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A Typology of Stranded Phonologically Weak Elements[1]

Abstract
The paper presents a unified account of a number of superficially very different cases from Japanese, Serbo-Croatian, German, and Dutch where a phonologically weak element is stranded without a host. It proposes a new typology regarding when a phonologically weak element can be stranded where adjacency to a prosodic boundary is necessary for such stranding, with parametrization regarding the strength of the prosodic boundary: it can be an utterance boundary (‖) or an intonational-phrase boundary (#), or either ‖ or # (in the last case, both boundaries can license the stranding). Furthermore, the difference in the direction of adjacency to the prosodic boundary mirrors the difference in the adjacency to the host: if the relevant element is a prefix/proclitic, both the host and the prosodic boundary follow it, if it is an enclitic/suffix, they both precede it.

Keywords
clitics, particle-stranding ellipsis, prosodic phrasing, preposition stranding

Abstrakt
Artykuł przedstawia syntetyczne ujęcie kilku pozornie różnych zjawisk z języków japońskiego, serbsko-chorwackiego, niemieckiego i holenderskiego. W ich wyniku składnik atoniczny zostaje uniezależniony od składnika ortotonicznego, z którym w innych warunkach tworzy zestrój akcentowy. Autor proponuje nową typologię języków, w których możliwość takiej separacji składnika atonicznego warunkuje jego sąsiedztwo z granicą prozodyczną. Podstawą klasyfikacji jest siła granicy prozodycznej umożliwiającej separację, a języki dzielą się na te, w których jest ona możliwa w sąsiedztwie granicy frazy wypowiedzenia (‖), te, w których jej warunkiem jest sąsiedztwo z granicą frazy intonacyjnej (#) oraz te, które dopuszczają separację w sąsiedztwie dowolnej z tych dwóch

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granic. Ponadto pozycja odseparowanego składnika atonicznego względem granicy prozodycznej odzwierciedla jego zwyczajową pozycję względem składnika ortotonicznego. Przedrostki i proklityki tworzą zestrój akcentowy z następującym po nich składnikiem, a ich uniezależnienie jest możliwe tylko przed granicą prozodyczną. Z kolei w przypadku enklityk i przyrostków, które tworzą zestrój akcentowy z występującym przed nim składnikiem ortotonicznym, separacja jest możliwa wtedy, gdy granica prozodyczna je poprzedza.

Słowa kluczowe
klityki, separacja partykuły w wyniku elipsy, podział na frazy prozodyczne, separacja przedimka

1. Introduction

The literature occasionally notes cases where phonologically weak elements are stranded, with no host. There are very few accounts even of individual cases of this sort, and no attempts at a unified account even at a descriptive level of the phenomenon as a whole, the discussion of individual cases being highly construction specific. This short paper is the first attempt at a unified account. The paper will suggest a typology of conditions under which the host of phonologically weak elements can be dropped. The account will unify a number of cases from various languages which have previously been treated separately, in particular, Japanese, Serbo-Croatian, German, and Dutch.

I will argue that all these superficially different cases where the host of a phonologically weak element is missing do have something in common, namely adjacency of the relevant element to a prosodic boundary, which will be taken to be a prerequisite for such stranding. Furthermore, I will offer a new typology where the type of a prosodic boundary matters with such stranding, in particular what matters is whether the prosodic boundary is an intonational(I)-phrase boundary (#) or an utterance boundary (‖).

In the following discussion I assume the standard prosodic hierarchy: utterance/I-phrase/phonological phrase/prosodic word (see for example Nespor and Vogel 1982, 1986; Selkirk 1986; Hayes 1989). What will matter for our purposes are the first two, where utterance is the highest level unit and I-phrases correspond, roughly, to individual clauses and certain elements that are flanked by pauses, like appositives, parentheticals, and heavy fronted constituents (see the discussion below). Utterance boundaries, on the other hand, are found only utterance initially/finally.

