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# The Construct State in Tarifit Berber☆

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**Abstract**

This paper investigates the Construct State (CS) in Tarifit Berber. Given that the phenomenon occurs only in certain syntactic environments, this suggests that it has syntactic ramifications and is not the result of purely phonological operations. Its exact nature is argued to be a language-specific property which arises from a syntactic relation between an NP and a higher c-commanding head. Crucial to this relation is the fact the CS triggering head can only be T or P.

The paper also investigates the phonological implications of the CS. After the configuration is formed in the Syntax and sent for interpretation by the phonological component, it is suggested that the CS NP and its c-commanding head are spelt out in phonology as one phonological word.

On a theoretical level, the paper argues that this typology can be better articulated under a modular approach in the sense of Distributed Morphology whereby the phonological component interprets the syntactic output.


*Keywords:* Tarifit Berber; Construct State; Distributed Morphology; Phonological word

## 1. Introduction

The Berber Construct State (CS) is a type of marking which affects the initial vowel of nouns, as can be seen from the bold-faced prefix in (1), while the Free State (FS) is the unmarked/neutral form (2). The phenomenon is also referred to by French Berberists, who were among the first to touch on the grammar of the language, as *état d'annexion* (bound form) versus *état libre* (citation form).[1]

(1) i-ʃʃa **u**-qzin
3M.SG-eat.PERF **CS**-dog
'The dog ate.'

☆ The exact variety investigated in this paper is ðarifiθ Berber spoken around the province of Alhoceima in the Rif area, located in Northern Morocco. I will be using the term 'Berber' throughout the paper to refer to this specific variety. If I discuss another Berber variety, I will refer to it accordingly.

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[1] The IPA system is used for the representation of the Berber data. The following abbreviations are used for glossing the data: 1, 2, 3 are used for first, second and third person, respectively; ACC = accusative; COMP = complementiser; CS = Construct State; cop = copula; DAT = dative; DEM = demonstrative; F = feminine; FUT = future; IMPERF = imperfective; M = masculine; NEG = negation; PART = participle; PERF = perfective; PL = plural; POSS = possessive; SG = singular.

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(2) i-zra a-qzin
3M.SG-see.PERF SG-dog
'He saw dog.'

CS was subject to some treatment in the Berber linguistic literature. Three different approaches emerge from these works: (1) an approach which simply describes the phenomenon with no specific claim (Ouhalla, 1988; Cadi, 1987, 1990; El Moujahid, 1997), (2) an approach which associates CS with the DP, claiming that the CS marker is a D-head (Guerssel, 1987, 1992; Ennaji, 2001) and (3) another approach which claims it to be a manifestation of Case morphology (Prasse, 1973; Bader and Kenstowicz, 1987; Ouhalla, 1996). It should be pointed out though that a general consensus is still found among these works in that the CS phenomenon is argued to be syntactic, since the marking on the noun arises from specific syntactic configurations.

While this paper does share the view that CS is indeed syntactic, the claims which associate it with the DP and Case are disputed. Alternatively, it is proposed that CS has to do with syntactic constituency. More specifically, the phenomenon is simply a language-specific property which arises when the NP is immediately c-commanded by a higher head.[2] Crucial to this syntactic relation is that the CS head can only be T or P but cannot be extended to any other heads.[3] When the configuration is formed in the syntax and sent for interpretation by the phonological component, I argue that the two syntactic nodes are spelt out as one phonological word. This typology is better articulated if the architecture of grammar is viewed from a Distributed Morphology (DM) perspective (Halle and Marantz, 1993; Marantz, 1997; Harley and Noyer, 1998; Embick and Noyer, 2001, etc.), in which narrow syntax consumes formal syntactic features, only while their phonological form is inserted post-syntactically. Further evidence that CS is syntactic comes from the fact that it is not sensitive to the presence of adjuncts.

The paper takes the analysis a step further by paying particular attention to the morphosyntactic structure of the NP and its interaction with the CS. Granting that nouns in Berber have a complex structure formed in the syntax, which consist of a categoryless root and a functional category defining head, the analysis reveals some interesting constraints imposed on this marking within the structure of the NP. I show that CS is always associated with the functional category of the noun but cannot be marked on the lexical root.[4] On the basis of these facts, a formal unified generalisation which captures the phenomenon under investigation is then proposed.

This paper is organised as follows. 'section 2' discusses the syntactic environments which trigger the CS on the NP. 'section 3' reviews and evaluates some literature undertaken on the topic. 'section 4' proposes a unified syntactic account of the CS phenomenon. 'section 5' examines the status of adjuncts within the CS configuration. 'section 6' looks at some morphosyntactic and semantic implications relevant to the topic under investigation. 'section 7' deals with the CS at the PF interface. 'section 8' sums up the paper with some concluding remarks.

## 2. The Construct State: environments

The view that the CS arises from some specific syntactic configurations finds unanimous support in the Berber linguistic literature (see references provided in the previous section). The environments which trigger the CS marking on the noun generally apply to most dialects. These are: (1) the post verbal subject and (2) the NP – complement of a preposition.

### *2.1. Post-verbal subject*

The relevance of CS to the syntax comes mainly from word order. When the subject is post-verbal (VSO) it is in the CS as in (3), when it is preverbal (SVO) that subject is in the FS as in (4). The object is always in the FS, including cases when the lexical subject is pro as in (5):

(3) i-aza (=/jaza/) **u**-mzir ð-a-fðiz-θ
3M.SG-break.PERF **cs**-blacksmith F-SG-hammer-F
'The blacksmith broke the hammer.'

[2] The CS head is also referred to as the 'Construct governor' (Ouhalla, 1988).

[3] While this is true for Tarifit, some parametric variations may arise between other Berber varieties. In Taqbaylit Berber, spoken in Northern Algeria, the object clitic can also act as a Construct-marker of the lexical NP in the doubling situation (Guerssel, 1992; Bendjaballah and Haiden, 2008, 2013).

[4] I am using here the 'lexical root' in the sense of Distributed Morphology, which is a categoryless item. For the root to be a word/noun, it needs to combine with a functional category- defining head. See 'section 6' for details.

(4) a-mzir i-aza (=/jaza/) ð-afðiz-θ
SG-blacksmith 3M.SG-break.PERF F-SG-hammer-F
'The blacksmith broke the hammer.'

(5) i-aza (=/jaza/) ð-a-fðiz-θ
3M.SG-break.PERF F-SG-hammer-F
'He broke the hammer.'

### 2.2. Complement of a preposition

All prepositions in Berber mark the NP they select for CS.[5] So, in any PP where the noun is governed by a P-head, that noun must be in CS (6–8). The prepositions and the CS marking on the noun are bold-faced for convenience. A note is in order to inform the reader that [w] and [u] are positional variants of the CS morpheme. The CS allomorphy is addressed in greater details in 'section 7.1'.

(6) ð-əqqim **ag-** **w**-uma-s
3F.SG-sit.PERF with **cs**-brother-3M.POSS
'She sat with her brother.'

(7) ð-əg$^{w}$θi-θ **s-** ð-**ə**-sʁws-θ
3F.SG-hit.PERF-3M.SG.ACC with F-**cs**-broom-F
'She hit him with a broom.'

(8) n-qim **x-** **u**-ʒaθir
1PL-sit.PERF on **cs**-carpet
'We sat on the carpet.'

It is also worth noting that semantics bears no relevance to the phenomenon under investigation. This can be seen from constructions that may be interpreted as idiomatic expressions as in (9). The meaning of such sentences, idiomatic or literal, has no effect on the marking in that the NP is always marked for CS when the required syntactic environments are met. Sentence (9), which has an idiomatic meaning, consists of a post-verbal subject and a complement which is a PP. So, the first NP is marked for CS since it is the subject and the second NP is also marked for CS since it is the complement of a preposition.

(9) i-nʒʒar **u**-mʃum-a x- **u**-fuð ins
3M.SG-carve.IMPERF **cs**-stupid-DEM. on **cs**-knee 3SG.POSS
'That idiot is looking for trouble (lit. that idiot is carving on his knee).'

### 2.3. Free State

What is referred to as the FS is the neutral unmarked form of the NP. So, it is expected that the noun is always in FS when used outside the CS environments discussed above. The FS environments discussed in this section are not exhaustive but relevant insofar as they provide us with a better understanding of the syntactic implications of the CS. For instance, nominal adjectives are always in the FS despite the fact that they display identical morphology to the nouns they modify (10–11).[6] Adjectives are also NPs but the reason why they cannot be marked for CS is due to the fact that they are in a modifying position. This is additional evidence that CS is sensitive to the syntactic property of the elements involved and not to their surface form.[7]

[5] Tamazight appears to be an exception (Guerssel, 1992). Guerssel argues that there are two prepositions in that variety which do not mark their NPs for CS. This claim leads him to argue that these elements are the genuine prepositions, whereas the ones that mark their NP for CS are Case markers. This hypothesis is reviewed in the next section.

[6] Berber does not have adjectives as an independent word class (Guerssel, 1986a,b; Ouhalla, 1988; El Hankari, 2010). The notion of 'adjective' like the one found in English in the predicate use, 'be__', is a stative verb in Berber. This element becomes a nominal modifier in the attributive case, which agrees with its noun – head in number and gender. In this paper, I will keep using 'adjective' but only as a cover term to refer to these nominal adjuncts.

[7] What makes these nominal adjuncts different from nouns they modify is that they cannot stand alone in the clause but always dependent on the noun. This suggests that they do not inflect for number and gender independently but these features are rather copied onto these adjuncts from the head (i.e. noun).

(10) ð-zra a-qzin a-ʃmrar
3F.SG-see.PERF SG-dog SG-white
'She saw the white dog.'

(11) i-zri-t **u**-qzin a-ʃmrar
3M.SG-see.PERF-3.F.SG.ACC **cs**-dog SG-white
'The white dog saw her.'

What makes adjectives display identical morphology to the nouns they modify is that they always agree with their head in number and gender. In (11), the object of the verb is in the masculine – singular form and its adjective is also marked accordingly. If the CS is analysed as a nominal feature since it is associated with nouns, the question then would be whether adjectives agree with nouns in CS. In (11), the adjective agrees with the post-verbal subject in number and gender only but does not agree with it in CS. Note that the root used as an adjective in (11) can also function as a noun, as in (12)[8]:

(12) i-zri-t **u**-ʃmrar
3M.SG-see.PERF-3F.SG.acc CS-white
'White saw her.'

On the assumption that the nominal root in (12) is a surname/nickname of an individual, this element now acquires a full argument status becoming the subject of the verb and is subsequently marked for CS, like any other noun. This further suggests that CS is sensitive to syntactic hierarchical information. Note that Berber also has predicate nominal, which consists of a functional nominal morpheme/head selecting the NP as its complement. That functional head however does not mark the NP it selects for CS. The syntactic property and the reason why the nominal morpheme does not mark the noun it selects for CS are discussed in 'section 4.3'.

## 3. Three major approaches to the Construct State

As pointed out in 'section 1', three major camps can be identified when surveying the broad literature on the Berber CS. The first camp, which is possibly more dominant, simply describes the phenomenon with no major claim. The second associates the CS with the DP, by arguing that the CS morpheme is an article of some sort occupying D. The third camp argues CS to be a manifestation of Case marking (see 'section 1' for the references representing each camp). This section examines the last two approaches, in addition to another approach which may be a middle ground between the two claims proposed by Ennaji (2001).

### *3.1. The DP hypothesis*

The underlying claim which lies at the heart of this approach has to do with prepositions in Tamazight. Guerssel (1987, 1992) claims that there are two prepositions in that variety which do not mark their NP for CS: *al* 'to' and *bla* 'without'. According to him, these functional elements are the genuine prepositions whereas the ones that mark their NPs for CS are analysed as Case markers. This distinction between the two sets of prepositions yields two different syntactic structures as in (13–14). In (13), the preposition which does not Construct-mark its NP is the head of the PP. The unmarked form of the NP, which the preposition selects, is associated with the absolutive (covert) Case and therefore has a Kase Phrase (KP) projection. Conversely, the KP projection is associated with prepositions that mark their NPs for CS, since they are analysed as Case markers (14). KP as the highest projection in (14) headed by *gherl* 'to' then selects a DP whose head is the CS morpheme. In this sense, prepositions that do not Construct-mark their NP are PPs selecting a KP and their head is covert. On the other hand, prepositions that Construct-mark their NP are KPs selecting a DP whose head is spelt out by the CS morpheme.[9]

(13) [$_{PP}$ al [$_{KP}$ ajdir]] al ajdir 'up to the cliff'

(14) [$_{KP}$ gherl [$_{DP}$ wjdir]] gherl wjdir 'to the cliff'

Guerssel (1992:179)

[8] An anonymous Lingua reviewer raised the question as to whether Berber allows adjectives modifying a phonetically null noun. Berber, and more specifically Tarifit, does not allow this option. The fact that the nominal root in (12) is marked for CS suggests that it is the only noun present in the sentence and that there is no other elided (or phonetically deleted) noun in the structure other than the one which is overtly used and subsequently marked for CS. In other words, the nominal element which is marked for CS cannot be an adjective.

