The present work investigates English verb particle combinations (e.g., put on) and argues that item-specific and general information are needed and should be related within a default inheritance hierarchy. When verb particle combinations appear within verb phrases, a tripartide phrasal syntax is defended, whether or not the V and P are adjacent (e.g., She put on the wrong shoes; she put the wrong shoes on). The < V NP P > order is motivated as the default word order by explicitly relating a verb-particle construction to the caused-motion construction (e.g., she put the shoes on her feet); well-known processing considerations related to complement length, information status, and semantics motivate system-wide generalizations that can serve to override the default word order. Lexical verb-particle combinations (e.g., a pick up truck; a show-down) and an idiomatic case, V-off are also briefly discussed as providing further evidence for the need for item-specific and more general constructions.

1. **Introduction**

The present paper focuses on American English’s verb-particle construction in the service of making several larger points. Because the semantics involved is frequently not strictly compositional, hundreds of individual verb-particle combinations must be represented. At the same time, generalizations about the pattern’s form and function are naturally captured via a default inheritance network that not only relates individual verb-particle combinations to a general construction, but also explicitly relates the general verb-particle construction to the caused-motion construction.

The English verb-particle construction involves a verb and preposition (aka “particle”) that combine to form a single semantic predication. Instances of the construction have alternatively been labeled *phrasal verbs* or *complex predicates*, due to the fact that they display some properties that are typical of words and other properties that are typical of phrases. A small subset of the hundreds of conventional examples that exist is provided in Table 1:

<table>
<thead>
<tr>
<th>Fix up</th>
<th>Cast off</th>
<th>Fake out</th>
</tr>
</thead>
<tbody>
<tr>
<td>Give up</td>
<td>Throw up</td>
<td>Pig out</td>
</tr>
<tr>
<td>Break off</td>
<td>Look up</td>
<td>Turn out</td>
</tr>
<tr>
<td>Heat up</td>
<td>Figure out</td>
<td>Look out</td>
</tr>
<tr>
<td>Cool down</td>
<td>Call up</td>
<td>Rub off</td>
</tr>
<tr>
<td>Chew out</td>
<td>Eke out</td>
<td>Go out</td>
</tr>
<tr>
<td>Fall down</td>
<td>Cough up</td>
<td>Take off</td>
</tr>
<tr>
<td>Run away</td>
<td>Turn off</td>
<td>Turn up</td>
</tr>
<tr>
<td>Throw out</td>
<td>Give in</td>
<td>Bring up</td>
</tr>
<tr>
<td>Make out</td>
<td>Heat up</td>
<td>Clean up</td>
</tr>
<tr>
<td>Grow out</td>
<td>Rise up</td>
<td>Empty out</td>
</tr>
<tr>
<td>Sit down</td>
<td>Send off</td>
<td>Tune out</td>
</tr>
<tr>
<td>Chew out</td>
<td>Polish up</td>
<td>Single out</td>
</tr>
</tbody>
</table>

---

1 I am grateful to Florent Perek for very helpful comments on an earlier version of this paper.
Table 1: Examples of English verb-particle combinations

<table>
<thead>
<tr>
<th>Fake out</th>
<th>Turn down</th>
<th>Double up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tune in</td>
<td>Pick off</td>
<td>Use up</td>
</tr>
<tr>
<td>Pick up</td>
<td>Throw away</td>
<td>Dry out</td>
</tr>
</tbody>
</table>

The present account of the English verb-particle construction aims to make the following points:

- Hundreds of familiar verb-particle combinations are represented in a “construct-icon” which is an expanded version of the familiar lexicon (cf. also Jackendoff 2002); entries are related to a general verb-particle construction via default inheritance network.

- A general verb-particle construction has the underspecified phrasal form \([V \{P, (NP)\}]_V P\), and word order is determined by:
  a.) A separate verb phrase construction that combines with the verb-particle construction (or other argument structure constructions).
  b.) An inheritance relationship between the verb-particle construction and the caused-motion construction.

- verb-particle combinations unify with the general phrasal construction and general word-formation constructions.

2. Item-specific knowledge
Memory is cheap. Even a cursory review of work in psychology reveals that humans have a vast ability to represent information. One phenomenon that demonstrates this in a striking way comes from the domain of vision in the form of negative priming. The paradigm used involves having participants decide whether two novel shapes match each other. A third novel shape, in a distinct color, is superimposed on one of the two novel shapes to be compared, such that in order to perform the comparison of the two target shapes, the third novel shape must essentially be ignored. It has been demonstrated that when the ignored shape subsequently is used as a target shape later on in the experiment, response times are slower, indicating that there is some implicit memory of the shape and that the shape had been ignored previously. This slowdown in response has been found even after 200 intervening trials, and even at delays of up to a month (DeSchepper and Treisman 1996). The fact that participants demonstrate evidence of retention of the novel shapes, even though the shapes had to be suppressed in an earlier trial, is impressive evidence of our remarkable incidental memory.