2. Particle-stranding ellipsis in Japanese

The first case I will consider is Japanese particle-stranding ellipsis, a rather interesting phenomenon which elides the host of a suffix (see Yoshida 2004; Sato and Ginsburg 2007; Goto 2012; Sato 2012; Nasu 2012; Shibata 2014; Sakamoto and Saito 2018; Sato and Maeda 2019; Yamashita 2020; Takita 2020, Fujiwara 2022). The phenomenon is illustrated by (1), where the host of the topic particle *wa*, which is normally a suffix, is elided (throughout, the relevant stranded elements will be given in bold; note that particle-stranding ellipsis is not limited to the topic particle—the phenomenon is quite general, affecting all suffixal particles, see the references cited above).

(1) A: Taroo-wa ki-ta no.
Taro-TOP come-Past Q
'Has Taro come?'
B: **-wa** mada ki-masen.
-TOP yet come-NEG.POLITE
'**e** (=Taro) hasn't come yet.'

The phenomenon occurs only sentence initially. It is often assumed that particle-stranding ellipsis occurs only in matrix clauses based on examples like (2), where the topic particle whose host is elided is the initial element of an embedded clause.

(2) 'Who do you think at that time killed Taro?'
*John-wa sono toki [$_{CP}$ **-wa**, Mary-ga korosi-ta to] omot-ta.
John-TOP that time **-TOP** Mary-NOM kill-PAST C think-PAST
Intended 'John thought at that time that **e** (=Taro), Mary killed.'
(Sato 2012)

Shibata (2014), however, shows that particle-stranding ellipsis is possible in embedded clauses, as long as there is no overt matrix clause material that would precede the particle (see also Sato and Maeda 2019; Takita 2020), which means that the stranded particle simply needs to be utterance initial. This is illustrated by (3). In (3), the relevant nominal is the subject of the embedded clause—the nominal is elided, with its nominative suffix stranded. What is important here is that due to *pro*-drop in the matrix clause and the head-final status of Japanese, the subject of the embedded clause, which is affected by particle-stranding ellipsis, is utterance initial although it is located in the embedded clause (note that this is a context where the subject of the embedded clause cannot undergo movement into the matrix clause, hence it must be located in the embedded clause).

(3) 'Will John quit his job?'
-ga sigoto-o yameru ka dooka-wa sira-nai kedo, sooiu uwasa-wa aru.
-NOM job-ACC quit Q whether-TOP know-NEG though such rumor-TOP exist
'Though I don't know whether **e** (=he) will quit his job, there is such a rumor.'
(Shibata 2014)

The data in (4) further illustrate the utterance initial requirement. Note also that (4b) does not improve with a pause/intonational-phrase boundary following *tabun*, which will be relevant for the discussion of Serbo-Croatian below.

(4) 'What will John do if you say you want to study abroad?'
a. **-wa** tabun hantaisu-ru darou kedo, settokusu-ru tumori.
-TOP probably disagree-PRES may though persuade-PRES will
'Though, speaking of **e** (=John), he may probably disagree, I will persuade him.'
b. *Tabun(#) –**wa** hantaisu-ru darou kedo, settokusu-ru tumori.
probably **-TOP** disagree-PRES may though persuade-PRES will
(Nasu 2012)

The above data show that particle-stranding ellipsis is not a matrix phenomenon. Following Shibata (2014), I assume that the phenomenon is prosodically conditioned. In particular, the above data indicate that it can occur only adjacent to an utterance boundary (see below regarding the direction of adjacency). In (1), the relevant element is located in the matrix clause and in (3) in an embedded clause. However, in all the good cases, (1), (3), and (4a), the relevant element is utterance initial, i.e. it is adjacent to an utterance boundary. This is not the case with the unacceptable examples in (2) and (4b).

3. Unsupported enclitics in Serbo-Croatian

Consider now Serbo-Croatian (SC) auxiliary enclitics. SC auxiliary enclitics cannot occur sentence initially. Thus, (5a) contrasts with (5b) (note that SC is a pro-drop language).

(5) a. ***Sam** stavio narandžu na taj izuzetno veliki kuhinjski sto.
am put orange on that extremely big kitchen table
'I put an orange on that extremely big kitchen table.'
b. cf. Ja sam stavio narandžu na taj izuzetno veliki kuhinjski sto.
I am put orange on that extremely big kitchen table

The copious literature on SC enclitics generally ignores the fact that, as noted in Bennett (1987), Bošković (2001), Browne (1975), Percus (1993), and Schütze (1994), for most speakers, auxiliary enclitics can occur after a sentence-internal pause, as illustrated by (6).

