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Author

Farrell, Patrick

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ABSTRACT. This paper offers a comprehensive analysis of the constituent-structure and linear-order properties of English transitive and intransitive V-P constructions involving so-called ‘particles’ (*turn on the lights/the lights on, mess up the song/the song up, shut up, sit down*, etc.). Drawing on both standard and certain new evidence and arguments, it is proposed that V-P constructions generally come in one or both of two varieties: lexical compounds (*mess up* in *mess up the song*) and/or discontinuous verbs, i.e. lexemes with more than one piece projected as a word or phrase (*mess ... up* in *mess the song up*), and that the alternation, for those that have both manifestations, reflects different argument structure possibilities for a lexeme with the same overall conceptual semantics. The internal structure of VPs built on V-P lexemes is examined in some detail. The popular ‘small-clause’ approach, according to which the DP of transitive V-P structures is the subject of a phrase that has the P as its predicate, is shown to be problematic, primarily because there in fact exists a true small-clause construction that can have a P as its predicate and the putative small clause of cases like *mess the song up* systematically lacks the defining properties of this construction. The word-order restrictions that the small-clause approach is designed, in part, to account for are shown to follow from a set of independently needed linearization constraints, which are motivated by functional principles.

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1. INTRODUCTION. The verb-preposition (V-P) constructions illustrated by the examples in 1 constitute one of the central issues of English grammar, discussed in one context or another by countless analysts of English and commonly considered in both textbooks introducing linguistic analysis and pedagogical grammars designed for second-language learners.

- (1) a. Chris turned the lights on.
- b. Chris turned on the lights.

In an introduction to syntax the construction exemplified by 1b can be used with considerable success to teach constituent-structure analysis, for although the postverbal string of words has the superficial appearance of a PP, it systematically fails all the tests of constituency that PPs typically pass. Remarkably, in spite of all the analytical attention that these constructions have had and the apparent consensus that *on*, for example, does not form a phrase with *the lights* in 1b, various details about the constituent structure of these constructions remain controversial, including whether *turned* and *on* form a unit in 1b and if so what kind and whether *the lights* and *on* form a unit in 1a, even if they do not in 1b.

The analysis offered for the general undergraduate population in Fromkin et al. 2003 is instructive concerning the nature of the dilemma posed by these kinds of sentences. As shown in Figure 1, sentences like 1a and 1b are assumed to have the same underlying structure and 1a is derived by a ‘particle movement’ transformation that moves the preposition to the right of the direct object. Sentence 1a is said to illustrate a discontinuous dependency: the verb is separated from the preposition with which it forms a semantic unit. The basic intuition, which also informs the traditional ‘phrasal verb’ approach (e.g. Kennedy 1920, Live 1965, Bolinger 1971) and the categorial grammar ‘wrapping’ approach (Dowty 1996), is that *turn on* is like a word that may have one of its pieces separated from it. This analysis satisfies one of the key desiderata of any analysis, which is to account for the fact that 1a and 1b have the same meaning, since the transformational rule that relates them has no effect on conceptual content. It also attempts to account for the status of *turn on* as a lexical unit, which is another obvious desideratum of any account, given that there are dictionaries devoted primarily to the thousands of similar V-P combinations with more or less idiosyncratic meanings (e.g. the *Cambridge International Dictionary of Phrasal Verbs*: <http://dictionary.cambridge.org/>). It is curious, however, that *turn* and *on* aren’t actually shown as forming a unit of any kind. The problem, apparently, is that pieces of words aren’t supposed to be able to undergo movement transformations.¹ Thus, *turn on* is portrayed as a doubly unusual kind of word or word-like unit: one that can have one of its

¹ According to the widely assumed Lexical Integrity Hypothesis, the internal constituents of words are invisible to syntactic processes (e.g. Chomsky 1965, Lapointe 1985).

morphemes moved around a direct object and one that is not represented syntactically as a unit at all.

Figure 1. Early transformational analysis of V-P constructions

The Fromkin et al. analysis is an instantiation of the general approach taken in early transformational grammar (Chomsky 1957, Fraser 1965, 1976). In more recent transformational approaches, 1a has been considered to be the basic alternant and has commonly been analyzed as having some kind of V + SMALL CLAUSE (SC) structure (as shown in Figure 2), wherein the postverbal DP is the subject of a complement phrase whose predicate is the P (e.g. Kayne 1985, Aarts 1989, Guéron 1990, Svenonius 1994, Den Dikken 1995, Haegeman and Guéron 1999).² 1b, when considered in such analyses, has generally either been claimed to involve ‘reanalysis’ or ‘incorporation’, whereby the P joins with the V to form a word (e.g. Guéron 1990, Den Dikken 1995, Haegeman and Guéron 1999), or rightward movement of the DP (Kayne 1985). Thus, the possibility of analyzing *turn on* as a word in 1b is utilized by some proponents of the SC analysis. However, this approach departs from the traditional and early transformational approaches in claiming that *on* is basically a predicate that forms a phrase with the direct object that precedes it in 1a. This is curious, given that the lesson about constituent-structure analysis that one can learn from an investigation of the properties of 1b must be ignored in order to arrive at such an analysis.

² There are, of course, several variants of the SC analysis schematized in Figure 2. Matters that vary include whether the head of the SC is called a ‘preposition’ or a ‘particle’, whether the subject of the SC moves from complement to subject position within the SC, whether the DP analysis of NPs (Abney 1987) is adopted (as it is tacitly in the analysis proposed in this paper) or not, whether the P/particle incorporates concretely or abstractly, and whether the SC is a maximal projection of the P/particle or some other kind of clause-like phrase. What I take to be the defining characteristic of this class of analyses, and what I consider here independently of analysis-specific details, is the claim that the DP-P string of the V-DP-P (‘particle-movement’) construction forms a phrase with the DP as its subject.

Figure 2. Small-clause analyses of V-P constructions

Augmenting much work on this problem by various researchers with certain new lines of argumentation, this paper rejects the SC approach to the constituent structure of (1a) in favor of a version of the general early transformational analysis, while adopting a LEXICAL-COMPOUND analysis of the V-P unit in (1b). More specifically, as schematized in Figure 3, *turn on* is analyzed as a lexeme with a single meaning that can be realized in two different constructions: either as a COMPOUND VERB with a DP complement, equivalent to a left-headed counterpart of such compounds as *overturn* and *uproot*, or as a DISCONTINUOUS VERB (as in Dowty 1996), with the P parsed as an additional complement, rather than a verb-internal morpheme. The various linear-order restrictions on the constructions that SC analyses are designed, in part, to account for are shown to follow from the dual-structure analysis together with a set of independently needed constraints on the order of the constituents of VPs.

Figure 3. Compound/discontinuous-V analysis of V-P constructions

Section 2 lays out some of the key assumptions and the motivations for them and establishes the viability of the claim that the V-P string is a lexical compound in cases like 1b, building on the observation that a compound analysis provides a straightforward account of the word-formation possibilities and syntactic properties of this kind of word. The analysis is also shown to be compatible with the kinds of evidence that have been appealed to in rejecting a lexical-compound analysis. Drawing on various contrasts between ‘true’ SCs with a prepositional predicate and the DP-P string of cases like *turn X on*, section 3 presents arguments against analyzing the latter kind of DP-P string as an SC. The details of the proposed analysis are given in section 4, where the lexical mechanisms accounting for the compound-V/discontinuous V alternation are made explicit and the various linear-order idiosyncrasies of VPs built on discontinuous V-P lexemes are accounted for with a set of linearization constraints motivated by processing and other functional principles.

2. PRELIMINARIES. I begin with the following assumptions and terminological conventions.

- a. There are various kinds of lexemes whose pieces are distributed across ordinary syntactic structures (*break a leg, shoot the breeze, take X to task*, etc.). Although they do not constitute words, these must be listed in the lexicon like words because their meanings are figurative or otherwise non-compositional. I consider all of these to be discontinuous lexemes.
- b. Compounds are units consisting of two or more words, all of which constitute a single word rather than distinct components of a syntactic phrase (*overcome, upset, touchdown*, etc.). Although compounds tend to be figurative, or idiomatic, they need not be (*songwriter, overturn, backfill, upheave*, etc.).
- c. Lexemes consisting of a V and a P are discontinuous if the V and P do not form a word. In one kind of example, the P of the discontinuous lexeme is projected as the head of a PP, as in the case of *tell on X*, the structure of which is, plausibly, something like [_{VP} [_V *tell*] [_{PP} *on X*]] (see, for example, Bolinger 1971: 4, Dixon 1982: 39).
- d. A P with no complement (and no subject) can be a complement of a V without also being part of a discontinuous V-P lexeme. For example, although the goal complement of *go* is expressible as a PP (*go into the room*), it can also simply be a P (*go in, go back, go up*, etc.).

Assumption (d) is motivated by the fact that unlike a piece of a compound (3) or a discontinuous lexeme (or ‘idiom’) (4),³ the P complement of *go* can undergo topicalization and

³ The resistance of idioms to such syntactic phenomena, and various associated issues, are discussed in Fraser 1970 and Nunberg et al. 1994.

be focused on in the pseudocleft construction, like an ordinary PP complement can (2) (e.g. Emonds 1985: Ch. 6).⁴

- (2) a. {Into the room/In} they went.
- b. Where they went was into the room/in.
- (3) a. * Over they turned the decision.
- b. * {Where/how} they turned the decision was over.
- (4) a. * The breeze they were shooting.
- b. * What they were shooting was the breeze.

Given this set of assumptions, it is conceivable that *turn on*, *mess up*, *look up*, and *throw away* are either compounds or discontinuous Vs or both. There are good reasons for considering them to be both.

2.1. V-P COMPOUNDS. The alternation between *turn on X* and *turn X on* amounts, in essence, to a manifestation of the same kind of relationship that exists between *writer of songs* and *songwriter*, i.e. a compound has as a paraphrase a construction with one of its components expressed as a complement.⁵ Thus, I assume that *mess up*, *turn on*, and *take in*, for example, are compounds in the examples in 5, but have the P expressed as a complement in the corresponding paraphrases in 6.

- (5) a. Max messed up the song.
- b. We turned on the lights.
- c. My wife took in the newspaper.
- (6) a. Max messed the song up.
- b. We turned the lights on.
- c. My wife took the newspaper in.

The well-known fact that only the post-DP P can be modified by a degree adverbial such as *all*,

⁴ Of course, one way of looking at the matter is that an intransitive P that can function like a PP with respect to certain syntactic phenomena is in fact the head of a PP that happens to contain no other constituents, whereas one that cannot is simply a P that does not head a PP (see, for example, Jackendoff 1973, Oehrle 1976). Although this view of the matter could be adopted without significantly changing the analysis to be developed here, I assume that the distinction between Ps that are part of a V-P lexeme and those that are not, which correlates with the differences in syntactic behavior, is the only one that needs to be drawn.

⁵ It is not unusual cross-linguistically for verbal affixes or parts of compound verbs to have an alternative expression as a separate word. This happens, for example, with certain adverb-verb compounds in Modern Greek (Smirniotopoulos and Joseph 1998), with various kinds of verbal compounds in Chinese (Liu 1986), with N-V compounds in Dutch (Ackema 1998), and with 'preverbs' in the Algonquian language Fox (Dahlstrom 2000) and in Hungarian (Ackerman and Webelhuth 1997).

the heck, or *right* (see Fraser 1976: 25-27), as shown by 7–9, provides evidence for these assumptions, since, degree adverbials cannot generally be used as modifiers of word-internal morphemes, as shown by 10b, although they can of course modify ordinary P complements, as shown by 11.⁶

- (7) a. They messed the song all up.
- b. *They messed all up the song.
- (8) a. Can't you just turn these lights the heck off?
- b. *Can't you just turn the heck off these lights?
- (9) a. We took the cat right in.
- b. *We took right in the cat.
- (10) a. I set the tree right up.
- b. *I right-uprooted the tree.
- (11) a. We went right in.
- b. You'd better get the heck out.

If *mess up*, *turn off*, and *take in* are compounds in 7–9, rather than verbs followed by a P complement, the same constraint that prevents adverbial modifiers from adjoining to a verb initial P (or any affix) accounts for the fact that *off*, *up*, and *in* cannot be adjoined to by a modifier. If the verb-adjacent P were analyzed as being in a complement position in cases such as *take in the cat*, an ad-hoc constraint would be needed to preclude adjoining an adverb to the P just in case the direct object follows. However, such a constraint would fail to account for the fact that the P can be modified by an adverb if a following direct object is 'heavy':

- (12) a. Why don't you just turn the heck off all these computers that nobody ever uses?
- b. Go ahead and take right in all the stuff that I left in the trunk of your car.

If V-P compounds are recognized, the adverb modification possibilities follow from independently needed constraints. The contrast between 12 and 9 is explicable as follows. There is a linearization condition that allows heavy DPs to be placed at the right end of the VP, regardless of whether there is a P complement or not (see section 4.2). If there is a P

⁶ As noted by Emonds (1972, 1985: Ch. 6) and Jackendoff (1973), the fact that words such as *in*, *up*, and *off* in examples like 7–9 behave like transitive prepositions in their ability to co-occur with the degree adverb *right* provides (one of several kinds of) evidence for analyzing them as prepositions, rather than as adverbs, as in many dictionaries and traditional grammars, or as 'particles' (characterized as a label for a distinct part of speech), as in much theoretical work. The same kind of argument can be made based on the distribution of the kind of emphatic adverbial phrase exemplified here by *the heck*, which has a couple of variants with other 4-letter words that are both somewhat more idiomatic and more taboo. This kind of phrase can modify not only intransitive Ps (whether part of a lexeme or not) but also ordinary (directional) PPs (*get (this) the heck out of my face*). It cannot, however, modify prototypical adverbs, for example, (**Eat this the heck quickly*, **Do this the heck better next time*) or DP complements (**Get my brother the heck another beer*).

complement, it can be modified by a degree adverb, whether a direct object follows, as in 12 or not, as in 9a. If the DP is not heavy, it must be right-adjacent to the verb (see section 4.2). 9b is ungrammatical because either the DP is not right-adjacent to the verb (if the P is analyzed as a complement rather than a part of a compound verb) or the P (which is analyzed as part of a compound verb) is illicitly modified by an adverb.⁷

Another kind of evidence for a compound analysis comes from the fact that although two DP-P strings can be conjoined (13a-b), like any string of V complements (13c), two similar P-DP strings cannot (13d-e) (see Dixon 1982: 5).⁸

- (13) a. She turned these lights on and those lights off.
 b. She took the newspaper in and the cat out.
 c. She told my brother about the movie and my sister about the play.
 d. * She turned on these lights and off those lights.
 e. * She took in the newspaper and out the cat.

If the V and P form a compound V in V-P-DP cases, such that the P is not a complement, the ungrammaticality of 13d-e follows from the fact that only like strings of complements can be conjoined. By the same token, the grammaticality of 13a-c is expected, given the assumption that both the P and the DP in V-DP-P cases are in the complement set of the V.

Consistent with the proposed analysis, V-P lexemes behave like compounds and other words with respect to derivational affixation processes. For example, just as the *re-* prefix can be added to such compounds as *upload* (*You need to re-upload the file*) it is possible, at least for many speakers, to add *re-* to numerous V-P lexemes, as illustrated by the following examples taken from actual discourse.⁹

⁷ If adverbial modification is a syntactic process, the constraint in question might be the Lexical Integrity Hypothesis (see footnote 1). The argument here does not, however, hinge on the viability of this constraint as a principle of universal grammar, which is questionable (e.g. Dahlstrom 2000, Harris 2000). Even if there is only an English-specific constraint preventing adverbial modification of morphemes embedded in words, this constraint accounts for the ungrammaticality of **mess all up the song* under a compound analysis.

