Simplifying MATCH WORD: Evidence from English function words

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1. Introduction

Contentful lexical items, such as nouns, verbs and adjectives, tend to correspond to prosodic words. Match Theory (Selkirk 2009, 2011) proposes that this correspondence is enforced with a MATCH WORD constraint or principle: syntactic heads are preferentially mapped to prosodic words (section 2). But there’s a problem: functional items present a clear departure from this principle, as they have a strong tendency to reduce, cliticize or otherwise shrink from prominence, and generally do not correspond to prosodic words (section 3).

A typical way of managing functional items within Match Theory is to assume that they are ‘exempt’ from governance by MATCH WORD (although the idea predates Match Theory). In this paper I propose that this idea is incorrect, and that MATCH WORD does not discriminate between functional and lexical (i.e. contentful) categories. In doing so, MATCH WORD is brought in line with its fellow constraint MATCH PHRASE, which Elfner (2012) has argued applies to the phrasal projections of both lexical and functional categories too.

To account for the pervasive phonological reduction of function words, I propose that many functional items—all those which reduce—carry in their lexical entries a pre-specification for reduction, encoded in a prosodic subcategorization frame (Inkelas 1989, Inkelas & Zec 1990, Bennett et al. 2018) (section 4). During prosodic structure-building, the pressure that MATCH WORD exerts, demanding that a syntactic head maps to a prosodic word, may be overridden by the pressure to satisfy a particular head’s subcategorization frame. This interaction is modeled in Optimality Theory.

The empirical domain considered here is the English functional lexicon, ground well-trodden by Selkirk (1996) and Ito & Mester (2009a, b). Having shown that the model presented here can account for the basic behavior of English function words (sections 4.1 and 4.2), I then show how the model can easily account for some further phenomena, including

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prosodic strengthening in stranded positions, and non-reducible function words, in an arguably less-stipulative manner than previous analyses (section 5). Section 6 then uses the model to account for some further surprising facts in the English functional domain.

2. The syntax-prosody interface

This paper is couched in the framework of an indirect reference approach to the syntax-prosody interface. Such approaches hold that prosodic structure is built through a negotiation between two competing pressures. On the one hand, there is pressure for the prosodic structure to be maximally isomorphic to syntactic structure, and on the other hand there is pressure for prosodic structure to satisfy independent well-formedness conditions, which do not make reference to syntax. Sometimes these pressures conflict, and their competition can be modelled in Optimality Theory. In this way, the relation between syntax and prosody is ‘indirect’.

Match Theory (Selkirk 2009, 2011, Elfner 2012) provides a formal account of the pressure to map syntax to prosody. Its central thesis is that violable constraints enforce the mapping of certain prosodic categories to certain syntactic categories. Some widely-assumed category mappings are shown in (1).

<table>
<thead>
<tr>
<th>Prosodic</th>
<th>Syntactic</th>
</tr>
</thead>
<tbody>
<tr>
<td>(I) (intonational phrase)</td>
<td>CP (with illocutionary force) or ForceP</td>
</tr>
<tr>
<td>(\phi) (phonological phrase)</td>
<td>XP</td>
</tr>
<tr>
<td>(\omega) (prosodic word)</td>
<td>X(^0)</td>
</tr>
</tbody>
</table>

For the three syntactic objects governed by Match Theory, there is a constraint (or pair of constraints) enforcing the mapping, informally stated in (2).

1. Match Clause: Enforces ForceP \(\leftrightarrow I\) correspondence
2. Match Phrase: Enforces XP \(\leftrightarrow \phi\) correspondence
3. Match Word: Enforces X\(^0\) \(\leftrightarrow \omega\) correspondence

For example, if the NP hungry dog has the syntax in (3a), the fully Match-constraint-compliant prosodic structure would be (3b).

