On Weak Object Pronouns in English

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The ‘weak’ object pronouns in English are unstressed, unaccented pronouns which have restricted syntactic distributions adjacent to their head verbs or prepositions (Zwicky 1986, Wallenberg 2007): the pronouns in get them \[gER@m\], stop her \[stApÄ\], give me \[gimi\] are examples. These pronouns are closely bound to their heads by phonology, allomorphy, and syntactic adjacency, yet they have semantic and syntactic scope typical of ordinary syntactic DPs in the VP, and they can occur with a small class of quantifier specifiers showing their phrasal status. Those verbs and pronouns with the highest probability of occurring together are the most likely to encliticize and fuse together in speech. All of these properties of weak object pronouns yield to a coherent understanding within a hybrid theory (Bresnan 2018) that incorporates a probabilistic model of the mental lexicon from usage-based linguistics (e.g. Pierrehumbert 2006) as the lexicon of LFG with lexical sharing (Wescoat 2002, 2005). The formal representations of weak object pronoun encliticization in this theory can be thought of as depicting a synchronic state of partial grammaticalization of syntactically independent, prosodically reduced pronouns into morphosyntactic enclitics.

1. Weak object pronouns as simple enclitics

Weak object pronouns can occur unstressed in phrase-final positions, unlike non-enclitic monosyllabic function words, which take their strong forms in these positions (Selkirk 1972, 1984, 1996, 2011; Inkelas 1989; Inkelas and Zec 1993),\(^1\)

\[
\begin{align*}
&\text{(1) a. } \underline{\text{We’ll get them. }} \text{[get } \delta\text{m], [gER@m], [gIRm]} \\
&\text{b. } \underline{\text{If you think you can, go ahead and do it. }} \text{[kæn], *[kæn], *[kn]} \\
&\text{c. } \underline{\text{What did you look at yesterday? }} \text{[æt], *[øt]} \\
&\text{d. } \underline{\text{Who did you do it for that time? }} \text{[fɔi], *[fɔr]}
\end{align*}
\]

Zwicky (1977) uses the term \text{simple clitics} for unstressed pronoun forms like these that have “ordinary syntax” (the same word order as their corresponding stressed, or strong, forms).

They cannot be separated from their hosts by hesitations (Inkelas and Zec 1993:244), indicating that they form a phonological word with their hosts:

\[
\begin{align*}
&\text{(2) } \underline{\text{*John likes … uh… ’em. (< … them)}}
\end{align*}
\]

Inkelas (1989) and Inkelas and Zec (1993) analyze reduced weak object pronouns as enclitic allomorphs of full pronouns, which lexically subcategorize for a phonological word on the left and form a layered phonological word with it in phrasal prosodic structure: \[\mid | \omega \text{ CL } \omega.\]

In spoken English, verbs together with weak object pronouns can sound rhythmically exactly like single words with disyllabic feet (Abercrombie 1961, Selkirk 1996):

\(^1\)The examples in (1b,c,d) are from Selkirk (1996:400). Contracted tensed auxiliaries also encliticize leftward (to their host subjects), but they remain metrically dependent to their right like their unstressed syllabic counterparts, and so do not appear phrase-finally (Inkelas and Zec 1993; Bresnan 2018).
Abercrombie (1961:221) refers to such weak object pronouns as enclitics and adds supporting segmental evidence from the distribution of clear (or “light”) and dark (velarized) [l] in his speech, as in (4). Dark [H] occurs before ordinary word boundaries, but not before the weak object it:

(4) feeling [ˈfɪliŋ] feel it [ˈfiːlt] feel ill [ˈfiːl ɪ]l

There is recent articulatory evidence using ultrasound tongue imaging that this difference in the domain of l-darkening is a feature of RP English: Turton (2014:238) finds instrumental evidence that across two experiments the same RP speaker pronounces heal in (5a) with a light [l] and Neal (5b,c) with a dark [l].

(5) a. Can you heal [l] it?

b. I sent Neal [H] interesting emails.

c. I sent Neal [H] innocuous pleas.

Deletion of final glottalized [t] is another phenomenon that applies differentially before initial consonants in weak objects and ordinary words, according to Selkirk (1972:140). While final [t] glottalization is common across all word boundaries, she distinguishes (6a,b), where deletion of the glottal stop is possible, from (7a,b), where it is not, in her speech:

(6) a. Let me go. [lɛʔ], [le]

b. Get me a pencil. [ɡɛʔ], [ɡɛ]

(7) a. Let Maureen go. [lɛʔ], *[lɛ]

b. They got Larry a pencil. [ɡɑʔ], *[ɡɑ]

Deletion of final [v] before the initial consonants of weak object pronouns provides a similar contrast, Selkirk (1972:137ff) observes. Compare the pattern with weak object pronouns (8a-d) and ordinary words in (9a-d):

(8) a. Give me some. [ɡɪ mij]

b. Leave them alone. [liː dəm]

c. Will he save them a seat? [sej dəm]

d. You’ll forgive me my intrusion? [fɔːɡɪ: mij]

(9) a. Give Maureen some. *[ɡɪ mɔːin]

b. Leave Thelma alone. *[liː θelma]

c. We’ll save those people a seat. *[sej dəʊz]

d. Will you forgive my intrusion? *[fɔːɡɪ: mɔɪ]
Selkirk (1972:139) speculates: “If in some other dialect, /v/-deletion is possible in sentences [(9a–d)], I would wager that it’s much less natural than in sentences [(8a–d)], or is possible only in much faster speech.”

Another phenomenon sensitive to the cliticization domain may be be r-linking and r-intrusion in some varieties of non-rhotic speech. We have recorded a non-rhotic Australian speaker from Brisbane for whom a coda [i] is pronounced before a vowel beginning a weak object, but is lenited ([i]), sounding more vocalic, before an unstressed vowel across ordinary word boundaries. The same pattern occurs with intruded [i] in her speech:

2

<table>
<thead>
<tr>
<th>(10) vowel-initial weak objects</th>
<th>vowel-initial ordinary words</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>I admire'em</em> [a'daimi]</td>
<td><em>he put the tuner away</em> [Vju:næt o'wei]</td>
</tr>
<tr>
<td><em>I saw'em</em> [sæ:rem]</td>
<td><em>the boat tends to yaw a little</em> [jɔ: t a'hitl]</td>
</tr>
</tbody>
</table>

In sum, the host+weak object encliticization structures of English appear to form a distinctive phonological domain from ordinary verb-object and preposition-object sequences. But that is far from the whole story.

