Minimizing prosody in Scandinavian shifting

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1 Introduction

Economy considerations have played an important role in Minimalist Sytnax (Chomsky 1995). Often theses economy considerations function as a way to rule out one derivation or structure from another. This is done by making reference to whether or the closest thing was moved (Chomsky 1993), there is a minimal amount of structure (Cardinaletti & Starke 1999), or we are pronouncing the end of a PF-chain (Landau 2006, van Urk 2018). Often these economy principles will make specific reference to interactions at the interface at PF or LF (Bošković & Messick 2017). Of special interest to this paper are economy principles at PF.

This paper investigates two phenomena in Mainland Scandinavian: Negative Indefinite Shifting (NegShift) and Particle shift. NegShift is a process in the Scandinavian languages where a negative indefinite expression (NI) obligatorily shifts to a position outside of the VP.

(1) NegShift of pronouns and complex DPs

a. Manden havde måske *ingenting* [$_{VP}$ sagt t_o]. Da
man-the had probably nothing said
'The man hadn't said anything.'

b. Jeg har *ingen bøger* [$_{VP}$ lånt børnene t_o.]
I have no books lent children-the
'I haven't lent the children any books.'

Similarly, particle shift involves the shifting of pronouns and DPs across verbal particles.

(2) Jeg skrev (nummeret/det) op (*nummeret/*det). (Danish)
Jeg skrev (nummeret/det) opp (nummeret/*det). (Norwegian)
Jag skrev (*numret/*det) upp (numret/det). (Swedish)
I wrote (number-the/it) up (number-the/it)
'I wrote the number/it down.'

In both NegShift and particle shift there are restrictions on what is allowed to undergo the shifting. It's been observed that NegShift only occurs with "light" elements (Christensen 2005, Penka 2011). What this means in practice is that only pronouns and simple DPs are allowed. When something becomes sufficiently large the shifting is ungrammatical. This same pattern also exists for particle shift (Svenonius 1996, Dehé 2015, Müller & Ørsnes In preparation).

I argue that the reason for this restriction comes down to the requirement to on economy principle to minimize structure similar to Cardinaletti & Starke's (1999) account for the typology of

pronouns. Unlike Cardinaletti & Starke (1999) where minimize structure is about the internal syntactic structure of pronouns, I argue that the structure that is minimized is the prosodic structure.

This paper will first present a summary of Cardinaletti & Starke's (1999) minimize structure and how it makes cuts in the typology of pronouns based on the syntactic structure of those pronouns. Following this summary in Section 2, I present data about NegShift, Section 3, and particle shift, Section 4, in general and there restrictions. This description is then followed by the

2 Minimize structure

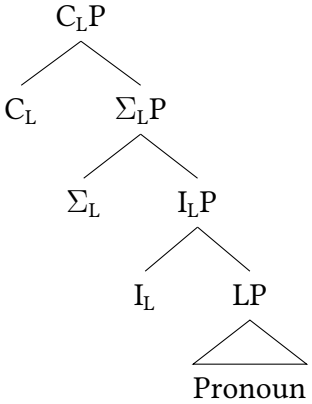
Following the work from Cardinaletti & Starke (1999), pronouns fall into one of three classes: strong, weak, and clitic. These pronouns each are associated with specific patterns which are summarized in Table 1.

Table 1: Summary of Cardinaletti & Starke's (1999) pronoun typology.

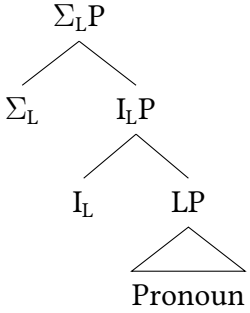
	Morphology	Choice	Distribution		Interpretation	Prosody		X-bar
	reduced		in FP at SS	coord	no range	reduction	no stress	X°
Clitic	1	1	+	+	+	+	+	+
Weak	2	2	+	+	+	+	-	-
Strong	3	3	-	-	-	-	-	-

Ultimately, Cardinaletti & Starke (1999) relates these differences in behavior to differences in structure. According to Cardinaletti & Starke clitic pronouns have the least amount of syntactic structure and strong pronouns have the largest amount of structure. This is represented in (3)

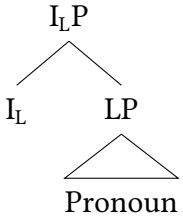
(3) a. Strong Pronouns



b. Weak Pronouns



c. Clitic Pronouns



Cardinaletti & Starke describe this as a type of economy, more specifically they call this an Economy of Representations which they define as simply minimizing the structure present.

