Primary vs. Secondary Vocabulary

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Abstract: English vocabulary is divided: a Germanic core inherited from Germanic sources and a second vocabulary borrowed from the Romance family and Classical Greek. Several synchronic criteria divide the two vocabularies. The primary vocabulary still conforms to the general Proto-Germanic rule; stress can only fall on a morpheme's first syllable. In contrast, its secondary vocabulary stress patterns follow Chomsky and Halle's (1968) "Main stress rule," often referred to as the "Romance stress rule." There are several correlations between this stress-based division and morpho-syntactic properties; secondary vocabulary always exhibits regular productive inflection and an analytic grading of adjectives. This study focuses especially on syntactic differences: only primary vocabulary verbs freely combine with post-verbal particles of direction and allow double objects with no preposition. These general properties seem hard to express in lexical terms. Nonetheless, a device proposed here seems to capture both these English-particular characteristics: Secondary vocabulary verbs do not lexically select complements whose heads have the feature +DIRECTION. Though at first glance this condition seems too strong, the essay argues that this restriction can stand when indirect objects are structurally properly analyzed.

Keywords: Borer Conjecture; grammatical lexicon; indirect objects; irregular inflection; particular grammars; post-verbal particles; primary vocabulary; secondary vocabulary

1. Language-particular grammars in formal linguistics

1.1 Factoring out Universal Grammar

In the three decades preceding the iconic year 1984, a new approach to language analysis, called generative grammar, proposed to analyze natural languages as formal systems. The second chapter of Noam Chomsky's first book (1957) began with a clarion call:

(1) Generative Grammars. "The fundamental aim in the linguistic analysis of a language is to separate the *grammatical* sequences which are the sentences of L from the *ungrammatical* sequences which are not sentences of L and to study the structure of the grammatical sequences. The grammar of L will thus be a device which generates all the grammatical sequences of L and none of the ungrammatical ones."

Almost from the beginning, what also became apparent was "the necessity for supplementing a 'particular grammar' by a universal grammar ('ÜG') if it is to achieve descriptive adequacy" (Chomsky 1965, 6). Thus,

(2) Universal Grammar. Grammar of L = UG + G_l (= Particular Grammar of L_i)

These grammars G_l, supplemented by UG, were to generate all and only grammatical sequences of each L. So generative grammar was to investigate two questions: what was UG, perhaps the hardest part, and what were the (formalized, explicit) Particular Grammars, a supposedly easier and "less deep" question, since speakers' knowledge of language is always filtered through the prism of an observable particular L_i.

Nonetheless, the second question seemed intriguing and puzzling, since, beyond some generalities, particular grammars of even two intensively studied and typologically similar languages, e.g., English and French, apparently have little in common. Richard Kayne's (1975) landmark *French Syntax* (on pronominal clitics, reflexives and reciprocals, and causatives), didn't seem to be a book about English grammar. Similarly, my own *Transformational Approach to English Syntax* (1976), while organized around the Structure Preserving Hypothesis for UG, contains section after section detailing grammar paradigms of English largely different from what is found in Romance languages (e.g., auxiliary inversion, progressives, NP gerunds, overt subjects of infinitives, stranded prepositions, indirect objects without prepositions). As in Kayne's volume, all such language-particular aspects were formally expressed as transformations, in particular, as "local transformations" formulated without essential use of string variables.

Almost at the same time, Chomsky (1976; 1977) embarked on a research program to eliminate transformations as a language-particular device. It culminated in his claim that transformations were neither construction-particular nor language-particular, but rather reducible to a UG principle "Move α", where α is a general categorical symbol. Since most practitioners of formal grammar, including Kayne and Emonds, became convinced that his program was essentially correct, it became obvious that all the French-specific and English-specific rules of their books had to be expressed in the particular grammars of French (G_F) and English (G_E) in a different way.

Thus in addition to UG, a broad new question which required an answer was,

(3) What exactly is the form of particular grammars G_i that UG "supplements"?

A contentful answer would have to be at least preliminary *formally explicit particular grammars* G_l of some language(s), e.g., perhaps English, French, as a start. These grammars would be integrated with UG (how was of course also part of the question), and would furnish working hypotheses which research would further formalize, simplify and refine.

Thus, in the late seventies, the stage was set for studies in which UG was integrated with at least fragments of formalized particular grammars G_i. But what happened instead was that almost no research focused on this implication of equation (1). When aspects of particular grammars were formulated, they were ad hoc and used mainly to abstract away from data patterns which seemed to conflict with hypotheses about UG.[1]

1. In English for example, exceptional case marking and the doubly-filled COMP filter. The works where they were proposed and used did not try to assimilate them to any more general properties of language-particular grammatical devices.

Though a few studies proposed language-particular parameters that were integrated with syntactic theory, this approach died out, and most research proceeded as if any grammatical pattern in some L_i could always be decomposed into an interesting UG component plus some downgraded remnant that was 'low level,' 'a late rule,' 'only morphology,' or 'purely lexical.' These unformalized and ad hoc remnants have been regularly set aside ever since.[2]

1.2 Theoretical proposals for language-particular grammars

As hypotheses for the design of UG progressed in the 1970s, both the formal and substantive nature of particular grammars became more enigmatic. In particular, since both construction-specific transformations and category-specific phrase structure rules had proved by 1980 to be inadequate for capturing linguistically significant generalizations, there remained no clear candidates for what a language-particular grammatical statement might be.

In this momentary vacuum, four different proposals for devices of particular grammars were advanced. Interestingly, all involved very "local" relations of lexical items and categories in trees; the categories specified in these rules used no "string variables" of the type needed to state the principles and constraints of UG.

