictions on the subject of the transitive, but they also alternate. (Verbs like wash ashore also alternate, but impose the opposite requirement on the subject of the transitive.)

It should also be noted that Rappaport Hovav (2014) treats subject and object restrictions very differently. Discussing verbs like clear as in (18), repeated below, she claims that any restrictions on the underlying object are due only to world knowledge. The intransitive has to be conceivable as coming about “in the normal course of events” (Rappaport Hovav 2014: 24).
In (18b), tables do not normally clear by themselves in the normal course of events. This is why the sentence is viewed as deviant. In contrast, the yard cleared of snow (Rappaport Hovav 2014: 16) is fine because snow melts by itself in the normal course of events. In other words, apparent restrictions on the underlying object are explained by our knowledge of the world. In her analysis, however, the fact that kill and destroy require an external argument has nothing to do with knowledge of the world, and is simply a lexical specification. It is not at all clear why this difference between subjects and objects would exist, where restrictions on subjects are lexical specifications but restrictions on objects are not.

Regardless, we could ask whether Rappaport Hovav’s theory could be maintained, if we could give a similar explanation for drown that she gave for clear. Perhaps the lexical item drown actually does not impose any requirements on the subject (because it does not have one in its lexical representation), but our knowledge of the world tells us that a drowning event with a causer could only have an agent as causer. It is hard to see how it could. In the case of murder, the verb itself implies moral culpability. This is not true of kill, in contrast, and accordingly kill allows non-agentive subjects. However, we know that people can spontaneously drown; and this is exactly why drown has an intransitive use. Our knowledge of the world also tells us that various non-agentive causes can be behind a drowning. For instance, falling out of a boat or getting trapped at the bottom of a lake can result in one drowning. Yet these non-agentive causes do not make good subjects of transitive drown (*Falling out of the boat drowned Mary). In this respect drown and starve contrast with some other verbs of manner of death, like choke, smother, and strangle. A piece of food can choke someone, a blanket can smother someone, and the cord of a blind can strangle someone. So it is not true that all verbs of manner of dying require an agent in the transitive. It therefore does not appear to be possible to explain the agent restriction on transitive drown through world knowledge. In fact, world knowledge would lead us to expect that a non-agent subject would be fine with drown (the same goes for starve). So, trying to explain subject restrictions through world knowledge will not work, and it follows that we cannot maintain Rappaport Hovav’s claim that alternating verbs have no subjects. Drown has to impose a subject restriction in the transitive as a lexical property, and it must therefore be specified as taking a subject in its lexical entry.

4.3 Summary

To summarize so far, all existing theoretical proposals, being built on incorrect empirical data, cannot be maintained. They are incapable of accounting for verbs like drown. If no existing theoretical proposals work, then we have to ask whether it is possible at all to characterize the class of alternating verbs.

At this point we can definitely say that it is not possible to characterize the class of alternating verbs with reference to subject restrictions in the transitive. As we have seen, alternating verbs may (drown) or may not (break) impose selectional restrictions on the subject of the transitive, while...
non-alternating verbs also may \textit{(murder)} or may not \textit{(kill)} impose selectional restrictions on the subject. Selectional restrictions on the transitive subject are completely irrelevant to determining whether a verb alternates or not.

Of course, this does not mean that it will never be possible to characterize the class of alternating verbs; it only means that subject restrictions do not do the job. In our current state of knowledge, there is no other candidate property, and so an explanation is currently lacking.

5  How to Model Subject Restrictions

I now turn to the question of how to state selectional restrictions in a model of grammar. Restrictions on underlying objects do not seem to be problematic: in all models, verbs can impose selectional requirements on their object (but note that sometimes they change, depending on the context; this is the same type of issue discussed throughout this section). The more problematic case is restrictions imposed on an external argument. As we have seen, some verbs make specific requirements of their subject in the transitive. These can include intentionality, sentience, ability to move, moral culpability, and so on. I start by asking whether these kinds of requirements can be explained without the need for selectional restrictions. I conclude that they cannot, and therefore we need to posit restrictions in the lexical entries for verbs that refer to external arguments. Such restrictions appear to be at odds with the currently popular view, due to Kratzer (1996), that external arguments are not arguments of the lexical verb at all. I then address this proposal, and show that there are good reasons to adopt it. But then we have the problem of how to state subject requirements in such a model. I show that it is possible. I first reject selection of V by V oice (and the similar proposal in Merchant 2019), and then show two proposals that do work: upward selection and conditional statements in the lexical entries of roots. Both mechanisms have to be constrained by phase boundaries. Both also merely stipulate the facts, as lexical restrictions. However, given that the facts seem at this point to be largely arbitrary, perhaps the best we can do is state lexical stipulations.