During the syntactic derivation, the grammar evaluates these different structures and chooses the most optimal solution based on the situation under consideration.

I will argue that this Economy of Representations is also present in PF and is responsible for restricting both NegShift and particle shift in Scandinavian by minimizing the *prosodic* structure.

3 NegShift

NegShift is a process in the Scandinavian languages where a negative indefinite expression (NI) obligatorily shifts to a position outside of the VP. The Danish examples in (1), repeated here as (4), show that the NI pronoun *ingenting* 'nothing' and the simple DP *ingen bøger* 'no books' both shift across the verb into a position that is higher than the VP, but lower than certain high adverbials.

(4) NegShift of pronouns and complex DPs

a. Manden havde måske *ingenting* [$_{VP}$ sagt t_o]. Da
man-the had probably nothing said
'The man hadn't said anything.'

b. Jeg har *ingen bøger* [$_{VP}$ lånt børnene t_o.]
I have no books lent children-the
'I haven't lent the children any books.'

In addition to the standard case of NegShift where you shift a pronoun or a NI DP, there appears to be size restrictions in place which prevent movement of the NI if it is too large. This is particularly true for the Danish examples in (5).

(5) a. Jeg har *intet*$_o$ hørt t_o. Da
I have nothing heard
'I havn't heard anything.'

b. Jeg har [*intet nyt*]$_o$ hørt t_o.
I have nothing new heard
'I haven't heard anything new'

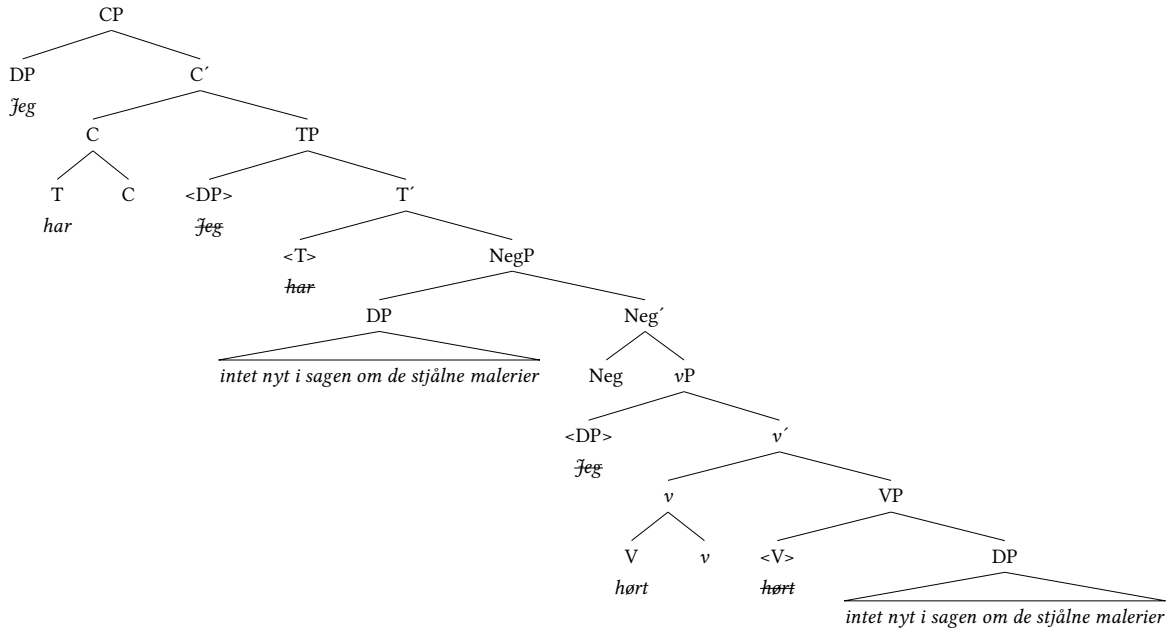
c. * Jeg har [*intet nyt i sagen*]$_o$ hørt t_o.
I have nothing new in case-DET heard
'I haven't heard anything new about the case.'

d. * Jeg har [*intet nyt i sagen om de stjålne malerier*]$_o$ hørt t_o.
I have nothing new in case-DET about the stolen paintings heard
'I haven't heard anything new in the case about the stolen paintings.'