(4) Proposals for specifying particular grammars (1976–1984)
   a. Highly constrained *local transformations*, lacking string variables and specifying at most one phrasal category (Emonds 1976; 1977).
   b. *Filters / output constraints* on transformational operations, either "positive" (Perlmutter 1971) or "negative" (Chomsky and Lasnik 1977). These also lacked string variables and they specified individual morphemes, mentioning few phrases.
   c. Simple "Yes-No" or dichotomous *parameters*, with multiple consequences throughout a grammar (Stowell 1981; Rizzi 1982).
   d. *Lexical entries* for grammatical morphemes in "functional categories" and for bound affixes, specified with locally defined insertion contexts (Borer 1984).

The devices in (a)–(c) did not seem to give rise to revealing research in areas encompassing material beyond the phenomena which had originally motivated each. For example, Perlmutter's positive output constraints were not widely employed beyond accounts of pronominal clitic sequences, and Chomsky and Lasnik's filters mainly focused on restrictions on the form of infinitival clauses. Those filters that seemed to have wider applicability were incorporated into proposals for UG, and the others were superseded by analyses involving case and binding theories. None

2. In *Lexicon and Grammar: The English Syntacticon* (Emonds 2000), I have tried to develop a model where language-particular syntax and syntactic theory are elaborated and integrated in terms of each other, but these theoretical modifications have had little impact. Much work under the rubric of Distributed Morphology also focuses on language-particular points of grammar, but is not mentioned much in research that bills itself as "syntactic."

of (6a)–(6c) seemed to have the excess content required in the "progressive research paradigms" of Lakatos (1978).

As a result, Borer's proposal or Conjecture, as it is now called, has come to be widely accepted, especially because it has shed light on constructions other than those which first motivated it. A striking example of this is Ouhalla's (1991) enlightening analysis of Berber and Arabic Tense and Agreement paradigms, which centrally uses Borer's idea that it is the syntactic specified lexical insertion contexts of these functional categories that explains differences between the particular grammars of Berber and Arabic.

Simply put, the core of Borer's Conjecture is that a language's particular grammar is nothing more nor less than *the collected lexical entries for that language's functional categories*, in more traditional terms its closed class lexical items. If such a lexicon were ever assembled, that language's grammar G_i would then be fully specified.

2. Emergence of the Grammatical Lexicon

Of the four proposals for formally expressing language-particular patterns that surfaced between 1976 and 1984, the last to emerge, namely Borer's Conjecture, has thus come to be considered as the best candidate for supplementing Universal Grammar. That is, language-particular rules of each language are identified with the lexical entries in what Ouhalla calls its "Grammatical Lexicon." Since such Grammatical Lexicons comprise for example the synchronic affixes of a language as well as many dozens of free morphemes outside the lexical categories, this conception of particular grammars explains why even related languages vary as much as they do.

What then is the form of such lexical entries? Although progress in answering this question is a sine qua non for truly generative grammars as defined in Chomsky (1957), very little research since 1984 has been devoted to it. In fact, the only full-length studies in a Chomskyan framework are Ouhalla (1991) and Emonds (2000; 2007).

I believe the reason for this lack stems from when Chomsky (1986) dismissed the possibility of formally characterizing "E(xternal) Language." Whatever he then thought about particular grammars, i.e., their role in his "I(nternal) Language," a typical interpretation of this I-Language and E-language distinction is provided by an exegete Norbert Hornstein, with my emphases:

> Thus, at best, an E-language is that object which the I-language specifies. However, even this might be giving too much reality to E-languages, for there is *nothing in the notion I-language* that requires that what they specify *corresponds to languages as commonly construed, that is, things like French, English and so on.* It is consistent with Chomsky's viewpoint that *I-language never specifies any object that we might pre-theoretically call a language* (Hornstein 1998).

Whether or not Chomsky was suggesting to abandon formalizing particular grammars (since then he almost never speaks of them), generative research since then almost exclusively focuses on determining the innate mechanisms of I-Language, which are often hypothesized to be the same for all languages, i.e., *I-language as commonly understood does not include formal specifications of particular grammars.* In other words, formal syntax for some 30 years has been de facto synonymous with the elaboration of Universal Grammar. While language-particular patterns may have contributed to

proposals for UG, their formalized expression has not been part of the generative enterprise. And even though Borer's Conjecture has been repeatedly endorsed, beyond occasional focus on isolated morphemes (Borer's original work on Hebrew *šel* 'of'; Kayne's studies of French *se* 'self' and *qui / que* 'who / that'), specifying entries of Grammatical Lexicons is simply off the generative radar screen.

This absence of formalized particular grammars has a serious consequence. Exclusive focus on characterizing a universal I-language cuts syntactic research off from possible empirical disconfirmation; i.e., most current proposals for UG are now unfalsifiable.[3] This results from the fact that generative syntax has for decades largely ignored Question (3); there exist no preliminary explicit examples of Grammatical Lexicons G_i.[4]

In order to avoid the charge of unfalsifiability (which I both make and would like to see refuted), generative grammar needs to return to its original goals, which includes serious elaboration *of all aspects* of the formula (2). Though Question (3) is currently both unanswered and unaddressed, this question remains quite meaningful and in no way ill-conceived or premature. The fact is, no serious obstacles even make (3) a hard question (real progress in constructing UG is harder). It is unaddressed only because of lack of interest, the threat of falsification, and an unspoken irrational hope that work on UG will somehow eventually make answers too (3) trivial.[5]

Why aren't the answers to it trivial? Staying with the example of French and English, syntacticians widely take them to be "similar." In terms of language variety and topology, they are. Nonetheless, their Grammatical Lexicons G_e and G_f (each perhaps containing some 400 ±100 items including affixes and grammatical Ns, Vs, and As) don't share even a handful of items with the same grammar.[6] No grammatical preposition, no complementizer, no verbal affix, no negative word, no quantifier, no reflexive morpheme, no grammatical verb, no pronoun, no prefix, no article has the same grammar in the two languages. And because these many differences are not even tentatively represented in generative models, the field of syntax knows very little more today than in 1975, at least in formal terms, about exactly how French and English are different.