⁸ Some speakers find examples like 13d-e less bad than others, although a contrast with 13a-b apparently still holds.

⁹ To find *re-V-P* cases, I did advanced Google™ searches in May of 2003 over the ‘in text of page’ part of English-language web pages for (a) exact phrases (enclosed in quotes) such as *re-hook up the* and *re-plug in the*. Since punctuation is invisible, the search function of the web browser was used to eliminate all the cases of *Re: plug-in*, for example, by narrowing down the results to cases with hyphenated *re-*. The phenomenon appears to be relatively common, as the search turned up 31 pages with *re-hook up the X* and 182 with *re-plug in the X*. Although the *re-V-DP-P* pattern does occur, it is quite rare. In searches for *re-hook the* and *re-plug the*, I found only 1 case of *re-hook the X up* and 4 cases of *re-plug the X in*. This frequency difference is presumably related to the fact that affixes attach characteristically to words rather than phrases, making *re-plug in*, for example, more basic than its discontinuous counterpart. The discontinuous counterpart should not be precluded, however, given that there appears to be no reason that the discontinuity of the P part of the lexeme should hinge on whether there is also a prefix. It seems clear that some speakers find the *re-V-P* construction odd or unacceptable. It is not yet so

- (14) a. The plumber will be out on Monday to *re-hook up* the washer and dryer.
[webwomb.com/_temps4/00000d03.htm]
- b. You might want to unplug the VCR and then *re-plug in* the unit.
[www.hollywoodvideo.com/stores/faq.htm]
- c. Have to go *re-tuck in* my kids.
[www.childrenwithdiabetes.com/chat/transcript/school20000706.htm]
- d. ... after which it has to go back to the source server to *re-look up* the domain name.
[lists.consume.net/pipermail/consume-thenet/2002-November/007404.html]
- e. I have to go home tomorrow before my parents return and *re-mess up* the house.
[www.xanga.com/last.aspx?user=misserin20]
- f. And three days later, he was *re-sworn in* as governor.
[www.voy.com/28489/6.html]

It would be problematic to maintain that such cases are necessarily instantiations of an independently existing *re-V* word plus an underlying P complement, since *re-mess* and *re-swear*, for example, seem to be well formed only when they occur with transitivizing *up* and *in*, respectively (**He re-messed (around) with me*, **He re-swore {at me/that he would be there}*), which clearly suggests that *re-* attaches to the lexemes *mess up* and *swear in*.

V-P lexemes also participate, at least to some extent, in other word formation processes involving affixation. (*Un-*)V-P-*able* complexes are not uncommon on the internet, as illustrated by the following examples:¹⁰

- (15) a. Bring a *pin-upable* or projectable version of this artifact.
[advance.aiga.org/timeline/santafe.html]
- b. ... it is *pick-upable* for short readings at a time.
[ladatco.com/amgo-news.htm]

conventional as to yield *re-V-P* entries in standard dictionaries. One inhibiting factor, as noted by Fraser (1976: 14), is that V-P lexemes prefer to have monosyllabic V bases or bisyllabic V bases with initial stress (*finish up*, *muddy up*, *measure out*, etc.). *Re-V-P* words, which necessarily do not have stress on *re-*, deviate from the usual stress pattern.

¹⁰ A Google™ search for the string *up-able* turns up many pages, since hyphens are invisible to the search engine. The first 200 of 2,410 pages that I found with this string, included 4 distinct exemplars of *pick-up-able*, 3 of *un-shut-up-able*, 2 of *roll-up-able*, *make-up-able*, and *back-up-able*, and one each of *fold-up-able*, *pair-up-able*, *blow-up-able*, *un-set-up-able*, *sum-up-able*, *stuff-up-able*, *double-up-able*, and *scale-up-able*. It is also possible to find cases of *pickable up*, *blowable up*, etc., although this pattern appears to be considerably rarer, given that searches for *pickable up*, *blowable up*, and *shutable up* yielded 2, 1, and 0 exemplars, respectively, in the entire internet corpus. Some speakers also allow *pickable-upable*, with the same kind of affix reduplication that occurs with *-er* in *fixer-upper*, *giver-upper* and the like (see footnote 11).

- c. Construct an *un-mess-upable* drawing of triangles.
[www.cs.gsu.edu/~matjbkx/classes/ma205/april3.htm]
- d. ... *rip-offable* JPEG and GIF files ...
[lists.w3.org/Archives/Public/www-font/msg00429.html]
- e. I am considered by my friends and family the most reliable (and *un-shut-up-able*) source.
[lds.about.com/library/moviereviews/blstraightstory.htm]

Nominalizing *-er* can also be affixed to V-P lexemes, in which case, for whatever reason, it is customary to double *-er*: *fixer-upper*, *picker-upper*, *builder-upper*.¹¹ Although affixal derivation with V-P lexemes may not yet be fully conventional, the fact that such derivations are possible at all provides support for a compound analysis, since derivational affixes characteristically attach to word bases.

Yet another reason for treating V-P strings of the kind in question as compounds is that, like other verb compounds and other verbs in general, they routinely undergo V-to-N conversion:

- (16) a. Monomorphemic verbs that undergo V-to-N conversion: *dance*, *walk*, *laugh*, *talk*, *jump*, *burp*, *fart*, etc. (e.g. *I always walk* vs. *I went for a walk*)
- b. Compound verbs that undergo V-to-N conversion: *update*, *upgrade*, *overlay*, *backfill* *overflow*, etc. (e.g. *You need to update the software* vs. *He gave us an update*)
- c. V-P verbs that undergo V-to-N conversion: *hand off*, *drop off*, *show off*, *break up*, *hold up*, *set back*, etc. (e.g. *He was going to hold up the store* vs. *He was arrested after the holdup*)

Finally, the head of a V-P lexeme can be a word that does not otherwise occur as a verb, at least with a relevant meaning, as in the following examples:

- (17) a. They really *dolled up* your sister for the party.
- b. He *clammed up* and didn't say another word.
- c. I thought to myself did I just *hair out*, am I going to be able to go on the next one, that was just a small one. (hair out = 'get scared')
[towsurfer.com/archives/07I702_show_on_earth/]

¹¹ This word formation pattern appears to be at least somewhat productive. Google™ searches for internet pages containing *upper* and *outer* yield numerous examples of such words as *giver-upper*, *thrower-outer* (the opposite of a pack-rat), *messer-upper*, *fucker-upper*, *checker-outer*, and *setter-upper*. It is unclear how this kind of affix reduplication or spreading, which is a relatively common morphological device, might be accounted for on a syntactic incorporation account of V-P constructions.

- d. He finally *wised up* and stopped cheating.
- e. Did you really *shack up* with her?
- f. Let's *cozy up* to the fire.

Since the syntactic phrase $[[_V \textit{doll}]]$ (DP), for example, does not occur and the noun *doll* does not otherwise take *up* as a complement, it is difficult to see how *doll up* could be derived from an independently existing syntactic construction. Category relationships of this kind are, however, not uncommon for lexical compounds, as in the case of *upend* ($P + N = V$), *push-up* ($V + P = N$), *downstream* ($P + N = \text{Adj/Adv}$), and *have-not* ($V + \text{Adv} = N$).

Although much of the evidence for the compound status of V-P lexemes might—depending on one's theory of word formation—be compatible with an incorporation analysis, according to which the V-P word is formed by movement of the P from a complement position to the V (e.g. Guéron 1990, Den Dikken 1995, Haegeman and Guéron 1999), it clearly is compatible with a lexical-compound analysis (Johnson 1991, Pesetsky 1995, Toivonen 2001), which I assume here. The usual arguments for distinguishing V-P words from lexical compounds are far from convincing. One argument rests on the claim that English compounds are uniformly right-headed.¹² Since the V is inflected, it must be the head and since it is on the left, the V-P unit must not be a lexically-formed compound (see Kayne 1985, Haegeman and Guéron 1999: 255). However, as there are N-based left-headed compounds in English (e.g. *passersby*, *commanders-in-chief*, *birds of prey*, *attorneys general*, *brothers-in-law*, etc.) and in these the N is inflected for plurality, the correct generalization, as noted by Toivonen (2001), is that the head of a compound (whether on the left or right) bears inflectional morphology. There are also left-headed Adj-P compounds, such as *bad off* and *well-off*, for which the head can be an inflected comparative form (e.g. *a {worse-off/better-off} person*).¹³ Although there is a strong tendency for compounds to be right-headed, this is clearly not an inviolate constraint. Hence, the claim

¹² See, for example, the Righthand Head Rule of Williams (1981), which is supposed to ensure, among other things that the head of compounds is on the right. The generality of such a rule is questioned by Joseph and Wallace (1984). Even Williams recognizes that there are exceptions in English. He also recognizes that inflectional morphology appears always on the head of compounds, without, however, taking note of cases like *passersby*.

¹³ The claim that *bad off* and *well-off* are compounds is motivated by the fact that they can function as prenominal modifiers, whereas adjectives with a complement cannot (*a [crazy (*about golf)] man*). The internal analysis of these compounds, however, is somewhat trickier to determine, especially whether the left member is an adjective or an adverb. Some speakers use or prefer *badly off*, where this element is clearly an adverb. I find *badly off* ungrammatical, so that for a speaker like me, an adjective analysis seems best (and note that *poor off* is fine for me though I never use *poor* as an adverb (only *poorly*)). This seemingly small point of grammar certainly merits further investigation.

that *turn on* and *look up* are compounds only entails analyzing them as an additional kind of deviation from a general tendency.¹⁴

Another argument for the incorporation analysis goes as follows (Haegeman and Guéron 1999: 256). If *turn on*, for example, is a lexical compound and, hence, a unitary verb underlyingly, it is unclear what prevents it from undergoing further preposition-adjoining compounding (e.g. **turn on up the lights*). Under a small-clause + incorporation analysis, the fact that only one SC complement is possible (for whatever reason) could be said to limit the number of possible incorporated Ps to one.

Since V-P compounds are formed from a limited range of Ps that would otherwise be expressed as complements and complements express a limited range of the components of verb meanings, there are, of course, inherent semantic constraints on V-P compounding and V-P lexemes more generally. This limitation on compounding also holds for P-V compounds, since neither P-P-V compounds nor P-V-P compounds occur with notable frequency, if at all. The online *Merriam Webster Collegiate Dictionary* (<http://www.m-w.com>) lists approximately 150 verbs of the form V-up (*back up, mess up, bang up, blow up, screw up, suck up*, etc.) and 100 verbs of the form V-off (*back off, break off, tear off, take off, tick off*, etc.). None of these have the form P-V off or P-V up (e.g. **upset off, *overturn up*). Similarly, of the approximately 40 up-V words listed (*uproot, upgrade, upbuild*), none have the form up-P-V. If the constraint in question were due to a prohibition on incorporation (e.g. there can be at most one small clause complement and only the highest head in a small clause can incorporate), P-V compounds would have to be analyzed as being derived syntactically. This is hardly plausible, given that there is no reasonable synchronic syntactic source for most P-V compounds. *Upset the president*, for example, means something quite different from its putative pre-incorporation SC source: *set the president up*. In the case of *uproot* and *oversee* there isn't even a plausible underlying SC source for synchronic incorporation (**root the trees up, *see the production over*).

In fact, the scarcity of multiple-P compounds appears to be due to the interaction of constraints of the following kind, which need to be recognized in some form on any analysis:

- (18) a. If a P is part of a verb compound it cannot have an (object) argument of its own expressed as a complement of the verb.
- b. An intransitive P can express a locative argument of a verb; but not other arguments.
- c. A verb can have at most one locative argument (expressed).

18a is motivated by the contrast between *bring the cat in (the house)* and *bring in the cat (*the*

¹⁴ Moreover, this deviation is easily explained from a historical perspective. P-V compounds such as *understand* and *withhold* reflect the verb-final word order and P-V compounding process of Old English (Goh 2000); V-P compounds, such as *look up* and *turn off* reflect the verb-initial word order of modern English VPs.

house), which is indicative of a systematic restriction on V-P compounding (see section 4.5 for further discussion). 18b is motivated by the non-occurrence of intransitive Ps that express such thematic relations as recipient, addressee, beneficiary, or source (*{*give/say something*} *to*, **buy something for*, **take something from*). In the vast majority of cases, the P of a P-containing compound is an expression of a location or state (usually, but not necessarily, an end-location or ‘goal’ or an end-state or ‘result’) (see Whorf 1956, Fraser 1976), as for example with *outsource*, *uproot*, *put on*, *turn on*, *take out*, etc. States and locations can be viewed as alternative expressions of what I call here the ‘locative argument’ of verbs, of which, at least ordinarily, there can be only one—or at least only one that is overtly expressed.¹⁵ The story, then, is that **uproot* {*from the tree/the tree from*}, for example, does not occur because *from* cannot be an intransitive preposition; **uproot* {*over/out*} *the tree* does not occur because the V-initial *up* exhaustively expresses the locative (goal) argument of the verb, of which there can be only one and *over* and *out* generally express a locative argument.

Although most Ps in verbal compounds transparently express the verb’s locative argument, there are Ps whose semantic contribution is more or less obscure, probably in most cases due to semantic drift (*understand*, *upbraid* ‘reproach’, *end up* etc.). In the case of a compound verb for which the semantic contribution of the P is not (or at least is no longer) locative, it is conceivable that it might have a meaning with a distinct, expressible locative component. In fact, *start out* ‘begin’ and *end up* ‘go, become’, for example, in which the P does not transparently express a locative argument, can have a distinct locative argument (*end up on drugs*, *start out in third grade*) and even seem to combine naturally with locative-expressing Ps such as *on* or *out*:¹⁶

- (19) a. We just played Blue Suede Shoes for a laugh, and it *ends up out*... and it’s there; forever now!
[www.black-sabbath.com/interviews/iommi_1196.html]

¹⁵ On the idea that states are a kind of (metaphorical) location, see Anderson 1971 and Lakoff and Johnson 1980. The claim that there can be at most one locative argument is consistent with the role and reference grammar theory of verb semantics (e.g. Van Valin and La Polla 1997), according to which there is a generalized locative role encompassing various more specific semantic roles, none of which co-occur in the lexical conceptual structure of any verb. Obviously location-expressing adverbs, which can be added to any clause but do not express the location component of a verb’s meaning, are not excluded by 18 from co-occurring with a locative P in a verbal compound (*set up the display in that room*).

¹⁶ In another kind of multiple-P structure (see Bolinger 1971: 142), the Ps appear to conjointly express the locative argument of the verb (*push back in the keys*, *send on over the files*, *take back out the newspaper*, *go back out*). This kind does not allow the two Ps to be separated (**Out is where he went back* vs. *On is how the lights started out*), even though it does allow them both to occur after a direct object (*He pushed the keys back in*, **In is where he pushed the keys back*).

- b. The light still *starts out on*, but then goes off when the scan starts.
[www.sane-project.org/old-archive/2000-12/0140.html]

Thus, although the semantic constraints on intransitive prepositions and the general nature of verb semantics conspire to make compound verbs with multiple Ps (and the syntactic constructions giving rise to them historically) unlikely to occur, it appears that they are not in principle precluded.¹⁷

Most importantly, for present purposes, it is unclear how an incorporation-from-SC analysis might add anything to an explanation. In order to engage the putative explanatory element (i.e. the claim that the P-limitation follows from a constraint limiting the number of SCs to one), the story would have to be that an intransitive P expressing the locative argument of a verb is necessarily expressed as an SC. However, in order to account for cases like *start out on* it would be necessary to allow for (i) some intransitive Ps to not be SCs, (ii) the possibility of multiple SC complements (i.e. both [_{SC} *out*] and [_{SC} *on*]) in some cases, or (iii) some kind of ad-hoc embedding of one SC within another (i.e. [_{SC} *out* [_{SC} *on*]]). But, then, a question arises as to what would prevent non-SC intransitive P complements, multiple SCs, or complex SC embedding in contexts that would give rise to **uproot out*, **sit out down*, **overturn up*, etc. In fact, the incorporation-from-SC approach faces the same dilemma as the lexical-compound approach and does nothing to improve on the explanation sketched above. That is to say, the kind of P that is sanctioned to form a compound—or, alternatively, that can occur in a syntactic position from which incorporation might occur—generally (but not always) expresses a non-iterative locative argument of a verb. It appears that any stronger constraint is unwarranted.