(3) a. NP b. \(\phi\)

\[
\begin{array}{c}
\text{Adj}\(^0\) \\
\text{hungry}
\end{array} 
\begin{array}{c}
\text{N}\(^0\) \\
\text{dog}
\end{array} 
\begin{array}{c}
\omega \\
\omega
\end{array} 
\begin{array}{c}
\text{hungry}
\end{array} 
\begin{array}{c}
\text{dog}
\end{array}
\]

\(^1\)I have not separated out ‘syntax→prosody’ (‘MAX’) and ‘prosody→syntax’ (‘DEP’) constraints, as is frequently done (e.g. Elfner 2012, Weir 2012, Clemens 2014). See Tyler (2018) for justification of this choice.
In (3), every $X^0$ has a corresponding $\omega$ and every XP has a corresponding $\phi$, and likewise every $\omega$ has a corresponding $X^0$ and every $\phi$ has a corresponding XP. No violations of MATCH WORD or MATCH PHRASE are incurred.

We can now turn to cases where the MATCH constraints conflict with independent prosodic well-formedness constraints. Assume that the bare plural DP *dogs* has a null determiner, as in (4a). Given that phonetically empty prosodic categories are *a priori* undesirable, we can assume that the maximally-isomorphic candidate in (4b) is ruled out by some high-ranked constraint banning such creatures—I employ a constraint ‘NO EMPTY CAT’. I also propose that the structure in (4c), with a unary-branching $\phi$, violates a prosodic well-formedness constraint that demands binary-branching $\phi$s, termed here BINARITY$(\phi)$ (on which see Ghini 1993 [Inkelas & Zec 1995] Selkirk 2000 Ito & Mester 2009a Elfen 2012 among others). Consequently, the ideal mapping for (4a) turns out to be the undominated $\omega$ in (4d). The tableau in (5) shows how ranking the two well-formedness constraints above the two MATCH constraints derives the ideal structure.

\begin{table}[h]
\centering
\begin{tabular}{c|c|c|c|c|c|c|c}
 & & & & & & \\
| & | & | & | & | & |
\hline
D$^0$ & N$^0$ & $\omega$ & $\omega$ & $\omega$ & & \\
$\emptyset$ & dogs & $\emptyset$ & dogs & dogs & & \\
\hline
\end{tabular}
\end{table}

\begin{tabular}{c|c|c|c|c|c|c|c}
 & & & & & & \\
| & | & | & | & | & |
\hline
[DP $\emptyset$D$^0$ dogs] & NO EMPTY CAT & BINARITY$(\phi)$ & MW & MP & & \\
\hline
a. ($\phi$ $\omega$O)$\omega$dogs)) & !* & & & & & & \\
b. ($\phi$ $\omega$dogs)) & & *! & & & * & & \\
c. $\omega$dogs) & & & & & & * & * \\
\hline
\end{tabular}

We have therefore seen how high-ranked prosodic well-formedness constraints induce syntax-prosody non-isomorphism. In section 4 I extend this idea to account for the prosodic behavior of function words, introducing a new high-ranked constraint SUBCAT to enforce their prosodic pre-specifications. But first, I discuss the alternative approach to function word prosody, prevalent in much previous work.

3. **The problem of function words**

Function words tend to have a different prosody from lexical words. Considering just English, while lexical words require a stressed syllable, function words lack this requirement: their vowels are unstressed and may reduce to a schwa (except in certain specific contexts). (6) shows a preposition, an auxiliary and a determiner all taking a reduced form.

\begin{table}[h]
\centering
\begin{tabular}{c|c|c|c|c|c|c|c}
 & & & & & & \\
| & | & | & | & | & |
\hline
a. Mary sat [\@t] home. & & & & & & \\
b. John [\@d] left. & & & & & & \\
c. Ellen saw [\@d] doctor. & & & & & & \\
\hline
\end{tabular}
\end{table}

\[2\text{See} \text{Clemens 2014} \text{and Bennett et al. 2016} \text{for explicit theoretical discussion of the prosodic representation of single-word XPs.}\]
I follow the analysis of Ito & Mester (2009a,b), based on a similar analysis in Selkirk (1996), that English prepositions, auxiliaries and determiners have the prosodic category of ‘bare’ syllables, and form recursive prosodic words with their complement. Therefore the function words in (6) integrate into prosodic structure thus:

(7) a. $\sigma$ $\omega$ b. $\sigma$ $\omega$ c. $\sigma$ $\omega$

[ɔt] home [ɔd] left [ðo] doctor

So function words are X$^{0}$s in the syntax—P$^{0}$s, Aux$^{0}$s and D$^{0}$s among others—and yet they generally fail to map to os. How to explain this? The consensus choice in the literature, which I argue against in this paper, is that the syntax-prosody mapping principles simply ‘ignore’ function words in some respect. An example from the pre-Match Theory literature, Truckenbrodt’s (1999) Lexical Category Condition, is stated in (8) (emphasis mine).