2. Evidence of allomorphy

A number of phonological rules that apply within the domain of verb+weak object or preposition+weak object are not productive, but rather lexically governed, as Kaisse (1984: 34) terms it, by the object pronoun or the host. Zwicky (1970:325–326) discusses a rule of “glide deletion,” which drops the onset [h] in her, him and the onset [∅] in they, them, than, this, these, that, those, there. He points out, however, that loss of [∅] occurs more readily in some words (them, than) than others (that). We can add (11a,b) as a supporting example showing that stressless the [∅] fails to drop its onset:

(11) a. *We can do without them/*'em. [wiθaʊr əm]
    b. *We can do without the men/*'emen. *[wiθaʊr ə'men]

Selkirk’s (1972) v-deletion examples (8) use the verbs give, leave, save, forgive as hosts, but it seems very unnatural to apply it to the verbs in (12a,b), suggesting that it is dependent on the properties of specific verbs beyond their morphological and phonological context:

(12) a. *Will you relieve me? [u'lɪjv mi], *[u'lɪjv mi]
    b. *I'll shave them. [feiv dəm], *[fei dəm]

Zwicky (1977:28) contrasts regressive place assimilation in let me and give me, which “assimilate to a following clitic me” as in (13a), with the phonologically similar words bet me and have me, which are “not pronounceable” as in (13b)—again suggesting that only specific verbs allow these variants before me.

(13) a. let me *[ləmi], give me *[gmi]
    b. bet me *[bɛmi], have me *[hæmi]

We can add (14) as another example of failed deletion of final glottalized [t] (Selkirk 1972) or regressive place assimilation (Zwicky 1977) before me after a verb regret phonologically similar in its final syllable to get, let.

Don’t regret me. [təˈɡiːt mi], *[təˈɡiːmi]

We have already quoted Selkirk’s (1972) wager that v-deletion may apply in the larger phrasal domain as a rule of faster speech and potentially cloud judgments of v-deletion outside the enclitic domain. More generally, Kaisse (1985:15) writes, “The source of rules of connected speech, and also of many simple cliticizations, is sometimes to be found in the grammaticalization of fast speech rules.” And indeed this is an insight expressed in various theoretical frameworks (e.g. Bermúdez-Otero and Trousdale 2012, Bermúdez-Otero 2015). In the domain of weak object encliticization, we see that some of these are not only grammaticalized but lexicalized in the sense that they are seemingly subject to lexical exceptions or frozen in allomorphic variants of verb stems or pronouns.

Consider the process of h-deletion, which would derive [ŋ] from [hŋ] and [ŋm], [ŋm] from [hm]. Kaisse (1985) observes that unlike [ŋ]-deletion, h-deletion is a very productive fast speech rule: it deletes initial h of any syllable not utterance-initial or bearing sentence stress—prohibition, I met (H)erodotus, Someone next to me (h)allucinated, The (h)arpsicord is lovely, I like (h)is style. If a productive fast-speech process of h-deletion applies synchronically to derive the onsetless forms ‘er, ‘em of her and him, it should apply in about the same proportions across the different pronouns in its context of application. But if the onsetless forms have become lexically stored allomorphic variants, the proportions of h-deletion might drift and differ.

Is there is a constant rate of h-deletion across the weak object pronouns? To answer this question, we extracted all instances of him and her with their surrounding 24-word contexts from the Buckeye Corpus, which includes phonetic transcriptions of high-quality acoustic recordings of conversational speech by trained speech analysts (Pitt et al. 2005, Dilley and Pitt 2007). We manually coded the verbs and prepositions preceding the pronouns, and tabulated the pronunciations of the following pronouns with and without h-onsets. For the present study we also set aside preposition hosts because of the complications introduced by weak prepositions. These interact with onset deletion in the weak object forms (see Selkirk 1972, 1984): for example, to them can be pronounced [tə`ðem] as well as [tə`m], among other ways. Table (15) shows the resulting rates of h-deletion for postverbal her and him.

<table>
<thead>
<tr>
<th></th>
<th>her</th>
<th>him</th>
</tr>
</thead>
<tbody>
<tr>
<td>onset</td>
<td>93</td>
<td>99</td>
</tr>
<tr>
<td>no onset</td>
<td>159</td>
<td>243</td>
</tr>
<tr>
<td>proportion no onset</td>
<td>0.631</td>
<td>0.711</td>
</tr>
</tbody>
</table>

The proportions of h-deletions for her and him differ (Fisher’s exact test for count data: p-value = 0.04176)

We next coded possessive instances of postverbal her, such as draw her last breath. Table (16) shows that the rate of h-deletion in postverbal her objects differs from that in postverbal her possessors (p-value = 1.023e-07, FET).

<table>
<thead>
<tr>
<th></th>
<th>object her</th>
<th>possessive her</th>
</tr>
</thead>
<tbody>
<tr>
<td>onset</td>
<td>42</td>
<td>51</td>
</tr>
<tr>
<td>no onset</td>
<td>125</td>
<td>34</td>
</tr>
<tr>
<td>proportion no onset</td>
<td>0.75</td>
<td>0.40</td>
</tr>
</tbody>
</table>

From tables (15) and (16) we conclude that the variant pronunciations of her and him without the h-onsets ([ŋ], [ŋm], [ŋm]) are lexically stored allomorphs of the pronouns. They likely reflect grammaticalization of the productive fast-speech rule of h-deletion that applies elsewhere.

In sum, although the host+weak object encliticization structures of English appear to form a distinctive phonological domain from ordinary verb-object and preposition-object sequences, they show patterns of lexicalization or allomorphy of both host and pronoun that fall outside of productive phonological rules.
3. Three analyses of weak object enclitics

Syntactic analyses of the weak object pronoun enclitics have involved either purely prosodic incorporation with their host into a phonological word \( \omega \) without syntactic adjunction, as in (17a) (Inkelas 1989, Inkelas and Zec 1993), or alternatively, morphosyntactic adjunction of the object pronouns to their heads, as in (17b) (Kaisse 1985; Selkirk 1972, 1984, 1996; Ito and Mester 2018, 2019). A lexical sharing analysis looks like (17c) (cf. Wescoat 2002, 2005; Bresnan 2018). (Both the morphosyntactic analysis and the lexical sharing analysis provide syntactic input to further prosodic structure, not shown in (17b,c).)

\[(17) \quad \text{a. } \text{VP} \quad \text{b. } \text{VP} \quad \text{c. } \text{VP} \]

\[
\begin{array}{l}
\text{V} \quad \text{DP} \\
\quad \text{D} \\
\quad ((\text{get}_\omega\ 'em)_\omega) \\
\end{array}
\]

\[
\begin{array}{l}
\text{V} \quad \text{D} \\
\quad \text{get'}em
\end{array}
\]

All of these are compatible with the LFG framework assumed here. In (17b) \( D \) could be either a terminal category node or a non-projecting node \( \hat{D} \) (Zaenen 1983, Sadler and Arnold 1994, Toivonen 2003).³

Prosodic incorporation (17a) captures phrase-final stresslessness (see (1)) because the weak object is not a phonological word \( \omega \) and stress falls on the final \( \omega \) of the phrase. But without adding lexical and syntactic conditions it fails to capture syntactic and word-specific dependencies between host and pronoun.