(6) Na taj izuzetno veliki kuhinjski sto# **sam** stavio narandžu.
on that extremely big kitchen table am put orange
'On that extremely big kitchen table, I put an orange.' (Percus 1993)

Another example of this type is given in (7).[2]

(7) Problemi o kojima ćemo razgovarati# **su** kompleksni.
problems about which will converse are complex
'Problems that we shall discuss are complex.' (Bennett 1987)

The phenomenon is not found only with heavy fronted constituents, as shown by (8), where the pause is induced by the presence of an appositive.

(8) Ja, tvoja mama, # **sam** oprala narandžu.
I your mother am washed orange
'I, your mother, washed an orange.' (Bošković 2015)

What is behind the contrast between (5a) and (6–8), i.e. why does the sentence-initial vs sentence-internal pause difference matter? It is standardly assumed (see for example Nespor and Vogel 1982, 1986; Selkirk 1986; Hayes 1989) that unless interrupted by an element that forms a separate intonation domain, each clause is mapped into a single I-phrase, with the CP edge corresponding to an I-phrase boundary. Some elements, such as appositives, parentheticals, and heavy fronted constituents, form separate I-phrases, evidence for which is provided by the fact that they are followed by pauses. This means that (6)–(8) are parsed into more than one I-phrase, since the fronted heavy constituent and the appositive form separate I-phrases, with a new I-phrase starting after these elements, which are in fact obligatorily followed by a pause (# thus indicates a pause as well as an I-phrase boundary).

Importantly, the difference between (5a) and (6)–(8) can then be straightforwardly stated in prosodic terms: in (6)–(8) the enclitic is adjacent to a pure I-phrase boundary, while in (5a) it is adjacent to an utterance boundary. I thus suggest that SC auxiliary enclitics can be stranded only when adjacent to a pure I-phrase boundary.[3, 4]

Comparing now the relevant phenomena in SC and Japanese, they in a sense represent a mirror image of each other: the relevant element can occur without a host in SC only when adjacent to a sentence-internal pause—it

[2] Auxiliary verbs in SC behave in the same way in all relevant respects when they function as a copula. Note also that SC differs from Slovenian, where both examples like (6)–(7) and examples like (5a) are acceptable, the reason being that in Slovenian, the relevant elements can be either enclitics or proclitics (see for example Bošković 2001).

[3] The way prosodic phrasing works, when there is an utterance boundary there is also an I-phrase boundary. What I mean by "pure I-phrase boundary" is the situation where there is only an I-phrase boundary (below, for ease of exposition I will also use "I-phrase boundary" to refer to such a situation).

[4] For another perspective on the contrast in question, see Bošković (2015).

cannot when adjacent to a sentence-initial pause; in Japanese, on the other hand, the relevant element can occur without a host only when adjacent to a sentence-initial pause—it cannot when adjacent to a sentence-internal pause.

Example (9) further confirms this for Japanese; the contrast between (1) and (9) confirms that adjacency to an utterance boundary is needed in Japanese, adjacency to an I-phrase boundary being insufficient.

(9) A: 'Will John come?'
B: *Eetto(,) **-wa** ki-masen.
well **-TOP** come-NEG.POLITE
'Well, he won't come.' (Shibata 2014)

I suggest that in both cases, adjacency of the relevant element to a prosodic boundary matters, this being a prerequisite for the stranding under investigation. However, there is a parameterization as to the type of the prosodic boundary, where what matters is whether the prosodic boundary is an I-phrase boundary (#) or an utterance boundary (‖). In the Japanese case, adjacency to an utterance boundary is needed, while in the SC case it is adjacency to an I-phrase boundary. As a result, the Japanese suffixes under consideration can occur only sentence-initially, while the SC enclitics under consideration can only occur after a sentence-internal pause.

4. Preposition stranding in German and Dutch

Consider now restrictions on preposition (P)-stranding in German and Dutch. Den Besten and Webelhuth (1990) and Thiersch (2017) show that P-stranding in German and Dutch is possible only if the preposition is adjacent to the verb or its trace. Illustrative examples from German are given in (10). Note that the stranded preposition is adjacent to the verb in (10a-b) and to its trace in (10e).