(8) Lexical Category Condition (Truckenbrodt 1999:224)

Constraints relating syntactic and prosodic categories apply to lexical syntactic elements and their projections, but not to functional elements and their projections, or to empty syntactic elements and their projections.

This idea has been carried over virtually wholesale into Match Theory. (9) provides three recent statements of MATCH WORD principles and constraints (emphases mine).

(9) a. “The edges of a lexical word [...] are mapped to the edges of a Prosodic Word (ω)” (Weir 2012:111)

b. “[A]ssign one violation for every lexical word in the syntactic component that does not stand in a correspondence relation with a prosodic word in the phonological component.” (Elfner 2012:241)

c. “Phonological words correspond to heads of syntactic phrases—verbs, nouns, adjectives, and so on, the basic building blocks of the syntactic system.” (Ben-nett et al. 2015:34)


The common thread running through these works is that there is no impetus to parse function words as os. Yet the corollary of this—that the phrasal projections of functional categories should not be parsed as φs—has been challenged. For instance, Elfner (2012) shows that small clauses and TPs in Irish, both of which are headed by a functional category, are preferentially mapped to φs. Furthermore, a large body of evidence has shown

3I limit discussion here to monosyllabic function words. See Tyler (2018) for discussion of how polysyllabic function words fit into the model.
that coordinated phrases, often analyzed as headed by a functional head (e.g. Munn 1993), are generally parsed into a prosodic constituent to the exclusion of material outside of the coordination (Wagner 2010, Féry & Truckenbrodt 2005). In this paper, I take this kind of a challenge to its conclusion, and argue that neither MATCH PHRASE nor MATCH WORD distinguish functional and lexical categories.

In the next section, I offer my alternative to the ‘MATCH WORD ignores functional categories’ analysis, employing the idea of violable prosodic pre-specification.

4. Violable prosodic subcategorization frames

Our empirical starting point is that some morphemes exhibit idiosyncratic behavior in terms of how they integrate into their surrounding prosodic structure. The basic idea behind prosodic pre-specification is that such behavior should be encoded in the morpheme’s lexical entry. One powerful formalization of this notion is with prosodic subcategorization frames (Inkelas 1989, Inkelas & Zec 1990, Zec 2005, Bennett et al. 2018), which are explained in this section.

Typically, prosodic subcategorization frames are not violated, and they can be stated in absolute terms. However, we will see that a lexical item’s prosodification preferences can be violated in certain circumstances. I therefore follow Bennett et al. (2018) in assuming that subcategorization frames are enforced by a violable constraint SUBCAT.

4.1 A right-cliticizing frame

I propose that most English prepositions, auxiliaries and determiners come pre-equipped with the prosodic subcategorization frame in (10). This should be read as ‘Fnc^0 requires its mother node to be category ω, and it requires a sister node of any category on its right’.

(10)  [ω Fnc^0 [ ... ]]  

The effect of being associated with this frame is to force cliticization into whatever prosodic word shows up to the right of Fnc^0. The mappings in (11) show auxiliaries and prepositions satisfying (10), and cliticizing into their complements.

(11)  