The purely prosodic analysis does not require that the object pronoun be syntactically adjacent to its head verb or preposition—it could be adjacent to any other stressed phonological word to its left that it could metrically depend on, such as the DP my children in (18a) or the particle out in (18b).

\[(18) \quad \text{a. } \*\text{They brought } ((\text{my children})_\omega\ 'er)_\omega \quad (\text{cf. } \text{They } ((\text{brought})_\omega\ 'er)_\omega \text{ to my children})
\]

\[
\begin{array}{l}
\text{b. } \*\text{The cat, you’d better let } ((\text{out})_\omega\ 'er)_\omega \\
\quad (\text{cf. } \text{The cat, you’d better } ((\text{let})_\omega\ 'er)_\omega \text{ out})
\end{array}
\]

Nor does the purely prosodic account explain the syntactic restrictions we find with coordination. For example, the weak object pronoun must not itself be syntactically embedded in a coordinate structure (Selkirk 1972:132–133), although its head can be:

\[(19) \quad \text{a. } [\text{with or without }] 'em \text{ vs. } \*\text{without } ['em \text{ or her ]}
\]

\[
\begin{array}{l}
\text{b. } \text{They } [\text{praised and promoted}] 'er \text{ vs. } \*\text{They praised } ['er \text{ and him both ]}
\end{array}
\]

Could we explain (18) and (19) away by saying simply that an inherently stressless allomorph can only be generated in a DP position adjacent to its head because the other DP positions are stressed? The answer is No: the syntactic position of the DP object in (17a) is also a stressed position, in fact the most typical position for nuclear sentence stress in English. This fact is what motivates the enclitic analyses to begin with. The purely prosodic analysis in (17a) is incomplete because it lacks the information needed to license the enclitic pronoun in this syntactic position and not others. Zwicky (1986:106ff) recognizes this point and formulates prosodic attachment to the left (which encompasses encliticization of an object pronoun) as requiring (i) that the category of the host is a sister to that of the pronoun, (ii) is a lexical category, and (iii) is a category that governs case marking. This is the basis for our lexical sharing schema below (29), which underlies specific lexical sharing entries such as (28).

The morphosyntactic analysis (19b) can capture phrase-final stresslessness by assuming that the lexical category V matches a phonological word in prosodic structure, while the category of the pronoun does not (Selkirk 1996, Ito and Mester 2019). In addition, the morphosyntactic analysis (19b), unlike the purely prosodic analysis, expresses the required syntactic adjacency of the weak pronoun object to the head verb, as in (20a,b):

³In either case it could be mapped to the required complement function in f-structure, for example by the annotation \((\uparrow \text{obj}) = \downarrow\).
(20) a. The cat, you’d better let ’er out.
   b. *The cat, you’d better let out ’er.

(21) a. You’d better give ’em to the cat.
   b. *You’d better give the cat ’em.

But the morphosyntactic analysis fails to capture the fact that the pronoun has syntactic and semantic scope over conjoined heads, as objects do in the syntactic DP position in (17b) or (17c):

(22) a. They will impede or stop ’em all/everyone.
   b. They will try to impede or stop ’er! (rhymes with stopper)
   c. We can do with or without ’em. (same pronunciation as without ’em in (11a))

Semantic scope is shown in (22a): the sentence is true not only when everyone/all of them will be impeded or everyone/all of them will be stopped, but also when every individual will be either impeded or stopped. The basic generalization about constituent structure coordination here is that complements external to conjoined heads are shared between them, while those internal to one conjunct are not shared with the other (Peterson 2004).

Note that in the conjoined head configurations the pronoun can still prosodically attach to the host verb in the right conjunct, which (for example) can sound rhythmically like stopper in (22b) and unconjoned without ’em in (11d). Thus there is a mismatch between the prosodic structure and the syntactic structure.

Another problem for the morphosyntactic analysis (17a) is that the encliticized pronoun may have a postposed quantifier specifier, as we see with ’em all in (22a). Maling (1976) shows that entirely apart from quantifier floating, in which pronouns as well as lexical nouns participate, the quantified pronouns can also form a single constituent with obligatorily postposed (“flipped”) quantifier specifiers all and both—*all them/them all, *both us/us both.4 (These postposed quantifier specifiers of the pronouns are reminiscent of the postposed measure word enough with adjectives vs. nouns: I am *enough reasonable/reasonable enough vs. There is enough time/time enough to do this.) As Maling (1976:714) observes, the pronouns with flipped quantifiers are single constituents having a broader distribution than lexical nouns (or pronouns) with floated quantifiers:

(23) a. flipped quantifiers: I called [us/them both/all]DP
   b. floated quantifiers: *I called [the men]DP [all/both/each]QP

The pronoun with flipped quantifier has phrasal status: it can bear nuclear sentence stress (24a), and it can be clefted (24b).

(24) a. I called them all.
   b. It’s [us both] that they want.

Even when part of a flipped quantifier phrase, the onsetless weak object pronoun must be adjacent to its head:

(25) a. The cats, you’d better let [’em all] out
   b. *The cats, you’d better let out [’em all]

4Maling notes that unlike all and both, each only floats, and is therefore ruled out where floating from lexical nouns is ruled out; cf. (23a,b) and *I called them each.
(26)  a.  Those two toys you bought, you’d better give ['em both] to the cat  

b.  *Those two toys you bought, you’d better give the cat ['em both]  

Thus the pronouns with flipped quantifiers *all* or *both* appear to have the same distribution as the unquantified pronouns. But this distribution does not follow from the morphosyntactic analysis (17b), which adjoins only a terminal category node or nonprojecting category to the head.

The lexical sharing analysis (17c), as we will see, captures all of these properties. The lexical sharing analysis could be thought of as a formal representation of a state of partial grammaticalization of syntactically independent object pronouns subject to prosodic reduction (17a) into morphosyntactic clitics (17b). The weak object pronoun retains syntactic independence, but remains tightly bound lexically and phonologically to the adjacent host.

4. The analysis in LFG with lexical sharing

Formally, the host and pronoun in the lexical sharing analysis together form a single lexical entry which corresponds to (or “is shared by”) the two linearly adjacent and terminal category nodes in c-structure.

Lexical storage of host and object pronoun together allows for the types of allomorphy that occur and provides a domain for word-internal phonology of host and clitic. The lexical sharing analysis captures the phrase-final stresslessness of the weak object pronouns because all lexical words, including lexically shared, are prosodic words ω, e.g. $(((get)_{ω} \ \ 'em)_{ω})$ (Bresnan 2018).