5.1  Subject Restrictions are Unlikely to be Predictable

Sections 2–4 showed that existing proposals that attempt to tie subject restrictions to other properties of verbs have not been successful. Subject restrictions are independent of whether a verb alternates between unaccusative and transitive, and they are also independent of telicity and whether

\footnote{Härtl (2003) proposes to explain which verbs alternate and which do not by referring to conceptual properties of the events they denote. Härtl’s proposal is not entirely clear (especially the feature system in Table 1, page 910), but he does say that those verbs that can alternate are conceptualized as having a causer that sets the event in motion, but once set in motion, it continues on its own. In contrast, verbs that can only be transitive, like \textit{destroy}, require continued imparting of force to complete the event. Verbs that are only intransitive are conceived of as having causes that are not events but environmental conditions (e.g., \textit{the apple rotted}; Härtl 2003: 906). This characterization also does not seem to make the right predictions, as it predicts that none of \textit{drown}, \textit{starve}, \textit{choke}, \textit{echo}, or \textit{land} should alternate, since they require continued imparting of force in the transitive in order for the event to continue. Härtl (2003: 909) does say that another class of alternating verbs has an object with inherent properties that can change independently, as in \textit{the rope tore apart}. Again, \textit{drown}, \textit{starve}, \textit{choke}, \textit{echo}, and \textit{land} do not seem to fit this characterization. While Härtl’s attempt to explain which verbs alternate based on conceptual properties is laudable, it does not appear to be successful.}
or not the VP includes a resultative. Nevertheless, it is worth exploring whether any properties of verbs or verb phrases could predict whether or not a verb imposes restrictions on its subject.

For example, one might suggest that verbs like break and destroy only describe the end state of the internal argument, and so they naturally impose no restrictions on the subject. In contrast, mow describes the action of the subject, and so it has a subject restriction. We can account for eat versus eat away along the same lines: eat describes action with a mouth (or mouth-like aperture), and so requires a subject with a mouth, but eat away only describes the result and so makes no requirements of its subject. In contrast, put only describes change of location of the internal argument and so imposes no restrictions on the subject, but put away means eat and like eat describes the action of the subject. It therefore imposes the same requirement on the subject that eat does. Similarly with bump versus bump off: bump off means murder and like murder requires moral culpability.

So far this seems reasonable, but now consider drown. In its intransitive use, drown only describes the end state of the internal argument: the internal argument’s lungs filled with liquid and the NP died. The verb continues to mean this in the transitive, so there is no explanation for why a subject restriction would appear. No such restriction appears with choke, for instance. This just seems to be an arbitrary fact about drown (and starve). In our current state of understanding, then, this semantic explanation is incomplete.

The explanation also feels a little post-hoc. Is it actually clear that eat away differs from eat in its focus on the manner of the action? Eat away involves incrementally devouring the object in a consuming manner. If we view it that way, then the purported semantic explanation starts to look a little more suspect. Moreover, the verb devour also means ‘eat’, but it does not impose a subject restriction (The tsunami devoured whole towns and villages). It is also not clear that the subject restriction imposed by put away is the same as that imposed by eat. In my judgment, put away can really only describe the actions of humans and animals with intentions, and could not be predicated of, say, a mindless blob. The difference between put away and eat here seems rather arbitrary, as does that between eat and devour.

Consider also wash ashore, which only takes non-agents as subject (like hurricanes and rough waters). Transitive wash is not limited in this way, nor are other combinations of transitive verbs plus ashore (dragged ashore, pulled ashore, . . .). In fact other non-agentive uses of wash with particles are intransitive, like wash up on. This makes sense, since typically non-agents will be realized as an underlying object. Any semantic explanation for why wash ashore limits its subject to non-agents will necessarily be circular: it only allows non-agents because what it means is that a non-agentive subject caused the object to come to shore.

Furthermore, there are even categorial restrictions on subjects. The possible syntactic categories that can be subjects are already restricted: subjects can generally only be NPs and CPs. However, there are some predicates that disallow CP subjects, even when that would make semantic sense. Consider the following examples from Pollard & Sag (1987), where CPs contrast with synonymous NP subjects:

(22)  a. *That he was late all the time resulted in his being dismissed. (based on Pollard & Sag 1987: 131)
    b. Him being late all the time resulted in his being dismissed.
    c. The fact that he was late all the time resulted in his being dismissed.

(23)  a. *That we invested when we did made us rich. (Pollard & Sag 1987: 131)
b. Us investing when we did made us rich.
c. The fact that we invested when we did made us rich.

(24) a. * That he was going bald drove him to drink. (Pollard & Sag 1987: 131)
b. Going bald drove him to drink.
c. The fact that he was going bald drove him to drink.

(25) a. * That images are waterproof is incoherent. (Pollard & Sag 1987: 131)
b. The claim that images are waterproof is incoherent.