Within the field of language, there is also ample evidence of item-specific memory. Tens of thousands of words, idioms and compositional “prefabs” are learned (Dabrowska 2004; Jackendoff 2002; Pawley and Syder 1983; Sinclair 1990; Wray 2002). There is ample evidence from research in language acquisition that children are aware of which patterns they have witnessed previously (e.g., Akhtar and Tomasello 1997; Baker 1979; Bannard and Mathews 2008; Bates and MacWhinney 1982; Bowerman 1982; Braine 1976; Lieven et al. 1997; Tomasello 2003; Wonnacott, Newport and Tanenhaus 2008; Wonnacott 2011). The same is true of adult language processing. In fact, we know not only which verbs we’ve witnessed in which constructions, for example, but also the relative frequencies of those constructions for a given verb (Baayan et al. 1997; Bod 1998; Booij 2002; Bybee 2000; Ellis 2002; Gahl and Garnsey 2004; Garnsey et al.
1997; Losiewicz 1992; MacDonald, Pearlmutter and Seidenberg 1993; Pierrehumbert 2000; Trueswell et al. 1993). Thus there is ample psycholinguistic evidence that patterns are stored if they are not fully predictable or if they are sufficiently frequent (cf. also Bybee 1985; 2006; 2010; Losiewicz 1992). Recent work in our lab has demonstrated that recall and recognition memory for verbatim language is well above chance, even when no warning of a memory test is given, and even at delays of up to a week (Gurevich, Johnson and Goldberg 2010).

Taken together, these observations support the idea that it is quite possible for many or even all regularly occurring verb-particle combinations to be represented in the mental lexicon. In the following section, we make the case that it is necessary to store hundreds of individual verb-particle combinations because of their not-strictly compositional meanings.

2.1 Non-compositionality entails that combinations must be stored
The need to retain specific information about hundreds of verb-particle combinations follows from the fact that their meanings are not strictly predictable (cf. also Jackendoff 2002: 73). That is, while it is clear that the meanings of verb-particle combinations are rarely entirely arbitrary, neither are they entirely predictable from either the meaning of the verb or the meaning of the particle. For example, while take it off can mean to disrobe, take it on does not mean the opposite (cf. to put on). The intransitive, take up with someone means roughly to begin to date, while the transitive counterpart, take something up with someone means roughly to initiate a confrontation. To take something over means to roughly to bring, while to take someone down means to conquer, and to take someone out can imply either a date or a murder. Similarly while one can look someone up or look someone up and down (meaning two quite different things), it is not even possible to look someone down. While off in (1a & b) are possibly related, the interpretation of (1c) and (1d) are quite different, beyond what is contributed by the individual words involved:2

1. a. take a shirt off ≈
   b. pull a shirt off ≠
   c. drop a shirt off ≠
   d. pull a robbery off

---

2 The fact that neither the verb nor the particle retain their typical meanings within the compound in these cases argues against treating the P as a regular complement of the main verb (although see Svenonius this volume). Moreover, unlike familiar cases of complementation, the P involved in V-P combinations must be a specific word as represented in (a):
   a. take (agent, theme, off)

Uncontroversial cases of complements are selected via semantic role and/or grammatical category:
   b. Give (agent, theme, recipient) -- (NP, NP, NP)
   c. Put (agent, theme, location) -- (NP, NP, PP)

Unless we want to posit a special sense of each verb that may only occur with a particular particle AND a special sense of each particle that may only occur with a particular verb, we need to attach meanings directly to the V-P combinations.
At the same time that the meanings are not predictable from either the P or the V in isolation, neither are the meanings of verb-particle combinations unrelated to the meanings of the V and P in other contexts. For example, consider fix up. Up often indicates a telic event as in fix up (e.g., clean up; pick up; sweep up), and both the simple verb, fix, and the verb-particle fix up can mean “prepare” or “repair” (2a,b; 3a,b). Therefore these senses of fix up are naturally viewed as compositional. At the same time, fix up can alternatively mean “match-make” which is not a possible meaning for fix in isolation (4a). The # is used to indicate semantic or pragmatic infelicity. Here and below, examples within quotes are from the 450 million word Contemporary Corpus of American English (Davies 2008):

2.a. She fixed a sandwich for herself. (“prepare”)
b. She fixed a sandwich up for herself.

3.a. Buy and fix this old house. (“repair”)
b. “Buy and fix up this old house”

4.a. # a friend of hers tried to fix her with one of her exes. (intended, “match-make”)  
b. “a friend of hers tried to fix her up with one of her exes.”

Accounts that aim to avoid listing particular combinations altogether (e.g., Borer, this volume) run roughshod over the meanings of the combinations: i.e., no account of their non-compositional meanings is offered (see also Goldberg 2006:205-212; Mansini 2005; Samvelian & Faghiri 2013 for discussion). It is evident, once one takes a careful look at existing verb-particle combinations, that a good deal of item-specific information is required.