The path to non-trivial answers to question (3) is then simply that more researchers work on it, after its being sidetracked and hidden from view for some three decades. For this reason, my own research has included working out some implications of Borer's Conjecture. For instance, exact lexical entries for non-finite verbal suffixes,

3. Grammatical patterns of particular languages are then, whenever necessary, attributed to E-language properties that fall outside the innate language faculty. Consequently, most research on Universal Grammar, as generally practiced since 1985, has in practice avoided the possibility of Popperian falsification (Lakatos 1978).
4. Except perhaps in the framework of Head-driven Phrase Structure Grammar (HPSG). However, such grammars seem unreservedly stipulative and factor out no UG "supplement."
5. In fact, Question (3) is more than meaningful. Without formalized G_i, generative syntax is not fulfilling the fundamental aim of linguistic analysis, to produce formal grammars of L_i.
6. Anecdotally, the only candidates I think is possibly identical is *very* ~ *très*. Another suggested candidate, *a (whole) lot* is unlike the French *beaucoup*, which excludes any modifier.

when integrated with UG, can explain all the complex grammatical patterns of English participles and gerunds *V-ing* and *V-en* (Emonds 2007, chaps. 3 and 8). Borer's Conjecture can thus lead to many results, provided that UG is not taken as a purely deductive system, fixed in theoretical texts before investigation of a particular language begins. Both UG and entries of Grammatical Lexicons need to develop in tandem in terms of their mutual compatibility and overall descriptive adequacy.

Other examples of syntactic generalizations of Particular Grammars G_i are to be found in terms of differences in what I will call here their "Primary" and "Secondary" Vocabularies. Studies of UG have not considered such a distinction, and hence have been unable to shed light on some long known particularities of English syntax which depend on these contrasting lexical sub-components.

Once this lexical division is established below, I will argue that Borer's Conjecture cannot be the whole story on language-particular grammars. No matter how sophisticated the form and interaction of UG with lexical entries, these entries do not in themselves suffice to express certain generalizations in particular grammars.

What is needed in addition are something like "Global Conditions on Lexicons," a term once coined by Chomsky (in a 1988 lecture at the University of Washington) as a way of rethinking the so-called "head-initial / head-final parameter" (Stowell 1981) in terms of Borer's Conjecture. This parameter is certainly language-particular and yet independent of individual lexical entries. The fact is, this parameter is not only language-particular, it is category-particular. For instance, German and Dutch VPs are head-final, while their NPs are head-initial. Conversely, Chinese NPs are resoundingly head-final, while its PPs and (smallest) VPs are head-initial (Huang 1984).[7]

It is premature to presume to characterize the extent or form of such Global Conditions on Lexicons (particular grammars cannot be deduced from Chomsky's programmatic statements). The best way forward is rather empirical study to see what kind of phenomena such conditions should account for. Such is the purpose of Sections 4–6 of this paper.

3. Dividing English Vocabulary into Primary and Secondary

The open class vocabulary of English can be divided into two sub-classes that roughly but by no means exactly correspond to their historical sources:

— a *primary Germanic core* including those inherited from Old English and Old Norse;
— a second vocabulary borrowed from French / Latin and Classical Greek, dating from the adoption of English by the ruling Norman aristocracy (fourteenth century) and the Renaissance.

7. The basic word order parameter is arguably neither "head-initial" vs. "head-final," nor variations on an unmarked head-initial order. Rather, the universal default order in both words and phrases is head-final, but stress patterns of a language can cause particular lexical categories X^0, or all of them, to precede their sisters, in phrases and sometimes inside words (Emonds 2013).

We will see that this division has an important synchronic role in expressing appropriate descriptive generalizations in all components of English grammar. The preliminary criteria for synchronically dividing the two vocabularies in the English Dictionary are listed in (5):

(5)

	Core or primary vocabulary	Secondary vocabulary
a.	More general and mundane meanings: *eat*, *drink*, *swallow*, *smell*	Very specific meanings: *devour*, *imbibe*, *consume*, *aroma*
b.	Restrictive phonology, e.g., in English, no secondary or non-initial morpheme stress	Less restrictive phonology, such as possible non-initial or secondary stress in English
c.	Possible irregular inflection, e.g., past tenses other than *-ed*, irregular plurals.	Only productive inflections (*-ed* past on V, *-s* plurals on N, etc.)
d.	Inflected adjectival comparison (*-er*, *-est*): *saner*, *stupidest*, *tighter*, *sourest*	Free morphemes must compare A: **insaner*, **morbidest*, **tauter*, **dourest*

It is commonplace in studies of sources of (early) Modern English vocabulary that words borrowed from Romance and Greek are often near synonyms of words inherited from Germanic, but that the former have more specific or more technical meanings, and very often are felt to have more positive connotations. Broadly speaking, the Germanic counterparts in these pairings are also more frequent.

An English language learner, child or adult, can usually determine quite easily by (5b) that a huge number of words are not in the Primary Vocabulary. Any multi-syllabic morphemes with some *non-initial* or *secondary stress*, as underlined in (6), must be in the Secondary Vocabulary. Such words are most frequently inherited from Romance or Greek. Notice that all these words have quite specific and not general meanings (5a).