Not all speakers disallow CP subjects with these predicates, but many do. For these speakers, at least, some predicates can impose categorial restrictions on subjects in addition to semantic restrictions like intentionality. It is difficult to see how these categorial restrictions could be related to any semantic property of the predicate, since a synonymous NP is fine as subject.

I conclude that it is unlikely that we can fully reduce subject restrictions to semantic factors. Many subject restrictions seem to be arbitrary lexical restrictions.

If at least some subject restrictions are arbitrary, then we are going to need to allow verbs to impose lexical restrictions on their external arguments. This seems to be at odds with the currently popular proposal by Kratzer (1996), according to which external arguments are not arguments of verbs at all.

### 5.2 The Position of External Arguments

Kratzer (1996) proposes that underlying subjects are not arguments of the lexical verb, but are instead introduced by a higher head, Voice:

\[
\text{VoiceP}
\]
\[
\text{NP}_{\text{subject}} \quad \text{Voice} \quad \text{VP} \quad \text{V} \quad \text{NP}_{\text{object}}
\]

This is similar to what Rappaport Hovav (2014) said about alternating verbs (section 4.2), except that it is a proposal regarding all verbs. If the proposal is correct, then no verb can impose a selectional restriction on its underlying subject, because verbs do not select subjects. This proposal therefore seems to be at odds with the facts that we have seen here, where particular verbs do impose requirements on their subjects.

Nevertheless, there are very strong arguments in favor of the view that external arguments are introduced by a head other than the lexical verb. In addition to the arguments given in Kratzer (1996), the strongest argument comes from the ability to add material in between the external argument and the verb, like applicatives (Bruening 2001, 2010; Pylkkänen 2008; Bosse et al. 2012; Harley 2013). See in particular Bosse et al. (2012), who argue that one type of applicative can be added either between the verb and the external argument, or outside of the external argument, with different consequences. If the external argument were an argument of the verb, it should not be possible to add material in between them. An additional argument comes from Bruening (2020b),
who notes asymmetries in how implicit arguments are licensed and argues that those asymme-
tries are best accounted for if internal arguments are arguments of the lexical verb, but external 
arguments are introduced by a functional head like Voice.

If we accept these arguments, then we are apparently led into a paradox: on the one hand, 
external arguments are not arguments of lexical verbs at all, but on the other hand, particular 
lexical verbs select particular types of external arguments. This appears to be a contradiction. The 
rest of this section explores some ways of resolving this contradiction.

Note first, though, that abandoning the Voice theory will actually not help. At first glance, doing 
so appears to be able to enable us to maintain a traditional, strictly local theory of selection, where 
heads can only select their complements and specifiers. If the external argument is an argument 
of the lexical V, then the lexical V can impose requirements on it. In the current case, this would 
require two (related) lexical entries for *drown*, one that selects only an internal argument, and one 
which selects both an internal argument and an agentive external argument. In the case of *put*, 
one entry for *put* would not impose any requirements on its subject and would not select a particle, 
while another would select the particle *away* and would impose an agent requirement on its subject.

The problem is that there are numerous cases of non-local selection that must also be accom-
modated, and so there is no point to abandoning the Voice theory. We are going to need to allow 
the kind of selection that will allow a verb to select for an argument of Voice, anyway. For ex-
ample, various kinds of adjunct PPs require agentive subjects even when the verb itself does not. 
Instrumental PPs are of this type:

(27)  a. Someone broke this computer with a hammer.
       *The earthquake broke this computer with a hammer.

b. The hiker boiled the river water with a blowtorch.
       *The lava boiled the river water with a blowtorch.

c. The assassin choked the victim with a thong.
       *A piece of food choked the victim with a thong.

Benefactive *for* is as well (these examples have an acceptable proxy interpretation, where I do not 
have to perform the action, but they lack the benefactive interpretation):

(28)  a. The close proximity of the lava boiled this pot of water.
       *The close proximity of the lava boiled this pot of water for me.

b. The wind cleared off a table.
       *The wind cleared off a table for me.

c. The wind broke off a branch.
       *The wind broke off a branch for me.

(We saw the same restriction with the derived double object construction in section 4.1; see example 
20.)

Instrumentals and benefactives are canonical adjuncts. Yet they are somehow imposing a re-
quirement on the external argument of the verb. There is no way to account for this while main-
taining that selection is limited to a head-complement or head-specifier relation. The PP has to be 
able to impose a requirement on the argument of some other head. Suppose the structural relations 
are something like the following, with the PP adjoined to an intermediate projection of VP:
For the PP to be able to impose a requirement on the subject, we have to acknowledge some mode of selection that is not head-specifier or head-complement.