Finally, there is psycholinguistic evidence in support of the idea that item-specific information is retained. In an ERP study, Cappelle, Shtyrov, & Pulvermüller (2010) found that familiar verb-particle combinations, whether compositional (rise up; fall down) or non-compositional (heat up) showed an enhanced “mismatched negativity” (MMN) response which is viewed as a hallmark of lexically stored roots (Pulvermüller, et al. 2001). Novel verb-particle combinations (e.g., fall up) did not elicit the enhanced MMN effect. The effect is naturally interpreted as resulting from the fact that familiar verb-particle combinations are mentally represented, just as word roots are.

2.2 Items and generalizations
Usage-based approaches to grammar propose that generalizations exist alongside item-specific knowledge (Barlow and Kemmer 2000; Bybee 1995; Goldberg 1999; Langacker 1988; Tomasello 2003). The relationship between items and generalizations is captured by a default inheritance network, which ensures that all non-conflicting information is shared between mother and daughter nodes. Conflicting (exceptional) information in the daughter node overrides the inheritance. Broad generalizations exist in the highest levels of the inheritance hierarchy; partial generalizations are captured by lower level representations, and exceptions are specified with their own peculiar properties below one or more of the generalizations (e.g., Boas & Sag 2012; Chaves 2013; Goldberg 1995;

It is quite clear that default inheritance is independently needed for our knowledge of the world at large (pace, e.g., Folli et al. 2005). To take simple real-world examples, most fruit taste sweet, and if we are told to open our mouths to receive a piece of “fruit,” we would naturally expect something sweet. And yet of course lemons are fruit but are not sweet. Our specific knowledge of lemons overrides our more general knowledge about fruit. Another example is that if we are asked to apply for a faculty position, we would normally expect to be interviewed. But it turns out that jobs in the philosophy department at Princeton do not interview candidates. It is unremarkable in the domain of morphology that more specific knowledge preempts general knowledge, as long as either would satisfy the functional demands of the context equally well (cf. Kiparsky 1968; Panini); this is exactly how we understand irregular word forms (Anderson 1982). Once we recognize that an expanded version of the lexicon—a construct-i-con—is needed, it becomes clear that the same type of generalizations, subregularities, and exceptional cases are needed for all sorts of constructions.

A partial network relating fix up’s three senses to each other, to the simple verb fix, and to the particle up is provided in Figure 1. Arrows indicate default inheritance: information is shared between mother and daughter node unless the daughter node specifically overrides the information. These links are intended to capture motivation among constructions; i.e., a construction CxA inherits from another construction CxB, if and only if CxA is more natural and more likely to exist given the existence of CxB. Bidirectional arrows indicate that neither form is necessarily more basic, but instead the two forms mutually motivate each other. In Figure 1, for example, the three senses of fix up mutually motivate each other, while only the two senses that are related to senses of the simple verb fix inherit from fix.

---

3 A philosopher colleague cheerfully explained that this is because if they had been interviewed, half of the department would not have been hired.
Figure 1. The inheritance hierarchy relating the various senses of fix up to the senses of the simple roots, fix and up.

The verb-particle combinations in Figure 1 are intentionally unspecified beyond their status as combinations of verbs and particles. In the following section, we investigate their syntactic properties and the more full inheritance hierarchy related to the general verb-particle construction.

3. The phrasal verb-particle construction

The issue of whether the verb and particle combine to form a word or phrase has long bedeviled work on complex predicates. As discussed in more detail below, several theorists have argued that verb-particle combinations are phrasal when the V and P are separated by an NP (5), while they are compound words when the V and P are adjacent (6):

5. She picked the paper up.
6. She picked up the paper.

The distinction between words and multi-word units is less important in constructionist approaches than it is in mainstream generative syntactic constructions. Both words and multi-word patterns are the same basic type of unit: pairings of form and function. Either can be lexically filled (e.g., dog and going great guns), partially lexically filled (e.g., re-V and The Xer, the Yer) or completely abstract (e.g., the noun construction; the double-object construction). Word and phrasal constructions are combined to form actual expressions as long as there are no conflicts among their various constraints.

Words are not the same as phrases: a specific distinguishing criterion is ultimately suggested in section 3.1, namely that words cannot be interrupted by phrases. We first
clarify that certain criteria that are commonly used to distinguish words and phrases are unreliable.

I will argue that when used as a verbal complex predicate, the verb-particle combination is phrasal, regardless of whether the P is adjacent to the V or not. That is pick up is a multi-word pattern (a phrase) in both (5) and (6). At the same time, due to its word-like semantics, verb-particle combinations can often combine with word level constructions; in this case, the verb-particle combination is a word (e.g., as in a pick up truck; see section 5).

3.1 Unreliable criteria

Compositionality

Although it is often assumed that phrases are always compositional and words never are, neither assumption is valid. Many phrasal idioms are non-compositional (cf. jump off the page, let the dust settle, gather steam, get a handle on, pass the buck, <one’s> ass is grass). At the same time, many words are straightforwardly compositional as when they involve productive morphology (e.g., anti-dog; transcultural).

Some verb-particle combinations, particularly those with directional interpretations are fully compositional (e.g., look up (at the sky); look down (at the ground)). Oftentimes the same verb-particle combinations have non-compositional interpretations as well (e.g., look up (a number); look down (on someone)). There is no reason to assume that whether or not a verb-particle combination is compositional should determine whether it is treated as a word or phrase. Instead, we recognize that both words and phrases can be stored or created on the fly (cf. also Culicover & Jackendoff 2005; DiScullio & Williams 1987; Goldberg 1995; Jackendoff 2002).