Both (5a) and (5b) are grammatical because a pronoun (*intet*) and simple DP (*intet nyt*) have undergone NegShift. However, once the NI gets sufficiently heavy (e.g., the addition of the PPs *i sagen* and *i sagen om de stjålne malerier*) in (5c) and (5d) NegShift becomes ungrammatical.

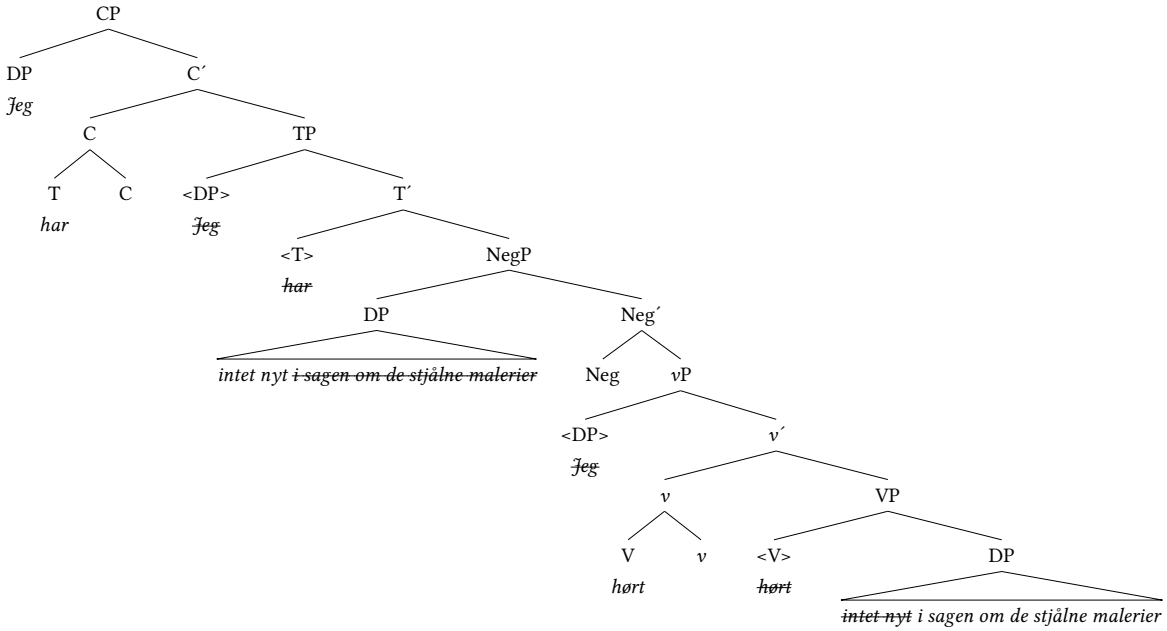
These facts require refinement of the proposal presented above. If we had, for example, the sentence *Jeg har intet hørt i sagen om de stjålne malerier* 'I haven't heard anything new in the case about the stolen painting' and tried to derive this tree we would have no way to explain this behavior. Following Zeijlstra (2011) theory, we would assume that the DP containing the NI and its complement would be fully copied from its base-position and merged into NegP as in the tree in (6). This would result in two copies of the NI expression.

(6)



At this point during PF, part of the higher copy is deleted leaving only the NI pronoun. In the lower copy that same pronoun is deleted.

(7)



If Chomsky (1993) is correct and only the higher copy should be pronounced, then the question arises as to why only a part of the copy is deleted. According to Fanselow & Ćavar (2001, 2002) the motivation for when partial deletion is possible has its motivations in PF. They argue that this comes from constraints on whether the different formal features need a "proper phonetic realization".[1] If this is prosodically motivated what drives this deletion?

3.1 Prosodic restrictions on NegShift

As noted earlier not all NegShift is treated equal. Christensen (2005: 65f), speaking on Danish, claims that the "weight" of the NI plays a crucial factor in whether or not NegShift occurs.