[9] The hypothesis that CS is a DP may be independent of the existence of a KP but Guerssel still establishes a connection between the two to reject the existence of CS as an independent morphosyntactic phenomenon.

While the argument which associates the prepositions that Construct-mark their NPs with Case morphology is not supported by Tarifit facts, as I show later, the preposition system of Tarifit does bear strong similarities to its Tamazight counterpart. For instance, all the prepositions which mark their NP for CS, and referred to by Guerssel as Case markers, are also found in Tarifit. This includes: (ʁ)*a(r)*- 'allative/to', *ag-/ak*- 'comitative/with', *gi*- 'inessive/in', *i*- 'benefactive/for', *n*- 'genitive/of', *s*- 'instrumental/with', *zi(g)*- 'ablative/from', *z*- 'comparative/from' and *x*- 'locative/superessive/on'. This is generally the full list of prepositions that are found in Tarifit (El Hankari, 2010).[10] From the list of prepositions, however, the allative *a*- which is found in Tamazight as *al*- is a CS marker in Tarifit (15), unlike Tamazight.[11]

(15) uma-s i-uɣur (=/juɣur/) a- **u**-ʁza (= /wəʁza/)
brother-3.SG.POSS 3M.SG-go.PERF to **cs**-river
'Her brother went to the river.'

Another problem with analysing prepositions, which Construct-mark their NPs, as Case markers has to do with the distribution of these elements. If Case markers are nominal inflections which identify the grammatical function of the noun in relation to other parts of the clause, it is expected that these inflections should remain with the NP regardless. This is not supported by the facts since nouns can be separated from what Guerssel refers to as Case markers. If we assume, that the preposition below in (16) is the benefactive/dative Case morpheme of the NP, that marker should be maintained if the NP undergoes movement. This possibility cannot work since the NP can be extracted alone while the dative preposition is stranded lower selecting the Wh- XP as in (17).[12]

(16) ð-dʒəf i- w-argaz ins
3f.SG-divorce.PERF DAT CS-man 3SG.POSS
'She divorced her husband.'

(17) argaz ins i- mmi ð-dʒəf
man 3SG.POSS DAT WH 3F.SG-divorce.PERF
'The husband whom she divorced.'

As for the second element (*bla* 'without') which Guerssel analyses as a genuine preposition, since it is not a CS marker, that element is also found in Tarifit and behaves similar to Tamazight in that it does not mark its NP for CS, together with *qbər* 'before'. These two words are borrowed from Moroccan Arabic. However, analysing these elements as prepositions at least in Tarifit would be questionable for a number of reasons. For instance, *bra* (18) and *qbər* (19) appear to modify a verbal clause. If this is true, this would raise the question as to whether they are intransitive PPs with an adverbial function, as an anonymous Lingua reviewer points out. The adverbial hypothesis may not be supported either. First, the distribution of *bra* and *qbər* in the clause is fixed whereas adverbial elements including PPs are quite mobile, similar to other languages like English. They can mainly occur in clause-initial, clause-final or following the verb (see (47–49) in 'section 5' for a discussion of the distribution of adverbial PPs)). Another, possibly stronger, evidence which casts doubt on the adverbial status of the two elements is that they appear to require particular tense/aspect for the clause they select. They can only select a clause with a future tense. Other common tense/aspect forms, like the perfective (or the imperfective), make the clause ungrammatical (20–21). The fact that these elements appear to control the tense of the verbal clause, together with their fixed position, suggest that they are more likely to be complementisers rather than adverbs or prepositions. This typology is consistent with Taqbaylit Berber. Bendjaballah and Haiden (2013) discuss the status of the same elements in that dialect and reach the same conclusion based on similar evidence.

(18) **bra** ma að- ð-za-ð (=/atzað/)
**NEG** COMP FUT 2SG-see-2SG
'You don't/there is no need to see him.'

[10] Other elements which may be interpreted in English as prepositions such as 'before', 'behind', 'inside' etc. are realised in Berber as nouns, which are themselves, selected by a preposition and may also select another preposition: *a- ðaθ* 'to front$_{CS}$', *z- ð-ə-xamin* 'from. F-CS-behind', *z- ðixər* 'from- inside$_{CS}$', etc. Some of these nouns can also select a PP headed by *n*- 'of': *ðixamin n- u-ðra* 'F.behind of- CS-mountain', *a-ðixər n- u-xxam* 'SG-inside of. CS-room', etc. Evidence that elements like 'before', 'behind', 'inside' are nouns is that they inflect for number and gender in the usual fashion and are also marked for CS by the preposition that selects them.

[11] Diachronically, the /l/ found in other Berber varieties is generally rhoticised in Tarifit but the rhotic /r/ is then vocalised following a vowel, similar to English. This explains the difference in form with respect to the allative preposition between the Tamazight *al*- and the Tarifit *a*-. For a detailed account on the rhoticisation phenomenon in Tarifit, see Dell and Tangi (1993).

[12] Bendjaballah and Haiden (2013) provide similar and other additional robust evidence from Taqbaylit against analysing prepositions as Case markers.

(19) qbər að- ð-za-ð (=/atzað/)
before FUT 2SG-see-2SG
'Before you see him.'

(20) *qbər ð-zri-t
before 2SG-see.PERF-2SG
'Before you saw him.'

(21) ***bra** ma ð-zri-t
without COMP 2SG-see.PERF-2SG

### 3.2. Construct State versus Case

While classical studies of Berber linguistics generally maintain that the language has no Case morphology, Ouhalla (1996) claims that CS is a manifestation of genitive Case which applies to both nominal and verbal clauses, due to a parallelism he establishes between VSO and NSO clauses. This leads him to make the strong and unusual claim that Berber has an ergative Case system whereas the language is traditionally known to have a nominative–accusative Case system. Ouhalla proposes a double-layered verbal structure with two functional projections between VP and IP as in (22):

(22) [IP $e_{NOM}$ I($Agr_{NOM}$+Tns) [AgrP $DP_{GEN}$ $Agr_{GEN}$ [VP V...

Ouhalla (1996:289)

The structure consists of An AGR genitive projection above VP and a higher AGR nominative projection above it. The subject in a basic declarative clause occupies Spec,$Agr_{gen}$ but the same element occupies Spec,$AGR_{NOM}$ when that subject is extracted.[13] So, the usual agreement marking on the verb belongs to the ergative paradigm whereas the invariable agreement participle, associated with the extracted subject, belongs to the nominative paradigm. Ouhalla provides some arguments in support of his claim, the details of which will not be discussed here since the analysis in my view was based on some misunderstanding of the data. First, Berber is known to have prepositions as substitutes for overt Case morphology, including genitive which is expressed using the preposition *n-* 'of'. However, instances like (23) below appear to suggest that it is the first NP which marks its complement (i.e. the second NP) for CS/genitive Case. It is this specific case which led Ouhalla to suggest that the second NP is marked for genitive Case by the first higher NP, which he then extends to the verbal clause by establishing a parallelism between nominal (NSO) and verbal sentences (VSO).

(23) a-mzzuʁ **u**-funas
SG-ear **CS**-cow
'The bull's ear.'

The non-overt realisation of *n-* 'of' can be accounted for phonologically, it is deleted when the following noun begins with a vowel. Evidence in support of the preposition being present in the syntax comes from the fact that the same element reappears when the noun is feminine or begins with a consonant as in (24). Note that Ouhalla does not discuss instances like these where the preposition is required. So, it is not clear how his analysis would handle a sentence like (24) which clearly shows the second NP is marked for Case by the preposition and not by the higher NP. Ennaji (2001) attempts to address the surface difference between (23–24) by proposing two different syntactic structures, this is examined in the next section. The deletion of *n-* 'of' as being phonologically motivated is supported by the fact that the preposition is maintained with all nouns that begin with a consonant, including the ones that have

[13] While subject-agreement is always required on the verb (i), the extraction of the subject higher in the clause makes the verb loses this agreement. The verb then defaults to an invariable agreement referred to as anti-agreement (Ouhalla, 1993, 2005; Ouali, 2011), represented with the affixes '*i-*, *-n*' as in (ii):

i. i-ʃʃa u-mʃiʃ i-srma-n
3M.SG-eat.PERF. CS-cat PL-fish-PL
'The cat ate fish.'

ii. a-mʃiʃ ig- **i-**ʃʃi-**n** i-srma-n
SG-cat COMP 3M.SG-eat.PART PL-fish-PL
'The cat that ate fish.'

this sound as part of the root. This indeed is an indication that the deletion/presence of *n-* 'of' is phonological and therefore has no morphosyntactic motivation.[14]

(24) a-mzzuʁ n- ð-ə-funas-θ
SG-ear of F-CS-cow-F
'The cow's ear.'

Importantly, Ouhalla also argues that the subject is marked for CS when moved or extracted to the CP domain. This is not necessarily true in Tarifit, in that the subject loses the CS marking when extracted as in (25). This is also supported by Taqblaylit in (26), where the topicalised subject in SVO loses its Construct-marking. This behaviour weakens even more the claim that associates CS with Case. In fact, this is one of the properties, which makes the CS in Berber interesting and also difficult to characterise since it is sensitive to the movement of chains, unlike Case. If CS is to be analysed as Case, the NP will be expected to maintain its marking regardless of whether it is in situ or moved to a non-argument position. This includes WH- extractions and also the topicalised subject in SVO. This prediction is not borne out by the facts.[15]

(25) man **a**-rgaz n- [i-s ʁi-n ð-addar-θ]?
which **SG**-man COMP. 3M.SG-buy-PART F-house-F
'Which man bought the house?'

(26) argaz-aki jə-ttʃa
man.FS-DEM 3MS.eat.PF
'This man ate.'

Bendjaballah and Haiden (2013:335)

Another argument against analysing CS as Case morphology comes from the interesting behaviour of the CS in Taqbaylit Berber. The common environments which trigger the CS on the noun discussed earlier also apply to Taqbaylit, including the subject in VSO. So, the NP remains in FS when it is the object as in (27). When doubled, however, that object interestingly gets marked for CS as in (28). If CS was to be analysed as Case according to this typology, the subject (in VSO) and the object in (28) would be marked for the same Case. Note that this issue was also raised by Guerssel (1987, 1992) who argued against analysing CS as Case morphology.

(27) jə- -ttʃa **a**çsum -ənni
3MS eat.PF meat.**FS** dem
'He ate that meat.'

(28) jə- -ttʃa -θ wəçsum -ənni
3MS eat.PF DO:3MS meat.**CS** DEM
'He ate that meat.'

Bendjaballah and Heiden (2008:31)

### 3.3. The double-DP layer and the genitive Case

Ennaji (2001) takes a somewhat reconciliatory approach between the genitive Case analysis proposed by Ouhalla and the DP hypothesis put forward by Guerssel. He first notes the issue having to do with the co/overt realisation of *n-* 'of', which he attributes to the syntax. Ennaji argues that the co/overt realisation of the preposition yields two different structures, as can be seen below from (30) and (32), respectively (I am using the strikethrough line to indicate the absence of the preposition). Cases, which do not make use of the overt preposition like (29) have the structure in (30). The two NPs have an underlying

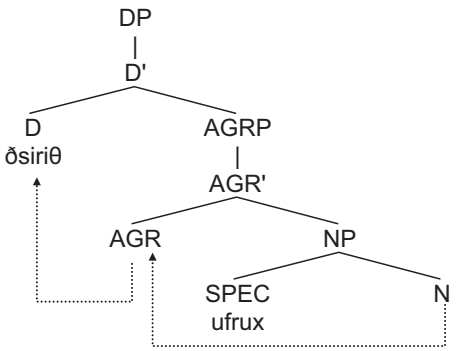
[14] The deletion of the preposition *n-* 'of' is due to an assimilation process which vocalises it with the following vowel. There appears to be some cross-linguistic variations among Berber varieties. For instance, Taqbaylit, realises this process as: /n + w/ → pp$^{w}$ (Bendjaballah and Haiden, 2013). In the variety under investigation, the vocalisation of the preposition applies only when followed by a vowel. However, a possibility is also found, but less common (casual speech): /w + noun/, as an alternative to /u + noun/. It appears that the glide may be inserted in that case to compensate for the deletion of the preposition/consonant, which would be a requirement for the syllable to have an onset (Dell and Tangi, 1992). All prepositions that are formed by a single consonant occupy the onset of the first syllable of their complement NP. When *n-* 'of' is deleted the syllable remains onsetless, which may explain the insertion of /w/. More on this in 'section 7.2'.