The position of inflectional morphology

Inflectional morphology can separate V and P as in (7), and this might be viewed as prima facia evidence that the V and P must be phrasal, since it is often assumed that inflectional morphology cannot appear inside derivational morphology due to a “level ordering” constraint (Kiparsky 1968).

7. She picked up the paper.

For example, regular plurals, which are inflectional, do not commonly occur within compounds, which are derivational:

8. ??rats eater
9. rat eaters

Irregular plurals, on the other hand, which do not involve inflectional morphology but are instead independent roots, have been claimed to be fully acceptable within compounds (e.g., Pinker 1994):

10. mice eater

4 For example, this faulty assumption is made in Goldberg (2003) in an analysis of Persian complex predicates.
If the level ordering hypothesis held up to scrutiny, it would imply that verb-particle combinations must be phrases even when V and P are adjacent, since inflectional morphology intervenes between V and P. However, it is well-known that there are various types of exceptions to the level ordering assumption (e.g., Booij 1993; Ackerman & Malouf 2003). For example, certain regular plurals are fully acceptable inside compounds (e.g., Kiparsky 1982; Sneed 2002):

11. bakers union (more than 2000 tokens of \(N_{\text{pl}}\) union in COCA)
12. admissions office (more than 1000 tokens of \(N_{\text{pl}}\) office in COCA)
13. parks and recreation department (more than 1000 tokens of \(N_{\text{pl}}\) department in COCA)

Moreover, irregular plurals inside compounds (e.g., mice eater) are typically dispreferred relative to singulars (mouse eater), indicating that plurals inside compounds are disfavored in part due to their semantics (e.g., Haskell et al. 2003).

Particularly relevant for verb-particle combinations is the fact that level ordering constraint is counter-exemplified by left-headed compounds, in which regular plural marking must occur on the head and therefore in the middle of the compound:

14.a. passers by
b. ??passer bys

15.a. brothers-in-law
b. ?brother-in-laws

If verb-particle adjacent combinations are to be considered compounds, they would be left headed compounds, since the V is the head. Therefore it is expected that verbal morphology should affix to the verb as it does, intervening between the V and P. If verb-particle adjacent combinations are considered phrasal, the verbal morphology would also naturally attach to the verb. Therefore, the placement of inflectional morphology does not adjudicate between the compound and phrasal treatment of verb-particle combinations.

3.2 Is existing evidence from psycholinguistics relevant?
Konopka & Bock (2009) found that (quasi-) compositional verb-particles primed more idiomatic verb-particles that had the same word order. For example take off a sweatshirt primed pull off a robbery, while take a sweatshirt off primed pull a robbery off. While the authors argued that this indicates that even idiomatic verb-particles are phrases, another interpretation is simply that one construction can prime another of the same type; this interpretation does not require that the constructions involved are necessarily phrases.

The Cappelle, Shtyr-Ov, Pulvermüller (2010) result mentioned above showed that familiar verb-particle combinations elicit an enhanced mismatched negativity (MMN) response, a response that is a hallmark of words (Pulvermüller, et al. 2001). While this could be viewed as evidence that familiar verb-particle combinations are words (see discussion in Cappelle et al. 2010), an equally compelling explanation is that the enhanced MMN effect is due to the fact that familiar verb-particle combinations are
mentally represented, in a construct-i-con. Future work is needed to determine which interpretation is correct, for example, by testing phrasal idioms, which must be represented (since they are not strictly compositional) and yet which are not words.

3.3 Phrases, but not words, are separable by other phrases
In what follows, we take one test as criterial: phrases, but not words, are separable by other phrases. This test is stated in terms of separability by phrases to allow for inflectional morphology as noted above or by infixes (fan-fucking-tastic). What we don’t find are words that contain full phrases: *X YP Z, where [X + Z] is a word. Note that the criterion is only stated in one direction, allowing for the existence of inseparable phrasal idioms and unseparated verb-particle combinations. The use of a single criterion sidesteps the fact that distinct definitional criteria tend not to align in all cases (Croft & Cresswell 1991; Ackerman, Stump, and Webelhuth 2011; cf. also Walková 2013 for discussion specifically about issues related to tests for verb-particle combinations). This criterion requires that at least verb-particle combinations expressed with the order < V NP P > must be phrasal. After discussing and ultimately rejecting the possibility that the verb-particle combinations are generated as compound verbs when they appear in the alternative order, < V P NP >, we argue that when expressed as part of a verb phrase, the verb-particle combinations are phrasal.