(6) *absolve, baptize, catastrophe, correspond, don-ate, econom-y, forens-ic, giraffe, holocaust, imagine, Jerusalem, kinet-ic, migraine, necessary, opinion, quinine, recommend, suggest, trespass, turpentine, util-ity, vicar-ious, Wisconsin, Yosemite*

There is thus a one-way implication regarding stress. If a morpheme is in the primary vocabulary, it must have initial stress. This stress comes down to Modern English from its earliest pre-historic roots:

(7) Morphemes in the English *primary* vocabulary still conform to the general *Proto-Germanic initial stress*.

Compound words and words containing one of a fixed set of about 10 unstressed "inseparable" prefixes (*a-gain, a-sign, al-ready, be-tween, be-grudge, for-bid, for-get re-fuse, re-main, to-gether, up-set, with-stand*), are not exceptions to (7) because these prefixes are separate morphemes. They have had this status since Proto-Germanic times. Initial Germanic stress thus remains exceptionless:

(8) Proto-Germanic Stress. Stress must fall on a morpheme's first syllable.

However, as seen in (6), rules (7)–(8) hold in Modern English only for the *primary* vocabulary. English *secondary* vocabulary stress patterns follow Chomsky and Halle's (1968) "Main stress rule", which is sometimes referred to as the "Romance stress rule" because it applies mainly to the huge vocabulary borrowed from Romance sources.

Let us next consider the criterion of inflection (5c), which disallows inflectional irregularity in the secondary vocabulary. For example, no forms in (6) have any irregular inflections. Consider also the productive English inflection most often replaced by irregular forms, namely the past tense / participle morpheme *-ed*. English verbs with irregular pasts, such as the 211 listed on the site http://www.usingenglish.com/reference/irregular-verbs, are all monosyllabic, including a few combined with the prefixes mentioned above (*a-rise*, *be-come*, *be-hold*, *for-bid*, *for-get*, *up-set*, *with-draw*, *with-hold*). Hence, by the criterion of stress (5b), they are all candidates for the primary vocabulary, and hence permissibly irregular.[8]

Finally, something like the correlation (5d) is generally felt to hold for bi-syllabic adjectives (*stupidest*, *handsomer* vs. **rapidest*, **gruesomer*). But it is rarely noted that even some gradable monosyllabic adjectives of highly specific meanings and often "genteel" connotations do not accept inflections:

(9) *beige*, *chic*, *dank*, *deft*, *dour*, *gauche*, *lithe*, *loathe*, *prim*, *suave*, *swell*, *taut*, *vast*, *wan*

It appears that these short adjectives, as well as multi-syllabic adjectives with non-initial stress, are restricted to analytic grading with *more* and *most* because *they are in the secondary vocabulary*. No other explanation, other than purely ad hoc grammatical diacritics (unlikely with words of such low frequency), would seem available.[9]

For the native speaker, the aspects of grammatical and phonological behavior in Table (5), rather than historical provenance, determine which part of the vocabulary a morpheme belongs to. Morphemes can thus end up in a lexical component that differs from what one expects from their diachronic source. For example the Romance-derived adjectives *long* and *large* and verbs *move*, *offer*, *promise* and *turn* are in the primary vocabulary. In the other direction, verbs such as *gainsay* and *vouchsafe*, though descended from Old English, show signs of being in the secondary vocabulary (their stresses and, e.g., **gainsaid*).[10]

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8. Nothing prevents an irregular verb stem in the primary vocabulary from serving as head of a compound verb: *broadcast*, *foretell*, *foresee*, *input*, *misspeak*, *mislead*, *outswim*, *overdraw*, etc.
9. To claim that words like *dour*, *gauche* and *loathe* are "irregular" (= marked with diacritics) would grossly violate the usual pattern whereby morphological irregularity is limited to more frequent, not less frequent, words.
10. Similar vocabulary divisions, with characteristic less restrictive phonology, appear widespread among languages. I conjecture that "Sino-Japanese" vocabulary is secondary in Japanese, as is the large Turkish vocabulary that does not exhibit vowel harmony. It seems plausible that primary vocabularies expand only at a relatively steady rate, so that during periods of intensive cultural borrowing (from Chinese Buddhism in early Japan, the Renaissance in Turkey, and after the Norman Conquest in England), a language creates massive new open class vocabulary by accepting new phonological patterns that disallow inflectional or other syntactic irregularity.

Although we have now tentatively established a division in open class vocabulary between primary and secondary, we have not answered two pertinent questions:

(10) (i) Is division between primary and secondary vocabulary a property of language particular grammars?
(ii) Does such a division have effects in the productive syntax of these grammars?

The first question is easily dealt with, using the properties in Table (5). Logically, either all languages distinguish primary and secondary vocabularies, or they do not. *If not*, then the very fact that English has a separate secondary vocabulary is part of its particular grammar G_E. On the other hand, if UG determines that all languages divide vocabulary into primary and secondary, then it is transparent that at least some properties of this division in English, e.g., as (5b), (5d), are *not part of UG*. As a simple example, if UG determines that French also has two such vocabularies, they differ neither in stress (all French words have final stress) nor in the grading of adjectives (all French adjectives are graded analytically). So the properties (5b) and (5d) distinguishing the two English vocabularies are particular to its grammar G_E and are not due to UG. So the answer to (10i) is yes.

In the next section, we turn to question (10ii) above, and show that status as a primary or secondary vocabulary item plays a role in *the productive and language-particular syntax G_E* of English.