a. AuxP ⇒ ω

```
         ω
        / \\  
    σ    ω
   / \  /  
σ      ω
```

b. PP ⇒ ω

```
         ω
        / \\  
σ    ω
   / \  /  
σ      ω
```

```
This behavior is derived by having \textsc{SubCat}, which enforces adherence to prosodic subcategorization frames, outrank both \textsc{Match Word} and \textsc{Match Phrase}. The three constraints are given formal definitions in (12), and the tableau deriving the prosodic structure of \textit{to Andy} is shown in (13).

(12) a. \textsc{SubCat}(X)  
Assign one violation for every instance of morpheme X whose prosodic subcategorization frame is not satisfied.

b. \textsc{Match Word}  
Assign one violation for every \(X^0\) that does not correspond to a \(\omega\), and for every \(\omega\) that does not correspond to a \(X^0\).

c. \textsc{Match Phrase}  
Assign one violation for every \(XP\) that does not correspond to a \(\phi\), and for every \(\phi\) that does not correspond to a \(XP\).

<table>
<thead>
<tr>
<th>PP to [DP Andy]</th>
<th>SUBCAT(to)</th>
<th>MW</th>
<th>MP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (\phi_{(\omega \text{ to } \omega \text{ Andy})})</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. (\phi_{(\omega \text{ to } \omega \text{ Andy})})</td>
<td>*!</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>c. (\omega_{(\omega \text{ to } \omega \text{ Andy})})</td>
<td>*!</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>d. (\omega_{\omega \text{ to } \omega \text{ Andy}})</td>
<td>***</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>e. (\omega_{\omega \text{ to } \omega \text{ Andy}})</td>
<td>**</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

Crucially, note that three of the losing candidates (a-c) fare better than the winner when evaluated by \textsc{Match Word} and \textsc{Match Phrase}, yet because they each involve a violation of \textsc{SubCat} they are doomed. To make this point as clear as possible, it is worth going through why each candidate, restated in (14), receives the violation marks that it does.

(14) a. \(\preceq\omega\)  b. \(\preceq\phi\)  c. \(\preceq\omega\)  d. \(\preceq\omega\)  e. \(\preceq\omega\)
\[
\omega \quad \omega \quad \sigma \quad \omega \quad \omega \quad \omega \\
\text{to Andy} \quad \text{to Andy} \quad \text{to Andy} \quad \text{to Andy} \quad \text{to Andy}
\]

Candidate (a) is the most \textsc{Match}-adherent of the bunch, and were it not for the prosodic subcategorization frame associated with \textit{to}, it would be the winner. Candidate (b) maps the PP node to a \(\phi\), just like candidate (a), but induces one more \textsc{Match Word} violation than candidate (a) by failing to map the \(P^0\) head \textit{to} to a \(\omega\). Candidate (c) earns its \textsc{Match Word} violation mark by being guilty of different sin: it sports a \(\omega\) that corresponds to no single \(X^0\). Furthermore, it receives its \textsc{Match Phrase} violation by failing to map PP to a \(\phi\). Despite its failings, however, it \textit{still} scores better on the \textsc{Match} constraints than the

\footnote{Candidates that violate \textsc{Binarity}(\(\phi\)) are not shown. Not also that not all \textsc{Match Phrase} violations are shown. Clearly all the candidates violate \textsc{Match Phrase} at least once by failing to map the DP/NP \textit{Andy} to a \(\phi\). When every candidate induces the same violation, I generally do not show the shared violation mark in the tableau to reduce clutter.}
winner, candidate (e). We see that candidate (e) has all the combined sins of candidates (b) and (c): it fails to map P₀ to a ω, it contains a ‘spurious’ ω that doesn’t correspond to any X₀, and it fails to map PP to a φ. Yet because it satisfies SUBCat, it beats them. Finally, candidate (d) also manages to satisfy SUBCat, yet it includes an extra MATCH WORD violation—by failing to map Andy to a ω—and so it is beaten by candidate (e).

Before continuing, a note is in order on variation in the reduction of auxiliaries. English auxiliaries split into (at least) two classes with respect to their reducibility. One class, which includes can, should, could, might, will and some forms of be (are, were, was, been), is necessarily realized with, at minimum, one syllable. These are the auxiliaries to which the pattern described here most cleanly applies (as in (11b)). A second class may be optionally reduced to a non-syllabic consonant in certain environments. These include the forms of have and some forms of be, reducing to -'m, -'s, -'d and -'ve, as well as would, reducing to -'d. Regarding these ‘very reduced’ auxiliaries, Kaisse (1985) and Anderson (2008) argue that they form a prosodic constituent with material to their left. Their prosodic subcategorization frame must therefore differ from that in (10), and I set them aside until the conclusion.

