UiT
THE ARCTIC UNIVERSITY OF NORWAY

Faculty of Humanities, Social Sciences and Education

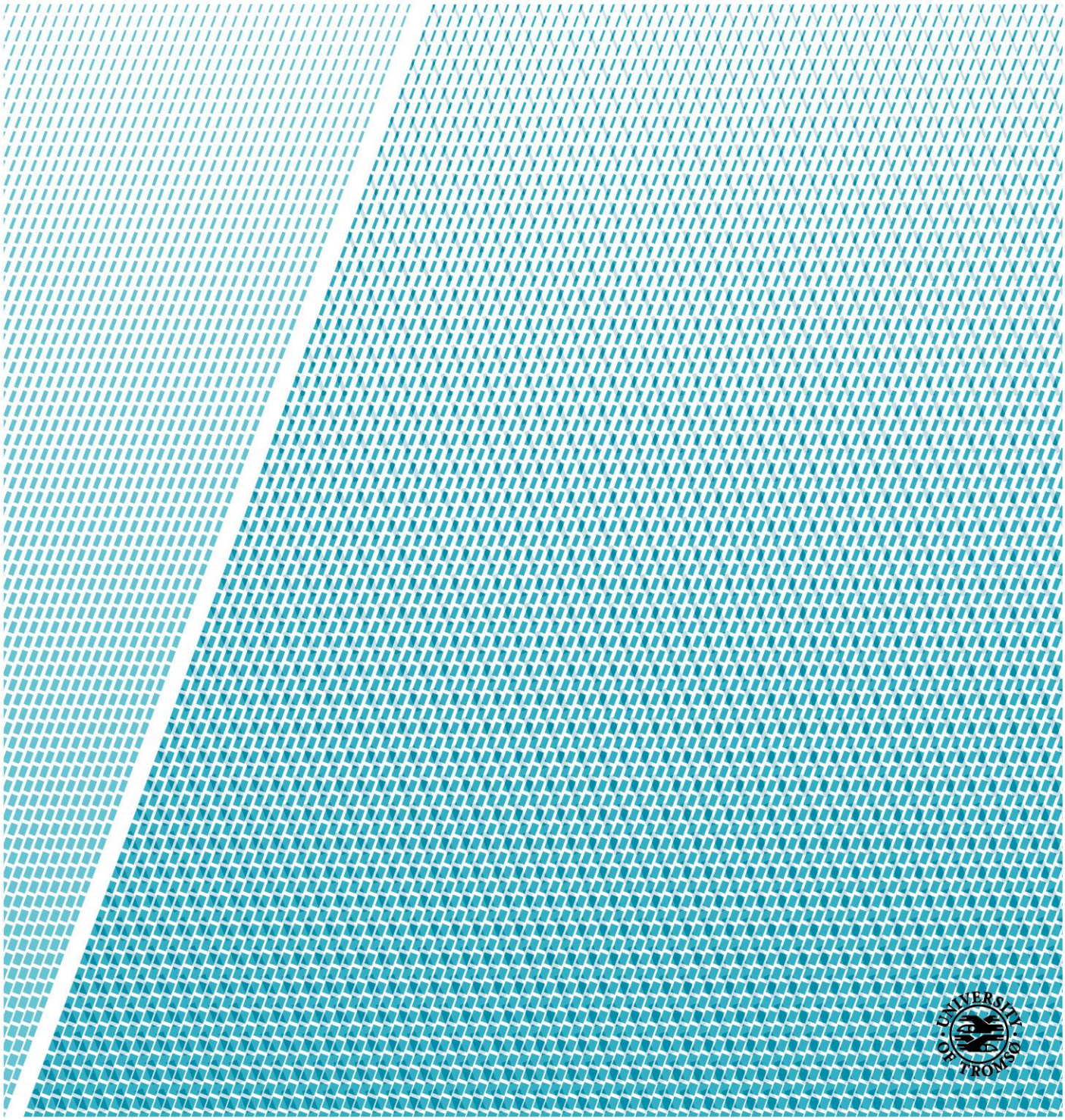
The Phonology of Flapping in Norwegian Function Words

A prosodic analysis of Norwegian clitics

—

Magnus Lehn

Master's thesis in Theoretical Linguistics … May 2019



Abstract

The phonological process of flapping in Norwegian is the process in which an underlying voiced alveolar stop /d/ in a function word surfaces as the voiced postalveolar tap /ɾ/. The majority of the data used for this paper is from Urban Eastern Norwegian (UEN), which is a group of dialects from the south-eastern region of Norway, although similar processes and forms of flapping occur in a wide variety of other dialects as well. Assuming an *Indirect Reference* approach to linguistics, this phonological process is restricted to functional category items, which belongs to the syntactic domain, but these items are accessed by the phonology through prosodic constituents. The process of flapping has received next to no attention in the literature, and deserves further attention to account for the lacking information on the prosodization of function words in Norwegian, which will contribute to our understanding of prosodic phonology, as similar accounts of functional clitics has lately received attention in languages like Bulgarian, English, Xiamen Chinese, etc. The claim presented in this paper is that flapping in Norwegian is restricted to unstressed syllables in function words in which the underlying /d/ appears in an intervocalic position at the point of spellout. Further tests to the prosodic structure of function words in Norwegian finds that flapping is blocked in disyllabic pronouns due to their prosodic word-status, and that flapping is further blocked by adverbials regardless of the phonological conditions being met that would otherwise elicit flapping. This paper provides an overview of *Prosodic Phonology* and *Optimality Theoretic* constraints to account for the different prosodizations of flapping in Norwegian function words.

Acknowledgements

I would like to extend my gratitude to my infinitely patient mum and eternally supporting dad, who has waited with me when the hours were too long, and never began to doubt if I could.

To my absolute favourite sister and my brother-in-law who gave so much without blinking an eye when I did not even have to ask, and who always kept cheering me on. I can never begin to explain how much this has meant to me.

And to my closest friends who understood when my glass was a little too full. But on a happier note, we must find time to empty non-metaphorical glasses someday soon.

Og til mormor som alltid stiller opp og er der når jeg trenger henne

Lastly, I would like to thank my supervisor, Dr. Martin Krämer for his invaluable help and insight, and for guiding me through the wilderness of phonology.

Table of Contents

1 Introduction 1

2 Prosodic Phonology 3

2.1 The Prosodic Hierarchy 4

2.1.1 Edge-Alignment Constraints 8

2.1.2 The Lexical Category Condition 9

2.1.3 WRAP-XP 10

2.1.4 Match Theory 10

2.2 Monosyllabic Function Words 12

2.3 Disyllabic Function Words 16

2.4 Stressed Function Word Syllables in English 18

2.4.1 Stringency Hierarchy and English Contractions 20

2.5 Summary 23

3 Norwegian Function Words 25

3.1 Pronominal Contractions 25

3.2 Auxiliary Verb Contractions 29

3.3 Negative Contractions 30

3.4 Reduced Prepositions 32

4 The Phonology-Syntax Interface 33

4.1 Phase Theory 33

4.2 Are Clitics Generated by Syntax? 35

5 Flapping in Norwegian Function Words 37

5.1 The Prosody of Norwegian Function Words 38

5.2 Lexical Versus Functional Words 39

5.3 Flapping in Monosyllabic Function Words 41

5.4 Flapping in Disyllabic Function Words 44

5.5 Adverbial Blocking 48

5.6 Flapping in Prepositions 50
5.7 Summary 52
6 Conclusion 54
Works cited 57

1 Introduction

Prosodic Phonology has been known to be sensitive to a distinction between lexical items (i.e. words belonging to 'open' word classes such as nouns, verbs, adverbs and adjectives) and functional items (i.e. 'closed' categories like pronouns, articles, prepositions, etc.) (Selkirk, 1995). This distinction is also present in Norwegian, in which weak function words may reduce and cliticise onto a host; a feature which will prove to be restricted to functional items. Such clitics may in some cases surface with two possible forms, as with pronominal clitics where one form has the voiced alveolar stop /d/ remained intact, and another where the stop is flapped to the voiced postalveolar tap /ɾ/. This thesis aims to provide a phonology-syntactic analysis of this phenomenon with a particular focus on Prosodic Phonology and Optimality Theory to account for the clitic variation. To the best of my knowledge, there has never been conducted an in-depth analysis of flapping in Norwegian function words, and only a brief overview by Kristoffersen (2000:334) is available. The optional flapping in Norwegian deserves further attention because of its complex distribution, and the lack of attention the phenomenon has received in the literature. This thesis' further investigation into the prosody of Norwegian function words that goes beyond previous work will conceivably contribute to the current understanding of Norwegian phonology and add to the current theories on the nature of prosodic theory, function words, and phonology-syntax interface.

This paper has the following structure: Chapter 2 provides an overview of Prosodic Phonology, which lies at the core of this thesis as the study of suprasegmental representations and the theory connecting the modules of phonology and syntax. The chapter is further divided into topics concerning various theories and frameworks within Prosodic Phonology. Section 2.1 provides an account of the Prosodic Hierarchy and its constituents, as well as a series of constraints and conditions that are applied to the hierarchy. Section 2.2 inspects the prosody of function words in particular, and asserts their status in the phonology and their distinction from lexical category items. Section 2.3 discusses the prosodization of disyllabic function words. Before the chapter rounds up with a summary, section 2.4 will showcase certain prosodic analyses from English function words.

Chapter 3 gives an overview of Norwegian Function words. It is structured into sections on different parts of speech and contractions: pronouns (3.1), auxiliary verbs (3.2), negative contractions (3.3), and prepositions (3.4).

Chapter The Phonology-Syntax Interface deals more concretely with the Phonology-Syntax Interface. Section Phase Theory introduces Phase Theory and its connection to phonology, while section Are Clitics Generated by Syntax? picks up the discussion of the status of clitics in either syntax or phonology.

Chapter 5 is dedicated to analysing the phonological phenomenon of flapping in Norwegian. The chapter will begin with an overview of the prosodization of function words in section 5.1. Once this is established, the discussion turns to the distribution of flapping by investigating the distinction between functional and lexical words that is made by the phonology in order to determine where the flapping may occur. The next two sections, 5.2 and 5.3, will analyse flapping in monosyllabic and disyllabic function words respectively. The last two sections are concerned with instances of flapping beyond pronouns, and deals with adverbial blocking in 5.4, and a curious instance of flapping in a disyllabic preposition in 5.5.

Lastly, the thesis concludes with chapter Conclusion which briefly summarizes the findings presented in this paper, as well as providing some suggestions to further research.

2 Prosodic Phonology

This chapter will give a fundamental outline of *Prosodic Phonology*, which will serve as the core theoretical framework for this paper. Section 2.1 introduces the *Prosodic Hierarchy*, before the prosody of function words will be discussed in sections 2.1-2.4. In linguistic research, language is commonly held to be *modular*, which is the concept that language is divided into modules, i.e. syntax, phonology, and semantics. The modular approach to language was first popularized by Chomsky (1965), and the approach has since laid the foundation for generative linguistics. These modules were originally thought to be independent and 'blind' to one another. Later works have argued for a *Direct Reference* approach which argues that phonology has direct access to syntax (Kaisse, 1985). Another approach is labelled *Indirect Reference*, which argues that modules like phonology has restricted access to parts of syntax, like syntactic constituent edges (Selkirk, 1986), or the distinction between functional and lexical elements (Selkirk, 1995). The *Indirect Reference Hypothesis* is further supported by researchers like Nespor and Vogel (1986), Selkirk (2009, 2011), and Truckenbrodt (1999). It is further assumed that the channel through which phonology has access to syntax is *Prosodic Phonology* (Selkirk, 1978; Nespor & Vogel, 1986; Hayes 1989), which is the study of suprasegmental phonology which governs the processes that occurs above phonological segments and the features assigned to them. Because of our assumption of an indirect view of language, phonology cannot interact directly with syntactic constituent since they are not phonological elements. The phonology must then access syntax indirectly through prosodic constituents (which will be elaborated in section 2.1).

Prosodic Phonology is assumed to be governed by violable constraints defined in Optimality Theoretic (OT) terms (Prince and Smolensky, 1993; McCarthy and Prince, 1993). As a branch of generative linguistics, each language has a set of universal OT constraints that forms a grammar, which has a set, language-specific order which gives rise to variations between dialects and languages. Constraint ranking and constraint interaction accounts for the interaction of mapping syntactic output to phonological representations.

2.1 The Prosodic Hierarchy

This section will discuss the *prosodic hierarchy* (PH), which is central to most analyses and debates on prosodic theory. This theoretical framework is generally accepted by most linguists, although there is dispute amongst researchers as to how many, and which categories that should be included in the hierarchy.

Within the prosodic structure theory, any utterance from a word category can be defined by a set of elements found within the Prosodic Hierarchy (PH), as proposed by Selkirk (1978). This hierarchy consists of an ordered set of constituents. These constituents/categories are generally considered to be phonological primitives. A simplified hierarchy has been posited in which there would only be a *major* or *intermediate phrase* (MaP) structured above a *minor* or *accentual phrase* (MiP), but this view is not assumed in this paper. Another proposal came from Ito and Mester (2007) who posited a simplified version which only contains one category: phonological phrase (φ). However, this paper will not delve much further into this debate, but follows Selkirk (2009:37) who argues that the prosodic categories, as listed in (1), should be included because of their theoretical origin in syntax-prosody interface.

(1) The Prosodic Hierarchy (Selkirk, 1978)

U	Utterance	Utt
I	Intonational Phrase	IP
φ	Phonological Phrase (also Prosodic Phase)	PPh
ω	Prosodic Word	PWd
Σ	Foot	Ft
σ	Syllable	
μ	Mora	

The Prosodic Hierarchy is ordered from the largest category to the smallest one. Working our way from the bottom up, we find the smallest unit within the PH, i.e. the *mora* (μ), which is defined by Hayes (1989) as a weight unit that is associated with the rime (i.e. the nucleus and coda) of a syllable. The mora is not always associated with the PH since it is not accepted by all researchers (Šurkalovic, 2007), but has been included here for the sake of clarity.

Above the mora is the *syllable* (σ) which minimally consists of a nucleus, commonly a vowel which is a mora-carrying segment. Beyond this, a syllable can be preceded by an onset, and/or followed by a coda. The structuring of a syllable is dependent on the phonotactics of the given language. The weight of the syllable is of interest to prosodic phonology. A syllable with a short vowel, or just one mora, is considered *light*, while a syllable with a long vowel and an empty coda is *heavy*, i.e. two or more moras.