[15] In a study which aims to investigate some phonological aspects of Taqbaylit Berber, Bader and Kenstowicz (1987) argue that CS is a manifestation of oblique Case. The claim was based on the fact that all prepositions assign oblique Case to their complement – NP. If this claim is right, this will also imply that the post-verbal subject should be marked for oblique Case. It is not clear how this could be possible and why the subject should bear such marking. The authors did try to address this question by providing some data in support of their claim, which I cannot discuss here since the sentences used are ungrammatical in Tarifit.

representation where the possessum is the head of the NP whereas the possessor is in its specifier. The NP then projects to an AGRP and a DP. The possessum moves to check the genitive Case under AGR and then proceeds to D. This claim is similar to Ouhalla's in that it is based on the assumption that cases which do not have the preposition at the surface imply that this preposition is not present in the syntax either. So, a functional projection above the NP in (30) is the only way for the genitive Case to be checked. As for cases like (31) where the preposition is required, these have two DPs according to Ennaji as can be seen from the structure in (32). The lower DP has the possessor as the head of the NP and a determiner which occupies D.[16] As for the higher DP, that projection is occupied by the possessum which is under D. Given that the possessor is a DP, it cannot be marked for genitive Case by the higher NP due to the intervening (lower) D occupied by *l-*. As a result, the preposition *n-* 'of' is inserted to account for the genitive Case. The analysis also predicts that the feminine marker should occupy D if the noun is feminine, similar to Guerssel's, in that the morpheme is analysed as a definite article.

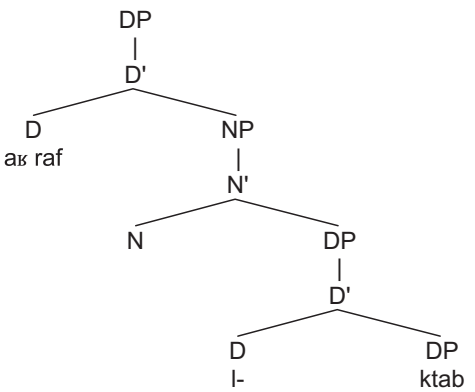
(29) ð-siri-θ ~~n~~ u-frux
F-shoe-F ~~of~~ CS-boy
'The boy's shoe.'

(30)




(31) a-ʁraf n lktab
SG-cover of book
'The book's cover.'

(32)




While the analysis looks at the CS, it puts more emphasis on the syntactic relations rather than the actual marking. For instance, the analysis offers no account as to why the noun *ufrux* 'boy' in Spec,DP in (29) is in the CS and subsequently marked for *u-*. Ennaji concedes that ''. . .the formation of the CS in Berber is perhaps phonological, but it is unclear to what extent phonology and syntax interact. The genitive preposition *n-* is presumably omitted at PF for phonological reasons that are beyond the scope of this paper.'' Ennaji (2001:56–57). In my proposed analysis, I will show and defend the claim with further empirical evidence that the CS is a purely syntactic issue and cannot be phonological as Ennaji suggests. The

[16] The prefix *l-*, occupying D in (32), is borrowed from Moroccan Arabic and used in that language as a definite marker. The same marker is also found in standard Arabic as *al-*. Ennaji argues that the morphosyntactic property of that article is maintained in Tamazight. This claim will be evaluated in the context of Tarifit immediately after laying out Ennaji's analysis.

question as to how syntax and phonology interact, which Ennaji leaves open, is an important one. I show in 'section 7.2' how this relationship can be better articulated in the proposed framework.

As for the idea of postulating two DPs for a structure like (32), this is due to the presence of *l-* which Ennaji analyses as a definite article in Tamazight. This element is also used in Tarifit with some borrowed nouns from Arabic. While the article is [+DEFINITE] in Arabic, this property is not maintained with borrowed nouns in Tarifit in that the *l-* becomes grammatically frozen and therefore part of the root. So, it cannot be analysed as D since the element is not a morpheme anymore. Furthermore, the analysis predicts that all nouns with a consonant initial should project into a lower DP. If the insertion of *n-* 'of' applies whenever a noun starts with a consonant indiscriminately (regardless of whether the consonant is feminine or part of the root), the evidence for postulating a lower DP disappears in that all consonants which trigger the insertion of the preposition are part of the root, except for feminine, and these consonants have no reason to be under D.

## 4. The analysis

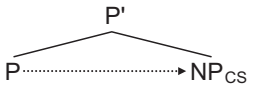
The main objective of this section is to, first, show that the CS is a language-specific phenomenon that arises from a particular syntactic relation, which involves two functional heads: T (-ense) and P. So, the NP is marked for CS by T when it is the subject in VS(O) and marked by P when it is its complement in a PP projection. Outside these environments, the NP takes the unmarked/neutral form which is then interpreted as the FS. In 'section 4.3', further empirical evidence is provided in support of the claim that the property of a CS head is exclusive to P and T. This includes a functional element which is often analysed in the Berber linguistic literature as a coordinator (*ð-* 'and') and some other elements which are not often discussed in the literature. Before looking at these issues, and to get a much clearer picture about this structural relation, the CS and the FS configurations are formally identified next.

### *4.1. Construct State*

Following our previous discussion of the phenomenon, it was shown that the NP gets marked for CS when it is the complement of a preposition or the post-verbal subject. The first configuration in (33) involves a structural relation between a P head and its complement NP and the second in (34) involves a relation between T and the subject in Spec,VP. The result of this relation yields the CS marking on the NP.

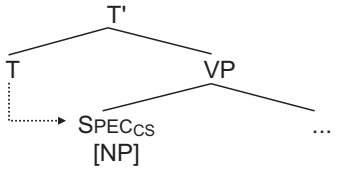
(33)

$[_{P'}$ P [NP]]:




(34)

$[_{T'}$ T $[_{VP}$ SPEC-NP]]:



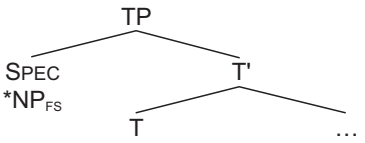

It is also worth noting that despite the surface differences between (33) and (34), the two configurations are still similar in that the position of the NP in both cases is in a structural relation with an immediately c-commanding head.

### *4.2. Free State*

The environments where the noun is in the FS are three. First, it is found in the verbal clause in which the subject is in the pre-verbal position (SVO) as in (35). On the assumption that the subject is in Spec,TP, that NP loses its marking once moved there and is always in the FS.[17]

(35)

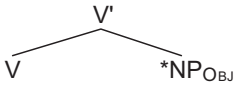
$[_{TP}$ SPEC-TP$[_{T'}$ T]]:




[17] See El Hankari (2010) for a detailed study of the word order of Tarifit where he argues that the topicalised subject in SVO is in Spec,TP, rather than in some higher functional topic position. Fassi-Fehri (1993) also argues that the subject in SVO in Standard Arabic is in Spec, TP.

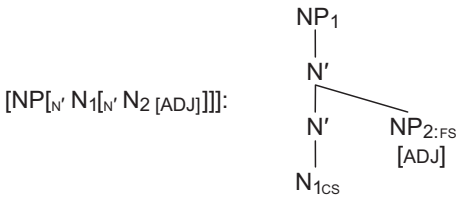
The second environment has to do with the configuration involving the verb and its object (36). Despite the fact that the verb c-commands the object, it does not mark it for CS. This is predicted by the proposed hypothesis. If only T is a CS marker in a verbal clause, the fact that the object is in the FS will be expected since the c-commanding head is V.

(36)




The third environment is concerned with adjectives which are nominal modifiers as discussed earlier. Although the morphology of these nominals is identical to the nouns they modify, they cannot be marked for CS. Assuming that (37) below is the extension of the constituent which projects the post-verbal subject in Spec,VP seen in (34), with an additional nominal modifier following the NP – head, the real argument – subject which I represent in (37) as $NP_1$ gets marked for CS while its modifier ($NP_2$) that follows remains in FS.

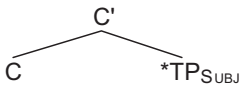
(37)




*4.3. The CS as a C-command relation*

Now that the environments, which trigger the CS on the NP and the ones that do not are formally identified, these tructures clearly suggest that this syntactic relation holds only when the CS head is P or T. Although the structures discussed above in (33–34) look somewhat different on the surface, a close examination of the two configurations suggests that they are syntactically similar, in that both heads involve P and T which immediately c-command and subsequently mark their NP for CS. Evidence in support of the claim that the CS is exclusive to T and P can be seen from other cases such as the preverbal subject in the clause in SV(O), which remains in FS. On the assumption that the verbal clause projects a CP above TP, regardless of whether this projection is overtly filled or not, C should then c-command the preverbal subject in Spec,TP but it does not mark it for CS, as seen in (35). A similar structure is repeated as in (38).[18] If the CS marking is exclusive to P and T, the fact that C does not mark the subject for CS in Spec,TP would be expected. This clearly suggests that this language-specific phenomenon is sensitive to a head that is P or T, but cannot be extended to other heads.

(38)



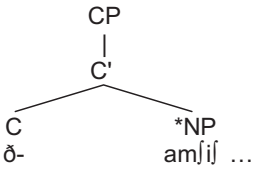

Identifying the exact heads that trigger the CS on the NP may also explain the Construct-marking discrepancy found with some other elements, in that some mark their NPs for CS whereas others do not. Consider the nominal copula *ð-* in (39) below, which always selects an NP but does not mark it for CS. This functional element is used to mark its NP for contrastive focus. In the data below, its presence as a prefix to the noun implies that 'it is the cat that ate the meat, not the dog'. If we assume that discourse features like focus project in the CP domain as in (40), and granting that the head which encodes this feature is the nominal copula under C, its failure to mark the NP for CS would then be expected, since the head in this case is C, not P or T. In fact, the structure in (40) would be similar to (38) above in that the configuration still involves a syntactic relation between an NP and a higher c-commanding head that is C. Cases like the nominal copula and also the complementiser are often reported in the Berber linguistic literature as non-CS markers but no clear argument is provided to justify their inability to Construct-mark their NP. If CS is exclusive to P and T, as argued in the paper, other heads that do not fall within this category would be ruled out naturally.

[18] C as a non-CS marker applies regardless of whether that position is overt or covert. In an embedded clause like (i) below, the presence of the complementiser *qa* 'that' has no effect on CS in that the preverbal subject which is c-commanded by C, is always in FS:

i. i-nna-aj qa ð-a-mʁar-θ ins ð-uɣur
3M.SG-tell.PERF-1SG.ACC COMP F-SG-woman-f 3M.SG.POSS 3F.SG-go.PERF
'He told me that his wife left.'

(39) ð- a-mʃiʃ ig- i-ʃʃi-n a-çsum
**Cop** sg-cat Comp 3m.sg-eat.part sg-meat
'It is the cat that ate the meat.'

(40)




The exact syntactic property of the heads which trigger the CS marking on the NP may also explain another related phenomenon involving a kind of coordination that conjoins two NPs using the morpheme *ð-* 'and' as in (41) below. Interestingly, this morpheme is homophonous with the nominal copula discussed above but differ in that the nominal coordinator marks the NP it selects for CS whereas the element in (39) does not.

(41) ð-a-mʁar-θ ð- **u**-qzin ins
f-sg-woman-f and **cs**-dog 3sg.poss
'The woman and her dog.'

If we assume that the structure of the coordinate phrase is headed by the coordinator *ð-* 'and' (Pesetsky, 1982; Kayne, 1994; Progovac, 1998b among others), and if *ð-* 'and' is a coordinating conjunct occupying C in the structure, a functional element like *ð-* should not be expected to Construct-mark the NP it selects. But the data in (41) suggests otherwise. In fact, this appears to contradict our previous argument that C cannot be a CS marker. However, there are independent reasons to question the grammatical status of what is standardly referred to as the 'conjunct'. First, the morpheme is only used to join NPs but cannot be used to join verbal clauses. Secondly, there are other functional elements that are also conjuncts but behave different from *ð-* 'and'. For instance, other conjuncts do not mark the NP they select for CS. In the data below in (42–43), the word *niʁ* 'or' behaves like a typical conjunct, as in English, in that it can select either an NP (42) or a VP (43). In the former case, however, the conjunct does not mark its complement for CS.[19]

(42) a-mʃiʃ niʁ a-qzin
sg-cat or sg-dog
'A cat or a dog.'

(43) uɣur-n niʁ qim-n
go.perf-3m.pl or stay.perf-3m.pl
'They leave or they stay.'

If conjuncts were CS-markers, they would be expected to display a systematic pattern vis-à-vis the State issue but the data in (42) shows otherwise. On the basis of these facts, *ð-* 'and' does not seem to have the characteristics of a conjunct. Its behaviour makes it syntactically identical to a preposition since it selects a NP and also marks it for CS. On the basis of these facts, it could be argued that what is generally referred to in the Berber linguistic literature as a coordinating conjunct looks more likely to be another preposition. The fact that 'and' is expressed using a preposition is not unique to Berber but seems to be cross-linguistically common.[20] So, the difference between *ð-* 'and' and other prepositions may have to do with their semantic meaning which is not relevant to CS. This would be expected if CS is sensitive to syntactic information only, as we argue.