2.2. A TYPOLOGY OF V-P CONSTRUCTIONS. Under the set of assumptions outlined thus far, the main possibilities for transitive V-P constructions are as shown in Table 1. It is perhaps worth noting that both V-P compounds and V-DP-P constructions can be located at any point along a scale of idiomaticity, from fully compositional to fully idiomatic. However, as noted by Dixon (1982), it is unclear that very much hinges on degree of idiomaticity. Category C seems to be distinguishable from category B—independently of idiomaticity—mainly in that the P of Category C items is more easily displaced from its default position.

¹⁷ Unlike *end up*, *start out* is optionally transitive under certain conditions, as in the case of *I like to start out plants in small pots/inside*. Although there is no V-P-P compound version of transitive *start out*, the syntactic configuration that could give rise to such a compound appears to exist.

		V-DP-P CONSTRUCTION	
	A <i>V-P compound</i>	B <i>Discontinuous V-P lexeme</i>	C <i>Ordinary V + P</i>
idiomatic ↑	figure out <i>X</i> mess up <i>X</i> give off <i>X</i> eat up <i>X</i>	figure <i>X</i> out mess <i>X</i> up eat <i>X</i> up boss <i>X</i> about count <i>X</i> in throw <i>X</i> away turn <i>X</i> off/on	
↓ compositional	throw away <i>X</i> turn off/on <i>X</i> take in/out <i>X</i>		take <i>X</i> in/out leave <i>X</i> off/on lead <i>X</i> up/down

Table 1. Types of transitive V-P constructions

It is at least marginally possible, for example, to front or focalize the P of Category C items, but not Category B items, as illustrated by the following examples.¹⁸

- (20) a. We wanted her to take the cat out and out she took it.
b. How we left the lights was (all the way) off.
- (21) a. * We expected her to mess the song up and up she messed it.
b. * How we turned the lights was (all the way) off.

With this difference noted, both *leave X off* and *mess X up* can be treated as instances of the same general construction type, which I henceforth refer to as the V-DP-P construction.

It is also worth noting that although the general rule is that there is for each idiomatic transitive V-P compound a corresponding discontinuous V-P lexeme with the same meaning, and vice-versa, there are some exceptions in both directions. *Give off* ‘emit’, *take up* ‘start’, *brush up* ‘refresh’, and *eke out* ‘supplement’, for example, seem to only occur as compounds, as illustrated by the following examples.¹⁹

¹⁸ Why syntactically projected pieces of discontinuous lexemes should be so restricted is an interesting question that goes beyond the scope of this paper. One might say that focalization and topicalization, for example, only operate on independently meaningful pieces (hence, *{*How/what/where*} *she shut was up* is bad because *up* doesn’t designate a manner, location, or state). The problem, however, is that *off* in *turn the lights off* is an independently meaningful piece of the lexeme *turn off*, designating the same state as *off* in *leave the lights off*. This suggests that discontinuous lexemes may be subject to the same constraint that prevents pieces of canonical words from being topicalized or focalized, in which case this constraint could not be characterized as either strictly syntactic or strictly morphological.

¹⁹ This kind of lexical idiosyncrasy is expected under a lexical approach to V-P compounds, given a conception of the lexicon as the repository of idiosyncrasy. *Brush my Spanish up* is possible for some speakers. There are also

- (22) a. These animals give {off a foul odor/*a foul odor off}.
 b. She decided to take {up a new career/*a new career up}.
 c. I need to brush {up my Spanish/*my Spanish up}.
 d. He eked {out his income/*his income out} by teaching.

In the case of *boss about*, *tell apart*, *bring to* ‘revive’, *see through* ‘bring to completion’, and *count in* ‘include’, on the other hand, the P must be manifested as a complement (see Fraser 1976: 19, Bolinger 1971: 113):

- (23) a. He is always bossing {his wife about/*about his wife}.
 b. We saw {the project through/≠through the project}.
 c. You can count {these people in/*in these people}.
 d. I could hardly tell {the two of them apart/*apart the two of them}.
 e. She brought {the patient to/*to the patient} with smelling salts.

There are many more or less idiomatic intransitive V-P combinations, such as the following:

- (24) a. You need to *speed up*.
 b. He *took off*, without saying why.
 c. I finally just *gave up*.
 d. They are always *playing around*.
 e. The lake *dried up*.
 f. You should *reach out* to them.
 g. He was *sucking up* to his teachers.

It is difficult to tell whether or not these are possibly compounds. Certainly, many of them must at least have the option of a discontinuous analysis, since it is possible to adjoin a degree adverb to the P:

- (25) a. The airplane took *right off*.
 b. He just sucks *right up* to the teachers.
 c. Could you just shut *the heck up*?
 d. The lake dried *right up*.

Moreover, the possibility of a compound analysis must at least be available in principle, given that many transitive V-P compounds (e.g. *mess up a painting*, *give up smoking*, *shut that guy up*) can alternatively be intransitive (*mess up*, *give up*, *shut up*). Furthermore, intransitive V-P combinations can be converted to Ns (*comeback*, *turnout*, *workout*, *takeoff*, etc.), can be created out of N or adjective bases (*wise up*, *clam up*, etc.), and can undergo affixal derivation (*giver-*

various transitive V-P combinations with an idiomatic direct object which do not have V-DP-P paraphrases, such as *blow off steam*, *close up shop*, *dance up a storm*, and *knock off work* (see Fraser 1976: 19).

upper, for example, refers to someone who gives up), suggesting that a compound analysis is appropriate. There is no reason not to assume that the typology expressed in Table 1 covers intransitive V-P cases as well. Thus, I assume that there are intransitive V-P compounds, which typically correspond to intransitive discontinuous Vs, and vice-versa. Similarly, non-idiomatic *go in*, *come back*, and *jump up*, might be analyzed as V-P compounds as well as Vs with their goal argument expressed as a P complement.

The analysis of a VP built around *jump* with *up* as a complement or a discontinuous lexeme such as *take off* seems relatively straightforward:

- (26) a. [VP [V jump] [P up]]
 b. [VP [V take] [P off]]

The V-DP-P construction is more complicated, in that the DP is generally semantically associated with the P and is positioned adjacent to it.²⁰ *We turned the lights off*, for example, entails *the lights are off*. This suggests the possibility that the DP may be the subject of a subphrase of the VP, i.e. a small clause (SC). On the other hand, given that Vs can have more than one complement (*send a letter to the president*, *tell the teacher about the problem*, *explain to me why you did that*, etc.) and a bare preposition, i.e. a P without a subject or a complement, can be a complement of a V (*jump up*, *take off*, etc.),²¹ the V-DP-P construction could also be analyzed as a VP with two independent complements, along the lines shown in 27.

- (27) a. [VP [V mess] [DP the song] [P up]]
 b. [VP [V take] [DP the newspaper] [P in]]

In the following section, I argue for the latter general approach.

²⁰ The P of intransitive V-P lexemes is also often semantically linked in some way to the subject. In the case of *Chris just took off*, for example, *off* plausibly contributes a meaning component with ‘not here’ being predicated of Chris. Similarly, while the semantics of intransitive *give up* are more obscure, in order to push the SC analysis one might claim that ‘up’ is predicated of the subject (in some metaphorical way). Although the subject of intransitive *take off* or *give up* presumably cannot be analyzed as the underlying subject of an SC built around *off* or *up* (see footnote 21), it might be analyzed as the antecedent of a PRO (or null anaphoric) subject of such an SC. The reasoning leading to this analysis would also lead to the conclusion that virtually all PPs are SCs with a PRO subject. Thus, *take the children to the park*, for example, might have *the children* as a direct object that controls the SC [*PRO to the park*], in which case *mess the song up* might be analyzed as [*mess [the song] [PRO up]*]. Reasonable though such an analysis might be, it is ultimately just a needlessly complex notational variant of the kind of analysis suggested in 27.

²¹ One might attempt to analyze the intransitive V-P construction as a surface variant of the V-DP-P construction within which the DP has moved to subject position. While this may be a possible analysis for cases such as *The lake dried up*, since there are independent reasons for analyzing *dry up* as unaccusative in the sense of Perlmutter (1978) or Levin and Rappaport Hovav (1995) (ability to form a participial adjective [*the dried-up lake*], for example), it would be problematic for most of the verbs in 24, which are unergative according to standard diagnostics (e.g. **the {jumped-up/taken-off/given-up} person*).

3. AGAINST THE SMALL-CLAUSE ANALYSIS OF THE V-DP-P CONSTRUCTION. The argument for the multiple-complement approach to the V-DP-P construction is structured as follows. First, I establish that there is a prepositional SC construction in English and that this construction can occur as the complement of certain Vs. Second, I show that the DP-P string of the V-DP-P construction systematically fails to display the properties of a ‘true’ SC and that a multiple-complement analysis of the V-DP-P construction provides a straightforward account of the distinct properties of the two constructions. Third, I show that certain key empirical evidence around which arguments for the SC analysis have been constructed actually fails to provide any support and that although an SC analysis might be claimed to facilitate an account of certain of the linear-order properties of the V-DP-P construction, it is not a necessary component of a satisfactory account. Finally, in connection with a discussion of the implications of the analysis for SC constructions in general, I consider a variant of the multiple-complement analysis, according to which the DP would be a raisee from an SC whose only overt constituent is the P, and show that there are reasons for rejecting even this version of an SC analysis of the V-DP-P construction.

3.1. PHRASAL CONSTITUENCY AND SMALL CLAUSES. The best apparent evidence for the small-clause approach to V-DP-P constructions in English comes from Aarts (1989),²² who shows that DP+P(P) phrasal constituents do occur in certain contexts, such as the complement position of certain Ps, as shown in 28, and clausal subject position, as shown in 29.

- (28) a. [_{PP} With *the criminals behind bars*], we could all rest in peace.
 b. We left the room [_{PP} with *all the lights on*].
 c. [_{PP} Without *the computers off*] we won’t be able to use these machines.
- (29) a. *All these criminals behind bars* would solve the problem.
 b. *All the lights on at the same time* could be a problem.

There is every reason to believe that the strings in italics in 28 and 29 are small clauses built on prepositions. To begin with, they have a subject-predicate interpretation with the P or P + complement serving as predicate. Moreover, since prepositions never otherwise have more than one complement and clauses always have a phrasal constituent as subject, the DP and P must be co-constituents of some phrase. Finally, the DP of such strings in clausal subject position fails to

²² One theoretical motivation for the SC analysis is that it makes it possible to maintain the assumption that phrase structure is limited to binary branching. However, the so-called VP shell approach to the internal structure of VPs (Larson 1988) makes it possible to have multiple complements in other ways without abandoning the commonly assumed binary-branching constraint (e.g. Johnson 1991 and Pesetsky 1995). Moreover, why binary branching is widely assumed is unclear, since facts about languages hardly demand it and it is not important from the perspective of logic (e.g. Quine 1966: Ch. 23, Curry 1977).

trigger verb agreement (30a) and cannot be a nominative pronoun (30b), suggesting that it is contained within a phrasal subject whose head is not its own, and which, therefore, must be some kind of SC.

- (30) a. [SC All the lights on at the same time] {isn't/*aren't} going to be a problem.
 b. [SC {Them/*they} all on at the same time] could be a problem.

Since there apparently is such a thing as an SC with a preposition as its predicate, it seems thoroughly reasonable to analyze *the lights off* in *Chris turned the lights off* as one instantiation of this kind of SC, given that *off* is predicated of *the lights*. One problem with this analysis of the V-DP-P construction, however, is that it is unclear how it could be extended to V-DP-P cases such as *look the information up*, *check this place out*, and *look the plans over*, as correctly noted by Aarts (1989), since there is no comparable evidence for these that the DP-P string, with the relevant interpretation, ever forms a constituent, as shown by the ungrammaticality of the following examples.

- (31) a. *[PP With *the information up*], we could turn to other matters.
 b. *We can't check this place out [PP without *that place out*].
 c. *[PP With *all these plans over*] we can examine the other ones.
 (32) a. **All this information up at the same time* could be difficult.
 b. **This place out* would solve the problem.
 c. **These plans over* could be helpful.

The problem, in essence, is that 'up', for example, is not predicated of 'information' in any obvious way in *I looked the information up*. An SC analysis, according to which there is a subject-predicate relationship between the DP and the P, is therefore semantically questionable. There are even cases where the predicative capacity of the P of a V-P lexeme can depend on the nature of the referent of the DP, as noted by Bolinger (1971). In the case of *brush the lint off*, for example, *the lint off* is a potential SC (*With the lint off (due to my brushing), I can now wear this coat*), whereas with *brush the coat off*, *the coat off* is not a potential SC (**With this coat off (due to my brushing), I don't have to worry about lint when I wear it*). Thus, even given the SC analysis of examples such as *turn the lights off*, some other analysis still appears to be needed, at least for many V-DP-P cases.

A much bigger problem stems from the fact that SCs, including DP+P(P) phrases, quite clearly do occur as complements of verbs such as *imagine* and *picture*,²³ as illustrated by the following examples.

²³ More generally, SCs of the kind in question are possible as objects of certain verbs of cognition, such as *imagine*, *picture*, *notice*, etc., and certain prepositions embedded under verbs of cognition (*think about him in a kimono*).

- (33) a. I want you to try to imagine {these criminals behind bars/all the lights on at the same time/his computer off}.
- b. I can't picture {him in a kimono/all these lights on/the Yankees behind}.

There is solid evidence that the strings in question are SCs, since they have various classic properties of phrasal constituents, including the ability to be pseudoclefted (34a) and to 'undergo' *tough*-movement (34b), topicalization/left-dislocation (34c), and passivization (34d).

- (34) a. What I want you to try to imagine is {these criminals behind bars/all the lights on at the same time/his computer off}.
- b. {Him in a kimono/all the computers off} is difficult to imagine.
- c. {Him in a kimono/all the computers off}, I can hardly imagine (that).
- d. {Him in a kimono/all the computers off} could only be imagined by someone like you.

By contrast, the following examples show that the DP-P string of the V-DP-P construction has no such constituent properties, whether this string can be an SC in other contexts or not (*turn X on* vs. *look X up*) and independently of degree of idiomaticity (idiomatic *look X up* vs. literal *lead X out*, for example).

- (35) a. *What I want you to try to turn is *these lights on*.
- b. **All the lights on* is difficult to turn.
- c. **All the computers on*, I can hardly turn (that).
- d. **All the computers on* could only be turned by someone like you.
- (36) a. *What I want you to try to look is *this information up*.
- b. **All that information up* will be difficult to look.
- c. **All that information up*, I can hardly look (that).
- d. **This information up* could only be looked by someone like you.
- (37) a. *What I want you to lead is *these children out*.
- b. **All these children out* will be difficult to lead.
- c. **All these children out*, I can hardly lead (that).
- d. **These children out* could only be led by someone like you.

Under the analysis proposed here, the systematic differential behavior of the *imagine* construction and the *turn on/lead out* construction follows from the assumption that the complement of *imagine* is an SC, whereas the DP and P of *turn the lights on* and *lead the children out* are separate complements of the V that do not form a constituent of any kind, as shown in Figure 3. Although one could obviously maintain the SC analysis of the V-DP-P construction by claiming that it has some covert property that prevents it from behaving like a constituent, under the multiple-complement analysis no otherwise unmotivated covert property needs to be posited.