A *foot* (Ft) consists of either one or two syllables. Feet can carry stress primarily in two ways. It can either be trochaic, i.e. one strong syllable followed by a weak syllable; or a foot can be iambic, which is the reverse, i.e. a weak syllabled followed by a strong syllable. When a syllable is stressed, it is oftentimes an indication of the syllable being a foot.

The next category in the PH is the *prosodic word* (PWd/ω). Note that prosodic words are not necessarily corresponding to syntactic structures, a notion that will play a crucial role in section 2.2 which discusses the prosodization of function words. A phrase consisting of a string of lexical words in a morphosyntactic representation (i.e. S-structure) are prosodized as a sequence of prosodic words in a phonological representation (i.e. P-structure, italicized to signify the phonological content of Lex) (Selkirk, 1995:2).

(2) S-structure [Lex Lex]

P-structure ((*lex*)$_{\text{PWd}}$ (*lex*)$_{\text{PWd}}$)$_{\text{PPh}}$

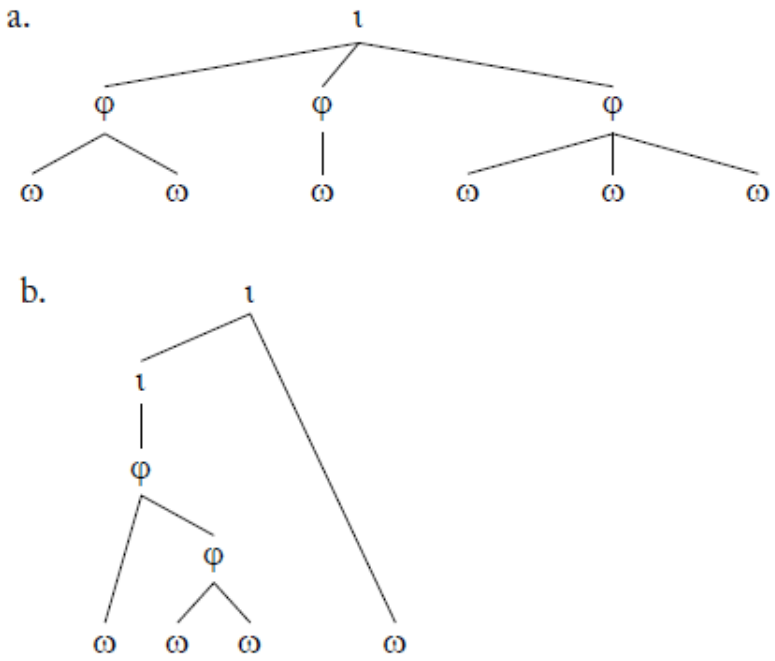
Phonological phrases (PPh/φ) contain one or more prosodic words. The internal structure of the PPh and its contents will be an important factor in the upcoming discussion of the prosodization of function words later in this paper.

Above the PPh lies the *intonational phrase* (IP/ι) and is where the intonational contour of a sentence is assigned (Šurkalovic, 2007). Tone languages such as Chinese or Thai has tone on a segmental level, while pitch-accent languages like Norwegian and Serbian uses tone to distinguish certain lexemes (ibid.).

The highest category in the prosodic hierarchy is the *utterance* (Utt) which is generally assumed to be the top node of a prosodic tree representation and consists of one or more intonational phrases.

The *strict layer hypothesis* (SLH) is a term used to describe the notion that the categories within prosodic structures are represented and arranged hierarchically (Selkirk, 2009:38). The SLH states that constituent category-level *n* in the prosodic hierarchy will immediately dominate category-level *n-1*. The SLH also requires the prosodic representation to never be recursive, meaning that a constituent can *only* dominate a constituent one level below itself in the prosodic hierarchy.

(3) Prosodic representation of the SLH (Selkirk, 2009:38)



The structure in Prosodic representation of the SLH (Selkirk, 2009:38) obeys the SLH as each constituent is dominating a category-level *n*-1. In Prosodic representation of the SLH (Selkirk, 2009:38), this is not the case and violates the SLH. The intonational phrase *I* immediately dominates a prosodic word ω, i.e. a category-level *n*-2. Furthermore, the IP dominates another IP, as well as a PPh *φ* that dominates the same category φ; both instances which are in violation of the SLH.

At the base of the prosodic hierarchy lies four constraints proposed by Selkirk (1996) on prosodic structure. The constraints listed in (4) ensures well-formed prosodic structures in the phonology.

(4) Constraints on prosodic structure (1996:6):

a. Layeredness

No Ci dominates a C^i, $j > i$,

e.g. “No σ dominates a Ft”

b. Headedness

Any C^i must dominate a C^{i-1} (except if $C^i = \sigma$),

e.g. “A PWd must dominate a Ft”

c. Exhaustivity

No C^i immediately dominates a constituent C^j, $j < I - 1$,

e.g. “No PWd immediately dominates a σ”

d. Nonrecursivity

No C^i dominates C^j, $j = i$,

e.g. “No Ft dominates a Ft”

The first constraint is Layeredness, which ensures that the ordering in the prosodic hierarchy in (4) remains intact, as no constituent may dominate another lower in the hierarchy. For example, no σ may dominate a Ft, since σ is found lower in the hierarchy. The second is Headedness, which states that any category in the prosodic structure must dominate the next one in the hierarchy, unless that constituent is a σ. This means that the constraint demands that a Ft must dominate a σ, but since σ has no constituent beneath it in the prosodic hierarchy, it cannot dominate anything and is thus an exception to Headedness. The third constraint is Exhaustivity, which ensures that every constituent in the hierarchy is present, as it disallows a constituent from immediately dominating another that is not directly beneath it in the listed hierarchy. This constraint prevents any constituent, such as a PWd, from skipping past the Ft to immediately dominate a σ. The fourth is Nonrecursivity, which marks any repeated constituent in the prosodic structure as ungrammatical. When this constraint is respected, no candidate will have more than one of each constituent in its prosodic structure. Together, these constraints essentially yields the same effect as that of the SLH.

2.1.1 Edge-Alignment Constraints

The constraints listed in (4) constitutes requirements on the domination relationship between the constituents in the prosodic hierarchy. There is also another set of constraints important to prosodic theory, i.e. constraints on alignment edges of constituents (Selkirk, 1986). These constraints require that the edge (L or R) of a syntactic structure coincides with the edge of a constituent in the prosodic structure. Originally posited by McCarthy and Prince (1993), the alignment constraint Align (Pcat; Pcat) which would require the left edge of a prosodic category to coincide with the left edge of another. Such constraints were called *Generalised Alignment* by McCarthy and Prince who expanded the categories included by the constraints to morphological and syntactic categories. Presented below is an example of foot alignment in a., and one of head alignment b. in English prosody, borrowed from McCarthy and Prince's (1993:2;19) work alignment constraints.

(5) a. Align (PWd, L, Ft, L) Each PWd begins with a Ft.

b. Align (PWd, R, H(PWd), R) The head of a PWd coincides with the right edge of the PWd

Working within this framework of edge-alignment, Selkirk (1995) proposes that the morphosyntactic distinction between functional and lexical elements will prove crucial to an analysis of prosodic words. Selkirk posits the notion that constraints governing morphosyntactic and prosodic structures makes no reference to functional elements. In such a case, the generalised alignment category would have to be modified to only encompass lexical word edges (Lex) to be aligned with prosodic word edges (PWd).

(6) Word Alignment Constraints (WdCon) (Selkirk, 1995:10)

a. Align (Lex, L; PWd, L) (= WdConL)

b. Align (Lex, R; PWd, R) (= WdConR)

These constraints require the L or R edge of a lexical category word to be aligned with a corresponding edge of a prosodic word. Per the generalised alignment theory (McCarthy and Prince, 1993), the reversed order of categories is permissible.

(7) Prosodic Word Alignment Constraints (PwdCon) (Selkirk, 1995:11)

c. Align (PWd, L; Lex, L) (= PwdConL)

d. Align (PWd, R; Lex, R) (= PwdConR)

PwdCon constraints would ensure that, if both constraints were respected, no representation would contain a function word, which forms part of the theoretical argument of why function words mostly do not have the status of a PWd (Selkirk, 1995).

2.1.2 The Lexical Category Condition

Truckenbrodt (1999) revisited Selkirk's (1995) argument that constraints relating syntactic and prosodic structures only refer to lexical elements and their projections, but never to Fncs and their projections. This assumption was formalised as the *Lexical Category Condition* (LCC) by Truckenbrodt, who argued that this appears to be a universal trait in languages and offers further evidence from Xiamen Chinese. In this Chinese variant, functional elements never triggered tone group boundaries (Chen, 1987). Due to the LCC, ALIGN-XP,R (i.e. a *generalised alignment* constraint (McCarthy and Prince, 1993)) is not applied to functional elements such as Xiamen DPs, which explains the lack of tone boundary groups after pronouns. Based on Nespor and Vogel's (1986) assertion that prosodic constituents are only formed based on overt syntactic categories, which results in the phonological rules systematically ignores empty syntactic categories, Truckenbrodt included this condition in the LCC. The syntactic movement of topicalization is thought to leave behind a silent copy. Xiamen Chinese for instance, moves a DP out of the VP and leaves a silent copy that is neither prosodized or triggers a tone group boundary (Chen 1987), as the LCC will ignore the copy and its projections.

(8) Lexical Category Condition (Truckenbrodt, 1999:226)

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

The LCC becomes apparent in languages like Norwegian and English from the treatment of function words by phonology. Monosyllabic function words may occur in a full, "strong", form and in a reduced, "weak" form. This is largely a feature restricted to functional category items,

although lexical items sometimes reduce somewhat, it usually never does so to the same extent as function words. The way phonology and reductions distinguishes between functional and lexical category items falls out of the LCC, and supports the notion of the indirect reference hypothesis.

2.1.3 WRAP-XP

Truckenbrodt's (1999, 2006) theory on the mapping of syntactic phrases to prosodic structures aims to account for certain phenomena that Selkirk's (1996) alignment constraints could not be satisfactorily analysed in that theoretical framework. Truckenbrodt's proposal is the WRAP-XP constraint, which requires each syntactic XP to be contained within a PPh.

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.

(9) WRAP-XP (Truckenbrodt, 1999:228)

Each XP is contained in a phonological phrase.

Truckenbrodt's proposal of the lexical government in phrasing through WRAP-XP proves to be able to account for a recursive structure in Kimatuumbi, and the p-boundaries that follows after focus in Chichewa. These phenomena could not previously be accounted for by Hale and Selkirk's (1987) theoretical framework, where WRAP-XP would correctly predict the outcome.

2.1.4 Match Theory

In later work, Selkirk proposes additional insight into the phonology-syntax interface in her (2005) paper, and posits a *Match Theory* (2009, 2011) that mediates syntactic constituents and prosodic structure. The following syntactic-prosodic constituency correspondence constraints in (10) constitutes the matching of constituents between the two modules.

(10) Match theory of the syntax-prosodic structure interface

a. Match Clause

A clause in syntactic constituent structure must be matched by a constituent of a corresponding prosodic type in phonological representation, call it ι.

b. Match Phrase

A phrase in syntactic constituent structure must be matched by a constituent of a corresponding prosodic type, in phonological representation, call it ϕ.

c. Match Word

A word in syntactic constituent structure must be matched by a constituent of a corresponding prosodic type in phonological representation, call it ω.

Match constraints can interact with the well-formedness of prosodic structure. From Selkirk (2011), we can observe how the Match Phrase and an additional prosodic markedness constraint BINMIN(ϕ, ω) (Selkirk, 2011: 13), which calls for each PPh to be minimally binary, which by extension results in at least two prosodic words.

(11) BINMIN(ϕ, ω)

A ϕ is minimally binary and thus consist of a least two prosodic words

The following tableaux is borrowed from Selkirk (2011) and shows the parsing of prosodic structures in the Bantu language, Xitsonga, interacts the Match Phrase and BINMIN. Xitsonga ranks BINMIN above the Match Phrase constraint in the following tableaux (12) in order to secure the candidate with the correct prosodic structure to be evaluated as the optimal one. In (12), the input consists of a verb and a single noun as its direct object. In the optimal candidate b. where the noun is parsed into the same PPh as the verb, the highest-ranking constraint remains unviolated while Match Phrase is assigned one violation mark.

(12)

$_{clause}$[[verb [noun]$_{NP}$]$_{VP}$]$_{clause}$	BINMIN(ϕ, ω)	Match (Phrase, ϕ)
a. ι(ϕ (verb ϕ(noun)ϕ)ϕ)ι	*!	
☞ b. ι(ϕ (verb noun)ϕ)ι		*

In the second tableaux, we see a contrasting parse where the noun can exist in a PPh of its own, provided it has at least two constituents (thus respecting BINMIN). This shows that the prosodic constituents in (13) has an identical structure to the syntactic input, while that of (13) which more closely resembles that of the optimal candidate in (12), now violates Match Phrase and thus eliminates this candidate.

(13)

$_{clause}$[[verb [noun adj]$_{NP}$]$_{VP}$]$_{clause}$	BINMIN(ϕ, ω)	Match (Phrase, ϕ)
☞ a. ι(ϕ (verb ϕ(noun adj)ϕ)ϕ)ι		
b. ι(ϕ (ϕ(verb noun)ϕ adj)ϕ)ι		*!

2.2 Monosyllabic Function Words

Selkirk (1996) argues the case that in some languages, *function words* (Fnc) are subject to certain phonological processes that does not affect *lexical words* (Lex). *Lexical* and *functional* categories are oftentimes compared to *open* (i.e. word classes that may permit new lexemes into the lexicon) and *closed* (i.e. word classes that does not permit new lexemes into the lexicon) categories respectively. Selkirk (ibid.) provides an analysis attempting to explain why the phonology of some languages can have functional words with different surface prosodizations.

Function words can appear in either a *strong* or a *weak* form. A strong Fnc is always unreduced and stressed, as opposed to its weak counterpart which is optionally reduced and always unstressed. The list in (14) shows pairs of function words and lexical words that, when pronounced in isolation are indistinguishable from one another.