One could deny that this is an instance of selection. For example, one could claim that an instrumental or benefactive PP comes with a presupposition that the entity using the instrument or benefiting the benefactive (which is always the external argument of the VP) is an intentional agent. Or, the PP simply has its own semantics of intentionality, which will result in oddity if the VP it combines with is not compatible with intentionality. If we go this route, however, then we might as well say the same thing about subject requirements within the Voice theory: the V can have its own presuppositions or semantics, which again will result in oddity if the VP combines with a Voice that is incompatible with it. That is, one can deny that subject requirements (and object requirements, for that matter) actually involve selection, but are instead about semantic (in)compatibility.

This will not help for the case of categorial selection, however. There is no semantic incompatibility between verbs and CP subjects. We also see cases where syntactic selection (selection for particular syntactic categories or types of phrases) changes depending on the larger syntactic context. Many researchers have noted cases where selectional requirements of verbs change depending on the functional heads they combine with. For instance, selectional properties can change from active to passive. The verb *say* does not allow a raising to object complement in the active, but it does in the passive (Postal 1974):

(30)  

(a) *People say her to be an animal lover.*  
(b) She is said to be an animal lover.

Bruening (2014) notes numerous cases where selectional properties change from the active to the adjectival passive, for instance selection for PPs versus NPs:

(31)  

(Bruening 2014: 398, (93))

(a) No one remarked *(on/upon) his absence.
(b) His absence went unremarked.

But Bruening (2014) also argues that we need a syntactic account of adjectival passives, where they are built by combining verbs with functional heads (and Bruening 2013 argues this for verbal passives). If this is correct, there is no way to maintain strictly local selection: selection has to be conditional on the syntactic context. That is, what a verb selects has to take account of heads like Voice and Pass ive), and other elements like PPs. Selection simply cannot be limited to head-complement and head-specifier relations that are blind to all other syntactic material outside of the projection of the head. Examples of syntactic selection also cannot be written off as instances of semantic compatibility.
Bruening (2020b) also describes some cases of non-local selection, involving ditransitives. I conclude that we are going to need some limited instances of non-local selection. Given that there are strong arguments in favor of the Voice theory, where underlying subjects are not merged in a projection of the lexical V, we are going to need a model where lexical verbs can impose requirements on the specifier of Voice.

5.3 Unsuccessful Model: Voice Selects V

Within the Voice theory, one way that one might strive to maintain strictly local selection but also capture the fact that break does not require an agentive subject but drown does is to say that there are two versions of Voice. One projects an agent in its specifier, while the other projects something much looser, call it the “initiator” of the event. Let us call these two versions of Voice “Voice\textsubscript{Ag}” and “Voice\textsubscript{Initiator}.” (This basic analysis is proposed by Alexiadou et al. 2006, although with different names for the heads; it is also just like the v\textsubscript{DO} and v\textsubscript{CAUSE} heads of Folli & Harley 2005, except that the two Voice heads are unrelated to aspectual properties, or to “doing” versus “causing.”)

To capture subject restrictions imposed by particular verbs, we now say that Voice\textsubscript{Init} selects and combines with only a certain subset of the verbs of the language. These verbs simply have to be learned and listed. Voice\textsubscript{Ag} selects and combines with a different subset of the verbs of the language. Again, these have to be learned and listed. What it means to learn the transitive use of drown is to learn that drown is only on the list for Voice\textsubscript{Ag} and is not on the list for Voice\textsubscript{Init}. Knowing whether a verb can occur without Voice, or with a different—unaccusative—Voice, is independent. Break and destroy are both on the list for Voice\textsubscript{Init}, but only break is on the list for unaccusative syntax, however we choose to model that. (There may well be properties of verbs that determine whether they can alternate, but permitting non-agentive subjects in the transitive is not one of them, as we have seen.)

The problem with this approach is the particle verbs. If selection is strictly local, then when a head selects for a complement, it can only select for the head of its complement. Heads are unable to specify that their complement must include certain non-head material. For instance, no verb that selects an NP object can require that its NP object include a relative clause or an adjective. However, in this approach to subject restrictions, we would have to say something exactly like that: that put is on the list for Voice\textsubscript{Init}, but a more complex VP that includes put but also the particle away is not, it is only on the list for Voice\textsubscript{Ag}. Conversely, eat is on the list for Voice\textsubscript{Ag} but eat away is on the list for Voice\textsubscript{Init}. This type of restriction should be impossible to state, given how selection works.

Note that some approaches to particles treat them as optionally projecting, so that they can optionally be a head (e.g. Zeller 2001, Toivonen 2003). As a head, they can adjoin to the verb to create a complex head. That complex head then presumably could be selected. The problem is that all of this literature treats particles that are modified, for instance with right, as projecting. Yet subject restrictions can continue to be imposed even when the particle is modified and must project as a phrase:

\begin{enumerate}
\item a. The mob boss bumped his rivals right off.
\item b. * The gas leak bumped them right off.
\end{enumerate}

This theory also runs afoot of the PP adjunct cases discussed above. I conclude that the traditional notion of selection, where selection is strictly local and a head can only select for the head
of its complement or specifier, is not adequate. Saying that there are two versions of Voice which select for different lists of verbs will not account for the facts.