Generate a compound verb and a verb phrase?
One approach that has some initial appeal involves generating each verbal verb-particle combination both as compound verb and as elements within a verb phrase. This is the approach taken by several authors (e.g., Baltin 1989; Larson 1988; Farrell 2005; Williams 1997; Zeller 2002; Toivonen 2002). Each suggests a compound option (i.e., [V P]VO; while analyzing a verb phrase option as either involving a small clause (e.g., Dikken 1995; Williams 1997) or a flat structure (e.g., Farrell 2005):

17. [V P]VO and [V NP P]VP (Farrell 2005)

The compound analysis is meant to capture instances in which the V and P are adjacent, and the phrasal analysis is intended to capture instances in which the V and P are separated. In favor of the compound analysis is the fact that adverbs only seem to be allowed when the particle is separated from the verb (Emonds 1969; Fraser 1976: 25; Farrell 2005; Jackendoff 2002; Ramchand & Svenonius 2002):

18.a. She turned the dimmer switches completely off.
b. ?? She turned completely off the dimmer switches.

19.a I’ll fix your closet right up.
b. ??I’ll fix right up your closet.

This pattern of judgments is predicted by the compound analysis, since adverb phrases would not be expected to intervene in the middle of a compound word.
Nonetheless, there exists evidence weighing against the compound analysis. First, if verb-particle combinations could be generated as compounds, the compounds, as verbs, should themselves be available to occur in productive syntactic verb-particle constructions. That is, the [verb-particle]v0 analysis predicts that two particles should be allowed to co-occur non-adjacently. And yet, this is not possible, even when the intended meaning would be sensible (see 23b, 24b):

20. a. *She threw up the night away.
   b. (cf. She vomited the night away)

21.a. *He pigged out the night away.
   b. (cf. He ate the night away.)

22.a. *She yabbered away her head off.
   b. (cf. She yabbered her head off).

Secondly, each of the not-strictly predictable meanings (and there are many, as already discussed) would need to be generated both by a word level [verb-particle]v0 compound and by a phrasal level [V NP P]vp form. Given our vast storage capacity, this may not be implausible on the basis of its redundancy alone, but it would require an explanation of how it is that the compound and phrasal forms should have, with rare exception, identical meanings when they are noncompositional (cf. also Capelle 2006).5

Revisiting the initial evidence in favor of compound status, notice that adverbs can occasionally be found intervening between V and P as in (23-24):

23. I understand that you want to disable the fan control on the motherboard or be able to turn completely off the processor fan spin.
   [https://communities.intel.com/thread/28683](https://communities.intel.com/thread/28683)

24. as the crowd gaped upwards, Gabriel and Adam could turn inside out their white cloaks and show the red lining (BNC)

This type of example is admittedly very rare, yet that fact arguably follows independently, as discussed in the following section. Thus a compound analysis of even contiguous verbal verb-particle combinations is not well-supported (cf. also Jackendoff 2002).

5 A third argument apparently in favor of phrasal status is the fact that if V-P combinations were compound verbs, one might expect them to allow unstressed personal pronouns to follow them, since uncontroversial compound verbs do (a-b). And yet V-P combinations do not (c):

- a. “then deep-fat fry it” Uncontroversial compound
- b. “Ray upended it” Uncontroversial compound
- c. ??She picked-up it. (0 hits in COCA) V-P

However, as discussed in section 3.2, there is an independent reason for the lack of < V P unstressed pronoun> order.
Turning our attention to the phrasal analyses, the existence of (unergative) intransitive verb-particle argues against a small clause \([V \ [NP \ P]]\) account (Williams 1997; den Dikken 1995), since there is no accusative NP with which the P could form a small clause.

25. She put up with the class.
26. She looked forward to the class.

Moreover many particles do not serve to semantically modify the NP argument. For example, *She cleaned the room up*, does not imply that the room is up (cf. also Jackendoff 2002: 90; Walkova 2013; pace Ramchand & Svenonius 2002). This leads us to the solution adopted in the rest of the paper.

4. Solution: \([V \ \{P, \ NP\}]_{VP}\)

The solution proposed here is a general, abstract phrasal verb phrase *construction*, with its word order underspecified, as indicated by the curly brackets in (27).

27. **Transitive English V-P construction**

<table>
<thead>
<tr>
<th>Form: ([V \ {P, \ NP}]_{VP})</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function: predication; V-P (NP)</td>
</tr>
</tbody>
</table>

Constructions are defined as pairings of form and function that are learned and represented within a network of linguistic knowledge. Productive lexical and phrasal patterns, semi-productive lexical or phrasal patterns, fixed idioms and morphemes are all constructions. We will call the network of linguistic knowledge the construct-i-con (Goldberg 1995). It is an expanded, structured lexicon that includes the full network of learned pairings of form and function at varying levels of complexity and abstraction (Croft 2002; Fillmore, Kay, & O’Connor 1988; Goldberg 1995; Goldberg 1992, 1995; Lakoff 1987, Michaelis and Lambrecht 1996; Langacker 1987, 1991; Pullum & Zwicky 1991; Pollard & Sag 1987; cf. also, DiSciullo and Williams 1996; Culicover 1999; Jackendoff 1996; 2002 Williams 1994;).