(14) English functional/lexical homonyms (Selkirk, 1996:13)

a. for [fɔːɹ] four

b. can [kæːn] (tin) can

c. at [æːt] hat

d. would [wʊd] wood

e. him [hɪm] hymn

When a Fnc is pronounced in isolation, it follows that it is the only constituent in the Utterance. Then, for the prosodic structure to abide by the constraints set out by Selkirk (1995) in Constraints on prosodic structure (1996:6):, the prosodization for an isolated Fnc becomes the following:

(15) $((((((\text{Fnc})_{\sigma})_{\text{Ft}})_{\text{PWd}})_{\text{PPh}})_{\text{IP}})_{\text{Utt}}$

Per Headedness, Utt must dominate IP, IP must dominate PPh, PPh must dominate PWd, PWd must dominate Ft, and Ft must dominate σ which contains the strong Fnc. Its strong status is derived from the presence of ta Ft in its prosodic structure, which entails its position as a strong Fnc with the status of a PWd. An Fnc will also surface in its strong form when being focussed.

(16) a. *hva skal du spise?*

What shall you eat.inf

"What are you going to eat?"

b. *hva skal dù spise?*

The Fnc *du* "you" in a. is unstressed and therefore is prosodized as a weak Fnc. The same Fnc is focussed in b., and receives stress which indicates a Ft. In cases where a Ft is involved, through Headedness, the Ft is therefore structured within a PWd and from this receives its status as a strong Fnc.

Selkirk (1995) notes that the representation in (15) is in violation of PwdCon which requires that the L/R edge of a PWd in the P-structure is aligned with a L/R edge of some Lex in the S-structure. Following this, Selkirk (ibid.) deduces that the important role of Headedness, i.e. its function as defining the structure of prosodic structures, must be ranked higher than PwdCon. Selkirk further notes that Headedness is likely to be an inviolable constraint altogether, and that *any* word pronounced in isolation, not only Fncs, has the same prosodic structure with Utterance dominating every other level in the prosodic hierarchy (Selkirk, 1995:17).

(17) Headedness >> … >>> PwdCon …

Selkirk (1995) argues that an Fnc may be prosodized as either a PWd or one of three possible *prosodic clitics*. The *prosodic clitic* challenges a previous notion of *clitic groups* which was postulated by researchers such as Nespor and Vogel (1986), which Selkirk (1995) argues that one would have to provide relevant phenomena that would not be sufficiently accounted for by one of the three possible prosodizations of the *prosodic clitic* in order to accept the *clitic groups* (Selkirk, 1996:4). The prosodic clitics are distinguishable from one another in terms of how their domination relationship and sisterhood to the PWd is defined. Four prosodizations are available to a syntactic phrase represented in the S-structure as [Fnc Lex] (Selkirk, 1995:3):

(18) Structure of functional prosodic words and clitics (ibid.):

a. Prosodic words ((*fnc*)$_{\text{PWd}}$ (*lex*)$_{\text{PWd}}$)$_{\text{PPh}}$

b. Prosodic clitics

i. *Free clitic* (*fnc* (*lex*)$_{\text{PWd}}$)$_{\text{PPh}}$

ii. *Internal clitic* (*fnc lex*)$_{\text{PWd}}$)$_{\text{PPh}}$

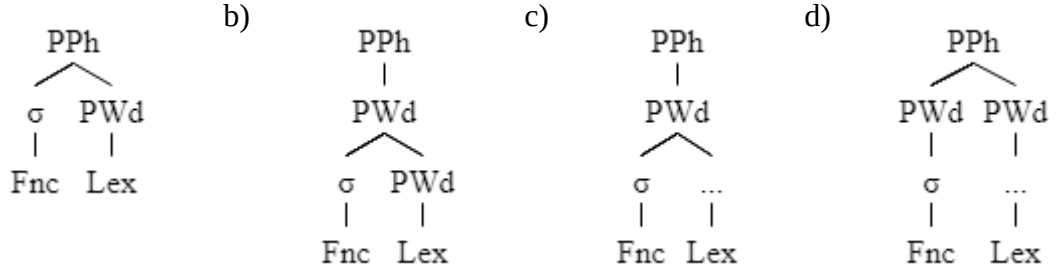
iii. *Affixal clitic* ((*fnc* (*lex*)$_{\text{PWd}}$))$_{\text{PPh}}$

For *free clitics,* as in *i.*, the Fnc is sister to the PWd and daughter to the Phonological Phrase (PPh). In *ii.*, the Fnc in the *internal clitic* is sister to the *lex,* which are both dominated by the PWd. The *affixal clitic's* Fnc is both sister to and dominated by the PWd.

The different types of clitics, with the addition of the syllable σ (per the Prosodic Hierarchy) can be represented as shown in (19). The structures are the following: a) shows a *free clitic* where the Fnc is only dominated by a σ which in turn is dominated by PPh, b) is an *affixal clitic* wherein the Fnc is nested within the PWd that is dominated by PPh, c) is an *internal clitic* dominated by a σ which is dominated by the same PWd as the Lex, and finally in d), the Fnc is a *prosodic word* in its own right, dominated by the PPh that also dominates the sister PWd that contains the Lex. Although largely based on Selkirk's (1996) analysis, Ito and Mester's (2009) analysis for the prosodic structuring of Fncs assumes that there are no categories intervening between PWd (ω) and PPh (φ), the second row of labels (ibid.:150) used for the four structures below has been included for transparency which correspond to Selkirk's (1996) structure for prosodic clitics.

(19) Possible representations of function words

a) b) c) d)



free clitic *affixal clitic* *internal clitic* *prosodic word*

φ-attached Fnc *ω-adjoined Fnc* *amalgated Fnc* *full-ω Fnc*

Selkirk (1995) aims to identify the prosodic structure of monosyllabic non-phrase final weak function words. The following is a summary of Selkirk's argumentation. The PWd in (19) is not a suitable representation for a weak Fnc since it violated Headedness which in this instance requires the PWd to dominate at least one Ft. If the Fnc would have been stressed, it would have gained a Ft and per Headedness also gain the status of a PWd which further excludes (19) as a possible prosodization for a weak Fnc.

The next candidate, i.e. the internal clitic in (19), is neither an available prosodization for a weak form since the Fnc and Lex are dominated by the same PWd. As Selkirk (ibid.) notes, this would suggest that the combined Fnc-Lex would behave the same as if the Lex would have formed a PWd on its own. In English, there may be at most one unstressed syllable at the left edge of a Lex. To account for this syllable structure, we turn to McCarthy and Prince's (1993) alignment constraint requires the left edge of a Lex to coincide with the left edge of a Ft.

(20) Align (PWd, L; Ft, L)

As long as this constraint remains unviolated, the initial syllable of PWds can be structured into well-formed feet that carries stress, we can then eliminate the structure of (19) as the possible organization for a weak Fnc.

Both the affixal clitic in (19) and free clitic in (19) are representations that would allow a stressless syllable to emerge. It should be noted that both these possible structures violate some constraints. The affixal clitic would violate Nonrecursivity as a PWd is immediately dominating another PWd. The free clitic, on the other hand, is in violation of Exhaustivity since the PPh is

not dominating a category one level below in the prosodic hierarchy, i.e. a PWd. Ito and Mester (2009) argues that instead of presenting negative evidence in favour of the free clitic (or φ-attached Fnc), one should rather turn to positive evidence by investigating properties in (Fnc $(Lex)_{PWd}$ $)_{PPh}$ that strictly belongs to the PPh, not the PWd.

Selkirk (1996) remarks on the prosodic structure of English weak non-final Fncs by developing a prosodic analysis of the word-initial aspiration effect. In English, when a voiceless stop in PWd-initial position is aspirated if preceded by an unstressed syllable. The differences between (21) and (21) is crucial to Selkirk's (1996:22) analysis. In a., the PWd initial consonants (in bold) are aspirated, while their Fnc initial counterparts in b. are not.

(21) a. grow **t**^{h}omatoes, grow **p**^{h}etunias, grow **c**^{h}alendula

b. they grow **t**o the sky, so **c**an delphiniums, take Grey **t**o London.

This distinction of aspiration between PWd and Fnc eliminates the affixal clitic as a possible prosodization since the examples in (21) provides evidence that the Fnc and Lex are not dominated by the same PWd, and are therefore dominated by the PPh as in the structure shown in (19) as a free clitic/φ-attached Fnc.

2.3 Disyllabic Function Words

Selkirk's analysis attributes the difference between strong and weak forms of Fncs to the parsing of strong forms as having a foot, while weak forms are parsed without. Parsing strong function words as having a foot results in the word to acquire the status of a prosodic word. This newly gained status further requires a foot through Headedness. Šurkalovic (2015:314) posits an analysis of disyllabic Fncs that states that these words that does not reduce have a PWd-status since they can form a minimally bimoraic foot. Šurkalovic presents an analysis of the unreducible English Fnc *any* as further evidence of Selkirk's findings, but applies constraints of phase faithfulness that prevents such Fncs from being prosodized as any clitic inside the PWd. Further, any disyllabic Fnc does not violate F_TB_{IN}, which makes it possible for it to project a PWd, which results in a strong form. (Šurkalovic, 2015:314)

(22) phase: | { ([tá$^{\mu}$.bl$^{\mu}$e]$_{Ft}$)$_{PWD}$}$_{PPh}$ |

input: /a$_{\mu}$ny$_{\mu}$ta$_{\mu\mu}$bl$_{\mu}$e/

output:			
a)	{ $a^{\mu}ny^{\mu}$	($[tá^{\mu\mu}.bl^{\mu}e]_{Ft}$)$_{PWd}$	}$_{PPh}$
b)	{ $a^{\mu\,\sigma}ny^{\mu\,\sigma}$	($[tá_{\mu\mu}.bl_{\mu}e]_{Ft}$)$_{PWd}$	}$_{PPh}$
c)	{ $[à^{\mu\,\sigma}\,ny^{\mu}\,]_{Ft}$	($[tá^{\mu\mu}.bl^{\mu}e]_{Ft}$)$_{PWd}$	}$_{PPh}$
d) ☞	{ ($[á^{\mu\,\sigma}ny^{\mu}\,]_{Ft}$)$_{PWd}$	($[tá^{\mu\mu}.bl^{\mu}e]_{Ft}$)$_{PWd}$	}$_{PPh}$
e)	{ ($[à^{\mu}ny^{\mu}]_{Ft}$	($[tá^{\mu\mu}.bl^{\mu}e]_{Ft}$)$_{PWd}$	}$_{PPh}$
f)	{ ($[á^{\mu}ny^{\mu}]_{Ft}$	($[tá^{\mu\mu}.bl^{\mu}e]_{Ft}$)$_{PWd}$	}$_{PPh}$
g)	{ ($a^{\mu\,\sigma}\,ny^{\mu\,\sigma}$	($[tá^{\mu\mu}.bl^{\mu}e]_{Ft}$)$_{PWd}$	}$_{PPh}$

The following constraints in FOOTBINARITY (FTBIN) are borrowed from Šurkalovic (2015). The FOOTBINARITY ensures the bimoraic nature of every foot by requiring them to be minimally bimoraic (ibid.:102). The two PARSE constraints ensure the inviolability of LAYEREDNESS, which stems from the direction in which the constraints are structuring the projections from the Prosodic Hierarchy (ibid.:308). Furthermore, these constraints also give the effect of HEADEDNESS since the method for producing a constituent high in the hierarchy is by parsing a lower level one (ibid.:308).

(23) FOOTBINARITY (FTBIN)

Feet are minimally bimoraic

PARSE-σ (PARSESYLL)

Every syllable belongs to a foot

PARSE-FOOT (PARSEFT)

Every foot belongs to a prosodic word

PARSESEGMENT (PARSESEG)

Assign a violation for each segment not immediately dominated by a syllable

PHASE-ANCHOR-L(PWD)-PAL PWD

Assign a violation mark if a Prosodic Constituent which is at the Left edge of a prosodic word in Phase *n* it not at the Left edge of that Prosodic word in Phase *n+1*

Candidate a. is excluded since it violates PARSESEG by having three morae undominated by a syllable. Candidate b. violates PARSESYLL by not ordering the syllables within a Foot. Candidate c. violates PARSEFT since the Ft containing the Fnc is not dominated by a PWd. The candidates e.-g. are in violation of the Phase-Phase faithfulness constraint PAL PWD since the candidates has included the Phase2 *any* nested within the PWd.

(24) OT tableaux for prosodization of *any*

	PALPWD	PARSESEG	FTBIN	PARSESYLL	PARSEFT
a.		*!**			
b.				**!	
c.					*!
☞ d.					
e.	*!				
F	*!				
G	*!			**	

(Šurkalovic, 2015:315)

The optimal candidate d. is not in violation of any constraints in this tableaux, but due to the fact that it does not violate FTBIN, it becomes able to project a PWd, which results in the strong form of the Fnc (i.e. stressed and unreduced).

2.4 Stressed Function Word Syllables in English

In morphology, clitics are generally divided into two groups, special clitics and simple clitics (Katamba, 2005; Lieber, 2010). The simple clitics are those words that can be realised in its full form, and often maintain their syntactic position. Clitics are not to be confused with inflections, as they are grammatical units of language contra the clitics in **Error! Reference source not found.** that has an optional full form, unlike the genitive -s marker in English (i.e. the dog's toy). Another group of contractions are known as to-contractions where the infinitive marker *to* joins the preceding verb to form a new word.

(25) want to → wanna

going to → gonna

In English, the negator *not* can be contracted and cliticised onto a host. Foreshadowing an upcoming discussion later in this paper, we can view this as comparable to the Norwegian negative adverb *ikke*, which has the option of reducing and cliticising *-kke* onto a preceding element. Clitics like, the English *-nt*, sometimes leaves paradigmatic gaps, such as the missing form **amn't* in most varieties of spoken English (although there are a handful of Irish dialects where the contraction is possible (for an in-depth discussion on this gap, see Broadbent, 2009; Hudson, 2000)).

(26) You are not welcome → You're not welcome

(27) a. I am not at home

b. I'm not at home

c. *I amn't at home

A contraction is a phonological process in which one or two words become reduced and joined together. Despite being a process of joining words together, compounding should not be confused for contraction. Compounding is the recursive process of joining two or more bases, roots, or stems together to form a new phonological word, whose meaning can be endocentric (i.e. the meaning comes from within the compound) or exocentric (i.e. the meaning comes from the new compound as a whole) (Lieber, 2010:43).