These children out in 37, for example, simply behaves like any string of multiple complements, as illustrated by the following examples.

- (38) a. I explained [to Jill] [that it won't work].
 b. *What I explained was *to Jill that it won't work*.
 c. **To Jill that it won't work* will be difficult to explain.
 d. **To Jill that it won't work* can't be explained by anyone.

3.2. ADVERBIAL PHRASES AND SMALL CLAUSES. As illustrated by the following examples, true SCs can be separated from their governing V by an adverbial phrase, whereas such phrases cannot intervene between the V and the DP in the V-DP-P construction.

- (39) a. Try to picture in your mind's eye the mayor in a kimono.
 b. I want you to imagine right now all these computers off.
 (40) a. *Try to figure in your mind's eye the problem out.
 b. *I want you to take right now the newspaper in.
 c. *I'm going to look in a minute all these words up.

There is a constraint to the effect that a complement of category DP, i.e., a direct object, must be adjacent to the V of which it is a complement (see section 4.2 for further discussion). If *all these computers off* in 39b is a small clause, which is presumably not a DP, there is no reason an adverbial phrase shouldn't be allowed to intervene between it and the V of which it is a complement, just as an adverbial phrase can intervene between a V and a PP or CP complement:

- (41) a. Chris said in a loud voice that he was angry.
 b. I want you to go right now to the store.

If *all these words up* in 40c, for example, is not an SC and *all these words* is a DP complement of the V, it follows that an adverbial phrase can no more appear right-adjacent to the V than it can in the case of **I'm going to read right now this book*.

A related fact about SCs is that they can be independently modified by a temporal adverbial phrase, as illustrated by 42.

- (42) a. I want you to picture this computer off for a few minutes.
 b. Try to imagine the mayor in a kimono right now.
 (43) a. I want you to take the newspaper in right now.
 b. I'm going to look some words up for a few minutes.

Whereas the examples in 43 are unambiguous, with *right now* and *for a few minutes* modifying the whole VP, the examples in 42 are ambiguous. *Right now* and *for a few minutes* can be interpreted as modifying either the SC or the VP. The possibility of adjoining a temporal

modifier to an SC is illustrated by the examples in 44. 45 shows that it is possible to have two temporal modifiers within a VP containing an SC, one modifying the SC and the other the VP.

- (44) a. With these lights on all day long, we can't get any work done.
 b. With so many criminals behind bars right now, the city is pretty safe.
- (45) a. Try to imagine, right now, these lights on all day long.
 b. Try to imagine [these lights on all day long] right now.

Just as it is not possible to have two conflicting temporal adverbial modifiers of a simple transitive VP, it is not possible to construct sentences like 45b from the V-DP-P construction:

- (46) a. *I'm going to read this book all day long right now.
 b. *I'm going to take the newspaper in all day long right now.
 c. *I'm going to turn the lights on all day long right now.

The explanation is quite simple: *the lights on*, for example, is not an SC or any kind of constituent in 46c and therefore is not something that can be associated with a modifier.²⁴

3.3. *WITHOUT -ING* ADVERB CONTROL. As illustrated by the following examples, in which italicization indicates all possible relationships of construal, a present participle with no overt subject in an adverbial phrase with the preposition *without* (henceforth, a *without -ing* phrase) must generally be construed with a tautoclausal subject.

- (47) a. *Fred* took his boss to the game *without saying why*.
 b. *Without knowing why*, *I* figure [_{CP} that Shaq will still be out in the second half].
 c. *I* figure, *without knowing why*, [_{CP} that Shaq will still be out in the second half].
 d. *I* figure [_{CP} that *Shaq* will still be out *without knowing why* in the second half].

As shown by 47d, in particular, the subject of an embedded CP can 'control' this kind of adverbial phrase, whereas the subject of the main clause cannot. As predicted on the proposed analysis, with the kind of SC that can be embedded under verbs such as *imagine*, a *without -ing* phrase that is contained within the SC cannot be controlled by the subject of the 'main' verb, as shown by 48. Moreover, although it seems to be somewhat better if the SC is itself of the accusative *-ing* type (see section 3.7), it is possible for its subject to be a controller.

- (48) I can't imagine [_{SC} *Shaq* still ?(being) {out/on the bench} *without knowing why* in the second half].

²⁴ The ungrammaticality of examples like 46c cannot be attributed to a pragmatic or semantic constraint, given that a sentence with essentially the same meaning is possible if the semantic component LIGHTS BE ON is expressed as a separate syntactic constituent: *Right now I'm going to fix it so that the lights are on all the time*. The argument here for assuming different syntactic structures for SCs and DP-P strings in the V-DP-P construction applies the same kind of logic as one of the classic arguments against deriving *kill* from *cause to die* (Fodor 1970).

Now, if the DP-P string of the V-DP-P construction were an SC, the DP would be expected to behave like a subject with respect to *without -ing* control and the verb's subject should be unable to serve as a controller of what ought to be an SC-internal *without -ing* phrase. However, as the following examples show, the DP behaves like an ordinary direct object, which cannot be a controller, and the verb's subject can control the *without -ing* phrase.

- (49) a. *He* took Shaq out *without knowing why* in the second half.
 b. *He* removed Shaq *without knowing why* in the second half.

3.4. EXTRACTION AND THE V-DP-P CONSTRUCTION. Kayne (1985: 103) notes that a *wh* phrase cannot be extracted from within the DP in the V-DP-P construction. 50b illustrates the possibility of extracting a *wh* phrase functioning as a complement of the preposition *of* embedded within a DP functioning as direct object.

- (50) a. I ruined the ending of the song.
 b. [Which song]_i did you ruin the ending of e_i?
 (51) a. I messed the ending of the song up.
 b. *[Which song]_i did you mess the ending of e_i up?
 (52) a. I messed up the ending of the song.
 b. [Which song]_i did you mess up the ending of e_i?

Although it is possible to extract a *wh* phrase from a DP positioned after the P of a V-P compound, as shown by 52b, it is not possible to extract one from a DP in the V-DP-P construction, as shown by 51b. Kayne attributes the ungrammaticality of cases like 51b to the Left-Branch Condition (Ross 1967): the DP is on the left branch of the small clause that it is the subject of. *Wh* movement is said to be possible in cases like 52b because the DP has been moved out of the SC subject position and, thus, off of a left branch (see Figure 2).²⁵

The problem with this explanation is that it depends on a condition that apparently fails to capture the correct generalization. In the first place, as noted by Kuno and Takami (1993: 50), it is possible to extract a *wh* phrase from a DP in clausal subject position (a left branch), under the right conditions, as illustrated by the contrast between 53a and 53b.

- (53) a. *[Which car]_i was the hood of e_i damaged?
 b. [Of which car]_i was the hood e_i damaged?

As Kuno and Takami further note, the ungrammaticality of 53a appears to be due to a more general constraint that is not sensitive to whether the extracted phrase is contained in a subject,

²⁵ Alternatively, if V-P compounds were analyzed as compounds with an ordinary DP complement, extraction of the DP would not constitute a violation of the Left-Branch Condition. If, however, the complex V is analyzed as being formed by incorporating the P from within an underlying SC, it is less clear how the grammaticality of 51b might be squared with the Left-Branch Condition.

since *wh* movement can also not leave stranded Ps in cases such as the following, where the Left-Branch Condition would have no effect.²⁶

- (54) a. * [Which of these guys]_i did you explain to e_i why we couldn't do it?
 b. [To which of these guys]_i did you explain e_i why we couldn't do it?

Now, as long as the P is pied-piped, a *wh* phrase can be extracted from the DP of either the V-P-DP construction or the V-DP-P construction, as shown by the following examples.

- (55) a. [Of which song]_i did you mess up the ending e_i?
 b. [Of which song]_i did you mess the ending e_i up?

The Left-Branch Condition, in conjunction with the SC analysis of the V-DP-P construction, would incorrectly rule out 55b.²⁷ Since there is no reason to believe that the Left-Branch Condition provides a viable explanation for the conditions on P-stranding in *wh*-movement constructions, the ungrammaticality of 51b provides no support for an SC analysis of the V-DP-P construction.

3.5. GAPPING AND THE V-DP-P CONSTRUCTION. Den Dikken (1995: 42-43) presents an argument for the SC analysis of the V-DP-P construction that goes as follows. There is a constraint on gapping in English, illustrated by the examples in 56, with the effect of limiting gapping of verbs in clauses with too many constituents.

- (56) a. John eats spaghetti, and [[Mary] [_v e] [chop suey]].
 b. John eats with chop sticks, and [[Mary] [_v e] [with a fork]].
 c. *John eats spaghetti with chop sticks, and [[Mary] [_v e] [chop suey] [with a fork]].

Following Hudson (1982), Den Dikken suggests that no more than two constituents (for example, subject and direct object or direct object and PP adjunct) can be included in the clause with the gapped predicate. He then reasons on the basis of the following example that the DP-P string in the V-DP-P construction must be a unitary constituent, since there would be three constituents in the gapped clause if the P were an independent constituent.

- (57) Turn the oxygen off with your knee, and [[_v e] [the acetylene] [on] [with your elbow]].

²⁶ The more general constraint that Kuno and Takami endorse is Kuno's (1973) Clause-Nonfinal Incomplete Constituent Constraint, which does account for the cases discussed here.

²⁷ One might try to salvage the Left-Branch Condition account by claiming that examples such as 55 (and other cases of P pied-piping, such as 53b) don't involve *wh* movement. The problem is that this kind of *wh* construction otherwise has the properties of *wh* movement constructions. For example, the trace of an extracted *wh* phrase cannot be contained in a relative clause (cf. the Complex NP Condition of Ross 1967). The fact that this condition holds for fronted *wh* phrases with a pied-piped P (e.g. **Of which song is that the guy who messed up the ending?*) argues for a *wh* movement analysis.

The problem with this reasoning is that 57, if it involves gapping at all, is a different kind of case, by virtue of the fact that there is no subject in the second conjunct. Under these conditions, there is no limit on the number of constituents, as shown by the following examples.

- (58) a. Eat the spaghetti with chop sticks right now and [_V e] [the chop suey] [with a fork] [a little later]].
 b. I want you to turn the oxygen off with your knee right now and [_V e] [the acetylene] [on] [with your elbow] [right after that]].

Clearly, the grammaticality of 57 does not provide evidence for an SC analysis of the V-DP-P construction.²⁸

3.6. WORD-ORDER RESTRICTIONS. The word-order idiosyncrasies of V-P constructions have been detailed in much previous work, which I draw on freely here (e.g. Chomsky 1957, Bolinger 1971, Fraser 1976, Dixon 1982, Kayne 1985). Some of the key restrictions are as follows. First, although the P can ordinarily appear on either side of a direct object DP, it cannot appear to the right of a PP complement, whether the latter accompanies a DP complement, as with 59, or is the sole additional complement, as with 60.

- (59) a. We sent {out the packages to the customers/the packages out to the customers}.
 b. *We sent the packages to the customers out.
 (60) a. They were sucking up to the teacher.
 b. *They were sucking to the teacher up.

Second, although an adjunct phrase can precede (or follow) an ordinary PP complement, as shown by 61a and 62a, it cannot precede a P, whether in the V-DP-P construction or an intransitive V-P construction, as shown by 61c and 62c.

- (61) a. You need to send a letter now to the president.
 b. You need to send a letter out now.
 c. *You need to send a letter now out.
 (62) a. They returned after the intermission to their seats.
 b. They sat (right) down after the intermission.

²⁸ There is a stricter limit on what can be included in a gapped conjunct that contains a subject (e.g. *Tom gave these children candy and* [(**Mary*) [_V e] [*those children*] [*cake*]]). It might, therefore, be more successful to try to build an argument for the SC analysis around a constraint formulated for this kind of gapping, given the relative well-formedness of *?Tom turned the front lights on and* [*Mary* [_V e] *the back lights off*]. There are two problems, however. First, it is unclear whether the number of syntactic constituents in the gapped conjunct is what really matters, since there can be three constituents under certain conditions (*Tom studies on the train in the morning and* [*Mary* [_V e] [*at home*] [*in the evening*]]). Second, gapping of this kind often fails with DP-P strings (*Fred* {*sent/led*} *the children out and* [(**Barney*) [_V e] *the adults in*]).

- c. *They sat after the intermission (right) down.

Third, although a V-P lexeme can have a CP complement, the P cannot follow the CP:

- (63) a. We finally figured out that something was wrong.
 b. They never found out that he was lying.
 (64) a. *We finally figured that something was wrong out.
 b. *They never found that he was lying out.

Fourth, phrasal nominalizations of V-P constructions only allow the P to precede the complement:

- (65) a. They turned {off the lights/the lights off}.
 b. We complained about their constant turning {off of the lights/*of the lights off}.
 (66) a. We shouldn't throw {away newspapers/ newspapers away}.
 b. We need to put an end to the throwing {away of newspapers/*of newspapers away}.

Fifth, the DP, when pronominal and unstressed, must precede the P:

- (67) a. She turned {the lights off/off the lights}.
 b. She turned {them off/*off them}.

One apparent virtue of the SC analysis of the V-DP-P construction is that at least some of these word-order restrictions might be said to follow from the analysis, in conjunction with independently needed constraints. For example, if the DP in the V-DP-P construction is the subject of an SC headed by the P, one might say that it must precede the P (if the P does not incorporate into the V) either because the SC needs a subject or because the DP needs to be in initial position in order to be case-marked or case-checked by the governing verb.²⁹ Furthermore, one could say that neither a PP complement nor an adverbial adjunct can precede the P in the V-DP-P construction, since these would be external to the SC and would therefore have to follow it, given that the SC must come first in the complement string (for case reasons, or whatever). Similarly, one could say that a CP cannot precede the P of a V-P construction either because such phrases cannot be in a case-marked/checked position (perhaps due to the case-resistance principle of Stowell 1981) or because a CP cannot be the (surface) subject of an SC, for whatever reason, as evidenced by the following contrasts between DPs and CPs in true SCs.

- (68) a. With {[_{SC} [_{DP} the runner on first] out]/*[_{SC} [_{CP} that something was wrong] out]},
 we could worry about other things.

²⁹ However, the fact that SCs can occur in subject position, as in the examples in 29, seems to argue against a case-theoretic account, since the accusative case that might force adjacency to the verb is unavailable to the necessarily initial DP in a subject SC.

- b. I can't imagine {[_{SC} [_{DP} the postal strike] bothering the president]/*[_{SC} [_{CP} that the postal workers are on strike] bothering the president]}.
- c. I can't imagine {[_{SC} [_{DP} the postal strike] on the minds of lots of people]/*[_{SC} [_{CP} that the postal workers are on strike] on the minds of lots of people]}.

SC analyses of V-P constructions are designed, in part, to account for word-order restrictions without appealing directly to linear-order principles. It is important to recognize, however, that there remain certain facts about English grammar for which there seem to be no good surrogates for linear-order principles. Consider, for example, the fact that CPs must come rightmost in a string of complements, as illustrated by the following examples.

- (69) a. We explained [_{PP} to the students] [_{CP} that hard work pays off].
- b. *We explained [_{CP} that hard work pays off] [_{PP} to the students].

The ungrammaticality of 69b might be attributed to case theory, under the assumption that right-adjacency to a verb is necessary for and entails accusative case-marking/checking and CPs cannot have a case feature. This explanation fails, however, to extend to the following examples:

- (70) a. his promise [_{PP} to the children] [_{CP} that he would be there]
- b. *his promise [_{CP} that he would be there] [_{PP} to the children]
- (71) a. She was told [_{PP} about him] [_{CP} that he was kind].
- b. *She was told [_{CP} that he was kind] [_{PP} about him].
- (72) a. It seemed [_{PP} to everyone in the audience] [_{CP} that there was a problem].
- b. *It seemed [_{CP} that there was a problem] [_{PP} to everyone in the audience].

