

LICENSING OF PROSODIC FEATURES BY SYNTACTIC RULES: THE KEY TO AUXILIARY REDUCTION

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Our topic in this paper is the constraints on the weak and strong versions of monosyllabic function words in English, noted by Henry Sweet nearly a century ago. The facts we treat are intricately detailed, and have proven resistant to several decades of attempts at description. Their theoretical implications, however, have often been taken to be quite substantial. We agree they are substantial; but the theoretical lessons we shall draw at the end of this paper will run completely counter to those that have been standardly drawn from these phenomena.

We focus here on the English auxiliary verbs, and on the alternations that appear in slow speech (and consequently can be represented in the writing system); it's well known that fast speech presents a different array of alternations. Phonologically, there are three (not two) potentially distinct versions of certain auxiliaries: a STRONG, or full, version, used under accent; and two unaccented versions, WEAK (but still syllabic) and CLITIC, or contracted, or reduced (comprising only a consonant, which is nonsyllabic so long as the constraints on consonant clusters permit this); these three versions appear in the columns of the table on the handout.

The inflected forms of auxiliary verbs fall into several groups according to their susceptibility to being reduced to a coda consonant. These are represented by the rows in the table.

Some are not susceptible at all. Only forms that begin with a vowel or with /w/ or /h/ are susceptible; *can* and *could*, for instance, have weak versions but no clitic ones. Only monosyllabic forms are susceptible; *hasn't* and *wouldn't* are not. And two forms, *was* and *were*, that satisfy the other phonological requirements are nevertheless idiosyncratically not susceptible.

The remaining forms fall into three groups. We will be focusing on the TOLERANT forms *is has had would*, which exhibit the intricate conditions on reduction that have engaged generative linguists; in fact, like Ellen Kaisse (1983), we will focus primarily on *is* and *has*, since for many speakers *would* and *had* are more restricted.

Another group, of SELECTIVE forms, has the finites *am are will have*, which for many speakers are considerably more restricted with respect to what can precede them.

Finally, there is the UNCONSTRAINED form, non-finite *have*, which is not subject to one of the conditions we will be discussing; *I would've* is a possible sentence, but **They've* is not.

The generative grammatical literature on the topic begins in 1970 with the publication of Harold King's seminal squib, George Lakoff's publicizing of it in his article 'Global rules', and Arnold Zwicky's detailed description in 'Auxiliary reduction in English'. At the start an assumption was made that seems so innocent as to be unavoidable, but which we now think was just wrong: the assumption that there was a general rule, the one known as Auxiliary Reduction, which on a cross-constructural basis contracted or adjoined or cliticized or modified auxiliaries (and, as

later work reminded us, certain other grammatical items) in a way that led to them being pronounced in a grossly reduced form, as a single consonant. What King thought he had discovered was a mysterious constraint on this general rule, and what Lakoff concluded about the constraint was that it was global. And the purported constraint yielded deliciously baffling minimal contrasts like these:

I wonder why the reception is tonight.
I wonder why the reception's tonight.
I wonder where the reception is tonight.
**I wonder where the reception's tonight.*

I don't know where Pete is.
**I don't know where Pete's.*
Where is Pete?
Where's Pete?

There is a little yellow idol to the north of Katmandu.
There's a little yellow idol to the north of Katmandu.
There is to the north of Katmandu a little yellow idol.
**There's to the north of Katmandu a little yellow idol.*

The way things are put in the transformational literature, to understand the blocking of the Auxiliary Reduction rule one should examine the material *following* the auxiliary in question, noting that auxiliaries fail to reduce in contexts such as the following:

Immediately preceding the absent complement in VP Ellipsis examples:

Sandy's usually home when Kim is ____.
**Sandy's usually home when Kim's ____.*

Immediately preceding the missing verb in Pseudogapping examples:

It's doing more for my hair than it is ____ for yours.
**It's doing more for my hair than it's ____ for yours.*

Immediately preceding the extraction site in Wh-movements:

**I wonder where the party is ____ tonight.*
**I wonder where the party's ____ tonight.*

Immediately preceding the extraction site in Topicalization examples:

A spy Ian is ____, but a traitor he's not.
**A spy Ian's ____, but a traitor he's not.*

Immediately preceding the extraction site in Clefting examples:

It's firm that I'd say Lee is ____, not obstinate.
**It's firm that I'd say Lee is ____, not obstinate.*

Immediately preceding the extraction site in Pseudoclefting examples:

What I'd say Lee is ____ is firm, rather than obstinate.
**What I'd say Lee's ____ is firm, rather than obstinate.*

The transformationalist conception of what is going on here is that a purely syntactic constraint is in effect. It was first thought to involve global constraints (an auxiliary fails to contract if the constituent following it did not follow it earlier in the derivation) and later to provide support for the existence of empty categories (an auxiliary fails to contract if the constituent following it is a null constituent interpreted by a discourse anaphora rule or coindexed with a constituent in a long-distance dependency).