The pairs in (14) shows how certain function words in English, when pronounced in isolation, are indistinguishable from lexical words in terms of stress and vowel-quality. Selkirk (1995) argues that the weak/strong surface prosodizations of monosyllabic function words stems from different underlying input structures. A focussed Fnc in an utterance will always appear in its strong form, a feature which Selkirk (ibid.) attributes to the assignment of *pitch accent*; which is a widely observed phenomenon in English where pitch accents are associated with stressed syllables. This has been captured in the following constraint:

(28) Association of Pitch Accent (AssocPA) (Selkirk, 1995:15)

A pitch accent associates to (aligns with) a stressed syllable (i.e. the head of a foot)

This constraint prevents pitch accents from being assigned to words that are in morphosyntactic representations to be associated with stressless syllables in prosodic structures. This constraint prevents ill-formed stress assignment like *ASSign, *structure, *PROsodic, and * roso. This contrast to the correct forms which respect AssocPA: assign, STRUCture, rosodic, and FOCus (Selkirk, 1995:15). The constraint also forms part of the explanation of the association of pitch accent to monosyllabic Fnc would in turn cause the surfacing strong form. This is because the syllable would have to be the head of a Ft for it to carry stress, which entails a foot-head status in P-structure (ibid.).

(29) $[\text{ can }]_{\text{Mod}}$ → $(\textit{ can })_{\text{Ft}}$

H* AssocPA H*

By contrast, the weak form of the Fnc stems from constraint interaction on prosodic domination, alignment constraints of morphosyntactic structure, and alignment constraints on prosodic structure.

2.4.1 Stringency Hierarchy and English Contractions

Anttila (2017) suggests a Stringency Hierarchy as a framework to account for the distribution of stress among words, and specifically applies this to an analysis of English auxiliary contractions. This hierarchy has four tiers, with weak pronouns that receives no stress; strong

pronouns and finite auxiliaries which may sometimes be stressed; where modal verbs and wh-words are even more susceptible to stress; and lastly lexical words that always attracts stress.

(30)

STRENGHT	WORD CLASS
1	weak pronouns
2	strong pronouns, finite auxiliaries
3	modal verbs, WH-words
4	lexical words

(31) Assign a violation for every lexical item of strength *n* that carries phrasal stress

a) *STRESS/1 No phrasal stress on Class 1.

b) *STRESS/2 No phrasal stress on Classes 1 or 2.

c) *STRESS/3 No phrasal stress on Classes 1 or 2 or 3.

d) *STRESS/4 No phrasal stress on Classes 1 or 2 or 3 or 4.

The *Nuclear Stress Rule* as listed in the constraints below, assigns stress to the rightmost word bearing lexical stress within a phrase (NP, VP, AP, S) (Chomsky and Halle, 1968). The Nuclear Stress Rule causes stress to fall to the right edge of a phrase, Anttila (2017) reduces this rule to the Nuclear Stress Constraint (NSC). The *WORD constraint relates to the speaker's economy, while FAITH conversely relates to the hearer's economy. This is to say that the speaker wishes to minimize their effort, while the hearer prefers to maximize the information provided (Anttila, 2017:147).

(32)

*WORD	Assign a violation for every word
FAITH	Assign a violation for every contracted word
NSC	Assign a violation for each word that intervenes between phrasal stress and the right edge of a phrase

Anttila (2017) applies the markedness constraints from (31) and the economy constraints and NSC from (32) to auxiliary contraction in English. Anttila's (2017:148) predictions for phrases

containing an auxiliary are that a) the strength of the next word in a phrase will attract more stress (as per the NSC), which will favour contraction, b) the weaker the next word in the phrase, the more stress will land on the auxiliary (disfavouring contractions), and c) if there is no following word (i.e. a phrase break), then contraction of the auxiliary is blocked categorically. Prediction c) is summarised as the constraint FAITH/NSC in the following tableaux, and assigns a violation mark to every contracted word with phrasal stress. Contracted forms never receive phrasal stress in English (as with candidate c) below), we assume that it is undominated. For this reason, Anttila suppresses the constraint as it will categorically eliminate all such candidates (e.g. c) in (33)) from any OT tableaux in English.

(33) *it will*

it will = 1 3	FAITH/NSC	NSC	*S/1	*S/12	*S/123	*S/1234	FAITH	*WORD
☞ a) it WILL					*	*		**
b) IT will		*!	*	*	*	*		**
c) IT'LL	*!		*	*	**	**	*	*

Candidate (33) wins over (33) on account of the stringency hierarchy, since *will* is rightmost in the phrase (and therefore attracting stress) and has more strength than the pronoun, which means that b) cannot win under any circumstance.

In cases where the auxiliary is not phrase final, as in (34), we can observe a competition between candidate a) and b). The input /she will go/ consists of three words, with level 2, 3, and 4 respectively (and is assigned violation marks accordingly).

(34) *she will go ~ she'll go*

she will go = 2 3 4	NSC	*S/1	*S/12	*S/123	*S/1234	FAITH	*WORD
☞ a) she will GO					*		***
☞ b) she'll GO					*	*	**

c) she WILL go	*!			*	*		***
e) SHE will go	*!*		*	*	*		***

The verb *go* attracts phrasal stress on account of both NSC and being a Class 4 word from the auxiliary, permitting both the contracted and full form of candidate a) and b). The variation between the two forms is a result of the undetermined ranking of FAITH >> *WORD (i.e. the full form *she will GO*), while the reverse ranking *WORD >> FAITH results in the contracted form *she'll GO*. This is a phenomenon known as *partial order* (Anttila, 2017) where the variation which arises at the moment of a speaker's performance in which a random *total order* compatible with the partial order, e.g. the order in (34), which then is evaluated by the OT.

2.5 Summary

In this chapter, some of the fundamental aspects of Prosodic Phonology, as the study of suprasegmental phonology that governs the processes that take place above phonological elements and the feature assigned to them. In this paper, phonology is assumed to have indirect reference to syntax, applying processes to prosodic constituents that are aligned and matched with syntactic constituents. The exact number and nature of the prosodic constituents that are present in the Prosodic Hierarchy is debated among researchers, but every level from PPh to the mora μ has been included since the weight and size of the syllable will be of interest to our discussion on disyllabic function words. Various prosodic constraints and conditions has been presented in this chapter. From Layeredness, Headedness, Exhaustivity, and Nonrecursivity which assures well-formedness in the hierarchy (and is largely comparable to the LCC), to Edge-Alignment constraints that deals with the mapping of prosodic constituents to syntactic structures.

We have also seen how monosyllabic Fncs are treated by the Prosodic Phonology, and been able to account for the variation between the strong and weak forms they may appear in. In this very section, we also explored the nature of the prosodic clitic by applying constraints to a hierarchical structure and passed the inputs through an optimality theoretical analysis to

ascertain the possible prosodizations for prosodic clitics. The following section provided an analysis of disyllabic function words and found that they categorically will be prosodized as having the status of a prosodic words because of the presence of a Foot, which entails through Headedness that it must be prosodized as such.

The last section we discussed how stress and focus affects functional items in different ways, largely through Selkirk's (1995) analysis, but also by turning to Anttila's (2017) work on contractions in English using the Stringency Hierarchy which assigns strength to words of different prosodic natures, which in turn would explain how, why, and where contractions are blocked and permissible in English.

3 Norwegian Function Words

Norwegian has a wide variety of function words that may appear in either a strong or a weak form. Their distributional criteria and possible contracted forms is the central topic to this chapter, which will explore various phonological properties of Norwegian function words and their contracted forms.

Section 3.1 displays the full forms and contracted forms of Norwegian pronouns. This overview will provide the reader with some insight to the possible contraction which this paper will analyse more thoroughly in chapter 5. The next section, 3.2, will show auxiliary verb contractions and some of their phonological features. Section 3.3 briefly discusses negative contractions in Norwegian before the final section 3.4 on flapping in prepositions before the paper moves on to a broader analysis of flapping in /d/-initial Fncs.

3.1 Pronominal Contractions

The modern Norwegian pronominal system has only remnants of a richer case system in Old Norse, which the language has since evolved away from (Krause and Slocum, 2019). In practical terms, this means that fewer words would exhibit any overt case marking. The Norwegian case system is continually weakening, as shown by evidence from pronouns. Norwegian has four cases (nominative, accusative, genitive, and dative), and pronouns are divided into singular and plural, which are further subdivided into first, second, and third person. Only nominative and accusative surface with overtly marked case in Norwegian, as we assume that genitive is expressed with an inflectional suffix -s to indicate this case. Meanwhile, dative is largely unexpressed over all in Norwegian, with only a few dialects that marks this overtly. Within the Norwegian pronominal system, there also exists a set of sub-categories: reflexive, relative, reciprocal, and indefinite pronouns

In (35), we can observe that the third person masculine personal pronoun /han/ “he” can be used for both nominative and accusative, even though there is an accusative form /ham/ available to the speaker. Conversely, b. shows that the overtly marked masculine pronoun cannot be used interchangeably with the nominative case. The third utterance in c., shows a contracted form of

the pronoun, in which the pronoun has been reduced to the single voiced alveolar nasal /n/ and cliticised onto the preposition *på* "on". It is a curious fact that the accusative form *ham* has no reduced clitic *-m* available, as seen in d., showing that the overt case shown in a. is not transferred to the reduced clitic.

(35) a. *jeg så det på ham/han*

I saw it on him-acc/-nom

b. **ham så det på meg*

he-nom saw it on me

c. *jeg så det på'n*

d. *jeg så det *på'm*

Not all third person pronouns have an optional case like the masculine. The feminine accusative *henne* is not commonly accepted as grammatical, although there is a trend on the rise in which the accusative form here too is losing its grip in the Norwegian case system similar to the one attested for the masculine pronoun. For the intents and purposes of this paper, the accusative remains obligatory in modern Norwegian.

(36) a. *jeg kjørte henne* (**hun*) *hit*

I drove her-acc here

b. *jeg kjørte'a/kjørte'u/kjørte'o hit*

The third person feminine pronoun has a wide variety of surface representations in spoken Norwegian, *hun* [hʉn], *hu* [hʉ], *ho* [hu:], the first two has the same reduced reduced form [ʉ], while the latter [u:], with the addition of a seemingly reduced form without a full counterpart [ɑ]. The distribution of these forms is mostly dialectal, although in Urban-Eastern Norwegian (UEN for short, is a collection of dialects found in the south-eastern region of Norway, including the counties Oslo, Akerhus, Østfold, Vestfold, and Buskerud), for instance, can vary between [ʉ] and [ɑ], but will never refer to inanimate objects (except cases like boats/ships which are commonly referred to as females). This results in a semantic blocking of the reduction

of the feminine pronoun, even when the pronoun is grammatically feminine (as in *flaska* “the bottle”).

(37) a. *jeg tok med flaska*

I brought with bottle-the

“I brought the bottle”

b. *jeg tok* *-n / *-a/ *-o/ *-u* *med*

I brought it with

“I brought it with me”

A reduced pronoun is available if one is to swap the NP with a DP headed by D, as in (37), but this must be the same clitic as used for the masculine pronoun. Note that the feminine gender is largely optional (and even never overtly marked in the Bergen dialect) in Norwegian, in which cases the masculine inflectional pattern is superimposed onto the feminine. However, if the pronoun in b. had referred to a woman or a female animal, a UEN dialect would potentially allow every clitic listed in the example given. Due to the scope of this paper, the distribution of the feminine clitics will not be discussed at length in this thesis, since it appears to be a topic for the semantics-syntax interface.

The table in (38) lists the Norwegian pronominal system with its contracted form wherever one is possible. This paper is largely concerned with UEN variants of Norwegian and has therefore not included pronouns found in other regions of Norway (e.g. *I, eg, æ* “I”, *dokker* “you.pl”, etc.).

(38) Norwegian pronouns

Singular		*Full form*	*Contracted form*
1st person	subject	*jeg* ‘I’ [jæi]	[jæː]
	non-subject	*meg* ‘me’ [mæi]	[mæː]
2nd person	subject	*du* ‘you-sg’ [dʉː]	[ʉ] , [ɾʉ]

	non-subject	*deg* ‘you’ [dæːi]	[dæː] , [ɾæː]
3rd person	subject, masc.	*han* ‘he’[han]	[n]
	non-subject, masc.	*ham* ‘him’	
	subject, fem.	*hun* ‘she’ [hʉn], [hʉ], [huː]	[ʉ] , [ɑː] , [u]
	Non-subject, fem.	*henne* ‘her’	
	-human, -neuter	*den* ‘it-masc./-fem.’ [dən]	[n]
	-human, -subject	*det* ‘it-neut’	[ə]
Plural			
1st person		*vi* ‘we’	
2nd.person		*dere* ‘you-pl’	
3rd person	subject	*de / dem* ‘they / them’ [di] [dəm]	[ɾi] , [ɾəm]
	non-subject	*dem* ‘them’	[ɾəm]

As mentioned previously, there is a subset of Norwegian pronouns. These has been listed in (39) with their function with their full form and possible contracted form. There are only two contracted forms amongst these pronouns, but all forms are attested for and possible in UEN, by the Nordic Dialect Corpus (Krause and Slocum, 2019).

(39) Other Norwegian pronouns

Other pronouns			
Reflexive	3rd person, singular or plural	*seg* [sæiː] ‘himself/herself/themselves’	[sæː]
Demonstrative		*den* ‘it’	

	dette ‘this’	
	disse ‘these’	
Relative	*hvilken* ‘which’	
	hvem ‘who’	
	hvis ‘if/whose’	
	hvor ‘where’	[ɔː]
Reciprocal	*hverandre* ‘each other’	
Interrogative	*hvem* ‘who’	
	hva ‘what’	[ɔː]
	hvilken ‘which’	

3.2 Auxiliary Verb Contractions

Many Norwegian auxiliary verbs can also appear in a strong or weak form, and a list of auxiliaries in their full and reduced form has been included in (40). Monosyllabic auxiliaries are reduced by deleting the coda, e.g. *vil* “wants” and *bør* “should” becomes *vi* and *bø* respectively. There is only one disyllabic auxiliary verb that can contract, and that is *skulle* “should.past”, which deletes the second syllable in order to reduce. The single instance of an auxiliary without a coda, *må* “must” has no potential reduced form since there is no element that may be deleted. The list below contains the Norwegian auxiliary verbs and their reduced form. For transparency, potential reduced forms have been included for the verbs that has no such forms available to them (as indicated by the asterisk *).

(40) Norwegian auxiliaries

Full form	**Reduced form**
burde “should.past”	**bu, *bur, *burd*

bør “should”	*bø*
kan “can”	**ka*
kunne “could”	**ku, *kun*
må “must”	-
måtte “must.past”	**må, *mått*
vil “will”	*vi*
ville “would”	**vi, *vil*
skal “shall”	*ska*
skulle “should”	*sku*

Reductions of auxiliaries in Norwegian happen through a segmental deletion of liquids in the coda; with the exception of *skulle*, which has the two segments in the second syllable, liquid /l/ and the following unstressed schwa /ə/, deleted. We can then posit some constraint against liquids (L referring to the group of consonants, not Low tone) at the word boundary of Fncs, (41).