(8) a. Jeg har *intet*$_o$ hørt t$_o$. Da
I have nothing heard
'I havn't heard anything.'

b. Jeg har [*intet nyt*]$_o$ hørt t$_o$.
I have nothing new heard
'I haven't heard anything new'

c. * Jeg har [*intet nyt i sagen*]$_o$ hørt t$_o$.
I have nothing new in case-DET heard
'I haven't heard anything new about the case.'

[1] Fanselow & Ćavar (2001, 2002) do not go into detail about what is forcing which and where features receive their "proper phonetic realization". They say that the notion of partial deletion is analogous to partial reconstruction at LF and "involve[s] (partial) reconstruction of phonetic material in the overt component".

d. * Jeg har [*intet nyt i sagen om de stjålne malerier*]$_o$ hørt t$_o$.
I have nothing new in case-DET about the stolen paintings heard
'I haven't heard anything new in the case about the stolen paintings.'

We observe in (8) that if the NI is either a pronoun (8a) or a simple DP (8b), consisting of just the NI determiner and noun, then Danish treats such constructions as grammatical. If, however, the NI is larger then a simple DP, as in (8c) and (8d), it suddenly becomes ungrammatical.

In those instances where the NI is too large there are two potential repair strategies. One option is to strand the PP which results in moving just the pronoun (9a) or using the negative particle *ikke* in NegP and an NPI in the lower position (9b).[2]

(9) a. Jeg har *intet*$_i$ hørt t$_i$ [$_{PP}$ i sagen om de stjålne malerier]. Da

b. Jeg har *ikke* hørt [*noget* i sagen om de stjålne malerier].

Restrictions on the weight of the NI has also been observed for Swedish (Penka 2011). In (10), which comes from Penka (2011), when a pronoun is moved it is fully grammatical. When we, however, move a simple DP it is still grammatical but is dispreferred or degraded, indicated by the question mark.

(10) a. Men mänskligheten har *ingenting*$_o$ lärt sig t$_o$. Sw
but mankind-the have nothing taught themselves
'But mankind haven't taught themselves anything.'

b. ? Vi hade *inga grottor*$_o$ undersökt t$_o$.
we have no caves explored
'We haven't explored any caves.'

The question arises as to how exactly does the grammar account for these variations based on the NI's weight. The fact that the 'weight' of the NI somehow conditions the grammaticality of the utterance suggests that prosody might be constraining the size of the moved material. One reason why to think that this has to do with prosody is the fact that only items that would normally form a prosodic word undergo NegShift.

Assuming that Match Theory (Selkirk 2009, 2011) is a correct way of understanding the relationship between syntax and prosody, there are several predictions that this theory makes when

[2] I have not found any evidence that *intet nyt* is allowed to shift while stranding the PP. I found one example that shows the negative particle and an NPI.

(i) Selvom der ikke er noget nyt i sagen om det stjålne Nolde-maleri, tror de stadig på
though there not is anything new in case-the about the stolen Nolde painting believe they still in
miraklet i Ølstrup.
miracle-the in Ølstrup
'Although there is nothing new in the case of the stolen Nolde painting, they still believe in the miracle in Ølstrup.' (Overblik: Største kunsttyverier i Danmark)

mapping the syntax to the prosody. Under Match Theory an XP corresponds to a phonological phrase unless that XP is both syntactically minimal and maximal, which is where the syntactic phrase consists of just its head. When this occurs it forms a prosodic word, which has to do with the non-branching nature of the of the XP and will only ever result in a prosodic word (Bennett, Elfner & McCloskey 2016). Additionally, if the XP is a CP then it forms a intonational phrase.

Table 2: Syntax-prosody category mappings (modified from Tyler 2019)

Syntactic	**Prosodic**
CP	Intonational Phrase (ι)
XP	Phonological Phrase (ϕ)
X	Prosodic Word (ω)

Additionally, it is well documented that functional heads often cliticize into a prosodic head which is able to bear stress (Zwicky 1977, Selkirk 1981, Zwicky & Pullum 1983, Inkelas 1990 among others). Often this means that determiners and their NP complement form a single prosodic word. This means that our cases of pronouns and simple DPs correspond to prosodic words, explicitly maximal prosodic words based on the fact that the determiners and the noun receive a single tonal accent in Swedish and Norwegian, which according to claims made by Myrberg & Riad (2013, 2015) and Riad (2014), is strictly the domain of maximal prosodic words. Even though most Danish varieties lack tonal accents, they do have a something that patterns similarly to these tonal accents in the other Scandinavian languages. Stød is a suprasegmental unit found in Danish, which is a type of creakiness or glottal closure (Basbøll 2005). Recent research shows that its distribution is restricted to only having one stød per maximal prosodic word (Kalivoda & Bellik 2018). I show, in the rest of this section, that this weight restriction is regulated by a prosodic constraint on the size of material that is allowed to occupy the *Mittelfeld* during PF, namely prosodic words.