4. Fraser's restriction on "Phrasal Verbs"

4.1 Which verbs accept post-verbal particles and directional complements?

Hundreds of English verbs select complements which are preposition-like particles: *break off*, *cut down*, *hold up*, *move out*, *rub in*, *slip back*, *turn on*, etc. Depending on the verb, the particles express locational direction of the action and / or combine idiomatically with the verb.[11] Fraser (1976) exemplifies the patterns and generalizations, while Emonds (1972) shows that the grammatical category and behavior of these particles is that of P. For example, when these particles have a literal sense, they alternate with full directional PPs:[12]

(11) *She broke the handle right off / right into pieces.*
They cut the extra branches down / off the trunk.
A soldier held the flag up / over the edge.
They pulled the bicycle out / onto the country road.

11. Stative verbs cannot combine with particles: **hate off*, **lack on*, **like away*, **owe in*, **need out*, **want up*, etc. Collocations like *have NP in* are activity verbs: *He was having us in for lunch.*

12. By any syntactic tests, these particles, even when adjacent to the verb, *do not form any sort of lexical or phrasal constituent* with them. Hence the almost universally accepted term for them, "phrasal verbs," is misleading and without justification. No grammatical patterns support treating even idiomatic V-P combinations (*break up, put off, take in*) as any kind of structural unit.

The rock slipped two meters back / two meters down the slope.

Fraser's study shows that these particles, whether literal or idiomatic, do not combine with verbs with either secondary or non-initial stress, such as *destroy*, *demonstrate*, *discover*, *select*. The contrast can be seen in examples like (12a)–(12d).

(12) Objects with Directional Ps:
   a. *The child broke / *destroyed her new toys up / in.*
   b. *I picked / *selected out / up some new shirts.*
   c. *You will find / *discover out that this car uses less fuel.*
   d. *A manager showed / *demonstrated the new procedure off / up.*

We thus seem to have found another property that distinguishes English primary and secondary vocabulary: *primary vocabulary verbs combine freely with post-verbal particles*, whether literal or idiomatic, while it is very rare if a secondary vocabulary verb does so.

In light of the contrasts like (13), I think we can extend this generalization to directional PPs more generally: Verbs in the English secondary vocabulary seem resistant not only to directional particles (intransitive Ps), but also *to full directional PPs.*[13] Both these constituents are PPs with a feature +DIR.

(13) *Let's put / *locate this vase onto the top shelf.*
   Cf. Let's locate this vase on the top shelf.
   *The sergeant sent / *dispatched his platoon into the tunnel.*
   *She broke / *destroyed her new toy into pieces.*
   *They cut / *eliminated the extra branches off the trunk.*
   *They pulled / *retrieved the bicycle onto the country road.*
   *A soldier lifted / *elevated the flag over the edge.*

(14) SELECTION CONDITION ON VERBS IN G_E. Primary *but not secondary* vocabulary English verbs can have the subcategorization (selection) feature +___DIR.

This is to say, only primary vocabulary verbs can select sisters whose heads have the feature +DIR (an obligatory or optional feature of many Ps such as *into*, *onto*, *toward*, *near*, *above*, *beside*, *beyond*, etc.)

This productive syntactic property (14) of English grammar G_E cannot be attributed to UG, if the syntax of many languages does not distinguish primary and secondary verbs in this way. Moreover, (14) is not a property of individual English verbs, even though there may be a few exceptional items. The simple repeated presence in many lexical items of a feature +___DIR fails to express or capture Fraser's Generalization.

13. Of course it can be said that their "meanings," for which we have no formal representations, are inconsistent with directional PPs, but equally well we can say that no secondary vocabulary verbs with such meaning develop, because they will not be able to combine with appropriate PPs.

Even when a verb is exceptional, such as the combination with a secondary vocabulary verb *divide up*, we find that speakers modify lexical entries so as to correct this. In this case, speakers have fashioned a primary vocabulary slang competitor *divvy up*, which is not used alone for *divide*:

(15) *Let's divvy up the cake now.* **Let's divvy the cake now.*
Now you guys divvy it up fair and square. **Now you guys divvy it fair and square.*

The hypothesis of a split lexicon accounts for why the variant *divvy* is used only with *up* and not alone. In this way, the slang removes the exception to (14), namely *divide up*.

The second question (10ii) posed at the end of Section 3 thus has a positive answer. The primary / secondary vocabulary division does have an effect in the productive syntax of a particular grammar, namely English.[14] And this effect can be stated neither as a principle of UG nor as an instance of Borer's Conjecture.

4.2 The relation between the feature +DIR and English indirect objects

According to the conclusion (14), an extension of Fraser's Generalization, English secondary vocabulary verbs are not compatible with the subcategorization frame +___DIR. Yet verbs in both lexical subcomponents can appear with indirect objects, which plausibly also involve the feature +DIR.