4.2 A left-cliticizing frame

I propose that weak object pronouns are associated with the prosodic subcategorization frame in (15), which is essentially a mirrored version of (10).

(15) [₀ [... ] Fnc₀]  

This frame accounts for their tendency to phonologically encliticize into the preceding prosodic word (Selkirk 1996):

(16) Teachers need [əm]. (=them)

The mapping is derived in the tableau in (17), again with all of the more MATCH-compliant candidates (a-c) losing out to a candidate that satisfies SUBCat (candidate e).

<table>
<thead>
<tr>
<th>[VP need them]</th>
<th>SUBCat(them)</th>
<th>MW</th>
<th>MP</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (φ (₀ need)(₀ them))</td>
<td>*!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. (φ (₀ need) them)</td>
<td>*!</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>c. (₀ (₀ need)(₀ them))</td>
<td>*!</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>d. (₀ need them)</td>
<td>***</td>
<td>*</td>
<td></td>
</tr>
<tr>
<td>e. (₀ (₀ need) them)</td>
<td>**</td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

This account has a clear advantage over Selkirk’s (1996) account of the same facts. She is forced to posit a syntactic cliticization operation, in which object pronouns undergo head-movement into the verb that selects them. The [verb+pronoun] constituent is then parsed as a single lexical word, and so is mapped to single prosodic word. For her, if this movement
failed to happen then object pronouns would end up treated in the same way as stranded prepositions, on which see section [5.1]. The difficulty with this account is that the movement operation is not well-motivated for English. For one thing, it is hard to provide any evidence that the verb and pronoun form a complex syntactic head: verbs in English do not undergo head movement to T or C, so we can’t check to see whether the pronoun will tag along with them as they undergo head movement. Conversely, it is possible to provide evidence that object pronouns will phonologically cliticize into non-verbs, shown with prepositions and the adjective _worth_ in (18).

(18) a. The task is beneath [əm].
   b. Ellen waited for [əm].
   c. We should pay teachers higher salaries, because they’re worth [əm].

If we were to maintain that the phonological reduction of English weak object pronouns results from their syntactic head-movement into the X⁰ that selects them, we would need to claim that English pronouns syntactically incorporate into these elements too. I therefore suggest that the account presented here, in which the prosodic left-cliticizing property of an object pronoun is purely prosodic property and nothing to do with their syntax, is a better fit for the English data.

5. Some advantages of the proposal

Here, I provide two empirical advantages of the proposal advanced here. Firstly, the proposal gives a unified account of the behavior of function words ‘stranded’ at the edge of phonological domains. Secondly, it provides an account of English function words that fail to undergo phonological reduction.

5.1 Stranded function words

Prepositions and auxiliaries in phrase-final position necessarily map to full prosodic words (Selkirk 1996). The evidence for this is that their vowel cannot be reduced to schwa:

(19) a. The man Mary talked (ᵩ[τu])/[*[tʊ]].
   b. I won’t help you, but Mary (ᵩ[kæn])/[*[kæn]].

This behavior can be derived from the analysis presented here: in these cases, where there is no material for the Fnc⁰ to cliticize into, SUBCAT is necessarily violated. The candidate that least violates the MATCH constraints is then picked as the winner, as shown in (20).³

³I assume that candidates where the linear order of elements is altered, as in Bennett et al. (2016), or where material is epenthesized after the preposition, are ruled out by other high-ranked constraints.
We see a mirror-image of this with object pronouns—left-cliticizing elements—when they occur at the beginning of a phonological phrase. As shown in (21), object pronouns in phrase-initial positions cannot be reduced.

(21) a. \( (\_\_ [\_r m])/*[\_m] leaving was a surprise. \)
   b. It’s nice, \( (\_\_ [h:\_])/*[\_] in town at last. \)

This behavior can be derived in the same way: left-cliticizing elements at the right edge of phonological phrases have nothing to cliticize onto, and so SUBCAT is necessarily violated. Consequently, the most MATCH-compliant candidate wins, as shown in (22).

(22) 

<table>
<thead>
<tr>
<th>[DP them [VP leaving]]</th>