(41) *Fnc_L#

A competition between the full form and the reduced form would arise from a relative ranking of *Fnc_L# and FAITH-IO which would require faithfulness of the output to the input.

3.3 Negative Contractions

Norwegian may contract the negative adverb *ikke* [ik^{h}.ə] ‘not’ by reducing and cliticising the reduced element -kke [k^{h}ə] onto the right edge of a verb. The distribution of the clitic is based on Fretheim’s (1988) and Kristoffersen’s (2007) analyses. The clitic required the right edge of an inflected verb or an auxiliary verb to attach to. Other clitics, e.g. pronominal clitics, may come between the negative particle and the verb host *ska-a-kke* ‘shall-she-not’.

(42) skal ikke → ska-kke

[skal ik^{h}ə] → [skak^{h}ə]

shall not

The reduced negative clitic -kke can only be attached to a vowel-final or /ɾ/-final host. The latter further requires that the final /ɾ/ is deleted before the insertion of the clitic to ensure well-formedness of the surface form. This results in two possible forms for the sequence /verb#NEG/, e.g. *tør ikke* 'dares not' either surfaces as [tœɾ.ɾi.kə] and [tœk.kə] (Kristoffersen, 2007:335). In the first form, the negative particle is attached to the /ɾ/-final host, but is now prosodized as a trisyllabic word, while in the second form, the /ɾ/ is deleted and the clitic is attached to the reduced verb. Despite not violating any phonotactic restrictions (*tørke* 'drought' is well-formed), the form [tœɾ.kə] is ill-formed for a /tør#NEG/ representation since the final /ɾ/ is realised. It should be noted that the segmental /l/ deletion in auxiliaries like *skal* 'shall' and *vil* 'will', is not a comparable phenomenon to the /ɾ/-deletion. Such /l/-final auxiliaries may appear in their reduced form even without the negative clitic, e.g. *ska du det* 'shall you that' contrary to **tø du det* 'dare you that' (in which case the /ɾ/ is either realised, or more commonly in UEN assimilated with the following /d/ to the retroflex /ɖ/).

When attached, the negative clitic may also elicit a shortening of long vowels in the host. Assuming that the underlying form of a verb is the imperative (which has no inflectional morphemes or overtly marked case, but appears as the bare verb stem), the vowel of [seː] 'look!' will be shortened when the negative clitic is attached [sek^{h}ə]. The shortening of the vowel bears no impact on the semantics, but such cliticised forms are generally regarded as having a lower register, and the contraction also stops the speaker from emphasizing and focussing the negative *ikke* since its status of a clitic bars it from bearing stress. An utterance in which *ikke* is stressed/focussed, it will be prosodized as having a foot, and thus a PWd which by extension cannot surface with a weak form.

Returning to the case of /l/ deletion in auxiliary verbs and the cliticization of the negative clitic, Kristoffersen (2007) argues that the /l/-final, present tense forms /ʊil/ *vil* 'will' and /skal/ *skal* 'shall' has each two possible alternations. The first alternation keeps both the verb coda and the negative *ikke* /i/ intact, [ʊil.ik^{h}ə] / [skal.ik^{h}ə]; while the second deletes both, [ʊi.k^{h}ə] / [ska.k^{h}ə]. Kristoffersen (ibid.:337) takes this as evidence of the auxiliaries having two lexically listed allomorphs (i.e. one with and one without the final /l/). In such cases, only the deleted /l/ (and thus vowel-final) host permits the attachment of the reduced negative clitic.

3.4 Reduced Prepositions

Norwegian prepositions are another functional part of speech that may appear in a strong or weak form. There are numerous prepositions in Norwegian, and this paper will not deal with the majority of them, but highlight certain items that are of interest to contraction and prosodic theory. As with most functional categories, prepositions are typically unstressed which is a pre-requisite for the surfacing of weak reduced prepositions. The following list shows examples of the strong form of monosyllabic prepositions with their weak, reduced counterpart.

(43) a. [til] *til* 'to' → [tə]

b. [aʊ] *av* 'off' → [a]

c. [nɛd] *ned* 'down' → [nə]

The manner in which the prepositions reduce is akin to that of auxiliaries as seen in section 3.2, in that it the final segment is deleted, i.e. the obstruents [l], [ʊ], and [d] to a-c. respectively. As long as the syntactic structure is grammatical, there seems to be few restrictions to where the reduced forms may appear. The following examples show different reduced prepositions following and preceding verbs, nouns, and other prepositions.

(44) a. [tə.dæ] *til deg* 'to you'

b. [jik.a.skaftə] *gikk av skaftet* (idiom, lit. "went off the shaft") 'went crazy'

c. [nɛd.i.vanə] *ned I vannet* 'down in the water'

There are several polysyllabic prepositions in Norwegian, none of which has a reduced form available to them. This is attributed to the prosodization of disyllabic Fncs, as we have seen in previous sections, which must have the status of a PWd due to the presence of a syllable.

(45) a. [ətɾ] *etter* 'after', [ʉnɾ] *under* 'id.', [ɔːvɾ] *over* 'id.', [jɛnɔm] *gjennom* 'through'

b. [ɔm] *om* 'about', [mut] *mot*, [fɾa] *fra*, [føɾ] *før* 'before', [hus] *hos* 'at'

The examples in b. shows several monosyllabic prepositions that has no reduced form available to them, and would not undergo any potential deletion in the coda.

4 The Phonology-Syntax Interface

A central issue in the phonology-syntax interface is to which extent the modules have access to one another. Cheng and Downing's (2016) research into the modularity debate oftentimes argues the case that phonology must have access to some access to syntax. Their proposal to the issue claims that phonology has indirect access to the syntax at a point when the syntactic derivation is complete. As previously mentioned, the indirect approach for the phonology-syntax interface, argues that certain phrasal prosodic constituents, e.g. PPh and IP, does not have to match any syntactic constituent (Cheng and Downing, 2016).

Section 4.1 introduces the syntactic notion of phase theory, which will serve as a basis for later application in phonological analysis and mapping of prosodic constituents to syntactic ones are assumed to occur during different phases. Section 4.2 tackles a phonology-syntax interface issue in which the question of whether clitics belong to syntax. This account summarises Legendre's (1998) research on Bulgarian clitics, in which this section highlights pronominal clitics to highlight the claim that clitics are generated by morphology and treated as affixal clitics by the grammar.

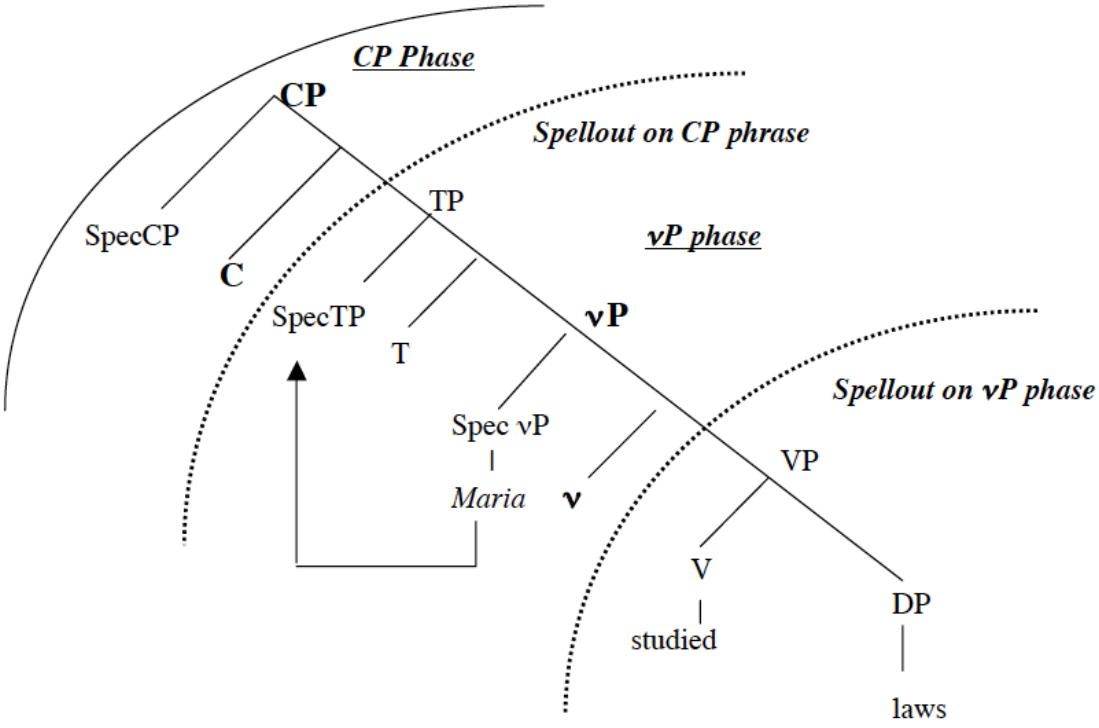
4.1 Phase Theory

The computation from syntactical structures to other modules such as phonology and semantics are assumed to occur during *phases*, as based on among others, Chomsky's (2000) syntactic framework. According to Chomsky, phases correspond to *v*P, headed by the argument introducing little *v*, as well as the CP headed by the complementizer C. In each phase, lexical material is inserted and potentially moved to a higher phase-internal position in the syntactic structure. At the end of a phase, any content in the complement to the phase head is given phonological content during a process called *spellout*. Chomsky (2001) explains that syntactic structure is sent out phase by phase in chunks that becomes available for phonological (as well as semantic) interpretation. The spellout during these phases are according to Chomsky cyclic, and that the phonological and syntactic spellouts are parallel, and not separate, cycles. It is possible that several instances of spellout occurs during a derivation of a single sentence, which

gives the name to the term *multiple spellout* for the phasal derivation of phonological form (Kratzer & Selkirk, 2005:9).

During spellout, phonological content will be assigned to the content within the phase within the *spellout domain*, as indicated by the dotted line. In the figure below, the lowest spellout domain is the VP that is the complement to little *v*. The second spellout domain the TP, which is the complement to the head of the CP phase. The phases *v*P and CP corresponds respectively to VP and TP, as shown in the tree structure below (Cheng and Downing, 2016, Kratzer and Selkirk, 2005). Furthermore, Cheng and Downing (ibid.) argues the case that only two levels are required in the prosodic hierarchy (per Ito and Mester, 2012). Per this view, IP corresponds to both the *v*P and CP, and it is the edges of these prosodic phrases that must coincide with one of a syntactic constituent; lexical and functional respectively (Cheng and Downing, 2016:22).

(46) Spellout domains (Kratzer & Selkirk, 2005:10)



Cheng and Downing (2016) posits an alternative analysis to spellout domains. The core argument in their paper is that rather than spellout domains, it is phase edges that are responsible for the properties of processes occurring in prosodic phrases. Further, Cheng and Downing (ibid.) claims that phonology has a non-cyclic model that accesses the syntax indirectly once the syntactic derivation is already complete.

4.2 Are Clitics Generated by Syntax?

Previous theories on generative grammar assumed that clitics were generated by the syntax and subject to syntactic movements and constraints. This section will address Legendre's (1998) arguments that rather places clitics within a morphological theory as phrasal affixes governed by prosodic constraints.

Bulgarian clausal clitics are not restricted to object pronouns only, but also include tense/aspect auxiliaries, modal particles, and interrogative particles (Legendre, 1998). These clitics are oftentimes unstressed and has particular positional restrictions. The clitics in (47) are italicized for convenience.

(47) a. Az *sūm* *mu* *go* dal.

I be-1 him-dat it-acc given

"I have given it to him."

b. Dal *sūm mu go*

"(I) have given it to him."

The examples above show how Bulgarian clitics cluster in the syntactic second position. As a null-subject language, in (47) , the non-finite verb is moved to clause initial position to keep the clitics in second position as the subject pronoun is absent. This requirement is not observed by *šte* (future auxiliary), *da* (modal/complementizer-like particle) and *ne* (negative particle) may appear clause-initially, unlike other clitics (Legendre, 1998).

Legendre (1998) argues that clitics are not generated by the syntax or governed by syntactic movement, but that clitics are rather realized morphologically as phrasal affixes with functional features. Rather than being a strictly syntactic phenomena, Legendre claims that clitic's second position is a result from prosodic alignment constraints (McCarthy and Prince, 1993) found in the domain of V' and the Intonational Phrase.

Bulgarian [+specific] NPs, which includes proper names, emphatic non-clitic object pronouns, and NPs containing the definite suffix or the specificity-marking indefinite article are accompanied by a clitic pronoun that agrees with the NP in number, person, gender and case

(Legendre, 1998; Vakareliyska, 1994). This results in a clitic doubling, a feature which is optional in Bulgarian.

(48) Nego/Ivan *go* vi dam

him/Ivan him-acc see-1

"(I) see him/Ivan" (= "as for him/Ivan, (I) see him")

Clitic doubling as in (48) places emphasis on the object pronoun (i.e. *Nego*/*Ivan*). In cases where clitic doubling occurs, Legendre (1998) posits the constraint EXPRESS(F) (which calls for the object pronoun/object clitic to express person, number, and case) is satisfied while DROPGIVEN (which requires arguments that does express this to be left unrealised) is violated. And conversely, when clitic doubling does not take place, EXPRESS(F) is violated while DROPGIVEN is satisfied.

There is further evidence of the notion that clitics does not belong entirely in the syntax. If pronominal clitics were governed by syntax, we would find blocking effects of clitic doubling; which has not been attested for (Legendre, 1998). This is not the case as the clitic doubling happens across relative clauses (as introduced by *deto* "that") as in the example below (Legendre, 1998:8).

(49) Čovekut$_i$ deto *go*$_i$ vidjax t$_i$

man-the that him saw-I

"The man that (I) saw"

Legendre's (1998) work on the distribution of Bulgarian clitics argues strongly for the case that the position of a clitic is not the result of a syntactic movement, and is not subject to any post-syntactic ordering at PF. Legendre's counter-argument is rather that clitics are phrasal affixes that has a positional distribution with similar phonological effects as those of word-level affixes. The interaction of prosodic constraints and optimality theoretic constraint ranking has proved to capture the intricacies of the distribution of Bulgarian clitics, which a pure syntactic theory is unable to account for.

