Cooccurrence probabilities predict English pronoun enclisis: Evidence for syntactic co-lexicalization

Joan Bresnan

CSLI and Department of Linguistics
Stanford University

English verb-object encliticization is marked by loss of the onset of an unstressed third-person object pronoun to form the final syllable of the preceding host verb. (1a–c) provide authentic examples.[1]

(1) a. She had twins and she didn't know what to name them and she'd run out of names that she liked so—just pick couple of names off the menu—so she **named them [neɪmd əm]**—Lemonjello, and Orangello—lemon jello, orange jello.

b. So I threw his ass in the car and **took him [tʊk m̩]** downtown and took him inside.

c. I found out it's a girl. What're you gonna **name her [neɪm ɚ]** Rosie—Rosie cozy? You've got to be kidding she said.

The defining properties of these unstressed object pronoun enclitics are first, the loss of their onset and second, their forming the final syllable of the preceding host. They are widespread and very common in conversational speech, but far less common in orthographic texts.

Previous theories of phonology and cliticization have assumed conflicting analyses of these enclitics in the grammar of present-day English: as pronunciation variants of the full pronouns *them, him, her* in their normal syntactic positions (Zwicky 1970, 1977, 1986), or as morphosyntactic attachments to verbs outside the of the normal syntactic positions of full pronoun objects (Selkirk 1972, 1984, 1996, Ito & Mester 2018, 2019). A third approach assumes that the enclitics do occupy positions of full pronouns in syntax but are lexically pre-specified to attach to the adjacent phonological word in building postlexical prosodic structure (Inkelas 1991, Inkelas & Zec 1993, Tyler 2019).

Each of these previous approaches to the English object enclitics provides an important clue to their grammatical structure: they have the "ordinary syntax" of phrase structure objects; they are nevertheless closely bound to their heads in a way which exempts them from phrase-final stress; and they are lexically specified to form a prosodic word with their adjacent head. But each misses a different part of the cluster of properties of the object pronoun enclitics: the allomorphy of the pronoun forms (Kaisse 1985, Bresnan 2019), their syntactic independence in constituent structure (2)–(3), and their required grammatical relation to their hosts as object arguments (4).

As the present paper will show, however, the most telling clues to the status of object pronoun enclisis in present day English are the converging signs of co-lexicalization of host and clitic together despite their "ordinary syntax": (a) the appearance of allomorphy, prosodic wordhood, and specialized semantics and pragmatics, and (b) the correlation of the degree of enclisis with the cooccurrence probabilities of individual lexical verbs and pronouns. The higher the bigram probability of a verb and pronoun, the greater the use of their onsetless and enclitic forms in ongoing conversations (5).

The former signs (a) are classical effects of lexicalization and part of the empirical foundation of lexical syntax: when composite words are lexically stored as wholes, they tend to acquire their own usage profiles and drift from the compositionality of their simple constituent elements (e.g. Chomsky 1970, Bresnan 1982). The same signs of lexicalization appear in sequences of adjacent syntactic categories such as the multi-word contractions or enclisis of English auxiliaries (Bybee & Scheibman 1999, Wescoat 2005), leading Wescoat (2002, 2005) to formally extend the lexical syntactic theory of LFG to the sharing of a single lexical exponent by adjacent syntactic categories, termed "lexical sharing" and referred to here as "syntactic co-lexicalization".

The probabilistic distribution of host and clitic (b) is a convergent sign of co-lexicalization in the hybrid usage-based model of the mental lexicon advocated by Bresnan (2021), based on Pierrehumbert's (2001) hybrid model at the word level. The hybrid model provides a map of the perceptual space and set of

---

[1]These examples are from the Buckeye Corpus, edited for readability by capitalization and by replacing with punctuation or deleting labels for non-speech sounds.

labels, or structural descriptions, over this map. Long-term memory traces of perceived words and multi-word sequences have an associated activation, such that the more frequent and recent have higher resting activation levels than the infrequent and temporally remote. Given production biases toward lenition and the shortening of multi-word expressions, high-probability bigrams yield higher incidences of contraction or fusion in speech production. This effect can be detected in present-day English auxiliary contraction, where the degree of phonetic reduction and contraction of adjacent words and auxiliaries correlates with their probability of cooccurrence (Bybee & Scheibman 1999, Bresnan 2021, 2021b). The present study shows a similar effect in verb-pronoun enclisis in two corpora of present day American English speech.

The mechanisms of this model of the mental lexicon are simplified and idealized, but as a causal model of cognitive states it can explain both synchronic patterns such as the predictability of contraction from distributional probabilities of the contracting words, and the direction of diachronic change under certain parameter values. While the enclitic English pronoun forms have illustrated part of the cycle of grammaticalization of full object pronouns into clitics, pronominal affixes, and beyond on the timescales of language change and typology (e.g. vanGelderen 2011, Haig 2018), the evidence for their syntactic co-lexicalization and its implications for their synchronic grammar in present day English have not previously been recognized.