Like the present account, Gries (2003) argues for a constructional account of verb-particle combinations, although he posits two distinct constructions (“construction1” and “construction2” to account for the two word order possibilities instead of underspecifying the word order as is done here); similarly, Cappelle (2006) argues for distinct *alloconstructions* to account for the different word orders, although in agreement with the present account, he additionally explicitly relates the two word order patterns via an underspecified more abstract construction. The flat tripartite structure is also argued for by Jackendoff (2002) and Culicover & Jackendoff (2005), who do directly address the factors underlying the word order options.

The present account goes a step further than the previous accounts in explicitly defending an inheritance relationship between the verb-particular construction and the **CAUSED-MOTION CONSTRUCTION** (Goldberg 1995). The relationship will allow us to predict several aspects of the verb-particle construction. The word order of actual
expressions is determined by a) an independently motivated verb phrase construction that captures general ordering tendencies within the verb phrase (cf. also Gries 1999; 2003; Lohse, Hawkins and Wasow 2006) and b) the inheritance relationship between the verb-particle construction and the caused-motion construction.

4.1. An independently needed VERB PHRASE construction
A generalization that shorter, non-focused constituents tend to occur before longer, focused constituents is well-known to hold across various constructions, and therefore should be captured at the level of a verb-phrase construction (Bolinger 1971; Quirk et al. 1972; Lohse Hawkins & Wasow 2004; Wasow 2002; Hawkins 1994; 2004; Gries 2003; Van Dongen 1919). A second system-wide iconic generalization is that more closely related semantic elements tend to be represented close together in the linear string. This generalization holds both at the level of morphology (Bybee 1985; 1985), and at the level of syntax (Givon 1991; Webelhuth & Ackerman 1998). These factors and others have been unified within various processing accounts (Lohse, Hawkins, & Wasow 2004; Gries 2003).

These system-wide generalizations taken in isolation account for a large degree of variability in the ordering the object noun phrase and the particle. For example, the likelihood of < V P NP > order increases with the length of the NP (Gries 2003; Lohse, Hawkins, & Wasow 2004: 243). Also, as Fraser (1976) had already pointed out, verb-particle combinations with particularly idiomatic meanings are more likely to occur with the particle adjacent to the verb. The corresponding < V NP P > order clearly differs in acceptability in the case of eke out (idiomatic) but not throw out (quasi-compositional).

28. a. “Jemma could barely eke out two ounces a session”
b. ??Jemma could barely eke two ounces a session out.

29. a.” …assuming the Supreme Court doesn't throw out the entire thing”
b. …assuming the Supreme Court doesn't throw the entire thing out.

At the same time, the system-wide VP generalization fails to account for the full range of data. In particular, without the recognition of any additional factor, the general verb phrase construction predicts that if the NP is even just one word longer than an unfocused P, the < V P NP > order should always be preferred. And yet attested examples of the opposite ordering are common, as illustrated in 30-32 (cf. also 29b):

30. “Once I'd accomplished that, I'd clean the place up.”
31. “Schumer didn't want to turn the spigot off”
32. “the wrestler will tune the doctor out”

In addition, the system-wide generalizations predict that if both the NP and the P are unstressed and equally short, either order should be possible. And yet there is a clear preference for the < V NP P > order in this case:

33.a She gave it up.
b. ??She gave up it.
In fact, there are 793 tokens of *give it up* in the COCA corpus, but not a single example of *give up it*.

This suggests that there is a countervailing principle to the system-wide generalizations embodied in the general verb phrase construction. What is required is a recognition that the verb-particle construction inherits from the caused-motion construction via a default inheritance hierarchy.

4.2. The verb-particle construction inherits from the caused-motion construction

The transitive verb-particle construction is transparently related to the English caused-motion construction, which involves a direct object and a prepositional phrase that designates a path or location, illustrated in the examples in (34a-d), and represented schematically in (35) (Goldberg 1995):

34. a. She put the book on the table
   b. She threw the book on the table.
   c. She loaded hay onto the truck.
   d. She sneezed the foam off the cappuccino.

35.

<table>
<thead>
<tr>
<th>CAUSED-MOTION CONSTRUCTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Form:</td>
</tr>
<tr>
<td>Function:</td>
</tr>
</tbody>
</table>

Positing an inheritance relationship between the caused-motion and verb-particle constructions captures the fact that it is not accidental that the set of particles is a subset of prepositions: particles simply are prepositions (Emonds 1976; Jackendoff 1973, Zwicky 1985). The relationship also explains why many of the most frequently occurring verb-particle combinations convey caused-motion in addition to other, extended, non-compositional, non-motion senses. In fact, many verbs that lexically select for a location or path complement allow either particles or full PPs, as illustrated in 36-38:

36. Put the jacket on.
   Put on the jacket.
   (Put the jacket on him).

37. Take the garbage out.

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6 Grammatical categories (e.g., NP) is used here instead of grammatical relations (e.g., OBJ) used elsewhere simply to be consistent with the majority of work on the verb-particle pattern.

7 Jackendoff (2002:70) observes that the only exceptional cases are *back* and *together*. Since a multitude of individual V-P combinations need to be listed anyway (section 2), these cases can be assimilated to the general category of V-Ps by simply specifying these two cases as exceptional.
Take out the garbage.
(Take the garbage out of the house.)