70 shows that a CP must be rightmost in a string of complements of a noun; 71 that a CP must be rightmost in a string of complements of a passive verb; and 72 that a CP must be rightmost in a string of complements of a raising verb. This constraint cannot be attributed to principles of case theory, since there is, under standard assumptions, no accusative case-marking/checking between nouns, passive verbs, or raising verbs and their complements. Similarly, the constraint can hardly be attributed to a principle prohibiting a CP from being the subject of the SCs *to the children* and *about him*, for example, since there is no independent motivation for analyzing *to the children* and *about him* as predicates of an SC.³⁰ It appears that the correct generalization is simply that a CP must, ordinarily, be the rightmost in a series of complements. It follows that a P expressed as a complement, such as *out* in *find out that he was lying*, necessarily precedes a CP complement.

³⁰ Clearly *about-DP* complements, for example, do not require a 'subject' (*I was dreaming about work*). Moreover, they can be preceded by a PP that cannot be interpreted as their subject (*I spoke with him about her*), especially since true SCs cannot have PP subjects (**imagine with him about her*, *think about (*with) him standing there*). Similarly, although true SCs never have an A or AP as their subject (**imagine crazy to me*), a *to-DP* complement can be preceded by an A complement (*That seems crazy to me*).

The SC approach to V-P constructions also fails to shed any light on the fact that the P of an intransitive V-P complex, such as *sit down*, must precede a PP or adverbial co-constituent of the same VP, as illustrated by 62. Even if the bare P *down* could be analyzed as an SC with no overt subject, it is unclear how its being an SC would preclude a preceding adverbial (e.g. **sit {after the intermission down/*now down}*). What is apparently needed, whether or not the SC approach is adopted, is a constraint with the effect of ensuring that intransitive Ps are positioned leftward of PP and adverbial constituents.

Given the apparent need for linear-order principles of some kind, with or without elaborate embedding analyses of VPs, a question arises as to whether the latter are needed at all. In section 4, I show in more detail how the word-order restrictions on V-P constructions are straightforwardly accounted for by a set of constraints which are needed in some form on any analysis and which obviate the need for a small-clause analysis of their complement structures.

3.7. SMALL CLAUSES FROM A BROADER PERSPECTIVE. The characteristic properties of SCs identified above are as follows.

- They pass standard tests of constituency (pseudoclefting, passivization, *tough* movement, etc.).
- They allow an adverbial phrase to intervene between them and their governing verb.
- They can contain a temporal adverbial phrase that modifies them rather than the VP containing them.
- They can occur as the complement of certain Vs, such as *imagine*, as well as certain prepositions, such as *with*, and as a clausal subject.

Based on these criteria, SCs built on prepositional predicates are not the only kind. It is necessary to also recognize SC status for at least the so-called accusative *-ing* construction and certain kinds of adjective-based phrases, whose distribution and properties largely parallel those of prepositional SCs. as illustrated by the following examples.³¹

(73) a. It's difficult to imagine *{the boss drunk/the boss drinking whisky}*.

³¹ In categorizing the accusative *-ing* construction as an SC, the tacit assumption is that SCs are definable as phrases with a predicate and a subject but with no tense or agreement morphology of any kind (including infinitival *to*). It is interesting that *being* seems to generally be able to be inserted into true adjectival and prepositional SCs to yield a paraphrase (e.g. *I can't imagine {the boss always being drunk/the lights being on all the time}*). This suggests that these might have a structure with a null copula or a deleted instance of *being* as their head. As pointed out in Farrell In press, where the internal structure and distribution of prepositional SCs is considered at length, the problem with such an analysis is that adjectival and prepositional SCs do not have all the same properties as the accusative *-ing* construction. Unlike the latter, prepositional and adjectival SCs cannot have a PRO subject (*The lights can't illuminate anything without [PRO *(being) on]*). The distribution differs as well, as evidenced, for example, by the fact that only the accusative *-ing* construction can be a complement of *due to* (*My fear is due to the lights *(being) on*) or of *regret* (*I regret you *(being) on my team*).

- b. What I can't imagine is {*the boss drunk/the boss drinking whisky*}.
- c. {*The boss drunk/The boss drinking whisky*} is difficult to imagine.
- d. With {*the boss drunk/the boss drinking whisky*}, no work is going to get done.
- e. I can imagine, right now, {*the boss drunk all day long/the boss drinking whisky later today*}.
- f. I can't picture *the boss* {late for work/slurring his speech} *without being drunk*.

Resultative adjectival secondary predicates and the postverbal DP that they are construed with (e.g. *the barn white* in *The farmer painted the barn white*) are sometimes assumed to constitute an SC, in spite of the case presented against such an analysis by Carrier and Randall (1992). There is, in fact, every reason to assume that these have a multiple-complement structure syntactically, since they pattern like the DP-P string of the V-DP-P construction. They fail standard tests of constituency, as shown by the following examples, which parallel the DP-P examples in 35–37.

- (74) a. *What the farmer painted was *his own barn white*.
 b. **These barns white* will be difficult to paint.
 c. **All these barns white*, I don't want to paint (that).
 d. **These barns white* could only be painted by someone like you.

Furthermore, the resultative adjective construction neither allows an adverbial phrase to intervene between the V and the DP (75a) nor conflicting temporal adverbial phrases that modify the overall VP and the DP-Adj string independently (75b). Moreover, only the subject of the verb can control a *without -ing* phrase (75c).

- (75) a. *I'm going to paint with a brush the barn white.
 b. *I'm going to paint the barn white later today right now.
 c. I beat the guy silly *without knowing why/without ending up in the hospital*.

The resultative V-DP-Adj construction appears to have the same basic structure as the V-DP-P construction. The key difference is that only the latter typically has a compound-verb paraphrase.

The examples in 76 illustrate another kind of V-DP-predicate construction which, at least since Stowell 1981, has commonly been assumed to contain an SC. Indeed, this is often presented as the prototypical SC in syntax textbooks (e.g. Radford 1988, Haegeman and Guéron 1999, Fromkin 2000, Carnie 2002).

- (76) a. I consider *the senator incompetent*.
 b. He considers *me a true friend*.

As the following examples show, the DP-predicate string in this construction fails to display any constituent properties and cannot be immediately preceded by an adverbial phrase, suggesting again that it is not a phrase of any kind.

- (77) a. *What I consider is *the senator {incompetent/a friend}*.
 b. **That senator {incompetent/a friend}* would be hard to consider.
 c. **That senator {incompetent/a friend}* could only be considered by people like them.
 d. *I consider at times *the senator {incompetent/a friend}*.

However, one might plausibly claim that the predicate complement is actually an SC whose subject raises to the direct object position of the governing verb. A raising analysis is suggested by the fact that *consider* and certain other verbs with similar complementation possibilities (e.g. *find* and *believe* as in *I find/believe him incapable of such a thing*) are raising verbs in the sense of Postal (1974). One potential kind of support for such an analysis comes from the fact that the *consider-DP*-predicate construction differs from the resultative and DP-P constructions in that a temporal adverbial phrase within the VP headed by *consider* can modify either the predicative complement or the entire VP (78a) and, consequently, there can (at least marginally) be conflicting temporal adverbials, just as there can be with an infinitival complement of the classic raising kind (78b).

- (78) a. I consider the senator (to be) incompetent at times.
 (at times holds for the act of considering or the senator's incompetence)
 b. A friend at times is what I consider him (to be) right now.

Along similar lines, it is possible for the postverbal DP to control a *without -ing* phrase, which ordinarily needs to be subject-controlled:

- (79) a. I consider *him* (to be) incompetent *without being dangerous*.
 b. I consider *the candidate* (to be) unsuitable for this job *without, however, being totally unemployable*.

The obvious virtue of a raising analysis is that it might account both for the fact that the DP-predicate string appears to be able to support a temporal adverb and control a *without -ing* phrase (since it is an underlying subject-containing SC) and for the fact that the DP-predicate string fails to manifest any constituent properties (since a corollary of raising is that the DP and predicate are at least superficially separate complements of the verb).

Drawing on the observation that there seem to be subject-only constraints on the DP modifier *not many* (Postal 1974: Ch. 4) and emphatic reflexives (Napoli 1989: Ch. 6), Radford (1988: 325–326) argues for an SC analysis of verbs in the *consider* class based on examples such as the following.

- (80) a. *The president* is coming *himself*.
 b. We would like for *the president* to give the speech *himself*.
 c. *We put *the president* in our car *himself*.
 d. I consider *the president* (to be) entirely responsible *himself*.

- (81) a. *Not many people* can save the government from collapse.
 b. I would prefer for *not many candidates* to be on the ballot.
 c. *They put *not many candidates* on the ballot.
 d. I consider *not many people* (to be) suitable for the post.

The a-b examples show that a superficial subject can be construed with an emphatic reflexive and be modified by *not many*, whether it is in a main clause subject position or the subject position of an infinitival clause. The c examples show that prototypical direct objects do not have the same privileges. The d examples show that the DP preceding a predicative adjective phrase (or an infinitival *to* phrase) with *consider* behaves like a subject with respect to these phenomena.

It is worth noting that the fact that the DP in the *consider-DP*-predicate construction has some subject properties does not actually provide compelling evidence for a raising-from-SC analysis, since these properties might also be straightforwardly accounted for with some version of a ‘predication’ analysis (Williams 1980, 1983, Napoli 1989), according to which the DP has the ‘subject role’ of the predicate complement, without being contained in a phrase with it (at any level of analysis). The two most viable analyses seem to be the following:³²

- (82) a. I consider [the senator]_i [_{SC} t_i incompetent] RAISING FROM SC
 b. I consider [the senator] [_{AP} incompetent] PREDICATION
-

SUBJECT

In any case, it seems clear that the *not many* and emphatic reflexive phenomena provide no support for extending either of these analyses to the V-DP-P construction or the resultative adjective construction, since the postverbal DP in these systematically behaves like a nonsubject:

- (83) a. *We counted *the neighbors* in *themselves*.

³² One potential reason for preferring the predication analysis is that it might better explain the fact that the *consider-DP*-predicate construction is not a paraphrase of the true *consider-SC* construction. It turns out that *consider* has both a ‘think about’ meaning (*I want you to consider/think about [him running for president]*) and a ‘think of *X* as’ meaning (*I think of him as/consider him incompetent*). When it has the ‘think about’ meaning its complement manifests all the properties of a true SC. Thus, this *consider* is a member of the *imagine* verb class. In cases where a DP-AP string can be a true SC (e.g. *the senator drunk*) such strings are ambiguous when embedded under *consider*, although the ‘think of *X* as’ meaning is more natural (*The senator drunk (while delivering a speech) is what I want you to consider* vs. *I consider the senator drunk (because her speech is slurred)*). Since there can be two different interpretations of such DP-AP strings, which correlate with different constituency properties, it would be problematic to relate the two constructions simply by raising, which otherwise does not yield semantic differences of this kind. Another potential reason for preferring the predication analysis is that it might better account for the fact that *tough* movement, which, as noted by Berman (1973) generally doesn’t work with raisees (**Students like these are easy to {believe/consider} to be smart*), is possible with the *consider-DP*-predicate construction (*Students like these are easy to consider smart*) (see Joseph 2000).

- b. *We voted *the governor* out *himself*.
 - c. *She took *Shaq* out *himself* in the second half.
 - d. *I turned *Sue* on to pot *herself*.
 - e. *I beat *the guy* silly *himself*.
- (84) a. *We turned *not many lights* off.
- b. *We voted *not many senators* out.
 - c. *I painted *not many barns* red.

Of course, since subjecthood (at some level) is evidently not a sufficient condition for either construal with an emphatic reflexive or modification by *not many*,³³ as shown by examples 85–86, a raising-from-SC analysis of the V-DP-P construction can be said to lack motivation from these phenomena, but cannot be said to be necessarily precluded.

- (85) a. **The neighbors* died *themselves*.
- b. Try to picture *my brother* {at the helm *himself*/*in a bikini *himself*}.
 - c. *I consider *the governor* {a friend/incompetent} *himself*.
- (86) a. *I consider *not many people* tall.
- b. *Were *not many people* at the show? (see Postal 1974: 97)

Still, different analyses appear to be motivated by the contrasts between the V-DP-P construction and the *consider-DP*-predicate construction with respect to *without -ing* control and temporal adverb modification, as noted above.

Most importantly for present purposes, even if the kind of raising analysis shown in 82a were assumed for the V-DP-P construction, it is difficult to see how it might play a role in accounting for any matters of constituency, order, or even grammatical function. As with the analysis proposed here, under a raising-from-SC analysis the DP would be (superficially) a direct object and the P would be a distinct complement. There appear to be no syntactic privileges or linear-order constraints that distinguish the DP in the V-DP-P construction from direct objects in general. Positing an underlying SC in no way facilitates a V-P compound analysis. As discussed in sections 3.6 and 4.3, there is a linearization constraint that holds for Ps; but this constraint is not restricted to putative raising-from-SC contexts. It seems that a raising-from-SC analysis would be (at best) a needlessly complex notational variant of the proposed multiple-complement analysis.

Beyond the empirical obstacles presented by the adverb phenomena discussed above, there may also be theory-internal obstacles to a raising-from-SC analysis. In particular, in a theory that associates raising with the internal case features of the phrase from which raising occurs, the raising-from-SC analysis leads to a set of apparently incompatible assumptions. It

³³ Subjecthood appears not to even be a necessary condition, as noted by Postal, as topicalization of a direct object facilitates modification by *not many* (e.g. *Not many people would I hire for this sensitive job*).

would have to be assumed that the subject of the putative *turn X off* SC construction raises to the direct object position because case is not available internal to the SC for its subject. However, because of all the differences between the *imagine*-SC construction and the V-DP-P construction, it would have to be assumed that the subject of the former type of SC does not raise and, therefore, does have a case available internal to the SC. In other words, even though the italicized Ps in the following pairs of sentences would apparently have the same meaning and the same argument structure, their case-assigning/case-checking capacity would have to be assumed to be different.

- (87) a. Try to get the runner on second *out*.
- b. Try to picture the runner on second *out*.
- (88) a. Turn/leave all these computers *off*.
- b. Imagine all these computers *off*.

Of course, one might posit a covert difference (e.g. different null functional head features keyed in some way to the verb). However, a principled explanation does not follow from a raising analysis, as it does on the proposed analysis, which claims that only the b-sentences have SCs, at any level of analysis.

4. THE ANALYSIS IN DETAIL.

4.1. THE COMPOUND/DISCONTINUOUS-V ALTERNATION. Thus far, I have shown that there are good reasons for analyzing the DP-P string of the V-DP-P construction (as with *turn the lights on*) as a string of separate complements, rather than an SC, and that there are also good reasons for analyzing the V-P complex of the V-P-DP construction as a compound V. Under this approach what makes V-P constructions special essentially boils down to one fact: unlike with most P-V compounds, for example, V-P compounds generally have a corresponding paraphrase with the P expressed as a complement. As noted in section 2.1, the P on the right of a compound often expresses what is transparently an argument of the head V (*off* in *turn the lights off*, for example, is a goal/result argument analogous to *into a frog* in *turn the prince into a frog*). Presumably, the specific semantics of the P together with its being on the right, which involves both a deviation from the ordinary head-right structure of compounds and a correlation with complement placement, conspire to at least partially motivate expression of the P as a complement.