Even this early literature recognizes that the conditions on AR are in part prosodic. Zwicky (1970:335), for instance, noted the contrast in the following examples, for which the location of deletion sites is not relevant; the crucial difference is that *is* in the first sentence can be unaccented, but *is* in the second sentence must bear some accent:

How is the weather in Boston?
How's the weather in Boston?

How is it in Boston?
**How's it in Boston?*

In the face of such examples, the simplest hypothesis is that completely reduced versions presuppose weak versions, that is:

The Accent Condition: Lack of accent is a necessary condition on AR.

Deletion sites would then enter into the analysis of AR by requiring accent on an immediately preceding auxiliary word - or, in Lakoff's (1970) (negative) formulation, by blocking the deaccenting of an immediately preceding auxiliary.

The Accent Condition plays a central role in the analysis of Lisa Selkirk (1984:366), who, however, breaks away from the tradition of referring directly to deletion sites, and proposes instead that syntactic phrase boundaries constrain AR:

“a monosyllabic function word that *is a phrase* itself or *is at the (right) end of a phrase* never destresses”

Stated positively, and simplified a bit: a monosyllabic function word at the right edge of a phrase bears a (light) accent. The involvement of movement and deletion rules in AR is now indirect; they happen to bring certain auxiliaries into phrase-final position.

Sharon Inkelas and Draga Zec (1993) also take prosody to be relevant, but in a somewhat different fashion from Selkirk. Rather than taking *syntactic* phrasing to be the crucial condition on accent, they take *prosodic structure* to be the crucial condition; syntax enters the picture via a set of algorithms for predicting phonological feet, words, and phrases from syntactic surface structure. For Inkelas & Zec, it is *phonological phrase*-final position that requires accent, and one way that material can end up in this position is for following material to be dislocated: (I&Z 1993:225) “dislocated constituents always begin a new phonological phrase”.

There are, however, some failures of AR that are not satisfactorily predicted by any currently available analysis, including those of Selkirk and Inkelas & Zec. We will consider three.

First, Selkirk (1984:375) notes the failure of empty-category accounts to explain AR inhibition before Comparative Subdeletion cases with attributive adjectives, like

Sandy's a bigger bibliophile than Kim is a [_{AP} *e*] *stamp collector*.
**Sandy's a bigger bibliophile than Kim's a stamp collector*.

Here the empty AP is not adjacent to *is* but is located within the predicative NP. Selkirk clearly sees that this is a problem for most accounts, including her own, and is less than clear about how she would go about dealing with the problem.

Inkelas & Zec propose that Comparative Subdeletion involves not merely deletion of some material, but also dislocation of the remainder constituent (*a stamp collector* in our example). We fail to see any independent evidence for dislocation here, however.

Second, a similar problem is found where VP Ellipsis (VPE) and Subject-Auxiliary Inversion (SAI) apply in *than*-clauses, e.g.:

Marty's singing more loudly than is your friend [_{VP} *e*].
**Marty's singing more loudly than's your friend* [_{VP} *e*].

Here the empty VP is not adjacent to *is* but is located after the subject, and the *is* does not end its phrase, yet the auxiliary cannot be deaccented, and AR is bad. SAI, however, is not the problem, as this is good:

who_i is_j your friend _____j [_{NP} *e*]_i
Who's your friend [_{NP} *e*]?'

This is a notable difficulty for Inkelas & Zec, since if they appeal to dislocation of the subject *your friend* to explain failure of AR in the comparative SAI example they should predict failure of AR in the interrogative SAI example as well.

One possible response would be to appeal not to dislocation on the right but to the context on the left. It is well known that AR is subject to constraints having to do with possible hosts, on the left, for the contracted auxiliary; we will be discussing these shortly. In the case at hand, you might say that the problem with the comparative SAI example is that the subordinator *than* is simply not an eligible host. The right context would then be irrelevant.

In fact, for some speakers of English - Zwicky is one of them - *than* is not an eligible host. However, for other speakers - Pullum is one of them - *than* IS an eligible host, just not in the particular configuration we've been discussing. In a distinct comparative construction, called Pied Wiping by Jorge Hankamer (1971), such speakers accept *than's*, as in

The police are using more force than is necessary.
The police are using more force than's necessary.