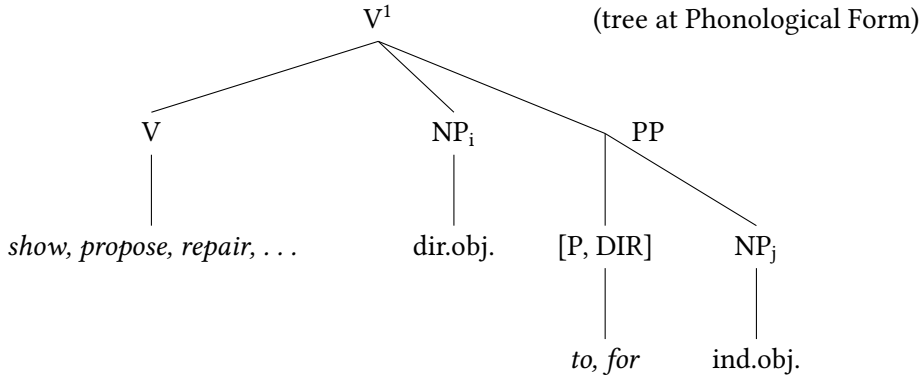
(16) Direct Objects and Indirect Objects PPs; verbs and indirect objects underlined.
a. *A manager showed / demonstrated the new procedure to the staff.*
b. *The manager makes / produces a receipt for each customer.*
c. *That company offered / proposed better pay to the part timers.*
d. *Please hand / distribute some cake to the guests.*
e. *I got / selected some new shirts for my brother.*

A simple and transparent structure for such clauses is that in (17); some authors prefer the label PATH to the label DIR used here.[15]

_[Is PP in (17) and (18) really supposed to be above/beside the node, not on the node as V and NP_i or as PP in (27)? Please check the three trees carefully!]

14. Note that a collection of selection features on open class items (indicating open class verbs which appear with P-less datives) has nothing to do with Borer's Conjecture, which restricts item-particular behavior to *closed class* grammatical items.
15. For a review of various generative analyses of double object constructions, see Emonds and Ostler (2006). That work argues that attempts to treat double objects with binary branching have led to inconsistencies and unexpressed generalizations.

(17)

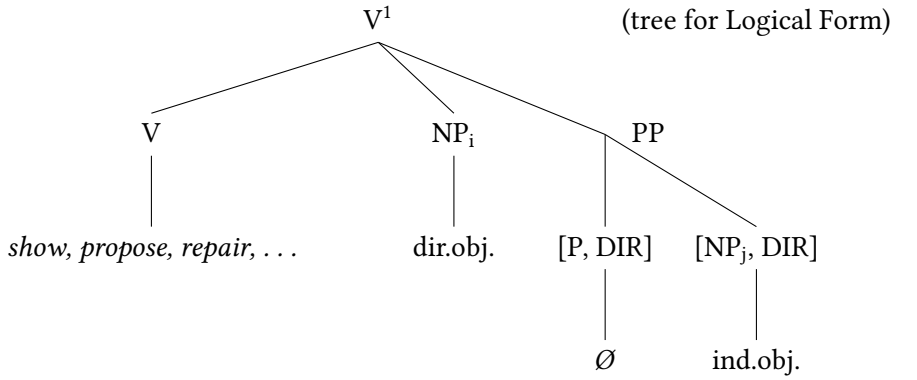


Since it is widely assumed that phrases are lexically selected by virtue of features on their heads, the combination in (17) of secondary V + PP seems to conflict with Condition (14). The resolution of this conflict lies in understanding the source and role of *to / for* and their feature +DIR in (17), along lines justified in more detail in Emonds and Ostler (2006).

In particular, a generally accepted syntactic principle, widely termed the Case Filter (Chomsky 1986), requires that all NP arguments of a lexical head *must be assigned a case*. The direct object NP typically receives case from the V that selects it, and is thereby interpreted with whatever semantic role a particular verb class assigns to direct objects. A second NP selected by a V can then receive case only from a "minimal PP" generated to satisfy the Case Filter. Such a PP then occurs as a sister of V, not by virtue of selection, but only so that its head P can assign case to its v-selected NP object. By itself, this minimal P, whose unmarked feature value as a sister to V is +DIR, is *semantically inert*.

However, the "case feature" assigned by P to the indirect object NP is actually the unmarked value of P itself, here +DIR. As a feature on NP, +DIR contributes to interpretation. In the framework of Emonds (2000), this means that, although the node [P, DIR] is phonologically spelled out, it is "empty" in (= doesn't contribute to) Logical Form. Rather, the Logical Form representation of (17) is (18).

(18)



The tree (18) with an empty P gives a more accurate picture than (17) of how indirect object NPs, *as opposed to interpreted PPs of Path / Direction*, are lexically selected. (Numerous primary vocabulary verbs such as *hand* and *push* select either.) Subcategorization features specify only *interpreted* constituents, so that di-transitive verbs in English (and probably cross-linguistically) are selected by the syntactic frame +___NPN̂P, with *no reference to* the feature Direction / Path on the case-assigning P.

This conclusion that this P plays no role in indirect object selection is confirmed by the fact that full PPs of Direction, as opposed to those of static location, are *incompatible with di-transitive verbs in the secondary vocabulary:*

(19) *We distributed the gifts on / *onto the playground.*
*The agent introduced the new book in / *into the internet market.*
*Some soldiers displayed the new flag from / *off of the balcony.*
Thus, the feature for selecting indirect objects +___NPN̂P does not conflict at all with the stricture (14) on secondary vocabulary verbs, and so many of the latter freely accept indirect objects introduced with the least marked case-assigning Ps *to* or *for.*

5. Which di-transitive verbs accept indirect objects without Prepositions?

As seen in (16) above, both primary and secondary vocabulary English verbs can take indirect objects expressed in PPs with *to* or *for.* Almost all such verbs in the primary vocabulary, except the grammatical verbs *do* and *say,* can also position their indirect objects (without a P) before the direct object. In contrast, secondary vocabulary verbs cannot appear with indirect objects in this way.

(20) Indirect objects without Ps:
a. *A manager showed / *demonstrated the staff the new procedure.*
b. *The manager makes / *produces each customer a receipt.*
c. *Please hand / *distribute the guests some cake.*
d. *That company offered / *proposed the part timers better pay.*
e. *I got / *selected my brother some new shirts.*
f. *Margaret told / took / *said / *did her brother something strange.*

Hundreds of English verbs with non-initial or secondary stress (the secondary vocabulary) do not permit preposition-less indirect objects, as exemplified in (20). And as predicted by (5c), none of them are irregularly inflected.