Examples

(2) An enclitic object of conjoined verbs:
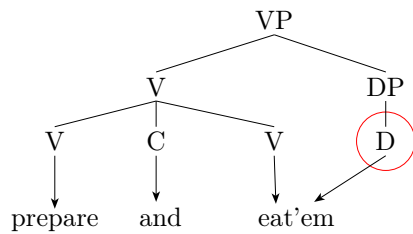
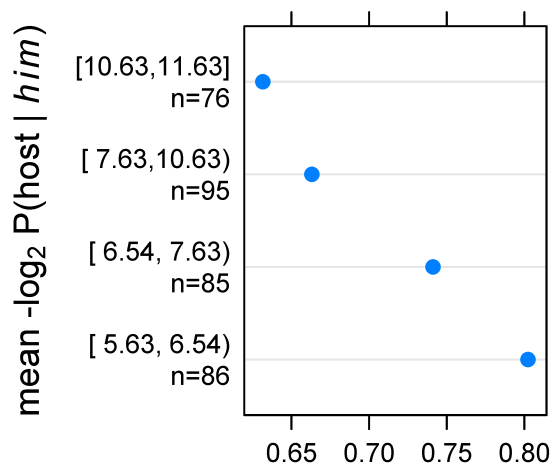(3) An enclitic object pronoun in the Q-pro flip construction (Maling 1976):
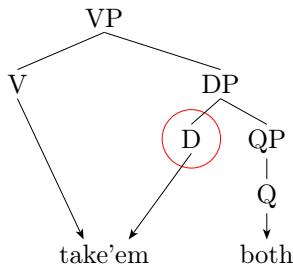
(4) The enclitic must be an object of the adjacent host:

    a. take'em off

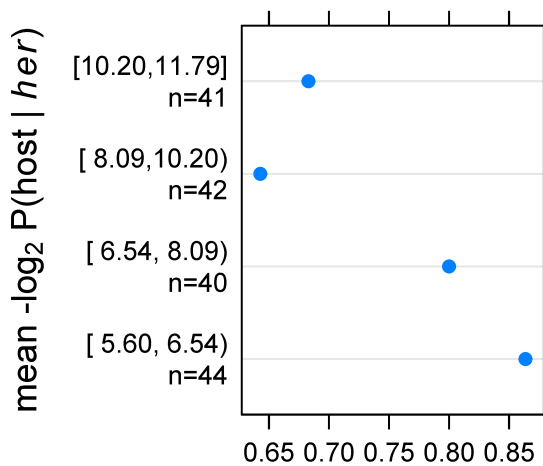   b. *take off'em

    c. What did he take off'em?

(5) Inverse relation between the proportions of onsetless pronouns (x-axis) and a transform of cooccurrence probabilities of <verb pronoun> (y-axis) in two spoken corpora:
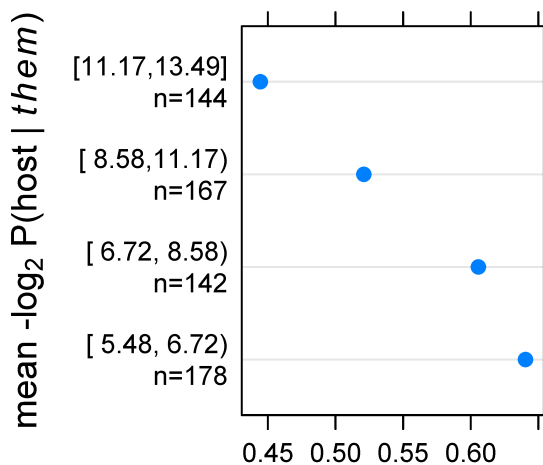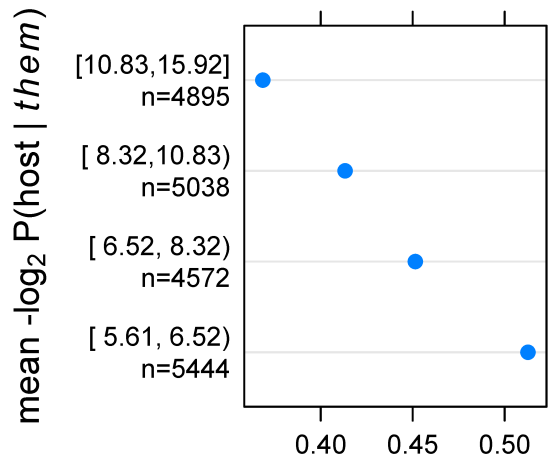
Selected references

Bresnan, Joan. 2021. Formal grammar, usage probabilities, and auxiliary contraction. *Language* 97(1), 108–150.

Bybee, Joan and Scheibman, Joanne. 1999. The effect of usage on degrees of constituency: The reduction of *don't* in English. *Linguistics* 37(4), 575–596.

Pierrehumbert, Janet B. 2001. Exemplar dynamics: Word frequency, lenition and contrast. In Joan Bybee and Paul Hopper (eds.), *Frequency Effects and the Emergence of Lexical Structure*, pages 137–157, Amsterdam: John Benjamins.

Wescoat, Michael T. 2005. English nonsyllabic auxiliary contractions: An analysis in LFG with lexical sharing. In *Proceedings of the LFG05 Conference*, pages 468–486, online: http://web.stanford.edu/group/cslipublications/cslipublications/LFG/.