Two other Construct-markers are found, these are *bu-* and *mu-* as can be seen below in (44–45). Due to the fact they are not often discussed in the works exploring the Berber CS, no work that I am aware of has addressed or categorised these elements as parts of speech.[21] A first hand examination of *bu-* and *mu-* reveals that they are marked for gender. This may suggest that they are nominal categories, bearing in mind that this morphology is a peculiarity of nouns. However, this possibility is challenged by two other properties which make the two elements look more like prepositions: (1) they mark the NP they select for CS, and (2) they encode genitive meaning knowing that the latter property in Berber is expressed

[19] This is consistent with the behaviour of another conjunct: *maʃa* 'but'. This element can also select a NP or a VP. When it selects a NP, it does not mark it for CS.

[20] I would like to thank an anonymous Lingua reviewer for pointing this out.

[21] Cadi (1987) did report that these elements are Construct-markers in Tarifit but did not examine their categorial property.

using a preposition (*n-* 'of'). So, the natural question is how can these somewhat conflicting properties be reconciled? I believe that the grammatical status of *bu-* and *mu-* is solvable if their morphosyntax is carefully considered. In strict morphological terms, the morphemes which alternate between masculine and feminine are *b-* and *m-*, respectively. If gender is neutralised and identified separately, we then have evidence that the two elements are morphologically decomposable. That way, the invariable morpheme *-u-* can be argued to be associated with the genitive meaning since that meaning is maintained, regardless of gender. Furthermore, and since the logical meaning of the two elements in (44–45) refers to a person/possessor that is only understood from the context, it can then be argued that gender is associated with an elided/phonetically empty possessor/NP as schematised in (46). That NP selects a PP headed by the preposition *-u-* with a genitive meaning, which in turn selects an NP/possessum and subsequently marks it for CS. There are a number of advantages to this hypothesis. First, analysing *-u-* as a preposition would be consistent with the typology of Berber, given that genitive is expressed by the preposition *n-* 'of'.[22] This hypothesis would bring *b/mu-* together with other prepositions, which would then be consistent with the general proposal that all prepositions in Tarifit mark their NP for CS. Under this approach, it could be argued that Tarifit has diachronically developed a more consistent system of CS whereby all prepositions are Construct-markers.[23]

(44) **bu-** ð-ə-ʔman-t
**BU** F-CS-turban
'The one/man with a turban.'

(45) **mu-** ð-ə-çmbuʃ-θ /məðçəmbuʃθ/
**MU** F-CS-shawl-F
'The one/woman with a shawl.'

(46) $[_{DP}\ D,\ m\text{-}/b\text{-}[_{NP}\ N\ \emptyset][_{PP}\ P,\ -u\text{-}][_{DP}[_{NP}\ N_{CS}]]]]]$.

If our hypothesis is on the right footing in the sense that elements like *ð-* 'and' and *m/bu-* are prepositions, a generalisation can then be proposed whereby the heads which entre into a c-command relation with, and subsequently mark, their NP for CS must be P or T as in (47):

(47) *X* CS-*marks its NP under* '*closest c-command*' *iff X is a head, where the head is T or P*.

Under this generalisation, the CS heads that take part in the structural relation stated above are reduced to two syntactic heads and any heads other than these two are excluded from this relation. Next, the paper examines the status of adjuncts in the CS configuration.

## 5. Construct State and the status of adjuncts

This section looks at the status of adjuncts relative to the CS configuration. Earlier in the paper, it was shown that adjectives in the attributive case are nominal adjuncts displaying identical morphology to the nouns they modify. Despite their form, they are not marked for CS unlike nouns. This was argued to be further empirical evidence that CS is a purely syntactic issue in that it is sensitive to the syntactic information of elements and not to their form. In this section, I show that other adjuncts that have mainly an adverbial function also display striking similarities to the adjectives when examined in the context of a CS configuration. Their presence has no impact on the syntactic relation holding between the NP and the relevant heads, which further supports a syntactic approach to the phenomenon under investigation. Let us consider the following data in (48–50) which is about the behaviour of adverbs within the clause.

[22] What makes this hypothesis even more consistent is that there is an additional case where genitive/possessive is expressed using another preposition. The preposition *ʁa-* below in (i) selects a dative clitic pronoun yielding genitive/possessive meaning (the use of dative clitics with a genitive function is also found with kinship nouns). The same construction is expressed in English using the verb 'have' as can be seen from the sentence. Note that this construction in Berber cannot be a verb because it resists any verbal inflections, including tense/aspect (see El Hankari, 2010 for a detailed discussion of some other prepositions which behave like *ʁa-*). The question as to why the preposition *ʁa* 'to' does not mark the NP *aqzin* 'dog' for CS may due to the presence of the dative clitic. That is, the preposition selects the dative clitic, not the NP. So, the complex ʁa-s 'to $him_{DAT}$' would be a PP, not P, if pronominal clitics are analysed as arguments/NPs (El Hankari, 2010; El Hankari, in preparation).

(i) ʁa-s a-qzin
to-3.SG.DAT. SG-dog
'S/he has a dog.'

[23] Note that the two elements can also be used more like idioms, mainly when the NP refers to some part of the body. In that case, the NP/possessum is interpreted as having a negative connotation: *b/mu-* + $NP_{mouth/nose}$ = 'someone with an ugly mouth/nose' etc.

(48) i-ara-s (=jaras) w-uma-s ð-i-sira ins **iðnnat**
3M.SG-return.PERF-3M.SG.DAT CS-brother-3SG.POSS F-PL-shoe 3SG.POSS **yesterday**
'Her/his brother gave her/him his shoes back yesterday.'

(49) **iðnnat** i-ara-s w-uma-s ð-i-sira ins
yesterday 3M.SG-return.PERF-3M.SG.DAT CS-brother-3SG.POSS F-PL-shoes 3SG.POSS

(50) i-ara-s **iðnnat** w-uma-s ð-i-sira ins
3M.SG-return.PERF-3M.SG.DAT yesterday CS-brother-3SG.POSS F-PL-shoes 3SG.POSS

The position of adverbs in Berber is not as fixed as the one reserved for adjectives, as can be seen from the data above with the use of *iðnnat* 'yesterday'. While the use of adverbs last in the clause may be preferred (48), inserting them in clause-initial (49) or immediately following the main verb (50) is equally grammatical. The relevance of the distribution of adverbs to the CS comes from cases like (50) where the adverb *iðnnat* 'yesterday' is positioned between the verb and the subject, yet the latter does not lose its CS relation with the verbal head that marks it. In other words, the subject in (50) still receives its Construct-marking from the verb despite the intervening adverb. This behaviour also applies to other adjuncts like PPs (51–52).

(51) zrə-n **gi ð-isi** j-argaz-n -in
lie-3M.SG in F-floor CS-people-PL DEM
'These men (over there) lie on the floor.'

(52) i-awər (=/jawər/) **s- ð-azra u**-ʃffar
3M.SG-escape.PERF with F-speed CS-thief
'The thief ran away quickly.'

Like adverbs, PPs in Berber are often used in clause-final but inserting them in a position immediately following the main verb (51) or preceding the subject (52) is also grammatical. As adjuncts, the PPs in the two sentences above are inserted between the verb and its subject, yet the latter argument does not lose its CS relation with the verb. The behaviour of adjuncts also shows that CS does not follow from linear adjacency which lends further support to the proposed analysis that takes the phenomenon under investigation to be essentially syntactic. If CS was concerned with adjacency, the relation between the NP and its c-commanding head would be lost in the event of an intervening overt element. The behaviour of these adjuncts is consistent with the other set of adjuncts discussed earlier. Although adjectives being nominal adjuncts have an identical morphology to the nouns they modify, their presence in the clause goes unnoticed by CS since they are always in FS. In other words, the CS as a syntactic relation appears to be blind to the presence of adjuncts in the clause.

While 'closest c-command' could still deal with the issue of adjuncts not interfering with the CS relation involving the NP and the CS head, I believe that Chomsky's (2001, 2004) recent proposal, whereby adjuncts are inserted post-syntactically, would elegantly account for the non-sensitivity of CS to the presence of adjuncts in the clause. It is important to note that Chomsky's proposal has theoretical motivations, in that adjuncts have always been problematic for phrase structure theories. For example, they need a special schema added to the core X-bar schema. More recently, they became problematic for the relationship between structure, hierarchy and linear order. According to Kayne's (1994) Linear Correspondence Axiom (LCA), constituent A precedes constituent B if A asymmetrically c-commands B. Right adjuncts are problematic because even though they occur at the end of a phrase or a sentence, they can be higher than (i.e. c-command) words that precede them. Alternatively, Chomsky deals with this by removing them from syntactic structure and adding them at a post-syntactic level, a linear one, which makes the computation (syntax) elegantly simpler. For this purpose, Chomsky proposes an architecture of grammar where the derivation is first construed by the narrow syntax under Merge, which is then sent for interpretation by the phonological/sensorimotor and semantic/conceptual-intentional components. Since adjuncts contribute to meaning, including them as part of the operation Merge in the narrow syntax would go against the principle of economy according to Chomsky. Alternatively, adjuncts in his proposed model should merge in the semantic component to which he refers as Pair Merge as opposed to Set Merge (narrow syntax).[24]

If CS is a syntactic configuration as we argue here, adopting the view that adjuncts are inserted post-syntactically would neatly account for the fact that the phenomenon under investigation is not sensitive to the presence of adjuncts. That is, adjuncts should not even be present when syntactic operations like CS are formed, since their insertion applies after syntax, under Pair Merge.

[24] Assuming that X is a head c-commanding a syntactic object like <β> to which <α> as an adjunct is merged becoming <α, β>, Chomsky argues that "... X still c-commands <β> in <α, β>, as before adjunction. But extension of c-command to adjoined element α would be a new operation to be avoided unless empirically motivated..." Chomsky (2004:118).

## 6. Syntax as the locus of CS

What we have established at this stage is that CS is concerned with syntax. This section takes the study of the phenomenon a step further by paying particular attention to two issues. The first one has to do with the CS and the semantic interface. For instance, we showed that the semantic interpretation of the sentence has no impact on the CS, including idiomatic expressions and the (semantic) meaning of prepositions. I show how the proposed framework, Distributed Morphology (DM), predicts this typology. The second point has to do with the morphosyntactic structure of the NP. The paper will argue that a syntactic approach to the morphology of the noun also makes some interesting predictions relative to how the CS is marked on the NP. Before addressing these two points, a brief outline of the major claims of the theory is in order.

One of the main claims of the DM framework is that the components of the architecture of grammar are completely autonomous. The computation (narrow syntax) manipulates the structure using abstract grammatical features while phonological and semantic features are recovered post-syntactically in the Vocabulary Insertion (VI) and the Encyclopaedia, respectively. These features are neither relevant nor needed by the computation (Halle and Marantz, 1993; Marantz, 1996, 1997; Harley and Noyer, 1998, etc.). Furthermore, words have no inherent pre-specified grammatical properties but are instead composed of categoryless roots which combine with functional elements in the syntax creating nouns, verbs, etc. Given that the theory decomposes words into morphemes, which are assembled by the syntax, these words like sentences have a hierarchical representation all the way down (Marantz, 1997). In fact, Marantz (1996) argues that syntax makes no distinction between 'cat' and 'dog' since both elements have the same categorial/syntactic property (i.e. they are nouns), but their semantic distinction which is contained in the categoryless lexical root is made post-syntactically in the Encyclopaedia.

Starting with the point having to do with semantics, I showed that the CS holds regardless of whether the construction has a literal or an idiomatic meaning. It is important to note that idiomatic expressions, like words, are generally argued to be formed in the lexicon because they encode special (semantic) meaning. Under the present theory, idioms, together with words and sentences, are construed by the syntax but are not formed in the lexicon as traditionally assumed.[25] In fact, a Lexicalist approach to idioms and idiomatic expressions would be problematic for CS. If the latter phenomenon is syntactic as we established, then the marking should not be expected to apply to idioms if these are formed in the lexicon. But it was shown earlier in (9) that this is not supported by the facts.[26] In fact, Marantz (1997) argues that the semantic meaning of any derivation, including words, idiomatic expressions and sentences, is not present during the syntactic derivation but is read off the syntactic structure by the Encyclopaedia.[27] With this in mind, and if CS is a syntactic configuration as we argue, and if that configuration always holds regardless of whether the sentence has a literal or an idiomatic meaning, we then have evidence that idioms are construed by the syntax since they are marked for CS.

As for the second point having to do with how the CS is marked on the NP, I believe that this typology can also be better articulated within the proposed framework if the structure of words is argued to be formed in the syntax. This provides a theoretical basis for the question as to why CS is marked on the functional category of the noun but not on the lexical root.