In (27)–(28) is a more complete view of the lexical sharing of a host+object pronoun in LFG. (27) shows correspondences between the c-structure and f-structure of *get'em*, which arise from the lexical entry in (28) together with the principles of the structure-function mapping $ϕ$ for English (Wescoat 2002, 2005; Bresnan et al. 2015).

(27) 
```
VP
  ↓
V   DP
  \(λ\)
```

```
[OBJ
  \(\textsc{pred '}get\langle{(subj)(obj)}\rangle'\)
  \(\textsc{pred 'pro'}\)
  \(\textsc{pers 3}\)
]
```

(28) 
```
\('get'em'\) \[\[gerem],[gIRM]\] \leftarrow \V\(\downarrow\textsc{pred} = \langle{(subj)(obj)}\rangle\)\)
\(\downarrow = \downarrow\)
\(\textsc{obj} = \textsc{pers 3}\)
\(\textsc{obj} = c\)  
```

In (27) the arrows pointing to *get'em* are Wescoat’s lexical instantiation mapping (\(λ\)) from c-structure terminals to their “lexical exponents”; V and D share a common lexical exponent. In (28) ‘\(\downarrow\)’ represents the f-structure of the shared entry, which allows annotations of the atomic elements V and D to refer to the same f-structure (Wescoat 2005). Thus in (28) the annotation \(\downarrow = \downarrow\) below the atomic constituent V identifies the f-structure of the shared entry *get'em* with that of the V, and the constraining equation (\(\downarrow\textsc{.obj} = c\)) annotated below the atomic constituent D checks that the f-structure associated with the D is the OBJ of the f-structure associated with the shared entry *get'em*.

(29) provides a schematic form for shared lexical entries of weak pronoun cliticization in general. Either a verb or preposition may host a weak object enclitic, and the pronoun enclitic may be an argument function (AF) of the host, including primary or secondary object OBJ, OBJ, or oblique object (OBJ, OBJ) — this last in cases like because of *'em* (Zwicky 1986). Generalization to SUBJ is possible for cases like *didja*, *wouldja*, and the like, but is outside the scope of the present study. In the LFG framework, these properties closely follow Zwicky’s (1986) generalization discussed in connection with (18)–(19) above.
(29) morphology [phonology] ← V|P D
... (↓PRED) = 'PRO'
↓ = ↓
... (↓↓ AF) =c ↓

The overall effect of the shared lexical entry annotations is to express the tight syntactic relation required of the weak object and its head: the enclitic object pronoun must be an object of the head. It therefore must not itself be syntactically embedded in a coordinate structure, because it would then constitute only an element of the OBJ of get in f-structure, and not the OBJ itself (30a,b).

(30) a. *Let [’em or her] do it. (cf. Let him or her do it.)
   b. *with [’er and John] (cf. with her and John)

Again, it would not be sufficient to claim that structures like (30a,b) are ruled out simply because conjuncts must have stress; recall the discussion of (18)–(19).

Of course, not all conjuncts have this embedded structure: afterthought conjuncts, which are very common in conversational speech, can modify a preceding constituent without being syntactically embedded in a conjunction with it (e.g. We’ll get’em, and (I think) her (as well)). Pauses and interpolated parentheticals may separate the left conjunct from the afterthought conjunct.

(31)–(33) display formally why structures like (30a) are ungrammatical (and (30b) is parallel). (31) is an annotated c-structure rule for the bracketed portion of (30a) (Peterson 2004). (32) has the relevant lexical entries for (33). Both the syntactic annotations implementing the structure-function mapping principles for English and the lexical annotations from (32) collect on the c-structure tree nodes together.

(31) DP → DP C DP
   ↓ ∈ ↑ ⋰ ∈ ↑ ⋰ ∈ ↑

(32) a. let’em [lɛrʌm],[lɛrm] ← V
   (↓ PRED) = ‘LET (⟨SUBJ⟩(OBJ)(XCOMP))’
   ↓ = ↓
   D (↓ PRED) = ‘PRO’
   (↓ PERS) = 3
   (↓ OBJ) =c ↓

   b. or [ɔr] ← C
   (↓ CONJ) = OR

   c. her [hɛr] ← D
   (↓ PRED) = ‘PRO’
   (↓ GEND) = FEM

(33) shows the resulting c-structure to f-structure correspondence, simplified by removing extraneous material. The subscripted labels x, y, z on the syntactic nodes and the f-structures show their correspondences. In this construction, ↓ is identified with the outermost f-structure, labeled x, which V and VP correspond to, and (x OBJ) is then the set of f-structures, labeled y, corresponding to DPx. But the constraining equation (↓ OBJ) =c ↓ from the atomic constituent D of the shared entry (32a) requires the OBJ f-structure to be identified with the f-structure of the leftmost conjunct, labeled z, and this violates the consistency principle since x ≠ z: the left conjunct’s f-structure and the set of which it is a member conflict and cannot be identified. The associated lexical string (30a) is therefore ungrammatical under this analysis.

In contrast, (34a–c) show that conjunctions of hosts do not prevent lexical sharing of the rightmost conjunct with the weak pronoun enclitic.
This is exactly what we would expect from the theories of lexical sharing and conjunction in LFG, as we see in (35):

In (35) the lexical entry of the left conjunct emailed will be that of an ordinary unshared transitive verb, while the shared lexical entry of texted'em will be similar to that in (28) for get'em. In the shared entry, the lexical features of the reduced object pronoun 'em are annotated on the atomic constituent D exactly as in (28). Under the c-structure to f-structure mapping for English these features will become the f-structure value of the OBJ function borne by the DP, in the usual way. This OBJ function is an attribute of the VP's f-structure, which is identified with the f-structure of its head V. When the head V is a conjunction of V's, as it is in (35), it is mapped to the set of the f-structures of its conjuncts, and grammatical functions that are attributes of a set are distributed over its member f-structures (Kaplan
and Maxwell 1988, Peterson 2004).\(^5\) The distributed OBJ is an instance of STRUCTURE SHARING indicated by the curved line connecting the value of the OBJ attribute in the left conjunct f-structure with the value of the OBJ attribute in the right conjunct f-structure.

This theory of coordination explains why (36a) is possible in contrast to (36b):

\[(36)\] a. Kate emailed and texted the results to Paul.

b. *Kate disliked and texted the results to Paul.

In (36a), because emailed and texted are both verbs that take an OBJ and (OBL\(_{to}\) OBJ), their f-structures are rendered complete and coherent by the distribution of the complements across both. In (36b) in contrast, disliked is an intransitive verb, so the distribution of the external complements across the set of f-structures renders its f-structure incoherent (as in *Kate disliked the results to Paul).