Note that this conclusion is the opposite of what Merchant (2019) concluded. Merchant (2019) observed that selection for complements changes as a root undergoes derivation. For instance, abound as a verb selects in, but abundance as a noun selects of, while abundant (Adjective) selects in again. Similarly, desire (V) takes an NP, but desire (N) selects for while desirous (A) selects of. Merchant concluded that derivational (category-forming) heads must be what select, not roots. A particular noun-forming head selects both the root that underlies desire and the preposition for. This is essentially the idea that we have just discredited here, as it will not work for Voice and V. We should therefore also reject it for derivational morphology, as in Merchant’s cases. Either of the two mechanisms for selection described below will also account for Merchant’s cases, as I will show in the next two subsections.

5.4 Successful Model 1: Upward Selection

One way of modeling subject restrictions that will work is to allow upward selection. Jo (2020) proposes that syntactic heads can select the heads that they combine with as complement, in addition to what they select as their own complements and specifiers. So, in a structure with Voice above VP, a given V can select both an NP complement and Voice. Jo (2020) spells this out in the selectional feature theory of Bruening (2013), where selection is encoded as features that are checked off by merging elements of the appropriate kind. A verb with a Voice feature will have that feature checked off when the VP that it heads merges with Voice as its complement. Jo (2020) refers to this as “upward selection.” By this mechanism, a verb could select an agentive Voice versus a non-agentive Voice. Or, a verb could impose even more fine-grained requirements on its external argument by selecting an NP with particular features. The selectional feature on the verb would be checked off by merging such an NP in the specifier of Voice.

In the case of particle verbs like put away, there would be two (related) lexical entries for put, with different selectional features. One would just combine with Voice, with no restrictions on the subject. The other would select both the particle away and an agentive subject. Similarly, for drown, there can be two related entries, one that only selects an internal argument and appears in unaccusative syntax, and one that selects both an internal argument and Voice, and says that the argument of Voice must be an agent. As for instrumental and benefactive adjunct PPs, they can select and merge with a Voice that takes an agentive subject (see Bruening 2013 for an analysis like this of instrumentals).

This theory is able to capture the selectional patterns that we have seen here. The chief issue for it is appropriately constraining selection. Without any constraints, selection is effectively unbounded, and we should see patterns where particular verbs select for particular complementizers or tense, for instance. Jo (2020) and Bruening (2020b) propose that the phase (Chomsky 2000) is the boundary for selection. That is, at the end of a phase, all selectional features must be checked. Given that VoiceP is a phase, there can be no selection by a V beyond that to the inflectional system. In addition, since CPs and NPs are phases, verbs cannot select anything inside of them. They

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10Some kind of upward selection is often presupposed or proposed, even if not worked out formally, or even explicitly discussed. For instance, Ramchand (2008) has a [+init] feature on the root to indicate that it requires an external argument, even though in her system the external argument is merged multiple projections up from the root.
are effectively encapsulated. Thus, in this system, selection is still very local, but it is not as strictly local as in the traditional view where selection is limited to head-complement and head-specifier relations. Very limited instances of non-local selection are allowed, and in particular, upward selection is possible. In the case at hand, a verb can select for a particular type of external argument, even when that external argument is merged as the argument of Voice and not as the argument of V. (Note that something similar is required for double object verbs, if one of the arguments is projected not by V but by a head Appl; see Bruening 2020b.)

This theory does seem to be a viable option. It does appear to be able to capture the facts that we have seen here, and with the phase restriction, it is not unconstrained and may in fact be constrained in exactly the right way. It permits selection to change from active to passive, for instance, since the heads that effect voice alternations are within the same phase as V; but it does not permit selection to change from present to past tense, or according to the choice of complementizer or depth of embedding.

The mechanism of upward selection can also account for Merchant’s (2019) cases of derivational morphology. In many if not most of his cases, the direction of derivation is not clear. However, take the case of abound (V) selecting in, but abundance (N) selecting of, while abundant (A) selects in. Here it is reasonably clear that the N and A are derived from the V. If the A is derived directly from the V, then it preserves the selectional requirement of the V. However, the N does not. The upward selection theory could model this using selectional features on the root, here the V abound (or some a-categorial root, if that is viewed as advantageous). The V abound can have several different selectional patterns. In one, it has a feature that requires merger with an A head, and also has a feature requiring merger with a PP headed by in. In another, it has a feature that requires merger with an N head, and also a feature requiring merger with a PP headed by of (or of is just the default for Ns, so there is no selectional feature at all).