<th>SUBCAT(Them)</th>
<th>MW</th>
<th>MP</th>
</tr>
</thead>
<tbody>
<tr>
<td>*(φ (__ them)(__ leaving))</td>
<td>*</td>
<td>!*</td>
<td>*</td>
</tr>
<tr>
<td>*(φ them (__ leaving))</td>
<td>*</td>
<td>!*</td>
<td>*</td>
</tr>
<tr>
<td>*( (__ them)(__ leaving))</td>
<td>*</td>
<td>!*</td>
<td>*</td>
</tr>
<tr>
<td>*( (__ them)(__ leaving))</td>
<td>*</td>
<td>!*</td>
<td>*</td>
</tr>
<tr>
<td>*( (__ them leaving))</td>
<td>*</td>
<td>!*</td>
<td>*</td>
</tr>
</tbody>
</table>

Note that we have essentially reanalyzed the prosodic strengthening of stranded function words as a TETU effect (“the emergence of the unmarked”, McCarthy & Prince 1994): the more marked form (the reduced function word) is blocked in the stranded environment, and so its complementary unmarked form (the unreduced function word) emerges.

5.2 Unreduced function words

Not all function word can be phonologically reduced—some of them obligatorily form full \( ω s \), with a stressed non-schwa vowel. One example of this is the demonstrative determiner

---

6 All analyses of the prosody of stranded function words in English are plagued by the issue of why they cannot cliticize into following adjuncts, as in (i). I leave this matter unresolved for now—see Selkirk (1996) for a potential solution.

(i) a. Who were you talking \( (\_\_ [tu])/*[t\_] \) yesterday?
   b. Someone to talk \( (\_\_ [tu])/*[t\_] \) for yourself.
Unlike the non-demonstrative determiners, *that* cannot have its vowel reduced to a schwa. This forms a clear contrast to complementizer *that*, which is generally reduced.\(^7\)

(23)  
  a. Bill baked ([\(\delta_{\text{at}}\)/*\(\delta_{\text{et}}\)] cake).
  b. Mary heard [\(\delta_{\text{at}}\] Bill left.

Non-reducible function words can be dealt with easily in the analysis: they just lack prosodic subcategorization frames. That is, at the syntax-prosody interface they are treated as a regular content word like *cake*. Therefore \(\text{SUBCAT}\) is inactive, and the most \(\text{MATCH}\)-compliant prosodic representation is picked instead. That representation is the one in which the DP node is mapped to a \(\phi\) and both contentful syntactic heads are mapped to \(\omega\)s, as shown in the tableau in (24).\(^8\)

\[
\begin{array}{|c|c|c|}
\hline
\text{DP that cake} & \text{SUBCAT} & \text{MW : MP} \\
\hline
\text{a. (\(\phi\) (\(\omega\) that)(\(\omega\) cake))} & *! & * \\
\hline
\text{b. (\(\phi\) that (\(\omega\) cake))} & *! & * \\
\hline
\text{c. (\(\omega\) that (\(\omega\) cake))} & *!* & * \\
\hline
\text{d. (\(\omega\) that (\(\omega\) cake))} & *!** & * \\
\hline
\text{e. (\(\omega\) that cake)} & *!** & * \\
\hline
\end{array}
\]

In this section, we have seen that the analysis presented here provides two empirical advantages over a ‘MATCH WORD ignores functional categories’ analysis: it allows for a simple analysis of prosodic strengthening in ‘stranded’ positions, and it allows us to easily capture the behavior of certain function words that behave prosodically like lexical words.

6. **-n’t and some consequences**

In this section, I discuss the prosodic behavior of contracted negation *-n’t*, and some implications of the *-n’t* pattern, where a right-cliticizing element abuts a left-cliticizing one.

I propose that *-n’t* is associated with the left-cliticizing prosodic subcategorization frame in (25), the same frame as was proposed for weak object pronouns.\(^9\)

\[
[\omega [\ldots] \text{-n’t}]
\]

\(^7\)To my knowledge it has not previously been claimed that determiner *that* occupies a \(\omega\) onto itself. However, the phonetic results reported in Brown-Schmidt et al. (2005), who show that the vowel in unstressed *that* is on average significantly longer than the vowel in unstressed *it*, seem to support this claim.

\(^8\)Certain ‘high-register’ prepositions, such as *via*, should likely be analyzed in the same way—as independent prosodic words. See Tyler (2018) for further discussion.

\(^9\)The clitic vs. affixal status of *-n’t* was famously interrogated by Zwicky & Pullum (1983), with them coming down firmly on the affixal side. However, the morphosyntactic clitic vs. affix status of *-n’t* is not directly relevant to the discussion here. The only prerequisites for the discussion here are that *-n’t* and its host auxiliary are each syntactic X\(^0\)s at the syntax-prosody interface. In a Distributed Morphology approach, this is compatible with *-n’t* being a clitic or an affix (to the extent that the distinction has any theoretical significance in such an approach).
This accounts for little-noted fact: the addition of -n’t forces its host auxiliary to become a full prosodic word. Compare (26a) with (26b), and (27a) with (27b).