Note that examples like (37), which include an intransitive verb in the left conjunct, are grammatical because the complements of emailed are inside of the right conjunct, which is a VP, not a V. In VP conjunctions, the structure-to-function mapping principles define OBJ and (OBL\(_{to}\) OBJ) properties of the right conjunct f-structure in the same way as before, but being internal to a conjunct, they are not attributes of the set and do not distribute over its member f-structures.

\[(37)\] a. Kate sighed and texted the results to Paul.

b. Kate [sighed]\(_VP\) and [texted the results to Paul]\(_VP\)

Thus from the lexical sharing analysis in (27)–(28) and the LFG theory of the distributivity of grammatical functions over coordinate f-structures, we derive the following generalization:

\[(38)\] **Asymmetric coordination:** Although weak object pronoun enclitics cannot be left conjuncts, their hosts can be right conjuncts.

An example of an enclitic secondary object is in (39a), where the primary object has been passivized:

\[(39)\] a. We were never given 'em back. (We were never given the papers back.)

b. *We were never given back 'em. (We were never given back the papers.)

The ungrammaticality of (39b) together with (18)–(19) illustrates a second generalization that follows from the theory of lexical sharing. Wescoat’s (2002, 2005, 2009) many-to-one mapping \(\lambda\) from the c-structure terminal categories to their lexical exponents is a homomorphism preserving syntactic linear order; this yields generalization (40):\(^6\)

\[(40)\] **Adjacency:** The weak object pronoun enclitic must be syntactically adjacent to other atomic components of the shared lexical entry.

Note that clusters of weak pronouns are admitted by generalization (40):

---

\(^5\)Formally, Peterson (2004:655) adds a clause to the definition of function application of Kaplan and Bresnan (1982):

\[(fa) = v\ if\ and\ only\ if\ f\ is\ an\ f-structure,\ a\ is\ an\ attribute,\ and\ v\ is\ a\ value,\ and\]

a. \((a\ v) \in f;\ or\)

b. \(S\ is\ a\ set\ of\ f-structures,\ G\ is\ a\ grammatical\ function\ attribute,\ and\ for\ all\ f \in S, (fG) = v.\)

See Peterson (2004) for discussion and references to further refinements of the theory of coordination, which are outside the scope of the present study.

\(^6\)And it also provides a version of the Lexical Integrity Principle that Wescoat (2005:476) refers to as Homomorphic Lexical Integrity; see Wescoat (2009) for further discussion.
Linguists have reported differing judgments about the possibility of clusters of such weak objects (cf. Jacobson 1982:196; Wallenberg 2007, 2009). Lexical sharing easily captures such variation as individual differences in lexical inventories.

Returning finally to the quantified pronoun objects in (25b), (26b) we observe that as long as the pronoun is the head (or co-head) of a phrase which is the object of an adjacent verb or preposition, the lexical sharing constraints are satisfied. (42) illustrates this point.

The DP structure in (42) is intended to show that the pronoun D ‘em is the head of the quantified pronoun phrase. As shown in (43), the reason for this analysis is that the weak object pronoun with a flipped quantifier cannot be separated from its head verb, while phrases truly headed by the quantifiers can be:

5. The probabilistic mental lexicon

So far we have seen that the lexical sharing analysis of weak object pronoun enclitic structures in LFG can capture their patterns of lexicalization and allomorphy as well as their mixture of ordinary phrasal behavior with special restrictions enforcing a tight bond with the head. These are patterns and behavior typical of usage-based reduction and lexical storage of high-probability adjacent words (Bybee & Sheibman 1999, Bybee & Hopper 2001). We have suggested that lexical sharing could formally represent a state of partial grammaticalization of syntactically independent prosodically reduced pronouns as in (17a) into morphosyntactic clitics as in (17b). Pursuing this idea generates further empirical consequences.

Adjacency, reduction, lexicalization, and grammaticalization are central to usage-based theories of linguistics (e.g. Traugott and Heine 1991, Bybee and Hopper 2001b). According to the theories closest to the phenomena studied here, when adjacent words co-occur with high usage probability, they become phonetically reduced and eventually lexically stored as a unit, gradually accruing distinctive phonological, grammatical, and pragmatic properties (e.g. Bybee and Scheibman 1999, Bybee and Hopper 2001a).

One reason reduction occurs is that frequent motor repetition in articulation becomes automatized; the automatization of pronunciation leads to blurring of word and morpheme boundaries and compression of entire multiword units. Another source of reduction is the hypoarticulation of the more predictable words and the hyperarticulation of the less in order to optimize the flow of information in communication (e.g. Aylett and Turk 2004, Levy and Jaeger 2007).

Lexicalization occurs because lexical storage is highly affected by language use: each occurrence of an expression leaves a memory trace or increments activation in a neural network, in such a way that

---

7 A co-head analysis (Bresnan et al. 2015) would work as well, such as the flatter \[ D \text{ Q } \text{DP} \], with both D and Q contributing their features to the same DP f-structure.
those expressions with high usage probability have stronger lexical representation than those with low probability (Bybee and Hopper 2001a; Bybee and McClelland 2005). This in turn makes lexical access of the reduced forms during speech production more likely.

The lexical entries of LFG, including lexically shared entries, can be theoretically linked to usage probabilities by means of a hybrid model of the mental lexicon (Pierrehumbert 2006). Such a hybrid model associates a set of labels (for example levels of representation from formal grammar) with detailed probability distributions learned from experience and constantly updated through life.

As the measure of usage probability in our datasets we use the conditional probability of the host given the adjacent object pronoun. The conditional probability of a word given the following context word, shown in (44), is the ratio of $P(\text{word}_1 \text{ and } \text{word}_2)$ and $P(\text{word}_2)$.

\[(44) \quad P(\text{word}_1 | \text{word}_2)\]

To estimate this quantity from a corpus, we divide the bigram frequency of the verb+pronouns (the number of occurrences of each verb-pronoun pair) by the overall frequency of the pronoun itself in the corpus:

\[(45) \quad \frac{\text{count(\text{word}_1, \text{word}_2)}}{\text{count(\text{word}_2)}}\]

We further transform the conditional probability by taking the logarithm to the base 2 of its reciprocal, which we refer to here as the informativeness of the verb in the context of the pronoun:

\[(46) \quad \text{Informativeness of the verb in the context of the pronoun:} \log \frac{1}{P(\text{verb} | \text{pronoun})} = - \log P(\text{verb} | \text{pronoun})\]

The negative log transformation inverts the probability scale, so that what is most probable is least informative, and vice versa, and compresses extreme values.

Why choose a measure of usage probability of the host given the following word? In the probabilistic mental lexicon, probability conditioned on the next word can be viewed as measuring the lexical accessibility of $\text{word}_1$ in the context of the speaker’s planned next word, $\text{word}_2$: the ratio measures $\text{word}_1$’s share of all tokens that precede $\text{word}_2$, and so would correspond to its relative salience or activation in that context.