(21) *acquire*, *announce*, *attribute*, *compose*, *contribute*, *construct*, *design*, *donate*, *explain*, *fabricate*, *guarantee*, *improve*, *introduce*, *install*, *locate*, *obtain*, *present*, *procure*, *provide*, *recall*, *recommend*, *repair*, *reveal*, *review*, *revise*, *suggest*, *supply*, *transport*

Linguists who highlight (and indeed exaggerate) irregularity inflate collections of secondary vocabulary verbs with P-less indirect objects, e.g., Herriman (1995, 61, 104)

finds 30 such verbs which usually occur with *to*-phrases. However, her list is misleading; 14 of her verbs contain the prefixes mentioned earlier with regard to Proto-Germanic Initial stress (8), e.g., in *assign, bequeath, forbid*; it is thus plausible that some of these mono-morphemic stems are in the primary vocabulary. Moreover, in my personal speech, 14 other of her verbs are unacceptable with P-less indirect objects:

(22) **They will deliver Betty that package.*
**The boss plans to extend the part-timers some new privileges.*
**Several teachers recommend the students Shakespeare.*
**Can you reimburse John his ticket?*

All told, only 2 of her 30 examples, *advance* and *deny*, seem to be secondary vocabulary verbs acceptable with P-less double objects.[16]

I thus conclude that essentially the same verbs that are incompatible with post-verbal particles also reject double objects with no P. Consequently, the differences between primary and secondary vocabulary can be extended as in Table (5). Lines e and f are *syntactic properties* of the particular grammar G_E of English, and they cannot be attributed to either UG or to single items in the English Grammatical Lexicon.

(23)

	CORE OR PRIMARY VOCABULARY	SECONDARY VOCABULARY
a.	More general and mundane meanings: *eat*, *drink*, *swallow*, *smell*	Very specific meanings: *devour*, *imbibe*, *consume*, *aroma*
b.	Restrictive phonology, e.g., in English, no secondary or non-initial morpheme stress	Less restrictive phonology, such as possible non-initial or secondary stress in English
c.	Possible irregular inflection, e.g., past tenses other than *–ed*, irregular plurals, etc.	Only productive inflections (*–ed* past on V, *-s* plurals on N, etc.)
d.	Inflected adjectival comparison (*-er*, *-est*): *saner*, *stupidest*, *tighter*, *sourest*	Free morphemes must compare A: **insaner*, **morbidest*, **tauter*, **dourest*
e.	Verbs can select +DIR Ps (directional post-verbal particles P and directional PPs).	Verbs with post-verbal particles P or directional PP complements are rare.
f.	Verbs can have P-less indirect objects.	Indirect objects require the Ps *to*/*for*.

Section 4 expressed line e in this table somewhat more formally, as the Selection Condition (14), a sort of Global Condition in the lexicon on syntactic subcategorization. Line f in the table can now be expressed in a similar way.

In early generative grammar, Fillmore (1965) and Emonds (1972) argued that English indirect object movement (to a position between V and a direct object) is transformational in nature. Subsequently, based on Oehrle (1976), "lexicalist" analyses

16. There are "less educated" styles of current English which lack the contrast in (20), e.g., *Why don't he explain us what he means? He went and recommended my kids one of them dirty movies.* Excluded in Standard English: **Explain us what you mean; *They recommended my kids a bad movie.*

prevailed for some 15 years, according to which an English-speaking child must learn separately for each di-transitive verb whether it can appear without *to* or *for*. Transformational analyses returned to the fore after Larson (1988), though strong disagreements have persisted as to what constitutes the best analysis. Many of these debated points are summarized and critiqued in Emonds and Ostler (2006).

Here I will now suggest a way out of this impasse, which hopefully simplifies the description of English indirect objects.

(24) a. ***All*** the indirect objects in (16) and (20) result from the ***same selection features***; all these verbs select an unmarked object NP and a second minimally case-marked NP.
b. Second NPs receive abstract inherent case in a minimally marked PP.

Formally, the lexical entries of all di-transitive verbs of both primary and secondary vocabulary can be specified with the following minimal subcategorization frames.[17]

(25) Unmarked Di-transitivity Features (for languages without case-inflected nouns)
Bantu, Chinese, Indonesian, Germanic (e.g., English): V, +___NP, [NP (+DIR)]
Japanese, Romance: V, +___NP, NP

The syntactic subcategorization frames in (25), including the optional feature of Direction or Path, +DIR, can be taken as the very definition of the most common type of di-transitivity, that specifying verbs of physical or metaphorical transfer of the object NP to a "Goal" or "Benefactive" NP. Let us see now how this feature works for:

(26) (i) English secondary vocabulary V (equally well for Japanese and Romance),
(ii) English primary vocabulary V with indirect objects introduced by an overt P, and
(iii) English primary vocabulary V with indirect object between V and direct object.[18]

(i) For verbs in the secondary vocabulary, Condition (14) rules out selecting +DIR, so the complement structure in the tree (18) is built by selecting two NPs without any DIR feature. Some P is nonetheless required for assigning case to the second NP, one not adjacent to V. It seems plausible that UG specifies a minimal (unmarked) P in the complement structure of an activity verb as +DIR (= GOAL). A P with this feature is spelled out in English as *to* or *for* in Phonological Form, as in (17).