It would, of course, be possible to characterize V-P lexemes as compound Vs which can undergo a transformation. The lexical compound could be taken to be the basic form and the P could be said to excorporate (see Johnson 1991). If Chomsky (1957) and Fraser (1976) had explicitly taken the stance that the V and P formed a compound word underlyingly, their analyses would have also involved an excorporation transformation. An issue that arises for any such analysis is that individual lexemes apparently have to be able to be marked in some way so

as to indicate P (un)excorporability in order to account for V-P compounds that do not allow P excorporation (e.g. *give off* ‘emit,’ and *take up* ‘start’). Moreover, in order to account for necessarily discontinuous V-P lexemes (e.g. *boss about*, *count in*, *count on*, and *tell on*), such an approach would either require an additional lexical device to specify the precise syntactic realization of the P for such lexemes or would have to allow for the possibility of underlying compound Vs from which the P component is specified to necessarily excorporate in different ways (i.e. to the head position of a PP with a complement, as in the case of *tell on someone*, or to a position following the direct object, as in the case of *boss someone about*). In any case, it should be clear that some kind of lexical device for specifying the syntactic realization of the morphemes and arguments of V-P lexemes is required on any analysis. It should also be clear that the availability of such a lexical device obviates the need for a syntactic transformation.

With this in mind, I assume that the P of a V-P complex may be specified at the level of ARGUMENT STRUCTURE (AS) for overt syntactic realization and that the alternation between a transitive V-P compound and the V-DP-P construction amounts, in essence, to a routine kind of argument-structure alternation.³⁴ Verbs often appear in alternative constructions with different syntactic realizations of their arguments. *Open*, *break*, and *change*, for example, alternate between transitive and intransitive constructions, correlative with causative and inchoative semantics. Many other verbs appear in alternative constructions resulting from what must be characterized as argument-structure changes without discernible semantic correlates. For example, verbs such as *seem*, *mail*, and *remove*, may either have one of their complements expressed or not:

- (89) a. That seems strange (to me).
 b. I mailed the letter (to the mayor).
 c. I removed the lid (from the box).

A natural way of accounting for this kind of alternation is to say that *remove*, for example, has a single meaning, or LEXICAL-CONCEPTUAL STRUCTURE (LCS), but two possible argument structures:³⁵

³⁴ The choice here to consider compound V-Ps and their discontinuous V paraphrases as distinct constructions unrelated by a syntactic rule of particle-movement follows, in essence, Gries 1999. Gries, however, does not make explicit the precise constituent structure differences between the two constructions and apparently does not consider the V-P-DP construction to include a V-P compound.

³⁵ Here and throughout, proposed LCSs for verbs are formulated simply as English statements enhanced with variable arguments identified by letters, roughly following the design of the natural semantic metalanguage framework (Wierzbicka 1996, Goddard and Wierzbicka 2002). As nothing in the analysis here hinges on how precisely word meanings are characterized, the reader is invited to substitute a preferred formalism. As indicated schematically in 90, AS representations for verbs can be read as specifying the content of the head and its subject and complements (= arguments), which appear in an ordered list within angled brackets following the content of the head. The first argument in the list is to be expressed syntactically as the subject and all others as complements.

- (90) a. LCS of *remove*:
 x does something to *y*
 because of this *y* goes from someplace (*z*) to some other place
- b. AS¹: *remove* <*x*, *y*, [*z*]>
 AS = HEAD (SUBJECT, OBJECT, [OBLIQUE COMPLEMENT])
 I removed the lid from the box.
- c. AS²: *remove* <*x*, *y*>
 I removed the lid.

Given this general approach to the relationship between syntactic constructions and lexemes and their meanings, the lexical entries for a V-P lexeme whose P must appear with its own complement in a PP, such as *tell on*, and a P-V compound, whose P morpheme cannot be expressed as a complement, such as *uproot*, might be characterized as follows.

- (91) a. LCS of *tell on*:
 someone (*x*) says something to someone (*y*) about someone (*z*) doing something bad
- b. AS¹: *tell* <*x*, *y*, [on *z*]>
 I told the teacher on Chris.
- c. AS²: *tell* <*x*, [on *z*]>
 I told on Chris.
- (92) a. LCS of *uproot*:³⁶
 x does something to *y*
 because of this the ROOTS of *y* go out from someplace (*z*)
- b. AS¹: *uproot* <*x*, *y*>
 They uprooted the olive trees.

Square brackets indicate oblique, or ‘indirect’ complements, which may or may not include a specific P and/or a variable to be expressed with a P. In the case of *remove*, for example, I assume that *from* does not need to be specified as the preposition occurring with the oblique argument, since this is the default preposition for source arguments. Co-variance within LCSs and between LCSs and corresponding ASs is indicated by letter identity (i.e., all instances of ‘*x*’ in a given LCS-AS pair are to be interpreted as co-varying). Naturally, the general proposal here does not hinge on the theoretical device of argument structure representation. Some other mechanism for specifying the relationship between lexemes, meanings, and syntactic constructions could be employed; what is crucial for the present analysis is that for a given lexeme-meaning pair there can be multiple syntactic constructions and one possibility for the syntactic constructions associated with a lexeme-meaning pair can be a head-external realization of one of the morphemes.

³⁶ LCS words in small capitals, here and elsewhere, are meant to indicate non-primitive semantic concepts. In order to fully understand the meaning of *uproot*, it is, of course, necessary to have the complex meaning of the noun *root*, which if spelled out in this context would detract from the readability of the LCS.

- c. AS²: uproot $\langle x, y [z] \rangle$
 The war uprooted the soldiers from their homes.

Now, the difference between V-P compounds and the corresponding V-DP-P construction can be characterized in terms of a difference in whether the P is specified in argument structure for projection as a complement. Thus, although V-P lexemes such as *turn on* typically have a single LCS, they have the kind of alternative ASs illustrated by 93, where 93b is analogous to what occurs with P-V compounds, as illustrated by 92, and 93c is analogous to what occurs with such discontinuous lexemes as *tell on*, *count on*, and *boss about*, as illustrated by 91.

- (93) a. LCS of *turn on*:
 x does something to *y*
 because of this *y* goes from OFF to ON
 b. AS¹: turn on $\langle x, y \rangle$
 I turned on the lights.
 c. AS²: turn $\langle x, y, [on] \rangle$
 I turned the lights on.

The full correspondence between lexical entries and constituent structures is illustrated for transitive *mess up* in Figure 4.³⁷

With V-P complexes, such as *take in*, although the P can simply be one of various potential complements expressing a variable aspect of the LCS of the verb, as shown in 94a, there must also be a lexical compound *take in*, with an LCS and argument structure like that shown in 94b.

- (94) a. LCS of *take*:
 x does something to *y*
 because of this *y* goes with *x* to someplace (*z*)
 AS: *take* (*x*, *y*, [*z*])
 I took the newspaper {to work/into the house/in}.

³⁷ There are numerous details of analysis that I take relatively arbitrary stands on here, since they are intricately bound up with rather tangential but potentially controversial questions of execution that different syntactic theories would address in alternative ways. To begin with, I restrict attention here to the internal structure of the phrase consisting of the V and its complements, thus abstracting away from the question of the VP-internal subject hypothesis. I also assume without argument that an intransitive P (for example, *in* in *I brought the newspaper in*) is simply a P that fails to project the structure required for inclusion of a complement. Since it is in a complement position and projects maximally for a word with no subject or complement, it is a maximal projection. I further assume that multiple complements are sisters within the VP (as, for example, in Jackendoff 1977, Chomsky 1986, Pollard and Sag 1994, Hawkins 1994). The proposed analysis is not in principle incompatible with a binary-branching constraint on phrase structure; but, neither does it depend on one or suggest the need for one.

- b. LCS of *take in*:
 x does something to y
 because of this y goes in with x
 AS: *take in* (x, y)
 I took in the newspaper.

Figure 4. Transitive V-P constructions

4.2. BASIC LINEAR-ORDER CONSTRAINTS AND THEIR MOTIVATION. One of the things that makes it difficult to specify the word order of English VPs is that adverbial phrases, for example, are able to appear in various locations. Similarly, although the direct object generally must appear right-adjacent to the verb, under the right conditions, such as when it contains a relative clause, it appears at the right periphery of the VP, as illustrated by the following examples.

- (95) a. I put {those books in storage/*in storage those books}.
- b. I put in storage those books that you've been asking me to get rid of.

It is pretty clear that the variability is not completely arbitrary. The general tendency is for “lighter” constituents to precede “heavier” ones. Hawkins' (1994) Early Immediate Constituent principle (EIC) (or the similar Principle of End Weight of Wasow 2002) provides a plausible explanation. The basic idea is that the word-order constraints and tendencies of languages work to optimize for the human parser early identification of the immediate constituents of a phrase, by having lighter constituents placed leftward of heavier ones.³⁸ It is not enough, however, to

³⁸ In order to facilitate rapid identification of the immediate constituents (ICs) of a VP, for example, it is best if a light phrase or a single-word constituent is positioned before a heavier phrase. Upon encountering the D of a DP in a postverbal position, it is possible to infer that there is a DP IC of the VP. If a heavy DP precedes other ICs, it is

simply say that lighter constituents must precede heavier ones, since there are various situations in which other pressures exert themselves. For example, regardless of its internal complexity the first object (O1) in the double object construction (i.e., the DP expressing the recipient argument of *give*, for example) must precede the second object, or any other constituent:

- (96) a. I gave [_{DP} the guy that you were telling me about] [_{DP} this book].
 b. *I gave [_{DP} this book] [_{DP} the guy that you were telling me about].

It appears to be necessary to posit fairly specific constraints, which may have competing motivations. The constraint on O1s is possibly an English-specific instantiation of Tomlin's (1986) more general Animated-First principle, given that an O1, which is usually a recipient, addressee, or experiencer, is typically animate and an O2 is not.

Examples 95–96 show that there are three partially competing linear-order constraints: one requiring a direct object to be placed leftward of other constituents of the VP (DO-Left), another requiring an O1 to be placed leftward of other constituents (O1-Left), and another requiring a heavy complement to be placed rightward of other constituents (Heavy-Right). The situation can be described straightforwardly using the basic mechanisms of Optimality Theory (Prince and Smolensky 1993, McCarthy and Prince 1993), according to which all constraints are violable but ranked with respect to each other in terms of relative violability. If we say that the ranking of these three constraints is O1-Left » Heavy-Right » DO-Left, such that a violation of O1-Left, for example, is worse than a violation of Heavy-Right, the ungrammaticality of 96b can be attributed to the fact that although Heavy-Right is obeyed, O1-Left is not.

These and the other main linear-order constraints relevant to VPs in English can be formulated precisely as follows.³⁹

Head-Left

The head is leftmost in its projections.

CP-Right

A CP complement is rightmost in the minimal maximal projection containing it.

necessary to parse all the pieces of that DP before it is possible to identify the other ICs of the VP. If, on the other hand, the heavy DP comes after the lighter constituents, all the ICs can be identified more quickly, since IC identification can occur without fully parsing the final heavy DP.

³⁹ One could, of course, alternatively use classic phrase-structure rules or linear-precedence statements of the kind used in generalized phrase structure grammar (Gazdar et al. 1985) or relational grammar (e.g. Blake 1990: 21), provided that appropriate mechanisms are included to do the work of constraint ranking in an optimality-theoretic analysis. For example, a Heavy DP Shift transformation from which O1s are somehow excluded could be used in place of Heavy-Right and O1-Left » Heavy-Right.

Heavy-Right

A complement with a sufficiently complex internal structure is rightmost in the minimal maximal projection containing it.

DO-Left

A DP functioning as direct object is leftmost in the minimal maximal projection containing it.

O1-Left

The thematically more prominent of two direct internal arguments (O1) is leftmost in the minimal maximal projection containing it.

P-Left

A complement P with no arguments expressed within a phrase it projects is leftmost in the minimal maximal projection containing it.

Head-Left is, of course, what accounts for English being a head-first, right-branching language (e.g. Grimshaw 1997). P-Left and CP-Right are discussed in section 3.6. All three of these constraints are clearly EIC-motivated. Since DO-Left, like all *X-Left* constraints, is ranked lower than V-Left, it amounts, in essence, to the strict adjacency principle on case assignment (Chomsky 1981, Stowell 1981), formulated without explicit reference to case assignment. This constraint might be seen as an instantiation of a broader VO bonding principle (Tomlin 1986), which explains a larger array of cross-linguistic tendencies, including not only the tendency for direct objects to be adjacent to verbs, but also the tendency for N incorporation to primarily affect direct objects (Mithun 1984, Baker 1988) and the tendency for idioms to consist of verbs and their direct object. DO-Left may additionally or alternatively be motivated by the EIC (see Hawkins 1994: 336–338).

How the word-order choice illustrated by 95a follows from this set of ranked constraints is illustrated in Figure 5, which shows that the grammatical (or ‘optimal’) structure is the one involving the least severe set of constraint violations, where a violation of a higher-ranked constraint is more severe than any violations of lower-ranked constraints and $n+1$ violations of a given constraint is more severe than n violations.

Figure 5. Word-order evaluation and DO-Left

Most of the word-order facts pertaining to V-P constructions are explicable in terms of these constraints, given the ranking shown in Figure 5. For example, a direct object will necessarily precede a P expressed as a complement, since violations of DO-Left are more severe than violations of P-Left. Thus, *mess the song up* is sanctioned, as shown in Figure 6, and *mess up the song* is only possible if *mess up* is a compound V, which would have no constituent intervening between it and the direct object.

Figure 6. Word-order evaluation for transitive discontinuous V-P

However, because Heavy-Right outranks DO-Left, a P complement can be closer to the V, just in case the DO is sufficiently heavy.⁴⁰ As the following examples show, a P complement necessarily precedes a direct object with an embedded relative clause, even in the case of *about* of the necessarily discontinuous lexeme *boss about*.

- (97) a. I looked up the meaning of the word that you were asking me about.
 b. *I looked the meaning of the word that you were asking me about up.
- (98) a. He was always bossing about the people that mattered most to him.
 b. *He was always bossing the people that mattered most to him about.

Although 97a has more violations of DO-Left than 97b, 97a wins out because it doesn't violate Heavy-Right. Along similar lines, the P complement of a V-P lexeme such as *figure out* or *find out* (assuming that these are not necessarily compounds) cannot follow the CP complement, due to CP-right (*find out that it rained* vs. **find that it rained out*).

P-Left comes into play in phrases with an intransitive P complement and some other constituent besides a direct object or a CP. For example, if the P of *suck up* is expressed as a

⁴⁰ Of course, the question of how precisely to define the degree of heaviness necessary for Heavy-Right to be applicable is a difficult one. A more sophisticated evaluation procedure would need to include a mechanism to account for relative grammaticality, given that the degree of grammaticality of a VP-final intransitive P decreases as a function of the relative length and complexity of the DP (*I looked the meaning of this word up* vs. ?*I looked the meanings of all of these words up*).

Figure 7. Word-order evaluation for intransitive discontinuous V-P with PP complement

P-Left also accounts for the fact that the P of a V-P complex, whether transitive or intransitive, cannot have a preceding VP-modifying adverbial phrase (*mess (the song) up this time* vs. **mess (the song) this time up*). Under the assumption that the same linear-order principles apply internal to NPs, the fact that nominalized V-P complexes can never have the P following a complement (**the throwing of newspapers away* vs. *the throwing away of newspapers*) is attributable to P-Left and the fact that nouns have neither direct objects nor O1s, which are the only kinds of constituent that have an X-Left constraint that outranks P-Left.

4.3. MORE ON P-LEFT. Since P-Left is the main novel aspect of the analysis of linear order proposed here, it is worth considering more closely the rationale and motivation for this constraint. One obvious alternative would be to posit a generalized Heavy-Right constraint that would be inapplicable to intransitive Ps, which are too light. The problem is that the linear-order preferences among constituents not covered by the schema outlined above cannot be reduced to a matter of relative heaviness, since PP complements and adjuncts can generally appear in different places, independently of their relative weight, as illustrated by the following examples.