As a consequence of the usage-based theory that host+weak object sequences with the highest probabilities of occurring together in usage are most likely to reduce and fuse together (n. 8), this account motivates the following prediction for weak object encliticization:

\[(47) \quad \text{Inverse relation of reduction to informativeness:} \]

Verbs with object pronouns that show more encliticization and fusion should have lower informativeness (higher conditional probability) than those that show less.

As other researchers have noted (e.g. Ernestus 2014, Gahl et al. 2012), the same prediction could also be made by the smooth signal redundancy hypothesis (Aylett and Turk 2004) or uniform information density (Levy and Jaeger 2007). On these theories, the speaker makes on-line modulations of speaking to compress information more predictable to the listener and to hyperarticulate that which is less predictable, thereby optimizing the flow of information in communication. Though relevant to reduction, 

\[\text{8In information theory this quantity is known as the surprisal (Shannon 1948). The information content of a word word}_i\text{ in information theory (Shannon 1948) is the weighted average of its surprisal } - \log_2 P(\text{word}_i | \text{context}_j) \text{ over all contexts } j; \text{ however, in cases of a single specific linguistic context of interest (such as a simple clitic), averaging makes no difference to the value. We use the term “informativeness” in this case. What we term the “informativeness” of a host verb is also proportional to its joint probability with the context pronoun—in other words, their probability of occurring together. This latter is Bybee’s (2001) measure of usage probability.}\]
the optimization of information flow in speech says nothing about the lexical storage of allomorphs or
lexicalization of multiword expressions. In any event several recent studies provide evidence from corpora
and experiments in favor of production-based theories of speech processing over the listener-based theories
where they make overlapping predictions (Gahl et al. 2012; Zhan and Levy 2018, 2019); see also Ernestus’s
(2014) review.

For our purposes the probabilistic mental lexicon provides a more complete understanding of how
usage probabilities are associated with the allomorphy and lexical specificity of weak object enclisis and
the accrual of grammatical properties distinct from their sources—all products of the the lexicalization
and grammaticalization of multi-word structures not fully explained as on-line modulations of speaking to
compress information predictable to the listener.

6. Empirical investigations of V+object pronoun usage

Is it true that verbs with object pronouns that show more encliticization and fusion should have lower
informativeness (higher conditional probability) than those that show less (prediction (47))? Previous
work has shown that usage probabilities affect the duration and reduction of other function words, but
whether they affect weak object pronoun encliticization has not, to our knowledge, been investigated.
As we have seen, object pronouns have distinctive prosodic properties from other English function words
(Inkelas and Zec 1993; Selkirk 1996; Ito and Mester 2018, 2019). Bell et al.’s (2003) corpus study of the
ten most frequent function words includes the pronoun you in full or reduced pronunciations. They find
that you is more likely to have a reduced pronunciation when it is more predictable from the context.
Their study apparently encompasses instances of you without differentiation between subject and object
functions.

To answer our question of whether reductions in the host+weak object pronoun domain correspond to
usage probabilities, we collected data from the Buckeye Corpus (Pitt et al. 2005). As already mentioned,
the Buckeye Corpus provides broad phonetic data from conversational speech, but it does have the limi-
tation that schwa [ə], the unstressed neutral vowel of English, is not labeled, and stressless function words
are not otherwise distinguished from stressed (Kiesling et al. 2006:18):

> Both full and reduced vowels are labeled based on their perceived quality alone, using the
> same set of vowel labels. … This labeling decision was based on a finding in an inter-
> transcriber reliability study that it was not possible to reliably distinguish between full and
> reduced vowels when the stress status of a syllable was not dictated by a word’s lexical entry.
> [emphasis added]

In order to test the prediction (47), we therefore focused on those reduced host+object pronoun sequences
that we can identify by nonvocalic segmental reductions: the onsetless him, her, and them and the coda
changes in the hosts before me.

A corpus study of verb+him, her, them

We extracted all instances of him, her, and them together with their 24-word contexts from the Buckeye
Corpus, and calculated the informativeness of the hosts in the contexts of the following pronouns on the
entire corpus.9

<table>
<thead>
<tr>
<th></th>
<th>her</th>
<th>him</th>
<th>them</th>
</tr>
</thead>
<tbody>
<tr>
<td>onset</td>
<td>42</td>
<td>99</td>
<td>280</td>
</tr>
<tr>
<td>no onset</td>
<td>125</td>
<td>243</td>
<td>351</td>
</tr>
</tbody>
</table>

9We performed the calculations, data preparation and labeling, and model fitting using the R language and environment
for statistical computing (R Core Team 2019).
We labeled the pronouns pronounced with and without onsets, and labeled the dataset for multiple variables that can affect reduction in speech processing (e.g. Bell et al. 2003, Ernestus and Baayen 2011), to be used as controls for our variable of interest, $-\log_2 P(verb \mid him, her, them)$. These control variables were the object pronoun (different usage rates of onsetless allomorphs for him, her, them), the previous instance of reduced form (favors reduction), a following disfluency (disfavors reduction), speaker gender (female disfavors), speaker age (possible social effects) a quadratic transform of speech rate (fastest favors), the segmental context (host final vowel, following word initial vowel), the metrical strength of the host (final stress on host could favor syllabification of unstressed weak object pronoun with host), and the speaker (as a random effect).

Applied to this dataset, our prediction (47) is that the pronoun objects of the verbs with the lowest informativeness (highest conditional probability) will be pronounced more often without onsets than those of the verbs with the highest informativeness (lowest conditional probability). To test this prediction, we modeled the data using a mixed effect logit regression model (Bates et al. 2015):

(49) Probability(no onset=1) $\sim$ informativeness + controls + random effect of speaker

Figure 1 shows the partial effects of this model, which confirm that the predicted effect of information content of the host remains after controlling other variables that affect reduction. Several effects included in the model are not shown in the graphic, because they are not significant at the $p < 0.05$ level: speech rate, final vowel of host, speaker gender, and following disfluency. Our variable of interest, the information content of the host verb in the context of the pronoun object, is significant at the $p < 0.01$ level.

**A corpus study of verb+me**

We next collected all instances of the pronoun me with their 24-word contexts from the Buckeye corpus and calculated the information content of their hosts as before. After exclusions of non-objects, there were 999 instances in the dataset. In contrast to the third-person pronouns, the pronunciations of me show little variation: fewer than 10% of all instances of me as an object deviate from the dictionary pronunciation. Where we do see effects of the weak pronoun me is on the phonology of the host.