(10) a. Er hat da_i noch nicht [das Vorwort [t_i **von**]] gelesen.
he has it yet not the foreword of read
'He hasn't yet read the preface of it.'

b. Er hat da_i [das Vorwort $t_j]_k$ noch nicht [t_i **von**]$_j$ t_k gelesen.
he has it the foreword yet not of read

c. *Da_i hat er noch nicht [t_i **von**] das Vorwort gelesen
it has he yet not of the foreword read

d. *Da_i hat er [t_i **von**] noch nicht das Vorwort gelesen
it has he of yet not the foreword read

e. [$_{VP}$ t_k t_j gelesen]$_m$ hat er da_i [das Vorwort]$_k$ noch nicht [$_{PP}$ t_i **von**]$_j$ t_m
read has he it the foreward yet not of
(den Besten and Webelhuth 1990)

I suggest a reinterpretation of these data, which unifies the German data in question with the Japanese/SC data from above. The suggestion is that at least in the above cases, where the preposition is not adjacent to the noun,[5] the verb is the host of the stranded preposition, and the host can be missing only when the preposition is adjacent to an utterance boundary in German. This is the case in (10e). German P-stranding is then subject to the same prosodic condition as Japanese particle-stranding.

There is a difference in the direction of adjacency, which is, however, principled: If the relevant element is a prefix/proclitic both the host and the prosodic boundary follow it, if it is an enclitic/suffix, they both precede it. The German case instantiates the former scenario, and the Japanese case and the SC case instantiate the latter scenario.

Furthermore, I argue that Dutch minimally differs from German, in a similar way Japanese differs from SC. In contrast to German, it is possible to strand the preposition in (11) in Dutch.

(11) a. Ik heb daar$_i$ boeken [t$_i$ **op**]# en [op deze tafel] gelegd
I have there books on and on this table put
'I have put books there and on this table.'

b. ?Daar$_i$ heb ik boeken [t$_i$ **op**]# en [op deze tafel] gelegd
there have I books on and on this table put

(Bošković 2020)

Crucially, a prosodic boundary, namely #, must follow the stranded preposition (see Bošković 2020). German disallows (11). I suggest that in Dutch, the stranding is also possible when the preposition is adjacent to a pure I-phrase boundary (as well as ‖ — (10e) is in fact acceptable in Dutch).[6] There is then no need to posit a syntactic difference between German and Dutch here: a similar prosodic difference regarding the strength of the prosodic boundary to the one found with SC and Japanese, discussed in sections 3 and 2 respectively, is at work here.[7]

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[5] I assume that when the preposition is adjacent to the higher noun, i.e. the noun that takes the PP as its complement, as in *Da hat er [das Vorwort **von**__] noch nicht gelesen*, it undergoes reanalysis with the noun (see, for example, Hornstein and Weinberg 1981), hence the issue of licensing it does not arise.

[6] There is another interesting aspect of (11): it involves extraction from a conjunct. Bošković (2020) shows that (11) is part of a larger class of exceptions to the Coordinate Structure Constraint: an element that is base-generated at the edge of the first conjunct, or undergoes obligatory movement to its edge, can extract. In other words, the Coordinate Structure Constraint holds only for successive-cyclic movement via the conjunct edge. I refer the reader to Bošković (2020) for relevant discussion, as well as a number of other cases that illustrate the generalization in question.

[7] Interestingly, while the literature on particle-stranding ellipsis in Japanese generally claims that particles can only be stranded when sentence-initial, a few authors disagree with

5. Conclusion

In summary, I have proposed a new typology regarding when a phonologically weak element can be stranded where adjacency to a prosodic boundary is necessary for such stranding, with parametrization regarding the strength of the prosodic boundary: it can be ‖ (an utterance boundary) or # (an intonational-phrase boundary), or either ‖ or # (in the last case, adjacency to either of these prosodic boundaries suffices). Furthermore, the difference in the direction of adjacency to the prosodic boundary mirrors the difference in the adjacency to the host: if the relevant element is a prefix/proclitic, both the host and the prosodic boundary follow it, if it is an enclitic/suffix, they both precede it.