- (99) a. I want you to move {[now]/[quickly]} [to the end of the line].
 b. I want you to move [to the end of the line] {[now]/[quickly]}.

The P of V-P complexes, on the other hand, resists rightward placement even with respect to one-word adjuncts:

- (100) a. I hope you don't mess (the song) up {[now]/[badly]}.
 b. *I hope you don't mess (the song) {[now]/[badly]} up.

If this leftward preference for intransitive Ps were just a matter of V-P lexemes, it would be preferable to state the constraint in terms of lexemes or to claim that the linear order of lexemes is fixed independently of syntactic constraints. Positing a more general constraint is justified by the fact that the leftward preference is manifested with ordinary Ps in complement position, if their complement is not expressed within the phrase projected by them. Even though an adjunct,

for example, can precede a *to*-headed goal PP, it is markedly worse, if not impossible, to place such an adjunct before a *to* whose complement is a sentence-initial question phrase, as shown by the following examples.⁴¹

- (101) a. He's going to take you guys {[now]/[this afternoon]} [to the downtown mall].
 b. Which mall is he going to take you guys [to] {[now]/[this afternoon]}?
 c. *Which mall is he going to take you guys {[now]/[this afternoon]} [to]?

Similarly, a P with no expressed complement that is not part of a V-P lexeme is also subject to the same constraint, whether it is a complement of a transitive verb or not.⁴²

- (102) a. Can you drive the car {[now]/[this afternoon]} [up to my house]?
 b. Can you drive the car [up] {[now]/[this afternoon]}?
 c. *Can you drive the car {[now]/[this afternoon]} [up]?
 (103) a. I'm going to go {[to the store]/[in]} [now].
 b. I'm going to go [now] {[to the store]/*[in]}.

It should be noted that violations of P-Left with respect to adjunct phrases are not all equally bad. There are at least two factors that seem to play a role. First, the more idiomatic a V-P complex is the less amenable it is to an adjunct-P order. For example, ??*sit quickly down* is better than **shut quickly up*. Second, manner adverbs such as *quickly* seem to be better preceding a P than temporal adverbs like *now*, *today*, or *this afternoon*. The discourse frequency data from Google™ searches for V... P/PP *quickly* and V... *quickly* P/PP strings summarized in Table 2 show that there is a clear difference between the acceptability of *quickly* PP and *quickly* P. There is, in fact, a preference for *quickly* to precede rather than follow a full PP, whereas it is strongly preferred in the position following an intransitive P. Still, *quickly* does sometimes precede the P, unless the P is highly idiomatic, as with *shut up* and *eat up*.

⁴¹ Obviously, for P-Left to work it is necessary to assume either that in a P-stranding question construction there is no syntactically expressed complement of the P (i.e. no trace) or that phonologically empty complements don't count for some other reason.

⁴² A Google™ search for the exact strings {*can/will*} *go now in* and {*can/will*} *go in now* confirms this claim. *Can/will go in now* occurs on more than 1,500 pages, whereas no occurrences were found of {*can/will*} *go now in* (with intransitive *in*). The modals *can* and *will* were added to the search string to limit the results for *go now in* to a reasonable number (= 36), since these must all be examined to see if the *in* is intransitive or not (i.e. *go now in peace*, for example, doesn't count). A search for *go now in* retrieves more than 3,000 results.

	<i>quickly</i> P/PP	P/PP <i>quickly</i>
eat/ate it up	0	41
shut up	0	240
take/took it out	1	135
turn(ed) them off	1	163
go in	2	272
put them on	2	132
sit down	2	422
drove off	7	216
ran [PP up the stairs]	67	34
went [PP out the door]	27	18

Table 2. Frequency of *quickly* P/PP vs. P/PP *quickly* in internet discourse

It is possible that an adverb such as *quickly* can precede a P because it can marginally be construed as a modifier of the P rather than the whole VP and therefore precedes the P by analogy with degree adverbs (*go right in*, *sit right down*, etc.). Prepositions without directional semantic content, including Ps of idiomatic V-P complexes such as *eat up* and *shut up*, would naturally be less likely to be modified by such an adverb. Another possible explanation is that the general preference to place light manner adverbs such as *quickly* before PP complements can sometimes take precedence over P-Left, particularly with less idiomatic Ps, since these are more open to appearing in non-canonical positions (e.g. *Off she drove*, *In she went* vs. **Up she shut*). In any case, however the adverb variability is ultimately explained, it should be clear that there is substantial empirical motivation for positing a P-Left constraint.

4.4. PRONOUNS AND V-P CONSTRUCTIONS. The restriction on unstressed pronouns vis-à-vis the P of V-P compounds (i.e. *mess it up* vs. **mess up it*) poses something of a dilemma for most approaches to V-P constructions. If the P is assumed to always be outside the V, as a complement or part of a complement, a special constraint is needed to ensure that unstressed object pronouns necessarily precede the P. Kayne (1985), for example, suggests that the subject of the SC containing the P fails to undergo his optional postposing transformation because pronouns are lighter than intransitive Ps. An SC analysis according to which the V-P-DP order results from incorporation has to either have a special constraint to prevent P incorporation, just in case the subject of the SC is a pronoun, or it has to assume that unstressed pronouns necessarily incorporate into the V and that pronoun incorporation necessarily precedes P incorporation. I assume here a version of this latter kind of analysis. The claim in essence is that unstressed English object pronouns are like unstressed French object pronouns, which are attached to verbs, occur only in the absence of any overt complement, and are arguably affixes

(Miller and Sag 1997).⁴³ The key difference, which works to obscure the similarity, is that in English the object pronominal morphemes attach to the right of the verb. Since direct objects are right-adjacent to verbs and words can't generally intervene between the verb and its object anyway, object pronouns appear to be simply in complement position. It turns out that the best evidence for a V-attachment analysis comes from V-P compounds. Since even these must have the pronoun preceding the P, the only possible analyses are: (a) V-P compounds cannot have unstressed pronominal objects, (b) the P must excorporate from the compound if the direct object is a pronoun, or (c) the pronoun must be contained in the V. It is hard to see why V-P compounds would be incompatible, in principle, with unstressed pronominal direct objects. In fact, V-P compounds with no discontinuous lexeme variant (e.g. *give off*, *take up*) can have a pronominal direct object and it only shows up preceding the P:

- (104) a. When he took up smoking, I decided to take {it up/*up it} too.
 b. It is a truly foul odor and these are the plants that give {it off/*off it}.

Since it is hard to see what might motivate excorporation in this case and the evolution of pronouns into affixes is a well-known historical process in languages,⁴⁴ the V-attachment analysis seems clearly preferable. The morphemes in question are not fully affix-like in that even in the few cases where they do have a phonological effect on their bases the effect is not obligatory (e.g. *gimme* vs. *give me*), suggesting that they might be categorized as atypical affixes (in the sense of Nevis et al. 1994: Introduction). That pronominal morphemes must precede the P in V-P compounds either follows from the general rule that inflectional morphology attaches to the head or is due to an idiosyncratic morphological ordering constraint. In short, it appears that V-P lexemes with unstressed pronominal direct objects have the kind of analysis shown in 105a-b.

- (105) a. [_{VP} [_V mess it_i up] [_{DP} pro]_i]
 = compound V-P with pronominal atypical affix that only occurs in the absence of an overt object

⁴³ Similar analyses of English object pronouns as morphemes that attach to verbs are suggested by Diessing and Jelinek (1995) and Larson (1988). Larson notes that such an analysis accounts for the otherwise mysterious fact that an O2 unstressed pronoun is not possible in complement position (**give the boy it*), although it is possible if the O1 is pronominal, in which case both pronouns are plausibly attached to the verb (*give me it*). Like their counterparts in French, unstressed English object pronouns are generally called 'clitics'. All that matters for present purposes is that they are analyzed as morphemes that attach to V heads. The phonological reduction characteristic of morphemes that are somewhere on the continuum ranging from prosodically-deficient word to affix (*give 'em this*) also occurs with objects of prepositions (*give it to 'em*). I see no reason not to extend the proposal here to unstressed objects of Ps, which is to say that English has, in essence, inflected prepositions (in the making).

⁴⁴ That is to say, affixes, including inflectional affixes that indicate subject and object, quite commonly develop historically from independent words that undergo phonological reduction and semantic bleaching leading to the phenomenon known as grammaticalization (e.g. Hopper and Traugott 1993).

- b. [VP [V mess it_i] [DP pro]_i [P up]].
= discontinuous V-P variant of a
- c. Pierre [VP [V la_i voit] [DP pro]_i].
'Pierre sees her.'

One might say that because the atypical affix is coindexed with a null pronoun, it has, in effect, all the referential properties of an ordinary pronoun, as indeed one might say for French object pronouns, for which the analysis might be as shown in 105c.

4.5. DOUBLE-OBJECT V-P CONSTRUCTIONS AND FURTHER ISSUES. The analysis of double-object V-P constructions is complicated by several matters. First, only for some speakers does the pattern of alternation illustrated by 106–107 occur with most double-object variants of the same verbs, as shown by 108–109, where the '%' notation indicates variation with respect to acceptance.

- (106) a. We gave back the exams to the students.
- b. We gave the exams back to the students.
- (107) a. I want you to send over a cake to my brother.
- b. I want you to send a cake over to my brother.
- (108) a. % We gave back the students the exams.
- b. We gave the students back the exams.
- (109) a. % I want you to send over my brother a cake.
- b. I want you to send my brother over a cake.

Second, as noted by Bolinger (1971: 170), even speakers (like me) who reject 108a and 109a may allow at least some double-object V-P compounds such as the following:

- (110) a. Can you {pack/fix} my sister up a nice basket?
- b. Can you {pack/fix} up my sister a nice basket?

Third, although the P of a discontinuous lexeme can always precede the O2 in the double-object construction, it may also follow the O2, at least under certain circumstances (see Bolinger, 1971: 169–170), as illustrated by the following examples.

- (111) a. I want you to {give/hand} the students the exams back.
- b. I'd like you to send me another cake over when you get a chance.
- c. If you dish us that stuff out now, we can eat and get going.

Finally, various potentially alternating V-P complexes simply do not occur at all in the double-object construction, *give away* being one example:

- (112) a. She likes to give away candy to her students.
- b. She likes to give candy away to her students.

- (113) a. * She likes to give away her students candy.
 b. * She likes to give her students away candy.

Among the various V-P lexemes that tend to pattern like *give away* are *pass around*, *hand in*, *hand off*, *show off*, *rent out*, *mail in*, and *turn in*, although there is a certain amount of inter-speaker variation with respect to this matter.

An account of these facts requires recognizing, first of all, that the alternative syntactic constructions that verbs such as *give* and *send* occur in suggest that they can have varying argument structures of the following kind:⁴⁵

- (114) a. LCS of *give*:
 x does something to *y*
 because of this *z* comes to have *y*
 b. AS¹: *give* <*x*, *y*, [*z*]>
 The student gave the book to the teacher.
 c. AS²: *give* <*x*, *z*, *y*>
 The student gave the teacher the book.

Since the argument structure possibilities for particular verbs are not entirely predictable, whether or not a verb alternates like *give* between direct object-PP and double-object ASs is potentially a lexically variable matter. Thus, it is not surprising that *give away*, for example, patterns like *distribute* rather than *give*. It has an AS like 114b but not one like 114c. Although it is not entirely clear why the double-object frame is avoided with V-P lexemes, there seems to be a parallel situation with the few transfer-of-possession P-V compounds with the potential to alternate like *give*. *Upload*, for example, at least marginally, occurs in the double-object construction; but *outsource* seems not to:

- (115) a. You need to upload your homework to the TA.
 You need to upload the TA your homework.
 b. It would be better to outsource the service to a contractor.
 * It would be better to outsource a contractor the service.

Assuming that double-object *give back*, for example, is a discontinuous lexeme with three complements, O1, O2, and *back*, the two possible orders can be accounted for as follows. O1-Left ensures that the O1 is closest to the verb. Since there seems to be at least a strong preference for O2s to precede adjuncts (Foley and Van Valin 1984: 88), as illustrated by 116, it is plausible to assume that there is some kind of O2-Left constraint.

⁴⁵ Whether there are LCS differences that correlate with the AS differences with such verbs (e.g. Jackendoff 1987, Pinker 1989, Goldberg 1995) is a controversial issue that is orthogonal to the matters of concern here. I assume without argument that there is an invariant LCS.

- (116) a. Emma's going to read the children {a story after dinner/*after dinner a story}.
- b. I sent my boss {a letter yesterday/??yesterday a letter}.

If it is further assumed that P-Left and O2-Left are unranked with respect to each other, or can be ranked alternatively, O2-P order is possible, as in the examples in 111. I leave open here the question of how to account for the fact that P-O2 order seems to be generally preferred, particularly with prepositions other than *back* and when the O1 is not a pronoun (i.e. *give the students the exams back* is much better than ??*send the neighbors another cake over*, which is worse than 111b.⁴⁶

For some speakers, double-object verbs such as *give back* and *send over* are both discontinuous and compound verbs, like *turn on*, *throw away*, *pack up*, etc. For others, they are simply discontinuous V-P lexemes without a corresponding V-P compound, like *see through*, *boss about*, and *tell apart*. Why many speakers should systematically dislike double-object V-P compounds remains unclear.

For everyone there is an apparently similar restriction against V-P compounds with nominal and adjectival secondary predicates (Kayne 1985, Den Dikken 1995), as illustrated by the following examples.

- (117) a. He tried to make my brother out a liar.
- b. *He tried to make out my brother a liar.
- (118) a. The drugs knocked Max out dead.
- b. *The drugs knocked out Max dead.

Following Den Dikken 1995, I assume that this is because the secondary predicate and the P form a constituent, i.e., a PP with the secondary predicate functioning as a complement of the P.⁴⁷ Thus, *out dead* in 118a, for example, has essentially the same status as *over the divorce* in *Alex got Max over the divorce* or *out the window* in *Alex threw the bones out the window*. The rationale for this analysis is that it makes it possible to reduce the problem of why **knock out Max dead* is not possible to the more general problem(s) illustrated by the following examples.

- (119) a. He threw {out the bones/the bones out}.
- b. He threw the bones out (of) the window
- c. *He threw out the bones (of) the window.
- (120) a. Send the cake on over/on over the cake.
- b. *Send on the cake over.

⁴⁶ The naturalness of the O2-P order when the O1 is pronominal might be attributed to the V-pronoun complex counting only as a V (due to the atypical affix status of the pronoun) and the O2 therefore counting as the only object.

⁴⁷ Unlike Den Dikken, of course, I do not assume—and this analysis does not entail—a small-clause analysis of either the secondary predicate or the DP-PP string.

Given the compound analysis of *throw out the bones*, the constraint is that a verb-internal morpheme that expresses an argument of that verb cannot have a syntactically projected argument of its own (see 18a). Since *(of) the window* is an argument of *out*, it must be projected as a complement of *out*. But since *out* is not itself projected as a head syntactically, it cannot have a complement. Along the same lines, V-P-P compounds that have multiple Ps expressing a locative argument, such as *send on over* (see footnote 16), plausibly have a discontinuous V paraphrase of the following kind.

(121) [VP [V send] [DP the cake] [PP [P on] [P over]]]

120b is ungrammatical because *on* is expressed as a part of the V, separated from *over*, which would have to be analyzed as its argument/complement. By the same token **knock out Max dead* and **make out my brother a liar* are not possible, since *out* is expressed V-internally separated from its complement.