Thus, the proposed upward selection mechanism can account not only for the cases discussed here, but also for the cases of derivational morphology uncovered by Merchant (2019). It may also account for those cases better than Merchant’s proposed selection by functional heads. As Merchant (2019: 333) notes, selection by functional heads leaves unexplained why the form of the functional head depends only on the root it combines with, and not on what sort of selectional pattern it has (which P it selects, for instance). In the upward selection account, it is the root that selects both the derivational/categorial head and the form of the complement. The pattern that we see is then exactly what we expect, where both are determined by the root.

One thing to note about this proposal is that it treats selection as idiosyncratic properties of lexical items. The fact that drown and put away require agentive subjects is simply stipulated as part of their lexical entries. Given that there is no known way to predict these restrictions, though, this is not a drawback. All other models will have to treat them in an equivalent way.

### 5.5 Successful Model 2: Conditional Statements in Root Entries

A second way of modeling subject restrictions that will succeed posits conditional statements in the lexical entries of roots. Many researchers working within the framework of Distributed Morphology (Halle & Marantz 1993) assume that the only lexical entries that exist are those for roots (see Merchant 2019 for discussion). Listing restrictions in the entries for roots will require conditional statements for the data discussed here. These conditional statements will have to say things like, “If drown occurs in a transitive frame, then it imposes selectional restrictions on its exter-
nal argument” (stated however one models transitive versus intransitive frames). *Drown* does not entail agency at all in its intransitive use (drowning can be accidental), so the root itself does not specify agency. However, in its transitive use, it requires deliberate action on the part of the subject. *Drown* contrasts in this respect with *choke* and *suffocate*, which do not require deliberate action in the transitive (*a piece of food choked the victim*). It follows that the selectional restriction will have to be specified for a particular syntactic context (transitive but not intransitive). Similarly for *put away*: the root *put* will have to specify that it imposes a selectional restriction on its external argument just when it combines with *away* to mean ‘eat/devour’ (and the entry will have to specify that it means ‘eat/devour’ when it combines with *away*).

Conditional statements are going to be absolutely necessary, and cannot be done away with. Suppose we wanted to maintain that selectional restrictions are listed only in the entry for a root, but there are no conditional statements. We might try to make this work by saying that the restrictions always hold, but may be vacuous. For instance, suppose *drown* says that the initiating participant of the drowning event must be an agent. In the intransitive, there is no initiating participant, so the restriction is vacuously satisfied, with no adverse consequences. This will not generalize, because of the pattern represented by *put away*: *put away* requires an agent, but *put* by itself does not. If any selectional restriction that ever holds of a root in any context has to hold in all contexts for that root, if that is possible, then all uses of *put* that have an external argument should require an agent, incorrectly. The same is true of *eat* versus *eat away*: the base verb *eat* does require an agent (or, more accurately, an ingester), and in this account there is no way to remove that requirement when it combines with *away*. This could never work, and it follows that this type of model requires conditional statements that refer to syntactic context.

Modeling selectional restrictions as conditional statements in the lexical entries of roots does get the facts right. One thing to note is that all it does is list the facts. In this respect it is equivalent to the mechanism of upward selection discussed in section 5.4. Both approaches simply list lexical restrictions as stipulations in lexical entries. Like upward selection, this approach will also have to be constrained. Without any constraints, a verb could select one type of object just when it occurs in an embedded clause, for instance, something that is not attested. A proponent of this approach could adopt the phase restriction that was proposed for upward selection, and then the locality condition will be the same. Note, however, that the phase restriction is far less natural in this approach than it is in the upward selection approach. On the upward selection approach, selection is implemented by feature checking, a syntactic mechanism. In all models, feature checking is limited by phase boundaries. In contrast, conditional statements in the lexical entries of roots are not so naturally constrained by phase boundaries. There is no a priori reason why a conditional statement in the lexical entry of a root could not refer to something outside the local phase that a root might be inserted into in the syntax.

Furthermore, proponents of this approach seem to want to account for idiomatic interpretations via the same mechanism of conditional statements in the lexical entries of roots (e.g., [Marantz 1997]). However, idiomatic interpretations are not limited by phase boundaries, as [Bruening 2017, 2020a] shows. For instance, there are numerous multi-clause idioms like *rob Peter [to pay Paul]* (‘discharge one debt by incurring another’). In an example like this, the verb *rob* has a non-standard meaning (as do all the other lexical items), which it acquires only in combination with all the other material, in particular the non-finite adjunct clause. If selection and idiomatic interpretations behaved the same, then we would expect that a verb could select different objects or subjects depending on whether it combined with an adjunct clause. Or, the verb *pay* could select a different
kind of object just when it is embedded inside an adjunct clause. Such selectional patterns are not attested, to my knowledge. (In fact, idiomatic expressions generally respect the selectional properties of the elements within them on their non-idiomatic, literal meanings.) The domains in which idiomatic interpretations can arise and those in which restrictions on arguments can be imposed therefore appear to be quite different. For conditional statements in the lexical entries of roots to be a viable approach to selectional restrictions, they will have to be abandoned as an account of idiomatic interpretations. Some other mechanism will have to be found to account for idiomatic interpretations. (Note that upward selection in section 5.4 is not proposed to be behind idiomatic interpretations. See more on idiomatic interpretations in section 5.6.) Note also that the fact that special interpretations are not limited by phase boundaries highlights the lack of a natural locality condition on conditional statements in root entries.