5 Flapping in Norwegian Function Words

In this chapter, the focal point of this thesis will be addressed; namely the phenomenon of flapping Norwegian. The distribution of this process will prove to be restricted in both its phonological environment and various prosodic requirements that must both be present before the flapping may occur.

Likeness between d and r

To the extent of my knowledge, the only source discussing flapping in Norwegian is found in Kristoffersen (2007:334). Kristoffersen argues that the monosyllabic /d/-initial pronouns have an alternate special clitic form (e.g. /ɾʉ/ *du* 'you'). He further argues that their distribution is phonologically conditioned to only occur after a vowel-final host, and that it is impossible to derive the /ɾ/-initial forms through phonological rules because there are no other instances of an underlying /d/ that flaps intervocalically. This chapter will aim to elaborate on Kristoffersen's brief account of flapping in Norwegian, as well as present evidence of underlying /d/ alternating with the alveolar tap /ɾ/ beyond the scope of monosyllabic pronouns that furthermore does not occur Fnc-initially, contrary to Kristoffersen's claim that no such instances exist.

Section 5.1 will discuss the prosodization of Norwegian function words and determine its prosodic structure and representation. The following section will elaborate on the lexical/functional distinction in Norwegian with respect to the case of flapping in particular. The following two sections, 5.3 and 5.4 will examine the distribution of flapping and their relevant restrictions to monosyllabic and disyllabic function words respectively. Section 5.5 brings up a blocking effect caused by adverbials, and highlights some issues to the theory. Section 5.6 shows an extension of the distribution of flapping by examining flapping in prepositions. Lastly, the chapter rounds off with a summary in section 5.7.

5.1 The Prosody of Norwegian Function Words

As presented in chapter 3, there are several functional word classes in Norwegian that may alternately surface in a stressless and reduced ('weak') form, or conversely, in a stressed and unreduced ('strong') form. Functional items have generally been held since Selkirk's (1995) influential analysis as subject to phonological processes that never applies to lexical category items (as per the LCC). This chapter will contribute to the already established Fnc-Lex distinctions made by phonology through evidence found in flapping in Norwegian Fncs. In this thesis, I will argue for the necessity of an extended analysis from that of Kristoffersen's (2007), primarily based on the small scope of his analysis that fails to mention disyllabic pronouns and flapping that may occur beyond that of /d/-initial pronouns. Any theory of phonology-syntax interface must be able to account for the different surface representations that arises in the prosodization of Fncs, as well as provide a description of how the language treats such functional items differently in terms of phonetic and phonotactic features. Before this chapter moves onto an analysis of flapping, we will first address the prosodic status of Norwegian Fncs.

First off, the minimal word in Norwegian can constitute of a single vowel, such as the infinitive marker /ɔː/ *å* 'to' which is a homonym to the lexical item *å* 'small river', or the preposition *I* /iː/ 'in'. There is also a set of nouns that are the names of the letter of the alphabet as well as the speech sound it generally represents, i.e. *a* /ɑː/, *e* /eː/, *I* /iː/, *o* /uː/, *u* /ʉː/, *y* /yː/, *æ* /æː/, *ø* /øː/, and *å* /ɔː/. Note that these words only refer to the letters of the Latin alphabet, and that the Norwegian phonetic inventory of vowels is both larger, has finer distinctions between similar vowels in terms of vowel quality and place, and furthermore includes a set of diphthongs. Each of the words mentioned so far, when pronounced in isolation (regardless of their Fnc/Lex status) will be stressed and footed. This results in the following bracketed representation for the minimal word in Norwegian, which is well-formed with respect to Selkirk's constraints on prosodic structure:

(50) $((((((V)_{\sigma})_{Ft})_{PWd})_{PPh})_{IP})_{Utt}$

Note that per Headedness, the word will be stressed and thus contain a foot, which provides the minimal word with the status of a PWd. However, there are instances of unstressed words consisting of a single short vowel or consonant. Drawing a parallel to Selkirk's (1995) work on the prosody of monosyllabic Fncs in English, we can observe a comparable behaviour in Norwegian. In (51), the pronoun Fnc *him* (English) and *han* (Norwegian) is first represented in their strong form and surfaces unreduced. In the second set of brackets, the pronoun has been

reduced to a single consonant, /m/ and /ɳ/ respectively, which has been cliticised onto the Lex host *trenger* ‘need’. Due to a process of retroflexation common in Urban Eastern Norwegian (UEN), the underlying /ɾ/ in *trenger* and /n/ in *han* assimilates to the postalveolar retroflex nasal /ɳ/. For an in-depth phonological discussion of retroflex consonants and retroflexation in Norwegian, see Molde (2005).

(51) need$_{lex}$ him$_{fnc}$ [ni:d him] → [nidm] (Selkirk, 1995)

trenger$_{lex}$ han$_{fnc}$ [trɛŋəɾ han] → [trɛŋæɳ]

Assuming that the instances of the strong Fncs in (51) are stressed, they will merit the status of a PWd and be nested within the PPh as sister to the Lex, and have the prosodic structure of a., i.e. a prosodic word/full-ω Fnc. The weak form cliticised onto the Lex host, on the other hand we are left with the possible representation of a free clitic/φ-attached Fnc, as in b.

(52) a. ((Lex)$_{PWd}$ (Fnc)$_{PWd}$)$_{PPh}$

b. ((Lex)$_{PWd}$ Fnc)$_{PPh}$

In order to narrow down the scope of flapping in Norwegian, the following section will investigate which words that are subjected to the process.

5.2 Lexical Versus Functional Words

The phonology of Norwegian makes a clear-cut distinction between lexical and function category items when it comes to eligible candidates for flapping. Functional category items like pronouns may under certain conditions flap, which will be further explored later in this chapter. Sentence (53) shows how the pronoun *de* ‘they’ is reduced by deleting the initial /d/ and cliticising the remaining vowel /i/ to the verb *driver* ‘doing’. This contrasts with (53) where neither the final /l/ in the verb host *skal* ‘shall’ is deleted as well as the initial /d/ in *du* ‘you’. The final sentence in c. shows how the pronoun *deg* ‘you’ also reduces and cliticises onto the preceding verb host. This poses the question whether the /l/ or /d/ assimilates to the postalveolar tap, or if both are deleted while the /ɾ/ is inserted at the word boundary.

(53) a. [va.dɾivə.ɾi.mə] *hva driver de med?* ‘what doing they with?’

“What are they doing?”

b. [va.ska.ɾʉ.dæɾ] *hva skal du der?* ‘what shall you there?’

“What are you going to do there?”

c. [jæi.sɛɾ.æ] *jeg ser deg* ‘I see you’

Assuming that DPs are headed by a determiner with an optional NP complement, we can compare the three utterances in (53) to the nearly identical syntactic structures in (54), where the DPs has been swapped with /d/-initial monosyllabic lexical words.

(54) a. [va.dɾivəɾ.dag.mə] *hva driver Dag med?* ‘what doing Dag with?’

“What is Dag doing?”

b. [vɛm.ska.dø.dæɾ] *hvem skal dø der?* ‘who shall die there?’

c. [jæi.sɛɾ.dua] *jeg ser dua* ‘I see pigeon.the’

None of these lexical items may flap despite the nearly identical syntactic and phonological environment, i.e. **driver-Rag med, *ska-rø der, *ser-ua*. For the sake of clarity, the examples in (55) displays a variety of word classes to show that flapping is entirely restricted for any lexical item. The verb *die* ‘suckle’, the adverb *dit* ‘there’, and the adjective *død* ‘dead’ all rejects a flapping of the initial /d/.

(55) a. *barnet må die melk* **barnet må-rie melk*

child must suckle milk ‘the child must suckle milk’

b. *den skal dit* **den ska-rit*

it shall there ‘it shall go there’

c. *flua er død* **flua er-ød*

fly.the is dead ‘the fly is dead’

That phonology treats function words differently than lexical ones in certain languages has been well-attested for and widely acknowledged since Selkirk’s (1995) influential paper. The data listed in this section provides further evidence of this peculiar trait of phonology and sheds light

on the subject that the module must have access to certain aspects of (nano)syntax in order to make this clear-cut distinction.

5.3 Flapping in Monosyllabic Function Words

The first part of this section will recount Kristoffersen's (2007) brief analysis of flapping in Norwegian before moving onto an extended overview of the phenomenon. As Kristoffersen (2007) describes flapping in Norwegian as the cliticization of a /ɾ/-initial monosyllabic special pronoun clitic (e.g. [ɾʉ] *ru* 'you', [ɾɛm] *rem* 'them'), phonologically conditioned to attach to the right of a vowel-final, see (56). There are also pronoun clitics lacking the initial /d/, which will cliticise onto /ɾ/-final hosts, see (56). A more plausible possibility for an analysis of /ɾ/-initial clitics attaching to /ɾ/-final hosts, could be through a case of gemination of the consonant between two unstressed vowels (Kristoffersen, 2007:334).

(56) a. [han.sɔː.ɾæ] *han så deg* 'he saw you'

b. [vuːɾ.jɔːgɾ.ʉ.tə] *hvor jogger du til?* 'where are you jogging to?'

Kristoffersen takes the absence of retroflexation of the /ɾd/ sequence, which would commonly assimilate to /ɖ/ in other instances, as evidence that the underlying form for the pronoun in (56) cannot be /d/-initial. Kristoffersen acknowledges the possibility of a retroflex /ɖ/ surfacing in pronouns, but argues that such retroflexation would require the stressed, strong form of the pronoun as the underlying form, which is later destressed and cliticised.

(57) [nɔːɾ.stɔː.ɖʉ.ɔp] *når står du opp?* 'when are you getting up?'

Since Kristoffersen does not specifically mention how the phonology derives the surface forms while arguing that one should disregard an underlyingly /d/-initial pronoun in certain cases, one is left to wonder how exactly the surface forms of the pronoun clitic in Norwegian is derived. One possible interpretation would be that the strong form of e.g. *du* is never subject to any change or reduction (as it is already prosodized as a footed, stressed PWd), while the weak pronoun has two possible allomorphs that may surface alternatively. The issue then becomes how the phonology treats the two forms, and how the competition between the two forms plays out. Per Kristoffersen's argument, one must assume that the two weak forms are separate functional items with distinct distributional criteria, which, given the right circumstances, the

speaker can choose freely from. However, I propose a more elegant solution which would be to assume that phonology targets /d/-initial Fncs prosodized as a free clitic, in which the flapped form becomes available to the speaker when the /d/ occurs in an intervocalic position. The competition between the flapped and unflapped form then becomes a matter of a relative ranking of optimality theoretic constraints. The following discussion elaborates more on this claim through an OT-analysis.

The three utterances in (58) all have the same syntactic structure, where a. consists of Fncs in their stressed, unreduced forms (i.e. *skal* 'shall', *du* 'you', and *til* 'to'). In the following two utterances, the auxiliary has been reduced through a segmental deletion of the final /l/, and the pronoun has surfaces in its weak form and cliticised onto the auxiliary host. In b., the pronoun clitic has retained its initial /d/, while c. has been flapped. The contracted forms in b. and c. are generally viewed as having a lower register than the full forms in a., but are nevertheless well-formed and grammatical with respect to phonology, phonotactics, and syntax; and has not been altered either semantically or pragmatically.

(58) a. [vaː.skal.d~~ʉ~~.lage.til.mida] *hva skal du lage til middag?*

'What are you making for dinner?'

b. [vaː.ska.d~~ʉ~~.lage.tɛ.mida]

c. [vaː.ska.ɾ~~ʉ~~.lage.tɛ.mida]

The question then becomes how the weak pronoun clitic surfaces with the alternating forms in (58) and (b). A small set of optimality theoretical constraints are sufficient to account for the variation of /d/-initial monosyllabic Fncs. For the purposes of the following analysis, we will examine the input {([ska]$_{Ft}$)$_{PWd}$ du}$_{PPh}$ which is prosodized as a *free clitic*/*φ-attached Fnc* to exemplify the flapped and un-flapped derivation for the pronoun clitic.

A faithfulness constraint FAITH-IO (which calls for input-output faithfulness and assigns a violation mark for every segment that epenthesised, elided, or altered) is required for the un-flapped clitic to surface. A second faithfulness constraint, FAITHFOOT, that calls for each foot in the output to be faithful to the corresponding foot in the input will ensure that the Lex host remains intact in the optimal output. A markedness constraint *VdV which prohibits any intervocalic /d/ by marking any such string with a violation mark, is essential for the variation

between the two clitic forms to arise, specifically, this segmental markedness will permit the flapping to take.

We assume that FAITHFOOT must be ranked above FAITH-IO and *VdV, as to ensure that the Lex host is prosodized as a PWd containing a Ft, with the weak pronoun as a free clitic. In order to derive the un-flapped pronoun clitic, we have the following constraint ordering:

(59) FAITHFOOT >> FAITH-IO >> *VdV

In the following tableaux, candidate c. and d. are both immediately eliminated form the violation of FAITHFOOT. The pronoun in these candidates has gained a Ft, and thus through Headedness would necessarily be prosodized with a PWd-status which by its very nature would block the pronoun from surfacing in its weak form. Candidate b. violates FAITH-IO by having the initial /d/ flapped, leaving the unreduced and unstressed pronoun clitic in a. as the optimal candidate.

(60) Unflapped /d/ in *du* 'you'

input: { ([ska]$_{Ft}$)$_{PWd}$ du }$_{PPh}$	FAITHFOOT	FAITH-IO	*VdV
a. ☞ { ([ska]$_{Ft}$)$_{PWd}$ du }$_{PPh}$			*
b. { ([ska]$_{Ft}$)$_{PWd}$ ru }$_{PPh}$		*!	
c. { ([ska]$_{Ft}$)$_{PWd}$ [du]$_{Ft}$ }$_{PPh}$	*!		*
d. { ([ska]$_{Ft}$)$_{PWd}$ [ru]$_{Ft}$ }$_{PPh}$	*!	*	

However, a re-ranking of the two lowest ranked constraints is needed in order to derive the flapped pronoun clitic. By having *VdV dominate FAITH-IO, and leaving FAITHFOOT undominated in this tableaux, the flapped pronoun in b. will emerge as the optimal candidate. This indicates a competition between the other two constraints in which the speaker choses a relative ranking to achieve either of the two forms.