When surveying the Berber literature on the structure of the nominal category, and regardless of their differences, all the works share the view that the noun has two main projections. The DP headed by the inflectional/prefix, which consists of gender and number. That projection then selects an NP represented by the lexical root (Jebbour, 1988; Ouhalla, 1988; Guerssel, 1992; Dell and Jebbour, 1995; El Moujahid, 1997; Idrissi, 2001, among others). The present analysis of the structure of Berber nouns departs from this standard view and adopts a more radical syntactic approach to word formation, following a proposal put forward by El Hankari (2010) in his work on the morphosyntax of Tarifit. There, he argues that the base/underived lexicon contains mainly bound unpronounceable roots which can either be used as nouns or verbs, depending on the inflections they combine with. Note that this flexibility of lexical items becoming nouns or verbs was pointed out earlier by Ouhalla (1988). These roots are interpreted as nouns when used in the nominal environment and as verbs when used in the verbal environment. Given that the ambiguity of lexical roots between nouns and verbs occurs on a large scale, El Hankari argues that Berber may be problematic for the traditional lexicalist approach, such that bound lexical roots would have to be redundantly listed both as nouns and verbs. Alternatively, he argues that an approach in the spirit of DM would not face the redundancy problem and therefore can provide a non-redundant theory of Berber roots in that it eliminates even those lexical rules, replacing them with independently necessary syntactic merge. Under this approach, what is generally analysed as the basic nominal lexical category is a categoryless root which can only be

[25] The view, which argues for a generative lexicon is now referred to in the Generative/Minimalist tradition as the Lexicalist hypothesis.

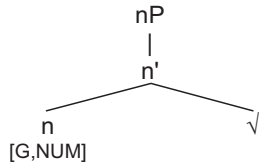
[26] There are many other constructions that can be interpreted as idioms but they are still marked for CS, regardless. For instance, the example below is a clear idiom but the NP is still marked for CS by the preposition.

(i) βatata (n) u-kʃʃuð
potato.F of CS-wood
'Sweet-potatoe.'

[27] Marantz (1997) claims that the difference between an idiomatic construction and a construction with a literal meaning lies with the structure they project in the syntax. A transitive sentence with a literal meaning has a complex verb structure, which consists of a VP and a higher (agentive) vP. On the other hand, a sentence with an idiomatic meaning does not have a vP projection since the verb does not have an agentive–causative meaning.

interpreted as a noun when combined with the nominal functional head represented by the *n*-node as in (53). In other words, it is the functional head which assigns the categorial/grammatical status to the root and allows it to be interpreted as a word class/noun. The nominal functional category is spelt out by number and gender. For a similar approach to word formation, see Arad (2005) on the derivation of words in Hebrew, Lowenstamm (2008) on the derivation of nouns in French and Yiddish, among many others. This modular approach now splits the structure, like the one in (53), along two different lines. A root-node represented by the categoryless root which contains encyclopaedic information, but devoid of any grammatical information, and a separate *n*-node which contains categorial/grammatical features represented by gender and number, being the only morphosyntactic features available to nouns in Berber.

(53)



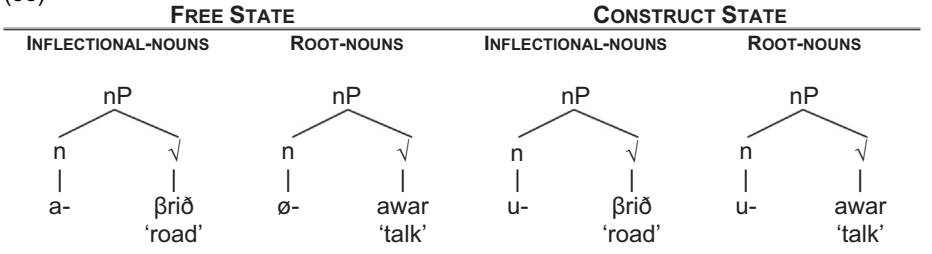

Due to the fact that the prefix position is where nominal features are marked, including the CS, a note on the morphology of nouns is in order. Berber has two major noun classes, a class which displays morphological information on number in the prefix position as in (54a) and another class where the same feature is not overtly manifested as in (54b). This morphology is attested in all major studied Berber varieties (Guerssel, 1992; El Moujahid, 1997; Idrissi, 2001; Bendjaballah and Haiden, 2008, 2013; El Hankari, 2010). The fact that the initial vowel of the noun in (54a) varies depending on whether the noun is singular or plural is evidence that it is the morpheme marking number. Conversely, the initial vowel in (54b) remains invariant in both forms which suggests that it is part of the root and not an affix. Under the present analysis, the c-/overt presence of morphosyntactic elements is only relevant to phonology but has no syntactic implications. So, the structure of the nP as proposed in (53) is not sensitive to phonological information. The only difference is that the *n*-node is filled with *a*- (in the singular form) when the noun has an overt marker but the same node is filled with *ø*- when the prefix is covert. I refer to these classes as inflectional-nouns versus root-nouns, respectively. More will be said about this morphology in the next section in that it bears relevance to the CS allomorphy.

(54)

| | SINGULAR | PLURAL |
|---|---|---|
| a. | a-βrið<br>SG-road | i-βrið-n<br>PL-road-PL |
| b. | ø-awar<br>SG-talk | ø-awar-n<br>PL-talk-PL |

This morphology impacts on the way these noun sets are marked for CS, as can be seen from (55) below where the two nouns are schematised in both States. The fact that the CS alternates with number at the surface, inflectional-nouns receive their Construct-marking through the substitution of number whereas root-nouns receive the same marking by direct insertion, since there is no overt number to alternate with.

(55)



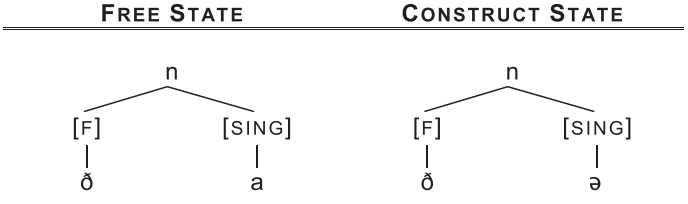

The focus here is on the way these noun classes get marked for CS. The structure in (55) shows that the marking applies to the functional category-defining head and that the surface realisation of the NP (whether the functional category is overt or covert) has no impact on the State marking. So, when the noun is in the CS it gets marked by *u*- and when it is in the FS (i.e. the unmarked form) the noun is simply marked for number/singular with the choice of either *a*- or ø, depending on the morphology of the noun. The exact structural position where the marking takes place is consistent and systematic

throughout in that it is marked on the functional category of the noun. This typology receives a straightforward account within the proposed analysis. If the structure of the NP is syntactically formed by merging a categoryless root and a functional category-defining head as we are proposing, this will imply that there are two projections which correspond to two different domains: a syntactic domain represented by the functional category (i.e. *n*-node) and another domain devoid of any syntactic information occupied by the categoryless root, which contains encyclopaedic information only. Viewing grammar along these lines may explain why CS gets marked on the functional head and never on the root. If the phenomenon under investigation is syntactic as we argue here, its marking on the functional head, and not on the root, should be expected in that it is the head that contains grammatical information relevant to the syntax while the root is a syntactically deficient lexical item. The root needs to merge, first, with the functional category defining-head prior to any other syntactic merging operations. So, what looked more like a phonological process turns out to be a purely syntactic issue. This morphosyntactic behaviour of CS, I believe, can only be adequately understood through a decompositional approach to nouns having a complex structure formed in the syntax. The analysis clearly shows that the CS targets the functional head which encodes grammatical information while the root having only semantic/encyclopaedic information is excluded from this syntactic relation. Considering that the CS-heads are P and T, and granting that the marking applies to the functional nominal head, this points to the fact that what does the marking and what is marked is a relation between two functional heads, which appear to have some privileged features in the syntax allowing the CS configuration to converge. This would be justified by the proposed theory in that functional categories are the ones that encode grammatical information. So, decomposing the structure of the NP along grammatical/syntactic and semantic lines allows for a neat and formal characterisation of the phenomenon under investigation. The Construct-marker (P, T) being a functional head, having formal grammatical features only, enters into a c-command relation with another functional head which encodes grammatical information on the noun.

By defending a syntactic approach to word formation, Marantz (1997) claims that syntax can target elements smaller or larger than words. In the case of the CS configuration, the exact head that gets marked is the *n*-node, and not necessarily the lexical root. So, it could be argued that the target in this case is smaller than the word/noun. Although CS appears to be phonologically sensitive to a vowel, yet the initial vowel which is part of the root is immune to such marking. This can be noticed from the root '√*awar* in (55) which remains unchanged in that it is neither affected by nor relevant to the syntactic configuration under investigation. In other words, the marking is blocked from applying on the initial vowel of the root on structural ground, which is further evidence that CS is indeed a syntactic issue and bears no relevance to phonology.

Another question which may be raised is, why is it that CS at the surface is marked on number and not on gender, given that the nominal functional category encodes both features, as can be seen from (56)? By virtue of the fact that the nominal functional category involves gender followed by number, the CS however is still displayed on number as can be seen from (56). The association of the CS with number can be argued to be phonologically motivated. That is, CS is still marked on the functional head, which dominates the feature bundle '[G, NUM]' but when the configuration is sent for interpretation by the phonological component, the marking shows up at Spell-out on number. So, the *n*-node in the feminine – singular form is spelt out as *ðа-* in the FS and as *ðə-* in the CS.[28]

(56)




## 7. The Construct State and the PF interface

This section examines the phonological implications of the CS. More specifically, it deals with the stage of the derivation when the syntactic output is sent to PF for interpretation. Within the DM framework, phonology as a post-syntactic component follows only from what is provided by the syntax and its application operates under Vocabulary Insertion. Two main issues are examined in this part. 'section 7.1' formally accounts for the CS allomorphy using statable morphological rules and 'section 7.2' looks at how the CS configuration is spelt out at the PF interface.

[28] An anonymous Lingua reviewer raised the question as to what happens to the number marker when the noun is in the CS. On the assumption that the CS is marked on the category-defining head, it could be argued that syntactically the number feature is still present in the syntax since the meaning of the noun, regardless of its State marking, still encodes number. Under the present framework, the functional category which encodes [+F, +NUM] acquires an additional [+CS] feature through the morphological process of fusion (Noyer, 1992, 1997). Noyer discusses at length the process of fusion from a wide range of languages, including Tamazight Berber. Evidence that number is syntactically present can be noticed from a noun clause when used with a modifying adjective. In that case, the adjective always agrees in number (and gender) with the noun it modifies, regardless of the State marking of that noun.

*7.1. The Construct State allomorphy*

The CS allomorphy may be subject to some parametric variations between Berber varieties. In this section, I first provide the Tarifit allomorphy followed by a discussion of some literature on this allomorphic variation, which would lead me to argue in favour of one form over another. After identifying all the allomorphs, the sets of formal statable rules that capture this morphological system are then proposed.

The CS allomorphy is dependent on the inflectional system of nouns in the prefix position, as pointed out earlier. With the inflectional-class, masculine-singular nouns realise their CS as *u-* (57a), plural nouns as *i-* (57b) and feminine nouns as *ə-* (57c and d).

(57)

INFLECTIONAL CLASS

| FS FORM | CS FORM |
|---|---|
| a. a-mʃiʃ | **u**-mʃiʃ |
| SG-cat | CS-cat |
| b. i-mʃiʃ-n | **i**-mʃiʃ-n |
| PL-cat-PL | CS-cat |
| c. ð-a-mʃiʃ-θ | ð-**ə**-mʃiʃ-θ |
| F-SG-cat- F | F-CS-cat-F |
| d. ð-i-mʃiʃ-i-n | ð-**ə**-mʃiʃ-i-n |
| F-PL-cat-F.PL-PL | F-CS-cat-F.PL-PL |

For the root-class, the CS is realised as *w-* when the initial vowel that is part of the root is /a/ or /u/ (58a and b) and as *j-* when the vowel is /i/ (58c). The marking is covert when the noun is feminine (58d–f).