Assuming these issues can be overcome, conditional statements are able to account for the selectional patterns discussed here. Conditional statements in the lexical entries of roots will also account quite easily for Merchant’s (2019) cases of derivational morphology. The entry for the root of abound will specify that when it combines with the verbalizing head, it selects the preposition in. When it combines with a nominalizing head to yield abundance, it will instead select of (or it does not select, and of is a default for nouns). When it combines with an adjectivizing head to yield abundant, it again selects in. There is no need to say, as Merchant does, that it is the categorizing head that does the selecting. As we saw in section 5.3, this is problematic and will not account for the facts in VPs. Like the mechanism of upward selection, conditional statements also account for why the form of the categorizing head depends only on the root, and not on the form of the complement: it is the root that selects both.

5.6 Lexical Entries and Idiomatic Interpretations

To summarize so far, some approaches to selectional restrictions will not work, like selection of V by Voice and non-conditional statements in the lexical entries of roots. It also appears that in many cases, subject restrictions are arbitrary. Even in cases where there is a semantic explanation, like requiring a mouth and an appetite with put away, there does not appear to be any syntactic structure that correlates with the semantic explanation. The syntactic structure of put away is identical to that of eat away, as far as we can tell, but they have exactly opposite subject requirements. Subject requirements therefore require some form of lexical stipulation. As far as lexical stipulations go, two devices seem capable of capturing the facts: upward selection, and conditional statements in the lexical entries of roots, although in some ways upward selection captures the facts better.

In this subsection I turn to the issue of what form lexical entries take, and whether there is any issue of multiplying lexical entries. I also discuss idiomatic interpretations versus selectional requirements, which also came up in the previous subsection. This discussion will lead to the conclusion that upward selection fares better than conditional statements in root entries.

Let me start by returning to Rappaport Hovav’s (2014) contention that alternating verbs only take an internal argument in their lexical representation. We have already seen that this cannot be maintained. The lexical entry for an alternating verb like drown must include information about its subject in its transitive use. Does this mean that we need two lexical entries for drown, one for

\[1\] Note that allomorphy and suppletion are also not constrained by phase boundaries. Past tense, for instance, can trigger a special form for a verb, even though tense is outside the VoiceP phase.
its intransitive use and one for its transitive, as Levin & Rappaport Hovav (1995) seemed to think we would be forced to? The answer is no. In the approach where selectional restrictions are stated as conditional statements in lexical entries, there would certainly be no need for multiple entries. The entry for the root *drown* would say one thing for when it is intransitive, and have another statement for when it is transitive. There would be only one lexical entry, and the meaning of the root would be the same. In the upward selection approach, there would be two lexical entries, but they would really be two different feature sets within the entry for a single lexical item. Numerous lexical items, if not most, appear in a variety of syntactic frames and with a variety of selectional patterns, so we are going to need different feature sets within the lexical entries of most lexical items. To give an example, all three verbs in the previous sentence appear in at least two different frames. *Need* can either take an NP object, or a non-finite CP object, but not both at once. So it has to have two different selectional feature sets. *Appear* can either have an NP subject (probably an underlying object) and an optional PP, or it can have a clausal argument, which can be either finite or non-finite, with subject-to-subject raising if it is non-finite. This again requires multiple selectional feature sets. The verb *give* has an even greater variety of frames it can appear in (NP object, NP + PP, NP + NP, ...). Since almost all verbs have multiple selectional feature sets, there is no problem with giving a verb like *drown* two different sets of selectional features. Both sets can be stored in the same lexical entry with a shared semantics.

Let me now return to the issue of idiomatic interpretations, raised in the last subsection. As mentioned there, proponents of root storage have proposed that idiomatic interpretations are also stored as conditional statements in the lexical entries of roots (Marantz 1997). This is problematic, if that mechanism is also going to be used to capture selection, because the two behave very differently. How, then, can we capture idiomatic interpretations?