38. Get the bag out.
Get out the bag.
(Get the bag out of the car.)

Importantly, the relationship between the caused-motion and verb-particle constructions predicts the possibility of $<V\ NP\ P>$ order since the verb-particle construction simply inherits the default ordering of complements from the caused-motion construction. Note that the $<V\ NP\ P>$ order is also treated as a default order by Hawkins (1994). What the inheritance hierarchy adds is motivation for this default order. The default order of the caused motion construction is unremarkable as it is directly motivated by the general verb phrase order. The verb-particle construction then inherits the same order because of its systematic relationship to the caused-motion construction. In fact, as Fraser (1974) noted, the $<V\ NP\ P>$ order is more likely, ceteris paribus, when the particle receives a path or locational interpretation (cf. also Gries 2003).

When the NP is an unstressed pronoun, there is no reason to override the default $<V\ NP\ P>$ order; thus the fact that the opposite order is unacceptable is predicted (recall 33b). In addition, the fact that, as we have already seen, modified particles strongly prefer the order: $<V\ NP\ [adverb\ P]>$ (recall examples 18-19) also follows from the fact that modified Ps are longer and are typically focused; therefore, again, the default order is not overridden; if the NP is particularly long, the $<V\ [adverb\ P]\ NP>$ order is improved, as expected (cf. 23-24).

Thus by relating the verb-particle construction to the caused-motion construction within a default inheritance hierarchy, several features follow without further stipulation including: the default word order, the striking similarity between particles and prepositions, and the frequent (although by no means absolute) caused-motion interpretation of verb-particle combinations.

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8 Diessel and Tomasello (2005) find that children tend to use the $<V\ NP\ P>$ order more commonly in their earliest utterances, which would make sense if this order is the default order. Ramchand and Svenonious (2002:389) likewise note an “obvious parallelism” between particles and prepositional phrases. On the other hand, Chomsky (1957) and Den Dikken (1995) treat the $<V\ P\ NP>$ order as basic.
The inheritance links in Figure 2 are labeled so that each one can be discussed in turn. The general VP construction at the top of the figure captures the language-wide constraint that older, shorter complements tend to occur before newer longer complements (e.g., Wasow 2002). That generalization is inherited by the caused-motion construction (link a) and by the verb-particle construction (link b) as well as by other constructions (e.g., the ditransitive construction, not shown). The \(< V \ NP \ PP>\) word order for the caused-motion construction is vastly more commonly than the reverse order because the path PPs are typically longer and more in focus than the theme NP argument; in fact, the alternative \(< V \ PP \ NP>\) “heavy NP” shift order accounts for less than 1% of the data in COCA for the verbs tell and explain (Goldberg 2011). Thus the \(<V \ NP \ PP>\) order can be considered the default order for the caused-motion construction.

The verb-particle construction inherits the analogous \(< V \ NP \ P>\) word order from the caused-motion construction. And yet, because the NP complement is usually longer and more in focus than the P argument, and because the V and P quite often form a tight, non-compositional semantic bond, the general VP construction simultaneously motivates the alternate \(<V \ P \ NP>\) order. Thus the defaults associated with the caused-motion and
verb-particle constructions differ in strength, evidence that probabilities need to be associated with particular constraints (see also Bresnan et al. 2007).\textsuperscript{9}

5. Word formation
The verb-particle construction posited in (27) does not account for the fact that many verb-particle combinations can be expressed as simple nouns. Oftentimes, the meaning of the verb-particle lexical combination is predictable from its meaning in verbal form. For these cases, a single verb-particle combination can be represented with links to both nominalization and phrasal verb-particle constructions. This is the case with slow down in Figure 2, since a slow down is straightforwardly related to the verbal, to slow down. On the other hand, some nominalizations need to be represented distinctly from a related verbal form, because their meanings are \textit{not} strictly predictable from either their component parts, nor from the corresponding verbal verb-particle combinations. For example, if one is subjected to a sit-down, one is reprimanded or scolded in some way; clearly this does not simply follow from the fact that one has sat down. This distinct but related meaning is captured in Figure 2 by positing two entries of sit-down that are related to one another. Likewise, a send-off implies a grand gesture related to an important departure of a person, while one can simply send a letter off (not shown) without any fanfare. While the verbal turn-off is at least two ways ambiguous, since one can either turn off lights or turn off a person (sexually), the nominalized a turn-off is only related to the latter interpretation (not shown).

Other nominalizations have no verbal counterpart. For example we know what a show down is, but it doesn’t make sense to ??show someone down. So show down in Figure 2 is only linked to the nominalization construction. Conversely, eke out does not occur as a nominalization. This is represented by a link only to the phrasal verb-particle construction.

\textsuperscript{9} Note that link (b) may appear to be redundant given the existence of links (a) and (c). But default inheritance is not necessarily transitive. While the system-wide generalization about ordering motivates the ordering of the caused-motion construction, it is the statistically predominant order of the caused-motion construction that is inherited by the verb-particle construction (to yield $<V\ NP\ P>$ as the default order). And yet the system-wide VP generalization independently motivates the alternative $<V\ P\ NP>$ order directly.
Figure 3: Particular verb-particle combinations linked to a bare nominalization construction (*show-down*) or the transitive verb-particle construction (*oke out*) or both: with predictable meaning differences (*slow down*) or distinct meanings (*sit down*).