(58)

ROOT CLASS

| FS FORM | CS FORM |
|---|---|
| a. awar | **w**-awar |
| talk | CS-talk |
| b. uʃən | **w**-uʃən |
| wolf | CS-wolf |
| c. izi | **j**-izi |
| 'Fly' | CS-fly |
| d. ð-ariw-i-n | ð-ariw-i-n |
| F-spring-F.PL-PL | F-spring-F.PL-PL |
| e. ð-uʃən-t | ð-uʃən-t |
| F-wolf-F | F-wolf-F |
| f. ð-izi-t | ð-izi-t |
| F-fly-F | F-fly-F |
| 'Mosquito.' | 'Mosquito.' |

I wish to make three points relative to this allomorphy, which have to do mainly with some cross-dialect variation. The first one has to do with the CS form of the inflectional-class in feminine represented here with a schwa. Some works, like Guerssel (1983, 1992), use the null symbol. For Tarifit, the latter option is imited to some minority nouns that appear to drop the singular prefix (*ð-**ø**-siri-θ* 'F-**SG**-shoe-F ↔ *ð-**i**-sira* 'F-**PL**-shoe'). So, I choose the schwa as the morpheme on the basis of the majority criterion. The second point has to do with the alternation between the glide found with root-class and the high vowel morpheme *u-* found with the inflectional-class. Some works, including Guerssel (1983, 1986a,b, 1992), Idrissi (2001), Bendjaballah and Haiden (2013) use the glide as the morpheme but other works including Ouhalla (1988, 1996), El Moujahid (1997), Tangi (1991), Dell and Tangi (1992), El Hankari (2010) use *u-* as the CS morpheme. In this paper, I maintain that the latter option is the correct one for Tarifit, at least, based on the majority criterion. The morpheme *w-* is only found with the root-class, which is a minority. This class represents only 3% within the morphology of nouns in Tamazight, according to Idrissi's (2001) statistical corpus.[29] The third point has to do with the allomorphy of the inflectional-class in masculine-plural (57b). The two States appear to be homophonous in that both make use of *i-*. Note that homophony between the two States is not exclusive to this class but is also found with root-nouns that have consonant-initial (58d-f). In their work on Taqbaylit of Chemini, Bendjaballah and Haiden (2013) argue that the underlying CS morpheme for these nouns is *jə-*, referring to Chaker (1995) and Memmeri (1986). While this typology may be true for Taqbaylit, this is not shared by Tarifit. It must be pointed out though that the form involving the glide is found with the CS NP when selected by the allative preposition *a-* (*a- jə- mʃiʃ-n*: to CS-cat-PL 'to the cats'). Outside this environment, the use of a glide with this class of nouns would be ungrammatical.[30] The difference between surface phonetic representations and underlying phonological representations can easily be detected in casual (phonetic) versus careful (phonological) speech. The glide is ruled out in both contexts with the cases mentioned. On these grounds, and following other works (Ouhalla, 1988, 1996; El Moujahid, 1997; El Hankari, 2010), I argue that the basic CS morpheme is *i-*. So, the total CS allomorphs are: *u-*, *i-*, *ə-* and *ø* which apply to root-nouns in feminine. The readjustment rule that changes the vowel into a corresponding glide is stated as in (59). Note that the rule as it stands is relevant insofar as it captures the allomorphy of these masculine-singular nouns but the rule is further refined when the syllabic structure is discussed in the next section.

(59) [+SYLLABIC] → [−SYLLABIC]/ __V

Under the proposed analysis, syntactic terminal nodes are supplied for their phonological content by Vocabulary Insertion (VI). The fact that phonological exponents are also specified for their syntactic features, according to the analysis, yields two sets of morphemes. One set is specified for [+CS] and another set is specified for [−CS]. The exponents that are [+CS] are the four CS morphemes identified above, whereas the ones that are [−CS] represent the default form (unmarked/neutral form), which I refer to in the rules below as ZERO.[31] Since gender in Berber is marked for feminine only while masculine is the unmarked form, the former is referred to as [+F] whereas the latter is referred to as [−F]. When the CS derivation is handed over to the phonological component, the [+CS] exponents which are all eligible for insertion are

[29] Some studies on Berber phonology have argued that high vowels and glides are the same in the underlying representation (Idrissi, 2001; Bendjaballah and Haiden, 2008, 2013). The hypothesis is based on the fact that these vocoids share the feature [+HIGH] but are unspecified for syllabicity. They then acquire a consonant status when inserted in the onset and a vowel status when inserted in the nucleus. While this view may be appealing when used in the broad Berber phonology, it is more costly when implemented in the morphological rules proposed in (60), which make specific reference to the State context and noun-classes. We would have to postulate a vocoid that is specified for [+HIGH, +CS] in the phonological component. Following Vocabulary Insertion, two additional readjustment rules are needed: one rule turns the vocoid into an onset and another rule which turns it into a nucleus. Under the proposed analysis, once we establish that the CS morpheme *u-* is the general case, only one readjustment rule is then needed, which turns the syllabic sound into non-syllabic as stated in (59). But this hypothesis recognises the difference in phonology between glides and high vowels.

On a more empirical level, it is also worth noting that these authors base their hypothesis on the view that there are vocoids that are stable vowels referring to Guerssel (1986a,b), but not glides. In Tarifit, however, there are also glides that not only do not alternate with high vowels but represent minimal pairs with their high vowel counterparts: √*su* 'drink'↔ √*sw* 'flatten', √*zu* 'visit' ↔ √*zw* 'warm', √*qu* 'dry' ↔ √*qw* 'perform sexual intercourse' etc. The fact that /u/ and /w/ change the meaning of the lexical root is evidence that they should be treated as separate sounds in phonology.

[30] Bendjaballah and Haiden's argument in favour of *jə-* over *i-* has theoretically ramifications. The possibility that masculine plural nouns being homophonous in both States threatened their templatic analysis, in that *i-* being a Construct-marker would leave them short of one vowel slot in phonology. This is based on the assumption that full vowels in Berber are long and therefore need two vowel slots in the skeleton. The proposed analysis can accommodate either form (*i-* or *jə-*). If the CS morpheme with these nouns is *jə-*, the exponent can then take part in the competition for insertion, instead of *i-* (see rules (60)). I also show in the next section that the actual form has no impact in phonology under a standard linear approach.

[31] I am making a distinction here between /ø/ which makes reference to the covert marking of CS, i.e. there is a slot which inhibits the CS feature provided by the syntax but has no phonological realisation, and 'ZERO' which indicates the absence of any marking (syntactic or phonological). This is represented by the FS which is the non-marked form.

activated and take part in the competition of insertion. Under Halle's (1997) Subset Principle,[32] Vocabulary Insertion ensures that /*u*/ is inserted on the inflected-class that is masculine/[−F] – singular (60-i), /ə/ is inserted on the inflected-class that is feminine (60-ii), *i*- is inserted on the inflected-noun that is masculine - plural (60-iii) and /ø/ is inserted on the root feminine nouns (60-iv).[33] As for the FS NPs which are [−CS], their feature is spelt out as ZERO (i.e. the unmarked form), which is then interpreted as the FS by default (60-v).

(60)
i. [+CS] ↔ /u-/ / __INFL. Class: [+SG, -F]
ii. [+CS] ↔ /ə-/ / __INFL. Class: [+F]
iii. [+CS] ↔ /i-/ / __INFL. Class: [+PL]
iv. [+CS] ↔ /ø/ / __ Root. Class: [+F]
v. [−CS] ↔ ZERO elsewhere

### 7.2. Construct State as a phonological word

This section explores some phonological implications, which may shed more light on the phenomenon under investigation at the PF interface. More specifically, it deals with the stage of the derivation when the syntactic output is sent to the Phonological component for interpretation, and syntactic terminal nodes are supplied with their phonological content. My underlying argument, in this last section before concluding, is to show that the two syntactic nodes involved in the CS configuration are spelt out in phonology as one phonological word (PhW).[34]

The view that the CS NP and its c-commanding head are realised as one PhW is not new and was noted, first, by Chaker (1983) and also by Ouhalla (1996). On his work on Taqbaylit Berber spoken in Northern Algeria, Chaker states that ''Sur le plan prosodique, l'Expansion référentielle est étroitement soudée au syntagme verbal; elle le suit sans pause ni rupture.'' (At the prosodic level, the referential element [i.e. lexical subject] is closely linked to the verb which follows it without a pause'' (Chaker, 1983:277), adding that ''... le S.P.V. [sujet prédicatif verbal] avec lequel elle constitue un ensemble prosodique homogène'' (... the post-verbal subject with which [the verb] forms the same prosodic unit.) (Chaker, 1983:279)). Similarly, Ouhalla argues from Tarifit ''... that the noun phrase said to be in the CS forms a single word with the head category preceding it'' (Ouhalla, 1996:293).[35] Ouhalla provides some phonological evidence in support of the claim, some of which is discussed later in this section. It is this claim that I wish to pursue here and show how this can be better articulated under the late insertion hypothesis where phonology interprets the syntactic output. Before doing that, a discussion on some major works on the phonology of Berber relative to the CS is provided next.

The morpho-phonology of the CS in Berber was subject to some treatment in the literature (Guerssel, 1983; Dell and Jebbour, 1995; Idrissi, 2001; Bendjaballah and Haiden, 2008, 2013). Earlier works which adopted a purely phonological approach derives the CS allomorphy through phonological rules. For instance, Guerssel (1983) argues that the underlying form of the CS for masculine singular nouns is: *w-a-funas* 'CS-SG-cow'. Two rules then apply; one deletes the singular marker and the second one changes *w*- into *u*- when followed by a consonant yielding the surface form: *u-funas* 'CS-cow'. With the rules stated in (60), we showed that once reference is made to the grammatical contexts and the noun classes which trigger the CS allomorphy, these derivational rules are neither necessary nor needed.

Other morph-phonological works which looked at the CS adopting a templatic approach include Idrissi (2001) and Bendjaballah and Haiden (2008, 2013). The bulk of the templatic approach is that morphosyntactic features fit into pre-specified syllabic templates in phonology. Crucial to these analyses are: (1) the syllabic algorithm of Berber is CV, following a proposal put forward by Guerssel (1990), and (2) the three full vowels of the language (i.e. /a/, /i/ and /u/) are long and therefore need two vowel slots for them to be realised in phonology.

Idrissi (2001) argues that any morphosyntactic exponent has its own CV template. For instance, masculine nouns have only one prefix and should therefore have one CV in the phonological component. Conversely, feminine nouns have two

[32] Halle's Subset Principle states that ''The phonological exponent of a vocabulary item is inserted into a morpheme... if the item matches all or a subset of the grammatical features specified in the terminal [node]. Insertion does not take place if the vocabulary item contains features not present in the morpheme. Where several vocabulary items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen'' (Halle, 1997:427).

[33] Note that rules like the one in (59), which change the vowel into a corresponding glide, are referred to within the proposed framework as 'readjustment rules' and apply immediately after VI.

[34] I am using the term 'PhW' in the sense that the CS NP becomes part of the phonological domain of the head that selects it. Under this view, when syntactic terminal nodes are provided by their phonological content through VI, the NP and its c-commanding head are spelt out as one PhW because they share the same phonological domain.

[35] It should be pointed out though that Ouhalla's approach to the CS is different than the one adopted here. Ouhalla argues that CS is a manifestation of ergative Case as discussed earlier but what is referred to as the CS, according to him, has no syntactic basis but it is simply a phonological phenomenon where the CS NP forms a PhW with its higher head. At the end of this section, I show that cases that are driven by purely phonological processes, such as adjacency, are different from CS.

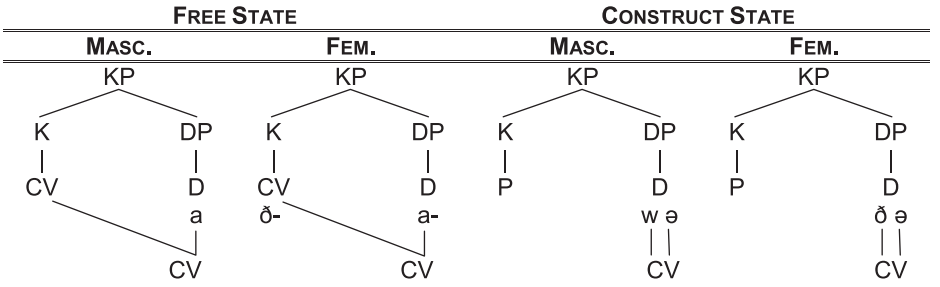
prefixes since they are marked for gender and number and should therefore have two CV templates in phonology. In an example like: *ð-a-mʁa-θ* 'F-SG-woman-F', the onset of the first CV is filled with the feminine marker *ð-* and the nucleus in both templates is filled with the singular marker on the grounds that /a/ is a long vowel. Idrissi is then faced with the problem as to what happens when the noun is masculine since it has one prefix and therefore one CV but the vowel /a/ requires two vowel slots. He argues that the second slot of the vowel is provided by the preceding word if that word ends with a consonant. If the final sound is a vowel, a glide emerges which correlates with a new CV as can be seen from the VO sequence in (61). The onset of the new template is then occupied by the glide and the nucleus provides the position for the second vowel slot of the vowel /a/ which is part of the noun *azyaw* 'basket'. On the other hand, when the masculine noun is preceded by nothing, Idrissi shifts the argument around and claims that the vowels which are prefixes are not long on the grounds that alternating vocoids are not underlyingly full vowels since they become glides if the syllabic context is the onset.

(61) [žr y azyaw] 'throw the basket' Idrissi (2001:62)

The problem with the analysis, if applied to Tarifit, is that it does not take into account the grammatical context of the noun. In Tarifit, the glide may be inserted with the initial vowel that is part of the root (i.e. the presumable full vowel) only if the noun is in the CS but no glide is inserted if the noun is in the FS, regardless of the morphology of the noun (inflectional or root-nouns): VS → iðwa **j**-izi 'he.flew CS-fly' versus VO → *inʁa izi* 'he.killed $fly_{FS}$'. The fact that the initial vowel of the object is part of the root and therefore a full vowel requires two vowel slots but the preceding word cannot provide one since its final sound is another full vowel. Another problem has to do with the claim that full vowels in Berber are long, but I will leave this after reviewing the next set of literature.