(ii) Unlike secondary vocabulary, verbs in the primary vocabulary have an option in the entry (25): they can select the feature +DIR on the second NP or not. If they *don't*

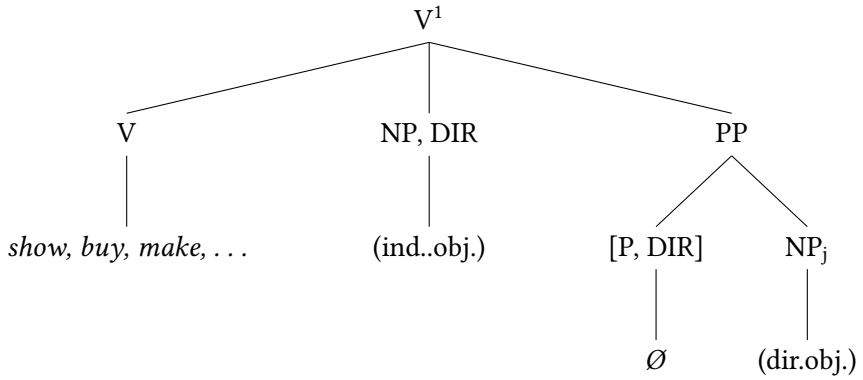
17. Indirect objects in languages for which these frames are relevant are discussed in more detail in Emonds and Ostler (2006).
18. The other languages mentioned with English realize indirect objects in the same two ways as English primary vocabulary, though I do not know if they have a similar limitation.

select +DIR, the resulting VP has *the same* structure (18) as *with secondary vocabulary verbs*. The derivation of the clause, including the need for a case-assigning P, then proceeds in the same way for both types.

(iii) If a verb in the primary vocabulary *does* select +DIR, there are *two possible* results. For some decades it has been recognized that subcategorization / selection features of individual lexical items are responsible *only for co-occurrence*, and *not for the left-right ordering* among complements (Stowell 1981). So from (25) the NP unspecified for DIR can precede [NP, DIR], or the opposite order can be obtained.

— If [NP, DIR] follows NP, once again the tree (17) results, and an indirect object with *to / for* is spelled out, still as in (ii) just above.
— Crucially, if [NP, DIR] precedes the second NP, a different tree results. Recall that as long as [P, DIR] is not selected by a verb, i.e., it is *uninterpreted in LF*.

(27)



In this tree, the feature DIR *on the first NP* serves as an "inherent case feature," which both furnishes Logical Form with the information necessary to assign a Goal / Benefactive interpretation, i.e., it is the indirect object. As a result, V is free to assign case to the closest NP which still requires it, here the second NP. And, as holds generally, when a V assigns case in an unmarked way to an NP complement, this NP gets the semantic role (interpretation) of a direct object.

The Selection Condition (14) excludes tree (27) with secondary vocabulary verbs because the feature DIR appears on a *selected* argument. As discussed in Section 4, this feature does not appear on NP when a verb selects an indirect object *inside a PP*. Such indirect objects are marked as +DIR only in LF in (18) by virtue of case assignment.

A final point concerns the status of the empty P in (27). Cross-linguistically, including in English, there are syntactic arguments that the direct object NP in (27) is indeed in a PP. They are far from obvious, but nonetheless telling, and the reader is referred to Emonds and Ostler (2006) for a closer analysis. The mechanism that licenses this empty P is not entirely clear, but it almost certainly involves the presence of P's only feature DIR on the adjacent NP that precedes it.

6. Conclusion and some speculation

However we account for the word order between the indirect and direct objects, Sections 4 and 5 have amply demonstrated the general incompatibility of English secondary vocabulary verbs with the selection feature +___DIR. I thus propose it as a candidate for the "Global Conditions on Lexicons" that are part of particular grammars mentioned at the end of Section 2.

(14) Selection Condition on Verbs in G_E. Primary but not secondary vocabulary English verbs can have the subcategorization (selection) feature +___DIR.

Importantly, this general condition *cannot be expressed by means of some single lexical entry* in the English grammatical lexicon. As a result, Borer's Conjecture for particular grammars is too strong a hypothesis. A descriptively adequate G_E requires some formal device that is *neither UG nor a property of single lexical entries*. As suggested in Section 2, these global conditions, when their extent and formalization come to be better understood, may also encompass the language-particular word and phrase order parameters for which Chomsky first suggested the idea.[19] Some examples of conditions on word order are taken from Emonds (2013): [20]

(28) Head Ordering. Lexical category heads X^0 or phrasal heads X^1 can precede their sisters Y^0 or Y^1 in domains X^j, where j = 0 or 1.
English: All heads X^j precede phrases Y^1 in all phrases X^1.
French: All heads X^j precede non-heads Y^i in all types of X^j.
Chinese: The heads $X = V^0$ and P^0 precede non-heads Y^j in all types of X^j.

Like (14), parametric statements as in (28) seem to be about N, A, V, P and their word and phrasal projections. Tentatively:

(29) Global Conditions on Lexicons. Language-particular "Global Lexical Conditions" are limited to statements about the ordering and selectional properties of the lexical categories N, V, A and P.

At least for the moment there is no reason to think that language variation in syntax extends beyond Grammatical Lexicons (Borer's Conjecture), provided we allow some general combinatorial conditions on the four lexical categories as in (29).

19. Chomsky made this suggestion in 1988. Not long after, he introduced the I-Language / E-Language distinction, as he must have felt that I-Language should specify properties of particular grammars.
20. In the cited essay, the fact that specifiers precede heads is attributed to UG. Moreover, heads within words that are *lexically specified as bound suffixes* are exempt from a general requirement of left headedness.

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