(61) FAITHFOOT >> *VdV, FAITH-IO

(62) Flapped /d/ in *du* 'you'

input: { ([ska]$_{Ft}$)$_{PWd}$ du }$_{PPh}$	FAITHFOOT	*VdV	FAITH-IO
a. { ([ska]$_{Ft}$)$_{PWd}$ du }$_{PPh}$		*!	
b. ☞ { ([ska]$_{Ft}$)$_{PWd}$ ru }$_{PPh}$			*
c. { ([ska]$_{Ft}$)$_{PWd}$ [du]$_{Ft}$ }$_{PPh}$	*!	*	
d. { ([ska]$_{Ft}$)$_{PWd}$ [ru]$_{Ft}$ }$_{PPh}$	*!		*

The alternating forms of the flapped and unflapped pronoun can thus be derived through the prosodization of the pronoun as a free clitic which then is evaluated by the OT. Depending on the relative ranking of *VdV and FAITH-IO, both forms becomes available to the speaker.

5.4 Flapping in Disyllabic Function Words

Disyllabic and polysyllabic function words are often neglected in the earlier literature on the prosody of function words, but has recently received more attention (e.g. Ito and Mester, 2009; Šurkalovic, 2007, 2015) . This section will discuss the lack of flapping amongst disyllabic function words in Norwegian, as well as provide an optimality theoretic account of why this is.

Kristoffersen (2000) does not mention the lack of a possible flapping of /d/-initial disyllabic function words, which alludes to the conclusion that there is a paradigmatic gap causing the lack of an /ɾ/-initial disyllabic Fnc. However, a more plausible explanation is that this may not be an oversight from Kristoffersen's part at all, but rather an implied assumption that disyllabic words are by default prosodized as PWds due to their footing which requires to be minimally bimoraic (FTBIN) and the parse constraints (e.g. PARSEFT, as discussed in section 2.3) presented by Šurkalovic (2015). The examples in (63) shows the ungrammaticality of /d/-initial flapping of the disyllabic Fncs: *dere* 'you.pl', *denne* 'this', and *disse* 'these'.

(63) a. [vaː.drivəɾ.dɛɾə.mə] *hva driver dere med?* 'what are you doing with'

"What are you doing?"

*[vaː.drivəɾ.ɾɛɾə.mə]

b. [vuɖan.fʉŋkər.dɛnə] *hvordan funker denne?* *'how works this'*

"How does this work?"

*[vuɖan.fʉŋkər.rɛnə]

c. [va.ska.disə.jørə] *hva skal disse gjøre?* 'what shall these do'

*[va.ska.ɾisə.jørə]

As with Šurkalovic's account of the prosodization of disyllabic Fncs in English, the inclusion of a Ft results in a PWd status due to Headedness. Because of this, we cannot parse the Fnc as a free clitic as shown in the tableaux in (62) since it would immediately violate the highest ranked constraint FAITHFOOT. To account for the lack of flapping in Norwegian disyllabic Fncs, we turn to an OT-analysis based on Phase-Phase faithfulness constraints, prosodic structure constraints and constraints on syllable structure based on Šurkalovic's (2015) work.

Since there are no disyllabic Fncs has no attested reduced forms in Norwegian, any theory of flapping must also provide a derivation that prohibits flapping in places where such forms are not attested. Not that the restrictions on reduced forms of disyllabic Fncs goes beyond the scope of /d/-initial flapping either, since Fncs like *mine* 'my', *hennes* 'her', and *hvilken* 'which' has no weak, reduced form available to them. The following OT-analysis will correctly predict that the disyllabic Fnc will be prosodized as having the status of a PWd, which in itself is enough to block any flapped forms from surfacing. The list in (64) starts off with the phase in which the example noun *planta* 'plant.the' is readily prosodized as a stressed PWd, with the following input containing the string *planta deres* 'your plant'.

(64) phase: | { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$ }$_{PPh}$ |

input: /pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$de$^{\mu}$res$^{\mu}$/

a) { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$ de$^{\mu}$res$^{\mu}$ }$_{PPh}$

b) { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$ de$^{\mu\ \sigma}$res$^{\mu\ \sigma}$ }$_{PPh}$

c) { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$ [de$^{\mu}$res$^{\mu}$]$_{Ft}$ }$_{PPh}$

d) ☞ { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$ ([de$^{\mu}$res$^{\mu}$]$_{Ft}$)$_{PWd}$ }$_{PPh}$

e) { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$ [dè$^{\mu}$res$^{\mu}$]$_{Ft}$)$_{PWd}$ }$_{PPh}$

f) { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$ [dé$^{\mu}$res$^{\mu}$]$_{Ft}$)$_{PWd}$ }$_{PPh}$

g) { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$ de$^{\mu\ \sigma}$res$^{\mu\ \sigma}$)$_{PWd}$ }$_{PPh}$

The candidates a-g is then passed through the same set of constraints proposed in Šurkalovic's (2015) work on disyllabic Fncs, and assigned violation marks accordingly.

(65) OT tableaux of *planta deres* "their plant"

	PALPWD	PARSESEG	FTBIN	PARSESYLL	PARSEFT
a)		*!****			
b)				**!	
c)					*!
☞ d)					
e)	*!				
f)	*!				
g)	*!			**	

Working our way from the lowest ranking constraint and up, we find that candidate c) violates PARSEFT which calls for every foot to be dominated by a PWd. The candidate has a Ft that is situated within the PPh without a PWd; this violation eliminates candidate c). Candidate b) (which is eliminated at this point) and g) violates PARSESYLL which requires every syllable to be parsed into a Ft. Both candidates violate this constraint twice by having the function word organized with two syllables undominated by a Ft. The next constraint FTBIN has no violations since every foot is bimoraic. Candidate a) is rejected because it violates PARSESEG five times, once for each segment that is undominated by a syllable. Candidates e-g) are eliminated by violating the Phase-Phase Faithfulness constraint PALPWD by placing Phase2 material into the

already existing PWd. This leaves the perfect candidate which violates no constraints. Thus, the Fnc in candidate d) is prosodized as a PWd with a Ft, as called for by Headedness.

As argued by Šurkalovic (2015), previous analyses of the phonological distinction between functional and lexical words fail to account for languages where monosyllabic and disyllabic are treated differently, as shown in English (ibid.) and here in Norwegian. By working within this framework, the mapping from syntax to phonology remains fully modular. Šurkalovic's analysis presents a more thorough explanation of why disyllabic Fncs in Norwegian never flaps, despite the initial assumption that all /d/-initial Fncs would flap in the same environment. This furthermore emphasises the importance of distinguishing Fncs from PWds (and not Lex) to account for the way phonology accesses syntax.

The current ranking of constraints in this tableaux also correctly predicts the prosodic structure of monosyllabic Fncs, as shown in (66) and (67), where the input is morphosyntactically very similar to that of (64), with the pronoun being changed from *deres* 'their' to *di* 'your'.

(66) phase: | { ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$ }$_{PPh}$ |

input: /pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$di$^{\mu}$/

a)	{ ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$	di$^{\mu}$	}$_{PPh}$
b) ☞	{ ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$	di$^{\mu\ \sigma}$	}$_{PPh}$
c)	{ ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$	[di$^{\mu}$]$_{Ft}$	}$_{PPh}$
d)	{ ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$)$_{PWd}$	([di$^{\mu}$]$_{Ft}$)$_{PWd}$	}$_{PPh}$
e)	{ ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$	[di$^{\mu}$]$_{Ft}$)$_{PWd}$	}$_{PPh}$
f)	{ ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$	[di$^{\mu}$]$_{Ft}$)$_{PWd}$	}$_{PPh}$
g)	{ ([pla$^{\mu}$n$^{\mu}$.ta$^{\mu}$]$_{Ft}$	di$^{\mu\ \sigma}$)$_{PWd}$	}$_{PPh}$

(67) OT tableaux of *planta di* "your plant"

	PALPWD	PARSESEG	FTBIN	PARSESYLL	PARSEFT
a)		*!*			
☞ b)				*	
c)			*!		*
d)			*!		
e)	*!		*		
f)	*!		*		
g)	*!			*	

This tableaux shows that b) is the optimal candidate, and is correctly prosodized as a free clitic only dominated by a PPh. The only constraint violated by this candidate is the PARSESYLL, which calls for every syllable to be contained within a Ft (although not covered in or relevant to this tableaux, free clitics violate Exhaustivity). This detail is crucial to our analysis of the flapping process, since we have observed how it is only unstressed Fncs that may do so. If the syllable in b) was structured into a Ft, it would also qualify for the status of a PWd (as of Headedness), and thus not a viable candidate for flapping.

5.5 Adverbial Blocking

In section 3.3, the distribution of the Norwegian adverbial negative clitic *-kke* was conditioned to attach to either a vowel-final or /ɾ/-final host. The clitic shows no restrictions as to attaching to different word classes or Fnc/Lex distinction as long as the utterance is syntactically grammatical, and the phonological conditions are met. This fact results in cases of a recursive structure in which several Fncs may cliticise onto a host, as with the reduced *meg* 'me' and *ikke* 'not' in (68), where in b., both Fncs are reduced and attach to the right edge of the previous element in the string.

(68) a. [dɛ.pasəɾ.mæi.ik^{h}ə] *det passer meg ikke* 'it does not suit me'

b. [dɛ.pasæ.mæ.k^{h}ə] *det passæ-mæ-ke*

Although this particular string of recursive clitics is both syntactically and phonologically well-formed, we find evidence that any /d/-initial Fnc usually eligible for flapping is prevented from doing so if the preceding element is an adverbial.

The utterances in (69) are listed in pairs that have near identical syntactic structures in which they only differ in the ordering of the pronoun *du* 'you' and the negative *ikke* 'ikke'. The first set of pairs (a. and b.) has only strong, unreduced forms. Pair c. and d. cliticises the first element preceding the verb *gjør* 'does'. In e., the cliticization of *-kke* to *du* is well-formed, while having a reduced pronoun attached to *ikke* is ill-formed with both the flapped form and single vowel. In a similar fashion, having the reduced *-kke* to the weak pronoun in g. is well-formed, while a string of two reduced forms cliticised recursively in h. is ill-formed if the pronoun is preceded by the adverbial.

(69) *det gjør du ikke* 'that does you not' "You do not do that"

a. *det gjør du ikke*

b. *det gjør ikke du*

c. *det gjør-u ikke*

d. *det gjø-kke du*

e. *det gjør du-kke*

f. **det gjør ikke-ru* (**ikke-u*)

g. *det gjør-u-kke*

h. **det gjø-kke-ru* (**-kke-u*)

The data in (69) sheds some light on the distribution of the two types of Fncs. The adverbial *ikke* behaves in the manner we expected, in that it has no restrictions as to the type of host it attaches to, but the pronoun clitic is a different story. The reduced pronoun clitic never cliticises onto an adverbial, and is not sensitive to the weak/strong form of *ikke*. The same goes for other adverbials that are vowel-final, which we would initially expect to sanction flapping since the initial /d/ in the pronoun occurs in an intervocalic position, but is blocked from doing so also with the adverb *aldri* 'never'.

(70) a. *det er aldri deg* 'it is never you'

b. **det er aldri-ræ*

Per this data, the prosodic representation for *gjø-kke du*, the negator is reduced and cliticised onto the Lex host as a free clitic followed by the PPh boundary with the pronoun situated outside and must be prosodized as a PWd, and thus has to occur in its strong, stressed, and unreduced form, and depending on the whole utterance form a PPh.

(71) ((Lex)$_{PWd}$ Adv)$_{PPh}$ (fnc)$_{PWd}$

((*gjø*)$_{PWd}$ *kke*)$_{PPh}$ (*du*)$_{PWd}$

For a prosodic representation of (70), the adverbial *aldri* and *deg* must both be prosodized as a string of PWds dominated by a PPh, as per Exhaustivity.

5.6 Flapping in Prepositions

Up until this point, this analysis has chiefly been concerned with the flapping of /d/-initial Fncs. This has largely been due to the syllable restriction on the process, as well as the small group of /d/ that occurs intervocalically with such Fncs. Kristoffersen (2000) claims that there is no other case of an underlying /d/ that changes into /ɾ/ in an intervocalic position. Contrary to this statement, we find that the preposition *ned* 'down' may flap its final /d/ when followed by a vowel-initial word. To the extent of my knowledge, there are no other /d/-initial Fncs beyond the pronouns discussed in this chapter, with *ned* being the lone example of a /d/-final Fnc in Norwegian.

Taken from the *Nordic Dialect Corpus* (2009), we find the three most common forms of the preposition *ned* in Norwegian, listed in their surface forms followed by their frequency number. The corpus is a collection of over three million words recorded and transcribed from a variety of conversations and interviews of Norwegian, Swedish, Danish, Faroese, Icelandic, and Övdalian spoken language. Although there is a surplus of less common forms of *ned* recorded in the corpus, only the three forms listed below is of interest to flapping, as they are the ones related to UEN. When spoken in isolation, *ned* will be uttered with a /d/ in the coda (a., which also surfaces in a variety of structures), while the distribution of the two latter forms (b. and c.) depends on the phonological context.

(72) a. [nɛːd], 74 b. [nɛː], 1445 c. [nɛːɾ], 475

It is the latter form c. which is of special interest to this discussion of flapping in Norwegian. The preposition contrasts with the flappable pronouns, since the d/r-alternation now happens Fnc-finally, but the two shares two similar features: i. the flap can only occur when the final /d/ is in an intervocalic environment, ii. the flap only surfaces when an unstressed element is cliticised onto a host. If either *ned* or the following element is stressed, flapping becomes blocked due to the already established assumption that only function words elicit the flapping process.

In (73), all instances of the preposition are unstressed and followed by a preposition. Inspecting a. closer, we observer that the final /d/ in *ned* has not surfaced. This is not a peculiar phenomenon in Norwegian, as sequences of the voiced and voiceless alveolar stop /dt/ are not attested for in Norwegian phonotactic structures of obstruent + obstruent clusters (Kristoffersen, 2000:56) and simply surfaces as a single /t/. In b., we find that between the nucleus in *ned* and the single vowel in the preposition *I*, a tap has surfaced, indicating that *ned* is /d/-final. Otherwise, we would have to assume that the /ɾ/ is inserted post-lexically in the intervocalic position to mend some phonotactic constraint against a V.V sequence, which cannot be the case since utterance c. is well-formed and contains a sequence of [ɛ.i].

(73) a. [nɛ.tɛ.skugn] *ned til skogen* ‘down to forest.the’

b. [nɛɾ.i.bakn] *ned I bakken* ‘down in hill.the’

c. [nɛ.i.bakn]

There is an instance of an intervocalic /d/ word-internally in a Norwegian function word, i.e. the preposition *nedafor* ‘further down’. This word is an alternate pronunciation of *nedenfor*, but differs vitally in the fact that the /d/ is despite its orthography not intervocalic. The same is true for the similar Fnc *nedenom* [nɛːdnɔm], whose /d/ cannot flap either. Each of example a-c are well-formed, while it’s alternate pronunciation in e. and f. are marked ungrammatical because the /d/ is not intervocalic.