4 Particle Shift

Particle shift is a similar to NegShift in that it targets pronouns or simple DPs and moves them across a verbal particle.

(11) Jeg skrev (nummeret/det) op (*nummeret/*det). (Danish)
Jeg skrev (nummeret/det) opp (nummeret/*det). (Norwegian)
Jag skrev (*numret/*det) upp (numret/det). (Swedish)
I wrote (number-the/it) up (number-the/it)
'I wrote the number/it down.'

Following Holmberg (1999: p. 2) and Faarlund (2019) there is a difference in behavior between

the different Scandinavian languages with what is allowed to shift across a verbal particle. Danish objects always precedes the verb particle. Norweigan, Icelandic, and Faroese are like English by shifting a pronoun across a particle and optionally for DPs. Swedish does not allow anything to shift across the particles (see Erteschik-Shir, Josefsson & Köhnlein 2020 for a potential explanation for why).

It is interesting to note that this behavior, with respect to particle shift, is remarkable similar to what is allowed to undergo NegShift. In both cases we are dealing with pronouns and small DPs, again consisting of a determiner and a NP. In Danish, NegShift and particle shift both prefer moving pronouns and these small DPs and allowing them to occupy the *Mittelfeld*. There is a difference, however, between Norwegian and Swedish. One would expect, based on the behavior of NegShift, that Swedish would prefer to undergo particle shift in the same fashion as Norwegian. This behavior, however, is not a problem as there are independent prosodic facts that contribute to why Swedish does not undergo particle shift. The reason has to do with particles forming tonal accent units (i.e., ω_{max}) with whatever material is lower (see Erteschik-Shir, Josefsson & Köhnlein 2020). The fact that we still see a pattern that is reminiscent of Swedish NegShift and Norwegian NegShift is what is important to show that prosodically light elements are preferred in the *Mittelfeld*.

Another piece of evidence comes from how Danish places restriction on the verbal complement if it is too "heavy" (Müller & Ørsnes In preparation: 44f). If the complement is larger then a simple DP particle shifting is blocked, exactly as was observed with Danish NegShift.[3]

(12) [...] så må partiet melde [holdninger] [ud], [...]
then must party.DEF make stances out
'[...] then the party must make its stances clear, [...]'

(13) Den danske regering bør snart melde [ud], [at den støtter de amerikanske
the Danish government must soon make out that it supports the American
planer]
plans
'The Danish government must soon make clear that it supports the American plans.'

5 Minimizing prosodic structure

As was previously noted the fact that we see movement of "light" elements, simple DPs or pronouns suggests that there is some restriction at work which rules out complex DPs. I propose that this has to do with minimizing the prosodic structure at PF.

It was observed above that only a limited amount of structure is allowed to undergo NegShift

[3]Examples are from *KorpusDK* as reported by Müller & Ørsnes (In preparation).

and Particle shift. I argue that the largest unit that is allowed after PF deletion of the copy is a maximal prosodic word (ω_{max}).

Evidence for this comes from the size of the material that is allowed to "shift" in these languages. As observed for Danish only a pronoun or simple DP, which both correspond to maximal prosodic words, is allowed to shifts. Additionally, we see that if the shifted element would form a phonological phrase, because it contains a PP complement, it is treated as ungrammatical.

(14) a. Jeg har *intet*$_o$ hørt t$_o$.
I have nothing heard
'I havn't heard anything.'

b. Jeg har [*intet nyt*]$_o$ hørt t$_o$.
I have nothing new heard
'I haven't heard anything new'

c. * Jeg har [*intet nyt i sagen*]$_o$ hørt t$_o$.
I have nothing new in case-DET heard
'I haven't heard anything new about the case.'

d. * Jeg har [*intet nyt i sagen om de stjålne malerier*]$_o$ hørt t$_o$.
I have nothing new in case-DET about the stolen paintings heard
'I haven't heard anything new in the case about the stolen paintings.'