Tempting though it may be to extend this kind of analysis to the grammar of speakers who dislike double-object V-P compounds, this does not appear to be possible. If it were the case that the P and O2 formed a PP, a V-P compound heading a VP such as *[[give back] the students the exams]* would illicitly have the P separated from its complement. Evidence against this approach to an explanation comes from what happens with O2 pronouns. As predicted by the analysis of unstressed object pronouns (i.e. DO, O1, and O2 pronouns) as atypical affixes, an unstressed O2 pronoun, when it can occur at all, can only appear in pre-P position (*send me it over, give me it back* vs. **send me over it, *give me back it*), unlike the object of a P (*You need to get me {over it/*it over}*). The restriction against double-object V-P compounds is presumably a lexical idiosyncrasy that could be otherwise, as suggested by its variability across speakers.

5. CONCLUSION. The proposed analysis of V-P constructions provides straightforward answers to the main questions about constituency and order that a comprehensive syntactic analysis needs to address. The alternation between V-P-DP order (*turn on the lights*) and V-DP-P order (*turn the lights on*) is attributed to the systematic possibility of alternative argument structures for lexemes with a single meaning, such as *turn on, look up, and mess up*. Either the P is projected syntactically, in which case it is realized as an intransitive P complement, or it is not projected, in which case the V-P lexeme is realized as a compound V. In essence, in one manifestation *turn on* and *mess up* are the left-headed counterparts of lexical compounds such as *overturn* and *uproot*; as with other left-headed compounds (such as *passersby* and *worse-off*), inflectional morphology (e.g. past-tense morphology) appears on the head. Unstressed object pronouns, which are plausibly another kind of inflectional morphology, are also necessarily attached to the head (*messed it up*). This lexical-compound possibility accounts for the various word-like properties of V-P lexemes, including their cohesion in the V-P-DP construction (e.g. the P cannot be modified and does not act like a complement with respect to coordination) and their participation

in standard kinds of word-formation operations (*re-* *-able*, and *-er* affixation, V-to-N conversion, and V formation from N/Adj + P combinations).

The analysis of the V-DP-P construction has long presented theoretical challenges, even though, in some sense, the challenging facts are quite simple: a direct object DP and the primary object (O1) in a double-object construction must ordinarily precede the P and, in general, only these precede the P. The popular small-clause approach to the analysis of the V-DP-P construction, according to which the DP is the subject of a small clause whose predicate is the P, provides a potentially interesting answer to the question of why only the DP precedes the P: only a DP can be the subject of the P. However, a detailed examination of the SC approach reveals that it lacks independent motivation and faces serious obstacles. Most importantly, there exist clear cases of SCs built around Ps in English, which can occur as complements of Vs (e.g. *all these lights on* in *Imagine all these lights on*). The problem is that strings such as *all these lights on* in *Turn all these lights on* systematically fail to display the properties of true SCs, having to do with constituent behavior and their interaction with adverbial phrases.

Analyzing the P as a separate complement of the VP, such that in phrases like *turn the lights on* both *the lights* and *on* are independent complements, explains why *the lights on*, for example, does not behave like an SC. As for the linear-order facts concerning Ps in the V-DP-P construction, it turns out that any analysis of the structure of VPs needs to recognize a constraint with the effect of ensuring that intransitive P complements, whether these are part of a V-P lexeme or not, must be aligned leftward of most other elements of a VP (P-Left). The fact that direct objects and O1s necessarily precede intransitive P complements follows from ranking P-Left lower than the constraints ensuring that direct objects and O1s are also placed leftward in the VP. These linear-order constraints on VPs are grounded in very general functional and processing principles with substantial cross-linguistic motivation (Tomlin 1986, Hawkins 1994, Wasow 2002) and apparently must be formulated in some way on any analysis. Recognition of such constraints obviates the need for an SC analysis of VPs built around verbs with intransitive P complements, or, indeed, for any abstract syntactic analysis with intricate embedding or derivational complexity.

REFERENCES

- Aarts, Bas. 1989. Verb-preposition constructions and small clauses in English. *Journal of Linguistics* 25.277–90.
- Abney, Stephen P. 1987. The English noun phrase in its sentential aspect. Cambridge, MA: MIT Dissertation.
- Ackema, Peter. 1998. The nonuniform structure of Dutch N-V compounds. *Yearbook of Morphology*, 127–58.
- Ackerman, Farrell, and Gert Webelhuth. 1997. The composition of (dis)continuous predicates: Lexical or syntactic? *Acta Linguistica Hungarica* 44.317–40.
- Anderson, John M. 1971. *The grammar of case: Towards a localist theory*. Cambridge: Cambridge University Press.

- Baker, Mark C. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago Press.
- Berman, Arlene. 1973. A constraint on *tough*-movement. *Papers from the Regional Meeting of the Chicago Linguistic Society* 9.37–46.
- Blake, Barry J. 1990. *Relational grammar*. London: Routledge.
- Bolinger, Dwight L. 1971. *The phrasal verb in English*. Cambridge, MA: Harvard University Press.
- Carnie, Andrew. 2002. *Syntax: A generative introduction*. Malden, MA: Blackwell Publishing.
- Carrier, Jill, and Janet H. Randall. 1992. The argument structure and syntactic structure of resultatives. *Linguistic Inquiry* 23.173–234.
- Chomsky, Noam. 1957. *Syntactic structures*. The Hague: Mouton.
- Chomsky, Noam. 1965. *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 1981. *Lectures on government and binding*. Dordrecht: Foris.
- Chomsky, Noam. 1986. *Barriers*. Cambridge, MA: MIT Press.
- Curry, Haskell B. 1977. *Foundations of mathematical logic*. New York: Dover Publications.
- Dahlstrom, Amy. 2000. Morphosyntactic mismatches in Algonquian: Affixal predicates and discontinuous verbs. *Papers from the Regional Meeting of the Chicago Linguistic Society* 36.63–87.
- Den Dikken, Marcel. 1995. *Particles: On the syntax of verb-particle, triadic, and causative constructions*. New York: Oxford University Press.
- Diesing, Molly, and Eloise Jelinek. 1995. Distributing arguments. *Natural Language Semantics* 3.123–76.
- Dixon, R. M. W. 1982. The grammar of English phrasal verbs. *Australian Journal of Linguistics* 2.1–42.
- Dowty, David R. 1996. Non-constituent coordination, wrapping, and multimodal categorial grammar. *Structures and norms in science*, ed. by Maria Luisa Dalla Chiara, Kees Doets, Daniele Mundici, and Johan Van Benthem, 347–68. Dordrecht: Kluwer.
- Emonds, Joseph. 1972. Evidence that indirect object movement is a structure-preserving rule. *Foundations of Language* 8.546–61.
- Emonds, Joseph E. 1985. *A unified theory of syntactic categories*. Dordrecht: Foris Publications.
- Farrell, Patrick. In press. English prepositional small clauses: A dual-category analysis. *Morphology and the web of grammar: Essays in memory of Steven G. Lapointe*, ed. by Orhan Orgun and Peter Sells. Stanford, CA: CSLI Publications.
- Fodor, Jerry A. 1970. Three reasons for not deriving ‘kill’ from ‘cause to die’. *Linguistic Inquiry* 1.429–38.
- Foley, William A., and Robert D. Van Valin, Jr. 1984. *Functional syntax and universal grammar*. Cambridge: Cambridge University Press.
- Fraser, Bruce. 1965. An examination of the verb-particle construction in English. Cambridge, MA: MIT Dissertation.
- Fraser, Bruce. 1970. Idioms within a transformational grammar. *Foundations of Language* 6.22–42.
- Fraser, Bruce. 1976. *The verb-particle combination in English*. New York: Academic Press.
- Fromkin, Victoria A. (ed.) 2000. *Linguistics: An introduction to linguistic theory*. Malden, MA: Blackwell.
- Fromkin, Victoria A., Robert Rodman, and Nina Hyams. 2003. *An introduction to language*. Boston: Thomson/Heinle.
- Gazdar, Gerald, Ewan Klein, Geoffrey K. Pullum, and Ivan A. Sag. 1985. *Generalized phrase structure grammar*. Cambridge, MA: Harvard University Press.
- Goddard, Cliff, and Anna Wierzbicka (eds.) 2002. *Meaning and universal grammar: Theory and empirical findings* (2 vols.). Amsterdam & Philadelphia: John Benjamins.
- Goh, Gwang-yoon. 2000. Relative obliqueness and the contribution of nonheads in the subcategorization of Old English compound verbs. *English Language and Linguistics* 4.13–36.

- Goldberg, Adele E. 1995. *Constructions: A construction grammar approach to argument structure*. Chicago: University of Chicago Press.
- Gries, Stefan T. 1999. Particle movement: A cognitive and functional approach. *Cognitive Linguistics* 10.105–45.
- Grimshaw, Jane. 1997. Projection, head, and optimality. *Linguistic Inquiry* 28.373–422.
- Guéron, Jacqueline. 1990. Particles, prepositions, and verbs. Grammar in progress, ed. by Joan Mascaró, and Marina Nespor. 153–66. Dordrecht: Foris Publications
- Haegeman, Liliane, and Jacqueline Guéron. 1999. *English grammar: A generative perspective*. Malden, MA: Blackwell.
- Harris, Alice C. 2000. Where in the world is the Udi clitic? *Language* 76.593–616.
- Hawkins, John A. 1994. *A performance theory of order and constituency*. Cambridge: Cambridge University Press.
- Hopper, Paul, and Elizabeth Traugott. 1993. *Grammaticalization*. Cambridge: Cambridge University Press.
- Hudson, Richard A. 1982. Incomplete conjuncts. *Linguistic Inquiry* 13.547–50.
- Jackendoff, Ray S. 1973. The base rules for prepositional phrases. *A festschrift for Morris Halle*, ed. by Stephen R. Anderson and Paul Kiparsky, 345–56. New York: Holt, Rinehart and Winston.
- Jackendoff, Ray S. 1977. *X-bar syntax: A study of phrase structure*. Cambridge, MA: MIT Press.
- Jackendoff, Ray S. 1987. The status of thematic relations in linguistic theory. *Linguistic Inquiry* 18.369–411.
- Johnson, Kyle. 1991. Object positions. *Natural Language and Linguistic Theory* 9.577–636.
- Joseph, Brian D. 2000. Consider sentences re-considered in the light of Greek evidence. *Proceedings of the 13th international symposium on theoretical and applied linguistics (festschrift for professor athanasios kakouriotis)*, ed. by Katerina Nicolaidis, and Marina Mattheoudaki. Thessaloniki: University of Thessaloniki.
- Joseph, Brian D., and Rex Wallace. 1984. Latin morphology: Another look. *Linguistic Inquiry* 15.319–28.
- Kayne, Richard S. 1985. Principles of particle constructions. *Grammatical representation*, ed. by Jacqueline Guéron, Hans Obenauer, and Jean-Yves Pollock, 101–40. Dordrecht: Foris Publications.
- Kennedy, Arthur G. 1920. *The modern English verb-adverb combination in English*. Stanford, CA: Stanford University Publications in Language and Literature.
- Kuno, Susumu. 1973. Constraints on internal clauses and sentential subjects. *Linguistic Inquiry* 3.161–95.
- Kuno, Susumu, and Ken-ichi Takami. 1993. *Grammar and discourse principles: Functional syntax and GB theory*. Chicago: University of Chicago Press.
- Lakoff, George, and Mark Johnson. 1980. *Metaphors we live by*. Chicago: University of Chicago Press.
- Lapointe, Steven G. 1985. *A theory of grammatical agreement*. New York: Garland.
- Larson, Richard K. 1988. On the double object construction. *Linguistic Inquiry* 19.335–91.
- Levin, Beth, and Malka Rappaport Hovav. 1995. *Unaccusativity: At the syntax-lexical semantics interface*. Cambridge, MA: MIT Press.
- Liu, Hsiao-Mei. 1986. A categorial grammar analysis of Chinese separable compounds and phrases. Tucson: University of Arizona dissertation.
- Live, Anna H. 1965. The discontinuous verb in English. *Word* 21.428–51.
- McCarthy, John, and Alan Prince. 1993. Generalized alignment. Yearbook of Morphology, ed. by Geert Booij and Jaap van Marle. 79–153. Dordrecht: Kluwer
- Miller, Phillip H., and Ivan A. Sag. 1997. French clitic movement without clitics or movement. *Natural Language and Linguistic Theory* 15.573–639.
- Mithun, Marianne. 1984. The evolution of noun incorporation. *Language* 60.847–95.
- Napoli, Donna Jo. 1989. *Predication theory: A case study for indexing theory*. Cambridge: Cambridge University Press.

- Nevis, Joel A., Brian D. Joseph, Dieter Wanner, and Arnold M. Zwicky. 1994. *Clitics: A comprehensive bibliography 1892-1991*. Amsterdam: John Benjamins.
- Nunberg, Geoffrey, Ivan Sag, and Thomas Wasow. 1994. Idioms. *Language* 70.491–538.
- Oehrle, Richard. 1976. The grammatical status of the English dative alternation. Cambridge, MA: MIT dissertation.
- Perlmutter, David M. 1978. Impersonal passives and the unaccusative hypothesis. *Berkeley Linguistic Society* 4.157–89.
- Pesetsky, David. 1995. *Zero syntax: Experiencers and cascades*. Cambridge, MA: MIT Press.
- Pinker, Stephen. 1989. *Learnability and cognition: The acquisition of argument structure*. Cambridge, MA: MIT Press.
- Pollard, Carl, and Ivan A. Sag. 1994. *Head-driven phrase structure grammar*. Chicago: CSLI Publications and University of Chicago Press.
- Postal, Paul M. 1974. *On raising: One rule of English grammar and its theoretical implications*. Cambridge, MA: MIT Press.
- Prince, Alan, and Paul Smolensky. 1993. *Optimality theory: Constraint interaction in generative grammar*: RUCCS technical report #2. Piscataway, NJ: Rutgers University Center for Cognitive Science.
- Quine, W. V. 1966. *Selected logic papers*. New York: Random House.
- Radford, Andrew. 1988. *Transformational grammar: A first course*. Cambridge: Cambridge University Press.
- Ross, John R. 1967. Constraints on variables in syntax. Cambridge, MA: MIT dissertation.
- Smirniotopoulos, Jane C., and Brian D. Joseph. 1998. Syntax versus the lexicon: Incorporation and compounding in modern Greek. *Journal of Linguistics* 34.447–88.
- Stowell, Timothy. 1981. Origins of phrase structure. Cambridge, MA: MIT dissertation.
- Svenonius, Peter Arne. 1994. Dependent nexus: Subordinate predication structures in English and the Scandinavian languages. Santa Cruz, CA: UC Santa Cruz dissertation.
- Toivonen, Ida. 2001. The phrase structure of non-projecting words. Stanford, CA: Stanford dissertation.
- Tomlin, Russell S. 1986. *Basic word order: Functional principles*. London: Croom Helm.
- Van Valin, Robert D., Jr., and Randy J. La Polla. 1997. *Syntax: Structure, meaning, and function*. Cambridge: Cambridge University Press.
- Wasow, Thomas. 2002. *Postverbal behavior*. Stanford, CA: CSLI Publications.
- Whorf, Benjamin L. 1956. *Language, thought and reality: Selected writings of Benjamin Lee Whorf*. Cambridge, Mass.: MIT Press.
- Wierzbicka, Anna. 1996. *Semantics: Primes and universals*. Oxford: Oxford University Press.
- Williams, Edwin. 1980. Predication. *Linguistic Inquiry* 11.203–38.
- Williams, Edwin. 1981. On the notions ‘lexically related’ and ‘head of a word’. *Linguistic Inquiry* 12.245–74.
- Williams, Edwin. 1983. Against small clauses. *Linguistic Inquiry* 14.278–308.