Bendjaballah and Haiden (2008, 2013) adopt a similar templatic approach to the morphosyntactic structure of the NP and its alternation with the two States. On the assumption that the NP projects a DP and a KP (Guerssel, 1992), they argue that each head in that structure has a CV template in phonology. This is schematised in the structures below in (62). Because masculine nouns have a full vowel-initial in the FS, the first part of this vowel occupies the V slot of the CV template under D and the second part spreads onto the V slot of the CV template under K, since the latter is phonetically empty. When this noun is in the CS, which is marked by *w-* according to them, this morpheme occupies the consonant slot of the CV template under D. Conversely, feminine nouns in the FS have their feminine marker *ð-* in the consonant slot of the CV template under K and the number marker being a full vowel occupies the V slots of both CVs. When these nouns are in the CS, and because the latter projection is a DP, the feminine marker occupies the consonant slot of the CV under D and the schwa/ø occupies the vowel slot of the template while the CV under K remains empty. Crucial to their analysis is the fact that, what they refer to as, 'light prepositions' are prosodically deficient vocabulary items and therefore do not have their own CV template in the phonological component. As a last resort for them to be spelt out, they are hosted by the consonant slot of the CV template under K. Under this analysis, Bendjaballah and Haiden demonstrate that 'light prepositions' are part of the phonological domain of the DP on the basis of the fact that they share a template with that DP in the phonological component. This indeed lends support to the proposed analysis whereby P as a CS head is realised as one PhW with the NP it selects, as I will be arguing later. The proposed study, however, takes this issue a step further and argues that this process applies to all cases of CS including the VS sequence.

(62)




There is one problem with Bendjaballah and Haiden's analysis, if applied to Tarifit. However, this problem is not theoretical since the templatic approach is perfectly compatible with the proposed architecture of grammar, if these templates are taken to be part of Vocabulary Insertion.[36] The problem has to do with the claim that full vowels are long in Berber and

[36] Among the authors who worked within the theory of DM using a templatic approach, see Arad (2005) on Hebrew, Lowenstamm (2008) on the morphology of nouns in French and Hebrew.

should therefore have two vowel slots in the skeleton. Aside from the schwa and the three full vowels (/a/, /i/ and /u/), Tarifit has an additional set of vowels which are diphthongs (Dell and Tangi, 1992). Instances, of words which make use of diphthongs can be seen from the following: [buaxs] 'grasshopper', [larlʒ] 'charcoal', [ðaslaθ] 'mill', [ðuasra] 'hyena', etc. These are produced as clear diphthongs, similar to English, and are twice longer than the three basic vowels. If these diphthongs are longer than the full vowels, the latter set may not be analysed as long. So, it is not clear how would cases of diphthongs be dealt with if this analysis is to be extended to Tarifit. Another problem has to do with the CS form of the inflectional-class in plural. I showed earlier that the CS marker with this set of nouns is homophonous with the FS. Because the CS is a DP according to Bendjaballah and Haiden, and given that their analysis always predicts that any CS form should involve not more than a consonant and a short vowel/schwa, which would be hosted by the CV under D, a CS morpheme like *i-* is problematic because this is a full vowel which requires two vowel slots but the CV template under D provides only one. The analysis could work if full vowels in Tarifit are treated as short on the assumption that long vowels are diphthongs. This would possibly explain why Tarifit allows a vowel like /i/ in the CS but Taqbaylit does not.

As an alternative to the templatic approach, I adopt a standard linear approach following Tangi (1991) and Dell and Tangi (1992) and show how this approach can accommodate either form (*i-* or *jə-*) in that it does not impose any restrictions on the number of syllabic templates. I also follow the authors mentioned who argued that Tarifit has a CV(C) syllabic structure.

The first piece of evidence in support of the claim that the CS NP is part of the phonological domain of its c-commanding head comes from the phonological interaction displayed by the two heads. In (63), the verb ends in a vowel and the subject also starts with a vowel. Due to the adjacency of the two vowels [au], the second vowel (i.e. Construct-marker) then becomes a glide as can be seen from the phonological derivation of that sentence. The same change can also be noticed inside the verb with the sequence [ua] becoming [wa].[37] Conversely, the same process does not apply to the verb and the object as can be seen from (64), even though the two syntactic elements involve two adjacent vowels [aa]. This is indeed an indication that there is a phonological interaction between the final vowel of the verb and the initial vowel of the subject, which suggests that the two syntactic words are part of the same prosodic domain but this process cannot be extended to the verb and its object. In other words, the interaction is syntactically driven and is not due to purely phonological processes.

(63) i-ðu-a /iðwa/ u-ʒðið **Phonology**: → [ið.wa.wəʒ.ðið]$_{Phw}$
3M.SG-fly-PERF CS-bird
'The bird flew.'

(64) i-ssu a-ʒaθir **Phonology**: → [is.su]$_{PhW}$ [a. ʒa.θir]$_{PhW}$
3M.SG-lay.PERF SG-bucket *[is.su.wə.ʒa. θir]
'He laid the carpet.'

The phonological constraint that bans vowel hiatus in Berber and other related issues relevant to the syllabic structure of the language were discussed at length by Dell and El Medlaoui (1985) and by Dell and Tangi (1992), including cases of CS.[38] The authors argue that Berber does not allow adjacent syllable nuclei in view of the requirement that the syllable must have an onset. The only exception where an onset may not be required is at the beginning of a new syllabification domain.[39] Dell and Tangi also note that the structure of the syllable in Tarifit is CV(C). If onsetless syllables are only

[37] Evidence that the underlying representation of the final sequence for the root in (63) is /ua/, and not /wa/, comes from the fact that the lexical root is √*ðu* 'fly'. Other primitive roots that have a vowel final are: √*su* 'drink', √*ni* 'ride', √*nu* 'contemplate' etc. Note that these forms are also maintained when used as verbs in the imperative form. These roots, like many other roots, take the regular perfective suffix *-a*: *su-a* 'drink-PERF = [swa], *ni-a* 'ride-PERF = [nja], *nu-a* 'contemplate-PERF = [nwa]. Once the vowel-final of the lexical root combines with the regular perfective suffix, that vowel becomes a glide. This is evidence that the glide arises from two adjacent vowels.

[38] It is important to note that Dell and Tangi (1992) worked on Aith-Sidhar Tarifit. Aside from some phonetic differences, Tarifit sub-varieties are grammatically the same and are mutually intelligible.

[39] In their seminal work on syllabic consonants and syllabification in Imdlawn Tashlhit, Dell and El Medlaoui (1985) demonstrate that the onset requirement is so strong that it over-rides concerns about sonority. So, in a sequence like [wl], the [l] is the nucleus of the syllable, according them. Although consonants are not generally syllabic in Tarifit, and that function is realised by the insertion of a schwa (Dell & Tangi, 1992), the authors show that the onset requirement found with Imdlawn Tashlhit also applies to Tarifit. This requirement is formally captured by the following generalisation: ''NONHIATUS: Only at the beginning of a syllabification domain can there exist onsetless syllables'' (Dell and Tangi, 1992:132).

The requirement that the onset must be filled can be seen from cases other than CS: *afrux-a* 'boy-this' (this boy) = [af]$_σ$ [ru]$_σ$ [xa]$_σ$ versus *ðara-a* 'spring-this' (this spring) = [ðа]$_σ$ [ra]$_σ$ [**j**a]$_σ$. In the latter sequence (noun + demonstrative) with two adjacent vowels at the end [aa], it is not the second vowel that changes to a glide but a new glide is inserted as a requirement for the last syllable to have an onset within the same PhW. the newly inserted glide is motivated by the fact that the previous vowel syllabifies with, and then becomes the nucleus of, the previous syllable: [ra]$_σ$. In this case, the rule that changes a vowel into a consonant stated earlier in (59) can be improved by making reference to the onset:

(i) [+SYLLABIC] → [−SYLLABIC]/ __$_σ$[

allowed at the beginning of a new syllabification domain, as Dell and Tangi argue, this explains why vowel hiatus is disallowed in (63) but allowed in (64). The first syllable of the subject requires an onset since it is part of the phonological domain of the verb. As a result, the second vowel becomes the glide. On the other hand, vowel hiatus is allowed in (64) since the initial vowel of the object is at the beginning of a new PhW. Another instance where the syllable is onsetless can be noticed from the subject agreement marker *i-* in (63–64) in that it is at the beginning of a new PhW.[40]

Further evidence in support of the CS head forming a PhW with the NP it marks can also be seen from PPs. When the preposition, which is a vowel, combines with the Construct-marker *u-* below in (65) the latter becomes the glide *w-* and therefore the onset of the following syllable. There are two pieces of evidence in support of the claim: (1) the first syllable represented by the preposition *a-* 'to' is onsetless and this syllabic property is only allowed at the beginning of a new syllabification domain, following Dell and Tangi's generalisation, (2) if the preposition was part of the syllabic domain of the preceding verb, the following sequence would be expected:*[ðuʏ.wa] but this is obviously ruled out. In (66), the CS morpheme *u-*does not change into a glide simply because the onset of the first syllable is filled with the preposition *s-* 'with'. Similarly, the preposition *n-* 'of' in (67) syllabifies with the following NP. Due to the fact that this NP is not overtly marked for CS since it has a consonant-initial with no prefix number, a schwa is inserted between the preposition and the following consonant to break the consonant cluster [nʒ], in addition to the vowel hiatus [ua] becoming [wa].[41]

(65) ð-uɣu a- u-ʁza
3F.SG-go.PERF to CS-river
'She left to the river.'
**Phonology**: → $[ðu.ɣu]_{PhW}$ $[a.wəʁ.za]_{PhW}$

(66) ð-k$^{w}$θi-θ s- u-qabu
3F.SG-hit.PERF-3M.SG.ACC with CS-stick
'She hit him with a stick.'
**Phonology**: → $[ðək^{w}.θiθ]_{PhW}$ $[su.qa.bu]_{PhW}$

(67) a-mʃiʃ n- ʒuarn
SG-cat of neighbour.PL
'The neighbour's cat.'
**Phonology**: → $[am.ʃiʃ]_{PhW}$ $[nəʒ.wa.rən]_{PhW}$

A similar phonological process which shows the interaction between the CS head and the NP it marks can also be noticed from the feminine form of the noun. The fact that the FS is realised as *ða-* while the CS is *ðə-* suggests that the neutral form of the noun is stressed whereas the CS form is not stressed. The non-stressed form found with the FS noun could be attributed to the fact that this NP receives stress independently of the verb in a VO sequence (68), whereas the CS form is not stressed because it receives stress together with the verb as a single phonological sequence (69).[42] In (70), the nominal prefix is realised with a full vowel *ði-* when the NP is the object but the same vowel disappears all together in (71) when the preposition syllabifies with its complement. This is one of the few nouns whose CS is realised as /ø/, not a schwa, following our discussion on this allomorphy in the previous section. The marking is maintained regardless of whether the noun is the complement of a preposition or the subject in VS, which suggests that this is has to do with the phonological shape of the noun.

(68) zar-n ð-a-mʁa-θ
see.IMPERF-3M.PL 3F.SG-woman-F
'They are seeing the woman.'
**Phonology**: → $[za.rən]_{PhW}$ $[ðam.ʁaθ]_{PhW}$

(69) ð-təs ð-ə-mʁa-θ
3.F.SG-sleep.PERF F-CS-woman-F
'The woman is asleep.'
**Phonology**: → $[ðə.təs.ðəm.ʁaθ]_{PhW}$

[40] An anonymous Lingua reviewer raised the question as to whether it is possible to use a large adjunct without affecting the formation of a PhW. This is indeed the case in that adjuncts do not seem to affect the phonological unity of the CS head and the NP it c-commands. A possible question which may arise from this is whether we are dealing with a phonological process that operates at different prosodic levels such as phonological word, phonological phrase, intonational phrase, etc. which would be dependent on the length of the adjunct. These phonological issues need to be investigated separately which is beyond the scope of this paper. What is clear though is that the CS configuration is realised as a whole phonological utterance regardless of the length of the phonological information included. This is also confirmed by Chaker (1983) who notes that the presence of adjuncts between the verb and the subject, regardless of their length, do not affect the phonological unity of the CS head and the NP.

[41] The vowel /u/ is a plural marker (together with *-n*) since the singular of *ʒuarn* 'neighbours' in (67) is: *a-ʒʒar* 'SG-neighbour'.

[42] This observation was also made by Ouhalla (1996).

(70) i-s-ʁa ð-i-sira **Phonology**: → $[is.ʁa]_{PhW}$ $[ði.si.ra]_{PhW}$
3M.SG.buy.PERF F-PL-shoe
'He bought shoes.'

(71) i-aur s- ð-ø-sira **Phonology**: → $[ja.wər]_{PhW}$ $[səð.si.ra]_{PhW}$
3M.SG-run.PERF with F-CS-shoe
'He ran away with the shoes on.'