These cases again illustrate the need for a great deal of item-specific information. In addition to broad generalizations, individual items and clusters of items often have their own distributional quirks. All of the relevant information is accounted for in a quite natural way via an inheritance hierarchy.

6. Verb-particle idioms as intermediate level constructions

Jackendoff (2002:68) likewise recognizes “a large variety of constructions with different argument structures and semantic structures, all of which share the well-known syntax of verb + particle. Some combinations of verb+ particle are productive, some are semiproductive, and some are purely idiosyncratic; the patterns interweave in complex fashion.” He details many subcases of verb-particle combinations that have their own particular semantic and syntactic properties. For example, he observes that a number of particles express aspec
tual properties of the event. When *away* is used this way, the verb-particle combination can only be intransitive:

39.a. Bill slept waltzed/drank/talked/read/sneezed away. (Jackendoff 2002: 21a)

Jackendoff details several such “constructional idioms” that allow a range of verbs, including new denominal verbs. For example, he analyses an adjectival construction involving the particle *out* which is used to indicate that someone is worn out from too much *V-ing/too much *N” (Jackendoff 2002: 85; Hugou 2009):

40. a. He was neflixed out. (Jackendoff 2002: 85)
40. b. She was all studied out.
c. She was all partied out.
d. You must be verb-particle’ed out by now, dear reader.

Another case, yet to be described as far as I know, has compositional instances as well as non-compositional instances, and involves the particle off. When used with verbs such as wipe, wash, scrub it is compositionally understood to imply that something was removed as in the following examples:

41. “he washed off the sand.”
42. “I've scrubbed off the dirt”
43. “I … wiped off the blood and mucus”
44. “he picked himself off the ground, brushed off the dirt”

One typically removes unwanted things, and if one is told to wipe off a smile, the speaker indicates that the smile is inappropriate in the given context. The meaning can also apply metaphorically to verbs that are do not normally convey removal; in this case, the examples nonetheless imply the dismissal of an undesirable idea, group, or situation as in the following examples:

45. “Hall shrugged off the criticism”
46. “The pirates had laughed off the threat,”
47. “Jamison … blew off the press.”
48. “He shook off the thought.”
49. “I had brushed off the suggestion of a guidebook.”
50. “you just put off the decision”
51. “Dale waved off the question.”

This intermediate level construction can be captured by positing a construction with two related senses within the default inheritance link: one sense is literal and compositional (e.g., 41-44) and this sense has given rise to a metaphorical extension (e.g., 45-51).
Figure 4: The V{NP, off} family of constructions. Inheritance relationships between items and generalization are shown. The boldfaced arrow indicates a metaphorical extension.

A word about the non-autonomy of syntax
Jackendoff takes the proliferation of the larger number of verb-particle combinations as evidence for an autonomous syntactic template with no associated function (pg 77ff). “This constitutes the classic sort of evidence for the autonomy of syntax: English assigns particular syntactic positions and syntactic properties to particles, no matter how their presence is licensed” (Jackendoff 2002: 88).

It is true that the various functions of the verb-particle construction cover a broad range of meanings. And yet this is perhaps a pyrrhic victory for the claim of autonomous syntax insofar as every node in the inheritance hierarchy specifies a particular function as well as a form. In fact if we fail to appreciate the link to the caused-motion construction, the form itself, in terms of its default word order, can only be stipulated.10

6. Conclusion
The present analysis has made several observations. We need to recognize that hundreds of familiar verb-particle combinations are represented in a “constructicon,” related to one

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10 Moreover, while the range of interpretations each particle has is admittedly quite broad, it is far from random (cf. Brugman 1981 for discussion of over; Lindner 1983 for discussion of in/on).
another via a default inheritance network (cf. also Jackendoff 2002). A general verb-particle construction is needed, with word order underspecified: in simple active form, it has the form \([V \{P, NP\}]_{VP}\) (cf. also Capelle 2006). A separate verb phrase construction that combines with the verb-particle construction and other verb phrase level constructions specifies order constraints on the basis of length, focus, and semantic cohesion (cf. Gries 2003; Hawkins 1994; Wasow 2002).

An explanation of the fact that \(<V\ NP\ P>\) is the default word order follows from the claim that the verb-particle construction inherits from the caused-motion construction. The fact that particles are a subset of prepositions, and the fact that verb-particle combinations often convey caused-motion also follow from the relationship between the verb-particle construction and the caused-motion construction.

Finally, we saw that verb-particle combinations can combine with the general phrasal construction and general word-formation constructions, with idiosyncracies allowed for in both cases. That is, the present proposal supports the recognition of items and generalizations both in the case of the phrasal verb-particle construction and also in the case of related word-level constructions. We need to tune in to specifics and generalizations in order to crack open the puzzles of language.

**References**


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