There is a third and previously unnoticed case of the same sort. We will use the term *Rejoinder Emphasis* for the special construction with emphatically stressed *too* or *so* seen in

I am TOO/SO going to read your book!

The existence of the construction is noted in Klima (1964:257) and Quirk et al. (1985, section 7.57, note, p. 448, but neither of these authors draw the theoretical conclusions we will draw. Clearly no trace or ellipsis is in evidence in this sort of example: the auxiliary is followed by a special emphatic adverb and an appropriate VP complement (here, a progressive participial VP), so the sequence of constituents might have been taken to parallel

I am NEVER/REALLY/TRULY going to read your book!

And sentences of this sort have variants with reduced auxiliaries:

I'm NEVER/REALLY/TRULY going to read your book!

But remarkably, a reduced auxiliary is impossible in the case of Rejoinder Emphasis:

**I'm TOO/SO going to read your book!*

This rather extraordinary fact turns out to be the key to the auxiliary reduction phenomenon.

The syntactic definition of the Rejoinder Emphasis construction calls for two immediate constituents: an auxiliary with light accent and an emphatic adverbial particle (*too* or *so*) with heavy (rising-falling) accent. That heavy accent has to be there because of the construction involved; it is not determined by any ellipsis, movement, or dislocation, because there is none here.

Now, with Selkirk, we accept the Accent Condition as a true generalization about AR in English. Our proposal is then that the incompatibility between these requirements — the syntactically imposed accent and the morphologically required lack of it — makes the cooccurrence of Rejoinder Emphasis and a reduced auxiliary impossible.

The accentlessness of the auxiliary is a necessary condition for its encliticization, but not a sufficient one, for reasons first recognized by Kaisse (1985:46-53): there are syntactic conditions on the LEFT context for AR. These forbid most of the logically possible auxiliary reductions; in the majority dialect they allow an enclitic auxiliary only on a limited selection of constituent types:

- (i) subjects, regardless of length, even if they are not NPs

The person you're talking to's going to be bored.

Which dog's been jumping on the sofa?

That the earth is flat's obvious to most people.

Under the rug's where we hid the gun.

Happy's what you're going to be.

- (ii) single-word *wh*-expressions, plus these with definite expletives attached, even if the *wh*-expressions

What's Kim eating?

What the hell's Kim eating?

(Some speakers accept multi-word *wh*-expressions as hosts: *What soup's Kim eating? How long's that dog been there? Who from Chicago's going to the party? On which day's Marty*

leaving? And some accept only multi-word *wh*-expressions that are NPs: *What soup's Kim eating?* but not *On which day's Marty leaving?* See the discussion in Kaisse (1985).

(iii) deictic adverbs

Here's/There's the answer!

(iv) subordinators: relativizer *that*, adverbial *so*, (for some speakers) comparative *than*

the dog that's on your porch

I'm tired, and so's my dog.

(v) auxiliaries

You might've at least tried.

There is obviously considerable variation from speaker to speaker.. Further variability shows up when we consider hosts that are unacceptable in the majority dialect:

(i) adverbials between the subject and the auxiliary

**Lee often's on the right side of an issue.*

**Sandy never's called me.*

(Note that adverbials can in fact serve as hosts for clitic auxiliaries, but only when they're subjects: *Never's MY idea of how often telemarketers should call.*)

(ii) fronted constituents other than *wh*-expressions and *so*

**Never's your friend going to Japan.*

Not only's Kim been to Japan...

**I haven't been to Japan; nor's anyone I know.*

I haven't been to Japan, and neither's Lee.

**So happy's the dog it's jumping for joy.*

(For some speakers *nor* or *neither* or both can serve as host. There might well be speakers who accept all of these.)

(iii) inversion of non-subjects

**Speaking tonight's our star reporter.*

**In the garden's an Italian fountain.*

(These are acceptable for some speakers.)

For most speakers of English, the set of eligible hosts is a disjunction of disparate types of expressions, almost surely not reducible to a single generalization. The most liberal imaginable dialect would allow ANY sentence-initial XP to serve as host; only intervening adverbials would be ineligible; this would be a true 'Wackernagel' dialect for AR (a 2D, 'second daughter', system, in the terminology of Halpern (1995)).

In addition to these complex and variable left context conditions, Kaisse assumed there were also right context conditions referring to following traces or ellipsis sites. This we reject. We claim

that the left context conditions she identified are the ONLY syntactic conditions on AR. Wherever left-context conditions for reduction are satisfied (as with a subject pronoun immediately followed by an auxiliary), AR licenses encliticization of the auxiliary.