The examples in (26) provide the clearest contrast: -n’t forces its host auxiliary had to appear in unreduced form, with an initial /h/ and word-level stress. The contrast in (27) is somewhat murkier, given the shorter phonetic distance between unreduced /æ/ and reduced [ə], but the effect on stress is the same: adding -n’t forces does to bear word-level stress. The same can be said of monosyllabic negated auxiliaries such as won’t and can’t: they too cannot have their vowels reduced to [ə], and must be stressed as full lexical words.

We can show that Fnc-Fnc sequences do not ordinarily coalesce into full ωs. The sequence of auxiliaries in (28a) can happily recursively cliticize into the structure in (28b), with neither of the auxiliaries receiving word-level stress.

(28) a. The unpleasant man had been speaking.  
   b. ω  
      σ  
      [ɔd]  
      σ  
      [bm] speaking

This prosodic property of -n’t must therefore come from something lexically specific to it, something not shared with the auxiliaries. I argue that what sets -n’t apart is its left-cliticizing prosodic subcategorization frame, shown in (23). It works as follows: an auxiliary like had is pre-specified with a right-cliticizing frame, and -n’t is pre-specified with a left-cliticizing frame. Upon being placed adjacent to each other by the syntax, both frames can be simultaneously satisfied by forming a ω:

(29)  

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10 Although it should be noted that Ito & Mester (2009a) propose that negated auxiliaries, monosyllabic and disyllabic, right-adjoin into the adjacent prosodic word as Feet. However, Ito & Mester’s evidence rests on evidence from the absence of intrusive /l/ following auxiliaries like gonna, but we should be wary about extrapolating this to those function words on which the intrusive /l/ test cannot be applied.
If this analysis is correct, it has some intriguing consequences for other circumstances where a right-cliticizing function words abuts a left-cliticizing one. One very common instance of this comes when a preposition takes a pronoun as its complement. As shown in (30), this has at least two possible realizations. In (30a), *him appears in unreduced form and the preposition cliticizes to it. In (30b) it is harder to tell what is going on, since it appears that both the preposition and the pronoun are in their reduced forms.

(30)  
   a. Maisie waited [f\(\omega\)him].
   b. Maisie waited [f(\(\omega\))r(\(\sigma\))]m.

One potential analysis is that (30b) has the prosodic structure in (31). In this structure, the prosodic subcategorization frames of both elements are still satisfied. *Him demands that its mother node be \(\omega\) and that it have a sister to its left, and both of these requirements are satisfied. The same is true of *for: it demands that its mother node be \(\omega\) and that it have a sister to its right, and again both requirements are satisfied.\(^{11}\)

\[
(31) \quad \omega \\
   \omega \quad \sigma \quad \sigma \\
   \text{waited} \quad \text{for} \quad \text{him}
\]

The behavior of Fnc-Fnc sequences where the first Fnc cliticizes right and the second cliticizes left requires more research, both within English and cross-linguistically.

7. Conclusion

We have seen that Match Theory can be productively integrated with theories that permit prosodic idiosyncrasy to be projected from the lexicon. In the process we have managed to simplify MATCH WORD such that it does not discriminate between lexical and functional categories, bringing it in line with Elfner’s (2012) non-discriminating MATCH PHRASE constraint, and derive a range of empirical phenomena within the English functional domain.

However, there may be restrictions on function word reduction that are not purely phonological in nature, and interact with syntax. Pullum & Zwicky (1997) catalog a series of syntactic environments in which certain function words (the variety that reduce to non-syllabic consonants) are unable to reduce, despite having viable prosodic hosts. (32) provides examples, where an auxiliary abuts an ellipsis site and a movement trace.

(32)  
   a. *I’ve left home and they’ve left home too.
   b. *I’m not sure where, Mary’s \(t_i\).

I leave open whether these effects should be captured by further prosodic restrictions, or whether they require a mixed syntactic-prosodic analysis.

\(^{11}\)This analysis crucially relies on a vertical prosodic subcategorization frame—see Bennett et al. (2018).
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References


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