This difference between Danish, which allows simple DPs, and Swedish, which tolerates full DPs but prefers pronouns, suggests that Swedish will delete copies until they are just the pronoun. This potentially comes down to Swedish being a tonal language and how tonal accents are assigned to maximal prosodic words (Myrberg & Riad 2013, 2015, Riad 2014) and Danish not being a tonal language. However, this is not the case and has to do with the status of allowing compounds in the *Mittelfeld*.

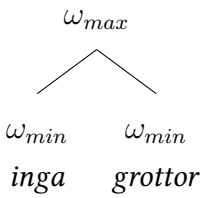
Once we have a ω_{max} is formed PF spell-out will preserve the portion of the shifted element that remains in the high copy while deleting that portion in the lower copy. The difference that we observe with Norwegian's lack of NegShift and Swedish's lack of particle shift is the result of one of two possibilities. First; we instead have covert movement in LF, which is due to some feature being weak and will get valued during LF, similar to what Zeijlstra (2011) proposes for NIs in German, Dutch, and English. The second possibility is that we have a similar preference of structure as with Cardinaletti & Starke's (1999) topology of pronouns.

This results in a three-way system in Scandinavian languages: (i) those that delete until a simple DP is left, (ii) those that delete until a pronoun is left, and (iii) those that lack overt movement in the syntax. There seems to be some differences in behavior between the tonal and atonal Scandinavian languages. According to Thráinsson (2004, 2010) Faroese and Icelandic pattern the same as Danish in this regard. This further suggests that there is something unique about being

a tonal language that limits the acceptability of NegShifting.

This is due to the fact that simple DPs, determiners and NPs, form single maximal prosodic words, as evidenced by the tonal melodies on the resulting prosodic word. In Swedish, when the NI and the NP coalesce, tonal accent 2 emerges. This accent corresponds with word compounds.[4] This indicates that these structures are not composed of a clitic and its host, but rather the structure in (15), in which two minimal prosodic words combine to create a maximal prosodic word. Evidence for this comes from the fact that both the NI and the NP bear stress, which is a characteristic restricted to the minimal prosodic word (Myrberg & Riad 2013, 2015).

(15)



It seems, then, that Swedish prefers having only minimal prosodic words, rather than maximal prosodic words in the *Mittelfeld*. The reason that NI pronouns do not present a problem in Swedish is because they are both maximal and *minimal* prosodic words, which means that they do not contain any branching prosodic structure. This difference in behavior is the result of what is considered too much prosodic structure for the LMC to tolerate moving into the *Mittelfeld*. If the prosodic structure contains any branching, then it is treated as a heavier element than one that doesn't contain any branching structure. However, this is only true for prosodic words because any prosodic structure higher than a prosodic word is not tolerated. This is evidenced by the fact that NIs that contain additional PP complements are treated as ungrammatical because these would correspond to phonological phrases.

These facts about NegShift are summarized in Table 3 and 4. It will be noted that if you allow full NI DPs then you also allow pronouns and complete deletion, which results in a negation particle and an NPI. If you allow NI pronouns then you allow a negation particle and an NPI. This is suggestive of a conditional hierarchy.

Table 3: Scandinavian acceptance of NegShift or NPI

	Full DPs	Pronouns	NPI
Danish	✓	✓	✓
Swedish	*	✓	✓
Norwegian	*	*	✓

[4]See discussion in Myrberg & Riad 2013, 2015 for more information about word compounds in Swedish

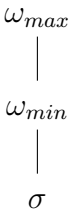
Table 4: Scandinavian acceptance of Particle Shift

	Full DPs	Pronouns
Danish	✓	✓
Swedish	*	*
Norwegian	*	✓

6 Conclusion

Based on these patterns in shifting, I argue that they are subject to an economy of representations. Specifically, this economy is based on the size of the resulting prosodic structure with the largest element being allowed to shift is a maximal prosodic word and the smallest being a pronoun which corresponds to a prosodic word or prosodic clitic, depending on the prosodic strength of the pronoun. This results in a similar three-way split as the pronouns in Cardinaletti & Starke's (1999) account.

(16) a. Maximal prosodic words



b. Minimal prosodic words

c. Prosodic clitics

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