Kaisse observes, correctly, that the left-looking conditions are specifically on cliticization; accentless auxiliaries are frequently possible even when a left-looking condition bars cliticization, as in:

In the garden _s a statue.
**In the garden's a statue.*

In the tree _s a kite.
**In the tree's a kite.*

Note that these inversion examples, with a PP before the copula, contrast minimally with sentences that clearly have a PP subject:

In the garden _s a good place to hide the gun.
In the garden's a good place to hide the gun..

Meanwhile, complete deaccentuation is a precondition for encliticization. This leads to direct and irresolvable conflict if the auxiliary is a participant in one of the constructions (like RE) that require an accented auxiliary.

The key to AR inhibition is the observation that some constructions require, as a matter of syntax, light accent on particular subconstituents, which entails failing to exhibit the accentlessness that the morphology of cliticization demands.

Prosodic requirements associated with particular syntactic contexts are not uncommon; for example, heavy accent is illicit on an infinitival VPE remainder (Zwicky & Levin 1980):

**I told him to go to hell, and he may HAVE [= gone to hell], for all I know.*
I told him to go to hell, and he MAY have [= gone to hell], for all I know.

Crucially, all the constructions that show auxiliary reduction are subject to a condition that the auxiliary they mention be lightly accented. Comparative Subdeletion requires light accent on the head verb of the comparative clause; VPE and Pseudogapping require light accent on the remainder auxiliary; and long-distance dependencies (as in *wh*-fronting, topicalization, and clefting) must meet the Selkirk condition: a remainder word bears accent if it ends a constituent (precisely the condition that is not met in *Where's the party tonight?*). The fact that this prosodic requirement is associated with all unbounded dependencies means that it should be generally associated with the presence of what have been taken to be Case-marked trace locations; but the phenomenon of AR no longer provides any support for the syntactic reality of traces, since they are not mentioned in the formulation of the crucial encliticization process.

Our analysis merely has to say that some PF constituents (such as [_{VP} *is*]) are licensed only with light accent on the head, a fact that has to be stated anyway.

A number of rather significant theoretical points are supported or illustrated by the approach we have taken here. One of them concerns the ideas Stephen Anderson (1992:201) has defended concerning treating simple clitics as merely prosodically defective words with normal syntax. An argument against that emerges from the material we have analyzed here: the contrast between *I would've gone*, *I'd have gone*, *I'd've gone*, *I would've*, *I'd have*, **I'd've* seems to leave no alternative but to treat clitics as having certain special syntax. Unfortunately, time prevents us from developing this argument here, but we intend to present it elsewhere. The larger theoretical points illuminated by the present study are the following.

1. As in Pullum and Zwicky (1991), an analysis involving a parochial but transconstructional constraint has given way to one in which grammatical rules talk only about licensing construction with particular properties. We believe this is no accidental fact or isolated instance; we think there will turn out to be no syntactic statements in particular grammars other than those that define particular constructions.
2. As in Zwicky (1994), there is support for an account that involves only licensing conditions, saying what *is* in the language, never exclusion conditions or well-formedness constraints. We do not take the default to be that auxiliaries will encliticize everywhere so that constraints have to step in and prevent this in the bad environments; we assume no clitic can appear anywhere unless a rule of grammar provides a license for it. The implications for learnability should be obvious.
3. As in Zwicky & Levin (1980), we have confirmed that there can be syntactic rules placing particular prosodic conditions on constructions, such as which constituent must bear a light or heavy accent or be accentless. Here prosody and morphology are on an equal footing. Syntactic rules place morphological requirements on constituents too, like that this noun phrase must be marked accusative, or that this verb must be in the subjunctive. Syntactic rules do not spell out the realization of the morphological or prosodic properties they require, but they say where the realizations must be.
4. As in Pullum and Zwicky (1996) and Pullum (1997), we have removed a significant case of purported evidence for traces. We now do not believe there is a single remaining example of a positive argument for the existence of traces (see Sag and Fodor 1994).
5. As in Zwicky (1995 ['Conditions in conflict', presented at NYU, Berkeley, Stanford, Georgetown]), we have defended the view that in intercomponent interactions of requirements, incompatibility leads to complete blocking: when the syntax says accent and the morphology says (given the choice of an enclitic shape) no accent, ungrammaticality is the result, rather than winning out of one or the other of the two requirements.
6. As in Zwicky (1994), the intriguing and novel ideas of optimality theory are not borne out in this domain (successful though they may be in the realm of automatic phonology). Blocking through incompatibility of the demands of different grammatical components is not what is predicted by optimality theory. We believe this — like many other cases that could be cited — points to a deep problem for OT in the domain of syntax.