In this Buckeye dataset, 773 of the instances of me as an object have hosts with codas, and over 23% of these either assimilate to me or delete the coda before me altogether. We include both coda deletions and assimilations together because the instances of assimilation alone are not numerous. In a more general study of regressive place assimilation in all two-word sequences in the Buckeye Corpus (e.g. green boat pronounced greem boat), Dilley and Pitt (2007) similarly find that assimilations in contexts favorable to them are rare, and that coda deletion of alveolars before labials or velars is much more common than regressive assimilation, the former outnumbering the latter on average more than 3.5 to 1. A similar pattern appears in our data of host+me sequences: coda deletions outnumber assimilations than 4 to 1 among all hosts, verb or preposition, and almost 2 to 1 among verb hosts of me.10

Setting aside the prepositional hosts, there are 532 instances of verb hosts having codas. Of these, 75 instances show coda deletion or assimilation, from 36 unique verbs. In addition to let me as [lɛmˈmi] or [lɛmi], and give me as [gɛmˈmi] or [gɛmi], phonologically similar instances of other verbs occur, as illustrated by the selected examples in (50).

<table>
<thead>
<tr>
<th>(50)</th>
<th>verb+me</th>
<th>pronunciation</th>
<th>context</th>
</tr>
</thead>
<tbody>
<tr>
<td>get me</td>
<td>[ɡˈmi],[ɡˈmi]</td>
<td>just get me a couple shirts, don’t get me wrong</td>
<td></td>
</tr>
<tr>
<td>believe me</td>
<td>[bəˈlimmi]</td>
<td>believe me I know</td>
<td></td>
</tr>
<tr>
<td>have me</td>
<td>[hæˈməmi]</td>
<td>he was gonna have me uh locked up...</td>
<td></td>
</tr>
<tr>
<td>drove me</td>
<td>[dɹˈoumi]</td>
<td>shit man, so she drove me all the way</td>
<td></td>
</tr>
</tbody>
</table>

10Monosyllabic prepositions have reduced weak variants which contribute to final segment deletion or assimilation independently of weak pronoun objects; cf. the discussion of Table 15.
Figure 1: Partial effects of a mixed effect multiple logistic regression model of the him, her, them data. Insignificant effects included in the model are not shown in the panel plots.

Our dataset has too few coda reductions to control for many other variables without badly overfitting the model, but we controlled for previous instances of coda deletion or assimilation, verbs with complex codas, and speech rate squared, in a multiple logistic regression model of the data:

\[(51) \text{Probability(verb coda reduction}=1) \sim \text{informativeness + controls (speech rate, verb complex codas, previous instance)}\]

Figure 2 shows the partial effects of this model, which confirm that the predicted effect of informativeness of the host verb remains after controlling for speech rate squared, previous instance of the dependent variable (coda reduction), and whether dictionary entry of the host verb has a complex coda. The variable of interest, \(-\log_2 P(\text{verb}|\text{me})\) is significant at the \(p < 0.0001\) level.

We now see that the intuitively convincing contrast in (13) due to Zwicky (1977:28) is contradicted by our corpus data. Our findings suggest that intuitions of “unpronounceability,” like intuitions of ungrammaticality, may reflect implicit knowledge of usage probabilities (cf. Bresnan 2007, Bresnan et al. 2007). In other words, we perceive verbs with the highest information content/lowest usage probability in the context of me as unlikely to be pronounced with deleted or assimilated codas in that context. Figure 3
shows that the unnatural sounding believe me [bɔˈlimmi], have me [hæmni], and drove me [dɹəʊmni] are all on or near the right tail (higher values) of the informativeness distribution for verbs with codas deleted or assimilated, while they are in the interquartile range (more central values) of the informativeness distribution for verbs with codas present. Zwicky’s bet me *[bɛmɪ] does not even occur in the Buckeye Corpus, while the more natural sounding get me [gəmi], with far high usage probability does.

**A corpus study of let, get, give + me vs. other words**

Could usage probabilities also account for the contrasts between weak pronouns and ordinary words reported by Selkirk (1972), enumerated in Section 1 and in (12) and (14)?

To compare the pronunciations of host verbs before me to their pronunciations before other objects, we collected all instances of three common verb forms in our me dataset—let, get, and give—together with their contexts in the Buckeye corpus. There were 1298 instances in all, 1030 of get, 142 of give, and 126 of let. There are 47 instances of me objects of these three verb forms, and 46 instances of other m-initial objects (namely, married, my, more, mad, money, most, myself). Table 52 shows how the verb coda deletions and assimilations are distributed over the me and non-me instances. It is self evident that there is a highly significant difference in the proportions of coda reductions between the verbs before me and those before other m-initial objects (Fisher’s exact test for count data, p-value = 6.979e−05).
Figure 3: Boxplots showing the distributions of informativeness for verbs with codas present and codas deleted or assimilated to *me*.

This finding supports Selkirk’s (1972) observations that there is a difference in the applicability of some phonological processes to verb+enclitic pronouns and to verbs followed by phonologically similar ordinary words; although the difference is variable and not categorical, it is highly significant.

<table>
<thead>
<tr>
<th>verb+word</th>
<th>pronounced</th>
<th>context</th>
</tr>
</thead>
<tbody>
<tr>
<td>get my</td>
<td>[ɡə ˈmɑɹ]</td>
<td>to get my masters in education</td>
</tr>
<tr>
<td>let myself</td>
<td>[lɛˌmaɪˈself]</td>
<td>I wouldn’t let myself date</td>
</tr>
<tr>
<td>get married</td>
<td>[ɡɪˈmɛɹid]</td>
<td>wait until you get married</td>
</tr>
</tbody>
</table>

There is no evidence that the speakers are using a much faster speech rate in producing the coda reductions before the these three instances. Interestingly, the bigram *get married* occurs same same number of times in the Buckeye Corpus as the bigram *get me* (namely, 14), but the overall word frequency of *me* is an order of magnitude greater than that of *married*. This means that the *get married* bigrams make up a greater share of the overall instances of *married* than the *get me* bigrams do of the overall instances of *me*.

---

11 Logistic regression models of the this dataset with host coda deletion as a function of whether the next word is *me* or not interacting with speech rate, speech rate squared, or log speech rate, show no effect at all.
therefore the conditional probability of *get in the context of *married is higher, and host informativeness lower, than in the context of *me (see (44)–(46)).

Thus, from the point of view of usage probabilities it is not surprising that coda reduction should occur with *get married [ɡi 'mæd]. Still, there are many more instances overall of coda reductions in the hosts of *me than of *married: we have only *get married in contrast to *let married, *give married, but all of *get me, *let me, *give me instances (and more) fit the schema for lexical sharing (29). In the probabilistic mental lexicon this schema labels many more traces of similar verb coda reductions than *get married does, and these could contribute to the greater activation and lexical accessibility of the coda-reduced forms of *get me during speech.