Needless to say, the above discussion represents a preliminary investigation, additional cases of stranded weak elements should be examined and tested with respect to the suggestions made above. However, the hope is that the above discussion provides a fresh perspective to examine, and unify, such elements in various languages.[8]

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this claim, giving examples where the stranded particle is not sentence-initial (Nasu 2012; Abe 2015; Yamashita 2019). Importantly, a pause still precedes the particle in the examples they give, as in the representative example in (i), with the comma indicating a pause (and an I-phrase boundary).

(i) Jim-ga [UConn-ga NCAA-ni katu to] itteru ga,
Jim-NOM UConn-NOM NCAA-DAT win C say but
'Jim says that UConn will win NCAA, but'

a. ?Boku-ni-wa, Δ-**to**-**wa**, omoenai.
I-DAT-TOP C-TOP not.seem
'It does not seem to me that-Δ.' (Abe 2015)

It appears then that we are dealing here with speaker variation where for the speakers who accept examples like (i), Japanese patterns with Dutch, in that adjacency to either an utterance boundary or an I-phrase boundary matters (see here Fujiwara 2022, who also explicitly notes that he and his informants do not accept examples like (i) (and (ii) below), which indicates that we are indeed dealing with speaker variation here).

Importantly, the authors who give examples like (i) as acceptable also disagree with the general claim made in the literature on particle-stranding ellipsis that particle-stranding ellipsis cannot occur twice in the same sentence. Thus, Nasu (2012) gives (ii). Note that this is not surprising—each stranded particle is still adjacent to a pause/an I-phrase boundary in (ii).

(ii) A: Taro-wa Osaka zyanakute Tokyo-ni it-ta no?
Taro-TOP Osaka not Tokyo-DAT go-PAST C
'Did Taro go to Tokyo, not Osaka?'

B: Δ-**Wa**, Δ-**ni**, it-ta n desu.
TOP DAT say-PAST FIN FOC
lit. 'ΔTOP went ΔDAT' (Nasu 2012)

[8] A speculative note is in order. Slovenian clitics may in some cases stand on their own, without a host to attach to (see Priestly 1993; Bošković 2001, 2016; Dvořák 2007; Franks 2010;

Finally, given that sensitivity to the distinction between utterance and intonational phrase boundaries is not frequently observed, it is worth noting here that Bošković (2015) shows that Serbo-Croatian clitic placement, in particular, the traditional distinction between after-the-first-word and after-the-first-constituent clitic placement, is also sensitive to the distinction between utterance and intonational phrase boundaries.

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Franks and King 2000; Golden and Milojević Sheppard 2000, among others), as illustrated by (i) with the pronominal clitic *ga* 'him'.

(i) A **ga** poznaš? **Ga**.
Q him.ACC know him.ACC
'Do you know him? I do.' (Dvořák 2007)

Notice that in such cases the clitic is both left and right adjacent to an utterance boundary. There is another exceptional property of Slovenian clitics. As noted in footnote 2, Slovenian auxiliary and pronominal clitics can be either proclitics or enclitics. It may be possible to tie together these two exceptional properties of Slovenian clitics. Consider what it takes to be fully stranded, like *ga* in (i). What is relevant here is adjacency to an utterance boundary. Suppose that it is not enough to satisfy the directional adjacency condition, namely if the relevant element is an enclitic the prosodic boundary must precede it, and if the relevant element is a proclitic the prosodic boundary must follow it, but that "wrong" directional adjacency is also not allowed: if the relevant element is an enclitic, a prosodic boundary that could license it could not follow it (this may actually hold only for utterance boundary licensing). A prediction of this would be that only elements which can be either proclitics or enclitics, in other words, which have no directionality requirement for attachment, could be fully stranded. Slovenian exactly fits this. It is particularly important in this context that Bošković (2001) gives a number of empirical arguments that Slovenian clitics are not ambiguous between being proclitics and enclitics, where the same form would be ambiguous between a proclitic and an enclitic, they are actually not specified for the directionality of attachment. At any rate, the account suggested here would make the Slovenian situation principled: that Slovenian clitics can be stranded and that they are not specified for the directionality of attachment would not be accidental properties of Slovenian clitics, since the former would depend on the latter (this would be a one-way correlation though, since other factors would also be relevant here, including those discussed in this paper). At any rate, a prediction would be that only elements that in principle can be either proclitics or enclitics can be fully stranded.

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