Starting with the upward selection view, where selection is implemented as feature checking (Bruening 2013; see also Adger 2003, 2010, Müller 2011, Stabler 2014), all that is necessary is some mechanism that is not feature checking. This mechanism is probably not a mechanism from the syntactic derivation, since it is insensitive to phase boundaries, which are thought to constrain syntactic derivations. A simple idea is that it is lexical storage of syntactic phrases. Suppose the output of a (partial) syntactic derivation can be stored and assigned a special meaning, on top of the compositional meaning it would normally receive. The checking of selectional features within this (partial) syntactic derivation is a separate matter, and has to proceed as normal in order to satisfy syntactic requirements. Take the same multi-clause example from section 5.5, *rob Peter [to pay Paul]*. Both *rob* and *pay* would have selectional features requiring the merger of an internal object and an agentive subject, because these are features of these two lexical items. In an idiomatic expression, they still have to be satisfied and checked off. At the same time, a phrase consisting of at least a VP *rob Peter* and an adverbial CP PRO to pay Paul is stored and assigned a special meaning. Since this phrase does not include a subject for the matrix VP, there is still an unchecked selectional feature in the stored item, which will have to be satisfied when it is merged into a derivation. This is independent of the storage of the phrase with a special meaning, though. In this view, selection and idiomatic meanings involve very different mechanisms, and for that reason they do not behave at all alike. Very large phrases can be stored, giving us multiclausal idiomatic interpretations.

It is also possible and indeed likely that speakers impute special meanings to sub-parts of idiomatic expressions, breaking them down (Nunberg et al. 1994, among many others). In this same example, speakers might assign the meaning ‘incur one debt’ to the matrix VP *rob Peter*, and ‘to settle another’ to *to pay Paul*. 

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expressions. In contrast, selection is implemented by feature checking, which is extremely local and bounded by phase boundaries. (For more on the forms idiomatic expressions can take, see Bruening 2020a.)

It is much less clear how one might capture idiomatic expressions in the approach where selection is done via conditional statements in the lexical entries of roots. As noted in section 5.5, many proponents of Distributed Morphology adopt the view that the only lexical entries that exist are those for roots (see Harley 2014 for discussion). On this view, there can be no lexical storage of syntactic phrases. Conditional statements in the lexical entries of roots were proposed precisely to capture idiomatic interpretations (Marantz 1997). If they are also used to capture selectional restrictions, then the question that arises is why selection and idiomatic interpretations behave so differently. One or the other of these two phenomena must be implemented through a different device. Conditional statements seem quite natural as an approach to idiomatic expressions; as noted above, there is no reason to expect such a mechanism to be subject to syntactic locality, and indeed idiomatic expressions are not. But then we do not have an approach to syntactic selection. If instead we use conditional statements as an approach to selection, then we are missing an approach to idiomatic interpretations. We also need an explanation for why conditional statements are subject to syntactic locality.

A proponent of Distributed Morphology could adopt the view that selection is best implemented through feature checking, as Merchant (2019) does. This would explain why it is subject to syntactic locality. Conditional statements in the lexical entries of roots could then be used as the mechanism for idiomatic interpretations. They are not subject to syntactic locality. In this way one could maintain that the only lexical entries that exist are those for roots.

The conclusion we are led to from this discussion, however, is that conditional statements in the lexical entries of roots is not a good model for selectional restrictions. While it can capture the facts, it does not offer any reason for why selection would be subject to syntactic locality, and it cannot then also be used to capture idiomatic interpretations. In contrast, upward selection, implemented as syntactic feature checking, accounts for the facts and explains why selection is subject to syntactic locality. I therefore conclude that upward selection via syntactic features is the only truly viable approach to selectional restrictions. As for idiomatic interpretations, they have to be captured in other ways. Two possible ones are storage of syntactic phrases, and conditional statements in the lexical entries of roots. Nothing in the discussion so far distinguishes these two options.

5.7 Summary

This section has shown that subject restrictions are largely arbitrary and therefore simply need to be listed in the lexical entries of verbs. This seems at first sight to be incompatible with the view that external arguments are not arguments of the verb at all, but it is not; there are at least two ways to capture subject restrictions within such a view. Upward selection, implemented as feature checking, is the more successful of the two, as it explains why selection is subject to syntactic locality. Conditional statements in the lexical entries of roots can work, but it fails to explain why selection is local. It fares better as an account of idiomatic interpretations, which behave very differently from selection.
6 Conclusion

This paper has shown that two putative generalizations regarding subject restrictions are false. It is not correct that all and only alternating verbs impose no restrictions on the subject of the transitive. There are verbs that impose no restrictions on the subject of the transitive but do not alternate, and there are verbs that do impose restrictions on the subject of the transitive but do alternate. Subject restrictions also do not correlate with the presence of resultative particles (or other resultatives). Many subject restrictions are simply lexical idiosyncrasies that have to be stipulated in lexical entries. Since there is good reason to adopt the view that external arguments are projected by a head other than the lexical verb, we need a mechanism of selection that can allow some limited instances of non-local selection. Selection of the lexical verb by the functional head, as in Merchant (2019), will not work. One proposal, upward selection as feature checking that is bounded by syntactic phases, does succeed. We need a different mechanism to account for idiomatic interpretations, since they are not bounded by syntactic locality (phases). Two possibilities are storage of syntactic phrases, and conditional statements in the lexical entries of roots.

References


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