A final surprising pattern in the let, give, get dataset is that coda deletion occurs not only pre-consonantally, as in phonological analyses (e.g. Selkirk 1972, Dilley and Pitt 2007), but also before vowels: of 104 total verb coda deletions in the dataset, 10 occur before the onsetless pronunciations of him, her, them and 36 before words that have base vowels, such as *get a, *get along, *get out. It could be that *get and perhaps other high-frequency monosyllabic verbs have acquired coda-less allomorphs and extended the conditions under which they are used beyond the initial phonological environment; exactly what those conditions are is a question for further research.

We see, then, that usage probabilities partially support Selkirk’s (1972) intuitions cited in Section 1: coda reduction of let in let Maureen is far less likely than coda reduction of the same verb in *let me. The reason, however, is not because English has a special morphosyntactic structure for enclitic pronouns (17b) which constitutes a local domain for phonological rules, but because host+weak object pronoun sequences with the highest probability of occurring together have been partially grammaticalized into a multi-word lexical domain.

Where are the strong pronouns?

All of the weak object pronouns have strong forms which bear stress. How do they fit into the picture? The contrast is evident in (54)–(55), where the pronouns it and us syllabify with the host in the (a) examples, as weak (unstressed) objects, but not in the (b) examples, as strong (stressed) left conjuncts.

(54) a. As for the writing on the wall, you can blank it out. [blæŋk ot] (like blanket)
    b. As for the writing on the wall, you can blank it and the blood out. [blæŋk ɪt]

(55) a. Don’t defame us! [dr'fæməs] (rhymes with famous)
    b. Don’t defame us and him! [dr'fæm ʌs]

Similarly, in (56) and (57) me syllabifies with the coda-less host in the (a) examples, where it is a weak object, but not in the (b) examples, where it is a left conjunct:

(56) a. Lemme do it.
    b. *Lemme or her do it. (cf. Let me or her do it.)

(57) a. Gimme some.
    b. *Gimme and John some. (cf. Give me and John some.)

As expected from the lexical sharing analysis (34), the weak objects can syllabify with a right conjunct host, as shown in (58) and (59a,b) (also (22).

(58) Don’t degrade or defame us! [dr'fæməs] (rhymes with famous)
(59) a. Just sell or gimme one. (Just sell or give me one.)

   b. Then he asked or tow’me something. [toomi] (Then he asked or told me something.)

The strong forms of him, her, them are stress-bearing [hɪm], [hɜː], and [ðəm], though apparently the pronouns with their onsets may also occur unstressed as enclitics: recall Selkirk’s example (8b) (Selkirk 1972:137ff).

12 As well as appearing in conjuncts, the strong forms can appear as prosodically separate phrasal objects of adjacent verbs, where they bear stress, as noted by Ito and Mester (2019).

\[
\begin{array}{c}
VP \\
V \\
\uparrow \\
DP \\
\uparrow \\
D \\
\end{array}
\]

\[
(\phi \ (\text{give})_\omega \ (\text{mē})_\omega)_{\phi}
\]

Where the strong object pronouns do not appear freely is in the phrasal object positions separated from the head verb by a primary object or a particle. Regarding examples like (61a,b)—

(61) a. ?I cut up them.

   b. ?You shouldn’t feed cats it.

—the syntactic literature reports variable judgments when the object pronouns lack pitch accent and emphatic or contrastive stress (cf. Selkirk 1984, Jacobson 1982, Zwicky 1986). Bresnan and Nikitina (2009) cite a handful of authentic examples of the structure in (61b) collected from the web, describing them as grammatical, but rare and marked. Selkirk (1984:393–394) insists that examples like He showed his mother them and I’ll take a third of the piece, if you’ll saw me off it are “perfectly acceptable”, a fact made “all the more obvious when the pronoun happens to bear pitch accent and be focused”, as in the following examples, where focus is indicated by small caps:

(62) a. Maybe they can wake up DEDE and then Dede can wake up US.

   b. I wanna bring up HER, too.

   c. (If you say you keep those ones for yourself,) and then go ahead and give the guy THEM, then ...

   d. They put HER on Pat’s team, and gave Ann US.

Nevertheless, the unaccented strong pronoun objects, when separated from the verb, often sound less natural than when they are adjacent to it.

Could we attribute the unnaturalness of the unaccented strong pronouns separated from their heads to the perceptual difficulty of distinguishing the weak from strong unaccented forms? Recall Kiesling et al. (2006:18) quoted previously: “it was not possible to reliably distinguish between full and reduced vowels when the stress status of a syllable was not dictated by a word’s lexical entry.” If the weak forms are ungrammatical in these positions and the strong forms without pitch accent are hard to distinguish perceptually from the weak forms, that might account for the uncertainty of linguistic judgements. However, there appears to be no such uncertainty in judging the grammaticality of strong pronouns as conjuncts or as postverbal objects (e.g. (60) and the other examples given by Ito and Mester 2019). Thus it is likely

12 There are a few authentic examples in the Buckeye Corpus of coda deletion before third person weak object pronouns with onsets, but there are more instances of the onsetless forms, as mentioned in the previous section.
that another factor or factors are affecting the distribution of the strong pronouns in VP-final positions in addition to their rhythm and prosodic phrasing.

The relevant factors may lie in information structure (referring here to discourse givenness and newness associated with referential expressions in alternative syntactic positions in the VP) and in the accessibility of nominal expression types. Considering the post-particle and post-object positions in the English VP as “outer” complement positions, we observe that they are usually reserved for expressing the discourse newness of referents, while the “inner” complement positions relative to the outer are usually associated with referents which belong to the common ground of given or familiar information. Many corpus studies of English support this intuitive picture (e.g. Thompson 1990; Collins 1995; Gries 1999, 2003; Bresnan et al. 2007; Grafmiller and Szmrecsányi 2018). The gist of these empirical findings are sketched in greatly simplified form in Figure 4.

![Diagram](Figure 4: Qualitative view of quantitative findings of property alignment in corpus studies of the dative and verb-particle alternations. Properties in gray or bolded black favor syntactic positions in gray or bolded black, respectively.)

...How do such factors interact with formal grammar? In studies of Swedish weak pronouns, Börjars et al. (2003) and Andréasson (2013) show how information structure, morphology and prosody can be incorporated in explaining pronoun word order, assuming an LFG representational basis within a system of violable constraints. In particular, Andréasson shows how relative cognitive accessibility of pronominal referents affects the syntactic distribution of both weak and strong pronouns and other referring expressions, and that different rankings or weightings of the constraints account for word-order differences between Swedish and Icelandic. Wallenberg (2007, 2009) proposes that English itself has remnants of the Scandinavian system of placement of weak pronouns, and if this is true, it should be possible to apply the fine-grained theory of Andréasson (2013) to English. Are the Scandinavian weak pronouns purely prosodically dependent, as in (17b) (cf. Erteschik-Shir and Josefsson 2018), or do they share any of the signs of partial grammaticalization that we see in English weak pronouns in (17c)? These are questions for further research.

**References**