The proposed analysis can also be extended to argument NPs that are not overtly marked for CS as in (72–73). The surface representation of the two pairs of sentences can either be interpreted as intransitive (VS) or transitive ($V_{pro}O$) since the arguments do not display overt Construct-marking. The distinction in form between the two States is important in that it allows for a proper interpretation of the argument at LF. So, the argument that is marked for CS is always interpreted as the subject and the one that is in FS is interpreted as the object. Although the arguments below display no morphological information on the CS, a distinction is still made at the production level (phonology). If the NP that is marked for CS forms a PhW with its c-commanding head as shown earlier, whereas the FS NP does not, this should apply to all cases including NPs that do not necessarily display overt marking. That is, VO should be produced as two separate phonological sequences whereas the VS combination should be produced as one single sequence. Although these distinctions may often be partially obscured by surface phonological processes which generally occur in casual speech, the distinction however can clearly be noticed in careful speech. The VS sequence is produced as a single phonological utterance while the VO sequence is produced as two separate utterances. This would also be expected under the proposed theory, in that only NPs whose prefix is specified for [+CS] are expected to be part of the syllabic domain of the verb or preposition, but the ones that are specified for [−CS] should be part of a new phonological domain.

(72) ʃʃi-n i-nβʒiw-n VS **Phonology:** $[ʃʃi.ni.nəβ.ʒi.wən]_{Phw}$
eat.PERF-3M.PL PL-guest-PL
'The guests have eaten.' $V_{pro}$ O **Phonology:** $[ʃʃin]_{Phw}$ $[i.nəβ.ʒi.wən]_{Phw}$

(73) ð-xwa ð-ara VS **Phonology:** $[ðəx.wa.ða.ra]_{Phw}$
3F.SG-empty.PERF F-spring
'The spring is empty.' $V_{pro}$ O **Phonology:** $[ðəx.wa]_{Phw}$ $[ða.ra]_{Phw}$

It is important to note that there are other phonological processes that do not necessarily follow from syntax. For instance, the data below are idiomatic constructions and have the complement of the preposition phonologically merging with the higher NP, not with the preposition, as can be seen from the surface representation in (74–76). Cases like these, within the proposed theory, are part of the phonological readjustment rules that occur following Vocabulary Insertion. When the NP is marked for CS by the preposition in the syntax, the derivation is then sent for interpretation by the PF interface where syntactic nodes are supplied with their phonological content. After insertion, the preposition *n-* 'of' then gets vocalised next to a vowel and deleted. It is this process that allows the lower NP to then merge with the higher NP. So, cases like these should be kept separate from true CS configurations where syntax and phonology match each other.[43]

(74) Tama ~~n~~ içfa **Phonology:** $[ta.ma]_{PhW}$ $[niç.fa]_{PhW}$
Tama ~~of~~ turtle.CS
'A woman's nickname/surname.' **Readjustment Rules:** [ta.ma.jəç.fa]

(75) radʒa ~~n~~ u-xam **Phonology:** $[ra.da]_{PhW}$ $[nu.xam]_{PhW}$
aunt ~~of~~ CS-room
'Woman-ghost.' **Readjustment Rules:** $[ra.da.wə.xam]_{PhW}$

(76) ð-aðuf-θ ~~n~~ i-ʒra **Phonology:** $[ða.ðu.fəθ]_{PhW}$ $[niʒ.ra]_{PhW}$
F-wool-F ~~of~~ PL-frog.CS
'Water-weed.' **Readjustment Rules**: [ða.ðuf.θi.jəʒ.ra]

[43] Marantz (1988) argues that the auxiliary 'will' in English cliticises to the pronoun subject, yet this cliticisation has no syntactic motivation. Another common issue which is often discussed in the literature is the past tense in English. On the assumption that tense occupies I-(nflection), the morpheme '-ed' appears suffixed to the verb even though the verb in English does not move to I. Some works have proposed that tense lowers to V under phonological adjacency (Embick and Marantz, 2008).

In his discussion of some aspects of Tamazight phonology, Idrissi (2001) demonstrates that the /j/ may be inserted between the verb and the object in some VO sequences, but the same process cannot apply to some other VO sequences. He argues that the form on the left-hand side in the data below in (77–78) is the underlying representation whereas the form on the right-hand side is the phonetic representation. In (77), the two representations match each other. In (78), which was discussed earlier in (61), the glide /y/ is inserted between the verb and the object for phonological reasons he provides, the details of which are not discussed here for lack of space. So, cases like these clearly show that this process is not syntactically motivated since the two configurations are identical (both are VO clauses). It can then be argued that instances like these are similar to their Tarifit counterparts in (74–76) and should therefore not be treated the same as the CS configurations where phonology is sensitive to the syntactic output.

(77) /žr azyaw/ [žr azyaw] 'throw the basket'

(78) /žr azyaw/ [žr y azyaw] 'throw the basket'

Idrissi (2001:62)

## 8. Concluding remarks

This paper investigated the Berber Construct State. It is argued that the phenomenon is essentially syntactic. The exact nature of this structural relation follows from an idiosyncratic property of the Berber morphosyntax involving the NP and a higher c-commanding head that is P or T.

A close examination of the morphosyntactic structure of the NP reveals that the CS is marked on the category-defining head. The fact that the lexical root, which encodes encyclopaedic information, is excluded from this relation is predicted under a modular approach which splits the structure along syntactic and semantic lines.

The paper also discussed some phonological ramifications of this syntactic phenomenon. Following the interpretation of the CS configuration by the phonological component, the CS NP and its higher c-commanding head were argued to be spelt out at PF as one PhW. This typology, I believe, was well-articulated in a framework where phonology is a post-syntactic component which only follows from what is provided by the syntax.

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## References

Arad, M., 2005. Roots and Patterns: Hebrew Morph-syntax. Studies in Natural Language and Linguistic Theory. Springer, Dordrecht, The Netherlands.

Bader, Y., Kenstowicz, M., 1987. Syllables and case in Kabylie Berber. Lingua 73 (December), 279–299.

Bendjaballah, S., Haiden, M., 2008. A typology of emptiness in template. In: Hartmann, J., Hegedus, V., van Riemsdijk, H.C. (Eds.), Sounds of Silence: Empty Elements in Syntax and Phonology. Elsevier, Amesterdam, pp. 21–57.

Bendjaballah, S., Haiden, M., 2013. The representational anomalies of floating markers: light prepositions in Taqbaylit of Chemini. In: Biberaurer, T., Roberts, I. (Eds.), Challenges to Linearisation. Mouton de Gruyter, Berlin/New York, pp. 331–375.

Cadi, K., 1987. Système Verbal Rifain: Forme et Sens Linguistique. SELAF, Paris.

Cadi, K., 1990. Transitivité et Diathèse en Tarifit. Analyses de Quelques Relations de Dépendance Lexicales et Syntactiques (Doctorat D'état). Sorbonne Nouvelle, Paris, France.

Chaker, S., 1983. Un Parler Berbère D'Algerie (Kabylie). (Doctorat D'état). Université de Provence, Marseille, France.

Chaker, S., 1995. Linguistique berbère: études de syntaxe et de diachronie. Selaf number: 353. Peeters Publishers, Paris-Louvain.

Chomsky, N., 2001. Beyond Explanatory Adequacy. MIT Occasional Papers in Linguistics, vol. 20, Massachusetts.

Chomsky, N., 2004. Beyond explanatory adequacy. In: Belletti, A. (Ed.), The Cartography of Syntactic Structures, vol. 3. Oxford University, New York.

Dell, F., El Medlaoui, M., 1985. Syllabification consonants and syllabification in Imdlawn Tashlhiyt Berber. J. Afr. Lang. Linguist. 7, 105–130.

Dell, F., Jebbour, A., 1995. Sur la morphologie des noms en berbere (shluh de tiznit, Maroc). Langues orientales Anciennes. Philologie et linguistque 5–6, 221–232.

Dell, F., Tangi, O., 1992. Syllabification and empty nuclei in Ath-Sidhar Rifian Berber. J. Afr. Lang. Linguist. 13, 125–162.

Dell, F., Tangi, O., 1993. On the vocalisation of /r/in Aith-Sidar Rifian Berber. Linguist. Commun. 1–2, 5–53.

El Hankari, A., 2010. The Morphosyntax of Tharifith Berber (PhD dissertation). The University of Queensland, Brisbane, Australia.

El Moujahid, E., 1997. Grammaire Générative Du Berbère. Morphologie et Syntaxe du Nom en Tachelhit. Publications de la faculté des Lettres et des Sciences Humaines, Rabat, Maroc.

Embick, D., Marantz, A., 2008. Architecture and blocking. Linguist. Inq. vol. 1 (Winter), 1–53.
Embick, D., Noyer, R., 2001. Movement operations after syntax. Linguist. Inq. 32 (fall), 555–595.
Ennaji, M., 2001. The construct state in Berber. Stud. Linguist. Sci. 31 (2).
Fassi-Fehri, A., 1993. Issues in the Structure of Arabic Clauses and Words. Kluwer Academic Publishers, The Netherlands.
Guerssel, M., 1983. A phonological analysis of the Construct State. Linguistic Analysis 11, 309–330.
Guerssel, M., 1986a. Glides in Berber and syllabicity. Linguis. Inq. 17 (1), 1–12.
Guerssel, M., 1986b. On Berber Verbs of Change: A Study of Transitivity Alternations. Lexicon Project Working Papers. MIT.
Guerssel, M., 1987. The Status of the Lexical Category Preposition in Berber: Implications for the Nature of the Construct State. Lexicon Project Working Papers. MIT.
Guerssel, M., 1992. On the case system of Berber. Can. J. Linguist. 37 (June), 175–195.
Halle, M., 1997. Distributed Morphology and: Impoverishment and Fission. MIT Working Papers in Linguistics, vol. 30. pp. 425–449.
Halle, M., Marantz, A., 1993. Distributed morphology and the pieces of inflection. In: Hale, K., Keyser, S.J. (Eds.), The View from Building, vol. 20. MIT Press, Cambridge, MA, pp. 111–176.
Harley, H., Noyer, R., 1998. Licensing in the Non-Lexicalist Lexicon: Nominalizations, Vocabulary Items and the Encyclopaedia. MIT Working Papers in Linguistics, vol. 32. pp. 119–137.
Idrissi, A., 2001. Towards a Root-and-Template Approach to Shape-invariant Morphology (Ph.D. dissertation). Université du Québec a Montréal.
Jebbour, A., 1988. Processus de formation du pluriel nominal en Tamazight (tashlhit de tiznit). Université Mohammed V, Rabat.
Kayne, Richard, 1994. The Antisymmetry of Syntax. The MIT Press, Cambridge, MA.
Lowenstamm, J., 2008. On little n, √ and types of nouns. In: Hartmann, J., Hegedus, V., van Riemsdijk, H.C. (Eds.), Sounds of Silence: Empty Elements in Syntax and Phonology. Elsevier, Amsterdam, pp. 106–143.
Marantz, A., 1988. Clitics, morphological merger and the mapping to phonological structure. In: Hammond, Michael, Noonan, Michael (Eds.), Theoretical Morphology. CLC Publications, Ithaca, pp. 253–270.
Marantz, A., 1996. Cat as a Phrasal Idiom: Consequences of Late Insertion in Distributed Morphology, Ms, MIT.
Marantz, A., 1997. No Escape from Syntax: Don't Try Morphological Analysis in the Privacy of Your Own Lexicon. University of Pennsylvania Working Papers in Linguistics, vol. 4. pp. 201–225.
Memmeri, M., 1986. Précis de grammaire berbère (kabyle). Awal, Paris.
Noyer, R., 1992. Features, Positions, and Affixes in Autonomous Morphological Structure. (Doctoral dissertation). MIT.
Noyer, R., 1997. Features, Positions, and Affixes in Autonomous Morphological Structure. Garland Publishing, New York.
Ouali, H., 2011. Agreement Pronominal Clitics and Negation in Tamzight Berber: A Unified Analysis. Continuum International Publishing Group, London, New York..
Ouhalla, J., 1988. The Syntax of Head Movement: A Study of Berber (Ph.D. dissertation). UCL, London.
Ouhalla, Jamal, 1993. Subject Extraction, Negation and the Anti-Agreement Effect, Natural Language and Linguistic Theory, vol. 11. Springer Netherlands, Dordrecht, pp. 477–518.
Ouhalla, J., 1996. The construct state in Berber. In: Lecarme, J., Lowenstamm, J., Schlonsky, U. (Eds.), Studies in Afroasiatic Grammar. John Benjamins, Amsterdam, pp. 279–301.
Ouhalla, Jamal, 2005. Agreement Features, Agreement and Anti-Agreement. Natural Language and Linguistic Theory, vol. 23. Springer Netherlands, Dordrecht, pp. 655–686.
Pesetsky, D., 1982. Paths and Categories (Doctoral dissertation). MIT, Cambridge, MA.
Prasse, K., 1973. Manuel de grammaire Touareg [Tahaggart]. University of Copenhagen, Copenhagen.
Progovac, Ljiljana, 1998b. Structure of coordination, Part 2. GLOT Int. 3 (8), 3–9.
Tangi, O., 1991. Aspects de la phonologie d'un parler berbère du Maroc: Aith-sidhar. (Doctorat d'Etat). Université de Paris, pp. 8.