(74)

a. nedafor	b. nerafor	c. neafor
[nɛːdafɔɾ]	[nɛːɾafɔɾ]	[nɛːafɔɾ]
d. nedenfor	e. *nernfor	f. *ne’nfor

[nɛːdnfɔɾ] [nɛːɾnfɔɾ] [nɛːnfɔɾ]

The flapping in b., and the deleted /d/ in c., are possible since the stop appears in an unstressed syllable in an intervocalic position, and is therefore subject to the same processes and constraints as presented for the /d/-initial pronouns.

The disappearance, or deletion, of /d/ in Norwegian is a well-attested phenomenon that goes beyond that of prepositions. The historical /d/ which is oftentimes represented orthographically has an idiosyncratic distribution, as words like [døː] *død* 'death', has no final /d/, while it reappears in the definite form [døːdn] *døden* 'the death'. Similar processes are found in [tiː] *tid* 'time', [tiːdn] *tiden* 'the time'. The same patterns is assumed for words relating to *ned* in which the /d/ appears and reappears depending on the input.

5.7 Summary

This chapter has provided an overview of flapping in Norwegian, as well as optimality theoretic analyses that correctly predicted the alternation of which words that permitted and prevented flapping from occurring. From the data presented here, we can formulate a set of conditions that must be met in order for the flapping to occur. As was shown with /d/-initial words, we found that the flapping was a process that only targeted function items, and consistently ignored lexical ones regardless of syllable size, stress, category of speech, host, phonological environment, or syntactic structure. Flapping proved to be a feature related to weak, monosyllabic function words, but was later proven to be a feature of unstressed syllables in function words (condition a.). The underlying /d/ was also phonologically conditioned to appear intervocalically for the flapping to occur (condition b.). The data from flapping in prepositions showed how /d/ can interchangeably surface as /ɾ/ in other locations than initially in monosyllabic function words. On the contrary, we observed how the /d/-final *ned* flapped when followed by a vowel-initial word, and how the word-internal /d/ in *nedafor* could flap while its alternate form *nedenfor* could not. The final condition d. prohibits flapping form occurring post adverbially, as presented in section 5.5 on the negative adverb *ikke* and *aldri*.

(75) For flapping to occur, the underlying /d/ must be situated:

a. within an unstressed syllable in a function word

b. between two vowels

c. in a functional item not preceded by an adverbial

This chapter also identified the pronominal clitics in Norwegian to be prosodized as free clitics that attaches to the right edge of the preceding host. If the host in question is either vowel final or /ɾ/-final, then a weak and reduced clitic may attach to it, and /d/-initial pronominal clitics may either have its /d/ flapped or deleted, depending on the relative ranking of the speaker. The variation between the /d/- and /ɾ/-initial monosyllabic function word clitics was accounted for by a competition between the ranking of the segmental markedness constraint *VdV and the faithfulness constraint FAITH-IO, which depending on the ranking would yield each of the two alternating forms. We also applied Šurkalovic's (2015) analysis of the prosody of disyllabic Fnc to prove how Norwegian disyllabic Fncs would not permit flapping due to their PWd-status.

6 Conclusion

At the foundation for this thesis lies prosodic phonology as the medium through which we analysed the phonology-syntax interface issues related to flapping in Norwegian. As the study of suprasegmental phonology that governs the phonological processes that takes place above phonological segments that are mapped to syntactic constituents, *prosodic phonology* falls into the domain of the *indirect reference hypothesis*. Per this assumption on modularity, we assume that phonology has restricted access to syntactic information, but can apply phonological rules and changes to prosodic constituents as a medium through which syntactic structures are accessed.

The prosodic constituents in question is represented in the *prosodic hierarchy* (Selkirk, 1986), whose number of levels has been up for debate amongst researchers, although the existence and effects of the hierarchy itself is widely acknowledged. The hierarchy is governed by a set of constraints presented by Selkirk (ibid.), all of which ensures that the Strict Layer Hypothesis is respected. Other *optimality theoretic* constraints have been applied to the mapping of prosodic constituents, such as the generalized alignment constraints (McCarthy and Prince, 1993), later revised by Selkirk (1995). Relevant to the discussion on function words is constraints such as PWdCon, which when respected accounts for the surfacing of strong forms of function words, since the required head in the input would entail PWd-status. Other constraints such as the Lexical Category Condition (Truckenbrodt, 1999) forms part of the explanation as to the functional/lexical item distinction made by phonology. Other theories, like Match Theory (Selkirk, 1995) would provide an explanation for the different prosodizations of syntactic phrases in the Bantu language, Xitsonga based on differences in the input.

Prosodic phonology proved helpful to understand and explain the distinction between monosyllabic and polysyllabic function words. We found that a monosyllabic function word pronounced in isolation would always surface in its strong, unreduced, and stressed form due to the presence of a Ft, which entails through Headedness PWd-status. By examining the four possible representations for functional clitics (i.e. *free clitic, affixal clitic, internal clitic,* and the *prosodic word*), we followed Selkirk's (1995) deduction through constraints on prosodic structure that it would either be the free or affixal clitic that would suitably represent the English functional clitic. Neither representation was a perfect candidate, as the free clitic violates exhaustivity because the PPh does not immediately dominate a category *n*-1 in the prosodic

hierarchy, and the affixal clitic violates Nonrecursivity because there is a PWd immediately dominating another PWd.

The analysis also found that disyllabic Fncs would be prosodized as a PWd because the footing of the word would, through Headedness, require the Fnc to be stressed. Per Šurkalovic's (2015) analysis, a set of constraints including parsing constraints would sufficiently account for this prosodization, and correctly predict the prosodic structure of disyllabic Fncs having the status of a PWd.

The process of flapping in Norwegian which was only briefly touched upon in Kristoffersen's (2000) chapter on clitics proved to yield a wider distribution and a larger set of restrictions than Kristoffersen initially states. The alternation of the weak monosyllabic pronoun clitics in Norwegian could either surface as an unstressed [dʉ], flapped [ɾʉ], or a single vowel [ʉ], depending on the phonological context. The flapping only occurs when the underlying /d/ is in an intervocalic position in the input of a function word. As shown in chapter 5, lexical words never exhibit flapping in either stressed or unstressed syllables, a feature associated with its PWd status. If a /d/-initial pronoun becomes stressed or focussed, the flapping would become blocked. The flapped and full version of the pronoun occurs in free variation in spoken Norwegian, and this alternation was accounted for by the faithfulness constraints FAITH-FT, FAITH-IO, and the segmental markedness constraint *VdV. The relative ranking of the latter two constraints accounts for the surfacing of the two different forms.

Further flapping was found in prepositions which yielded assumption not yet covered by the previous literature on Norwegian clitics. That flapping occurs Fnc-finally in *ned,* as in *ner-i*, or Fnc-internally as in *nerafor* shows a broader application of the flapping process in Norwegian, contrary to Kristoffersen's (2000) statement that the only instance of a /d/ to /ɾ/ alternation was found initially in monosyllabic, weak pronouns. This shows that flapping may occur anywhere in a stressless syllable in an Fnc, i.e. Fnc-initially, Fnc-internally, and Fnc-final. Furthermore, the analysis presented found that flaps may not be applied to underlying /d/ if preceded by an adverbial, regardless of the Fncs stressless syllable having an intervocalic /d/. This phenomenon would perhaps require further phonology-syntax interaction analyses to account for why this is the case.

The evidence provided in this paper alludes to the assumption that flapping is not strictly sensitive to a distinction between functional and lexical items, but rather becomes a question of

the prosodization of the Fnc. If the Fnc is prosodized as having an unstressed syllable, and therefore crucially not prosodized as a PWd, flapping becomes possible provided that the underlying /d/ appears in an intervocalic position, either word-internally, or at a syllable border. Therefore, I assume that a central aspect to the phonological process of flapping in Norwegian function words becomes a matter of an Fnc/PWd distinction.

Works cited

Anttila, A. (2017) Stress, Phrasing, and Auxiliary Contraction in English, in: Gribanova, V., Shish, S.S., *The Morphosyntax-Phonology Connection.* Oxford University Press, pp. 143-170.

Broadbent, J. M. (2009) The *amn't gap: The view from West Yorkshire. *Journal of Linguistics*, 45(2): 251-284.

Chen, M. Y. (1987) The Syntax of Xiamen tone sandhi. *Phonology Yearbook*, 4: 109-149.

Cheng, L. L., Downing, L. J. (2016) Phasal Syntax = Cyclic Phonology?. *Syntax*, 19: 156-191.

Chomsky, N. (1965) *Aspects of the theory of syntax*. Cambridge, MA: MIT Press.

Chomsky, N. (2000) Minimalist Inquiries: The Framwork. In: Martin, D., Michaels, D., Uriagereka, J. (eds.) *Step by step: Essays on minimalist syntax in honor of Howard Lasnik.* Cambride: MIT Press, pp. 89-155.

Chomsky, N. (2001) Derivation by phase. In: Kenstowicz, M. (ed.) *Ken Hale. A Life in Language*. Cambridge: MIT Press, pp. 1-52.

Chomsky, N.; Halle, M. (1968) *The Sound Patterns of English*. New York: Harper and Row.

Fretheim, T. (1988) Den kontraherte negativpartikkelen: 'ke eller 'kke. *NLT*, 6: 73–88.

Hale, K.; Selkirk, E. (1987) Government and tonal phrasing in Papago. *Phonology Yearbook*, 4: 151-183.

Hayes, B. (1989) The prosodic hierarchy in meter. In: Kiparsky, P.; Youmans, G. (eds.) *Phonetics and Phonology. Rhythm and Meter*. New York: Academic Press, pp. 201-260.

Hudson, R. (2000) *I amn't. *Language*, 76: 297-323.

Ito, J.; Mester, A. (2007) *Categories and projections in prosodic structure*.
Handout of talk delivered at OCP4 [Old World Conference in Phonology]. Rhodes, Greece.

Ito, J., Mester, A. (2003) "The Extended Prosodic Word", in: Kabak, Baris, Grijzenhout, J. (2009) *Phonological Domains, Universals and Deviations.* Berlin: Mouton de Gruyter, pp. 135-194.

Katamba, F. (2005) *English Words, Structure, History, Usage.* (2nd ed.). Abingdon: Routledge.

Kaisse, E. M. (1985) *Connected speech: the interaction of syntax and phonology*. Orlando: Academic Press.

Kratzer, A.; Selkirk, E. (2007) Phase theory and the prosodic spellout, The case of verbs. *Linguistic Review* 24: 93-135.

Krause, T. B.; Slocum, J. (2019) *Old Norse Online*. The University of Texas at Austin. Available at: https://lrc.la.utexas.edu/eieol_toc/norol (Accessed: 07.05.2019)

Kristoffersen, G. (2000) *The Phonology of Norwegian*. Oxford: Oxford University Press.

Lieber, R. (2010) *Introducing Morphology.* Cambridge: Cambridge University Press.

Lindstad, Arne Martinus; Nøklestad, Anders; Johannessen, Janne Bondi; Vangsnes, Øystein Alexander. 2009. The Nordic Dialect Database: Mapping Microsyntactic Variation in the Scandinavian Languages. In Jokinen, Kristiina and Eckhard Bick (eds.): NEALT Proceedings Series;Volum 4. Available at: https://tekstlab.uio.no/nsd (Accessed: 01.05.2019).

Molde, A. K. (2005) *Innføringen av tjukk l of retroflekser i østlandsk – en empirisk avklaring og optimalitetsteoretisk analyse* (2nd ed.) Master thesis: University of Bergen. Available at: http://bora.uib.no/bitstream/handle/1956/1289/Masteroppgave-molde.pdf?sequence=1&isAllowed=y (Accessed 05.05.2019).

McCarthy, J.; Prince, A. (1993) Generalized alignment. *Yearbook of Morphology*, 12. Available at: https://scholarworks.umass.edu/linguist_faculty_pubs/12 (Accessed 16.04.2019)

Nespor, M.; Vogel, I. (1986) *Prosodic Phonology.* Dordrecht: Foris Publications.

Prince, A., Smolensky P. (1993) *Optimality Theory, Constraint Interaction in Generative Grammar*. Rutgers University Center for Cognitive Science Technical Report 2.

Selkirk, E. (1978) 'On Prosodic Structure and its Relation to Syntactic Structure' in: Fretheim, T. (ed.) (1981) *Nordic Prosody II.* Trondheim: Tapir, pp. 111-140.

Selkirk, E. (1986) On Derived Domains in Sentence Phonology. *Phonology Yearbook* , 3: 371-405.

Selkirk, E. (1995) 'The Prosodic Structure of Function Words' in: McCarthy, J. (2003) *Optimality Theory in Phonology: A Reader.* Hoboken: Blackwell Publishing.

Selkirk, E. (2009) On Clause and Intonational Phrase in Japanese: The Syntactic Grounding of Prosodic Constituent Structure. *Gengo Kenkyu*, 136: 35-73.

Selkirk, E. (2011) "The Syntax-Phonology Interface", in: Goldsmith, J., Riggle, J., Yu, A. (2011) *The Handbook of Phonological Theory* (2nd ed.). Hoboken: Blackwell Publishing. Available at: https://people.umass.edu/selkirk/pdf/Selkirk%202011%20TSPI.pdf (accessed: 17.03.2019).

Šurkalovic, D. (2007) *Function Words at the Discourse-Prosody Interface*. MPhil Thesis, University of Tromsø.

Šurkalovic, D. (2015) *The No-Reference Hypothesis, A Modular Approach to the Syntax-Phonology Interface.* PhD, University of Tromsø.

Truckenbrodt, H. (1999) On the Relation between Syntactic Phrases and Phonological Phrases. *Linguistic Inquiry*, 2: 219-255.

Truckenbrodt, H. (2006) "The Syntax Phonology Interface", in: de Lacy, P. (ed), *The Cambridge Handbook of Phonology.* Cambridge: Cambridge University Press, pp. 435-456.

Vakareliyska, C. (1994) Na-drop in Bulgarian. *Journal of Slavic Linguistics,* 2(1): 121-150.

Zsiga, E. (2013) *The Sounds of Language.* Hoboken: Blackwell Publishing.