

SYLLABLE STRUCTURE IN TARIFIT AND LEARNING DUTCH AS A SECOND/FOREIGN LANGUAGE.

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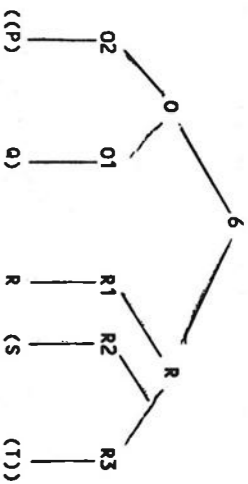
The present paper attempts to shed light on the nature of syllable representation in the Asht Touzine Tarifit variety of berber (Henceforth ATT) spoken in the central part of the Rif area in Morocco. The goal of this attempt is to understand why native speakers of ATT, especially uneducated ones, tend to syllabify some forms in Standard Dutch differently from the way native speakers of Dutch do. A sketch of the ATT syllabification rules will be given in the course of the paper, while no such attempt will be made for Dutch: the intuitions of Dutch native speakers as to where syllable boundaries occur are the only means that made accessible to us the nature of syllable representation in Dutch.

1- Syllable Structure in ATT

The Syllable Template exhibiting the maximum and minimum number of syllable terminal positions in ATT is the following:

1. I am indebted to the following Dutch native speakers for their help in my investigation of the Dutch syllable structure: P. Bos¹ (University of Leiden), L. Buskens (University of Leiden), N. Vollebreght (University of Amsterdam), and R. Rutten. My thanks go also to the following ATT native speakers: El Boudounfi, El Mokhtar, and El Aissati.

(1) Syllable template of ATT



Expressed informally, a syllable in ATT is made up of one obligatory constituent (that filling the R1 slot, or syllable terminal position), and four optional elements. The constituents that fill syllable terminal positions are subject to the following sonority conditions (See (3) below for the table of segments and their sonority indices):

(2) Sonority Conditions on syllable terminal positions:

- a. The segment filling the O1 position must have a sonority index inferior or equal to that of the segment in the R1 slot.
- b. The segment filling the O2 slot must have a sonority index inferior or equal to that of the segment in the O1 slot.
- c. The segment in the R2 slot must have a sonority index inferior to that of the segment in the R1 slot.
- d. The segment in the R3 position must have a sonority index inferior to that of the segment in the R2 slot..

At the level of lexical representation, segments are assigned sonority indices on the basis of a partly universal sonority hierarchy. The sonority hierarchy proposed for ATT is in (3) below.

2. For the role of sonority indexing see Hankamer and Aissen (1974), selkirk (1984). For the transcription of sounds I use the IPA notation.

(3) Sonority Hierarchy of ATT:

Segments	Sonority Indices
a	8
i, u	7
l, r, r	6
m, n	5
β, ʒ, z, ʒ,	4
ʒ, γ, h	4
f, θ, s,	4
ʃ, x, ʰ	3
b, d, g	2
t, k, q	1

A byproduct of the theory of Sonority Indexing is that the major class feature [Syllabic] be dispensed with (cf. Selkirk 1984). Hence, segments are underlyingly unspecified for that feature, i.e. [syllabic]. Whether or not a segment is syllabic depends on the position that segment fills in the syllable: if it fills the position R1, it automatically receives the specification [+syllabic]; a segment in a position other than R1 is interpreted as [-syllabic].

In berber, Att included, any segment can receive the interpretation [+syllabic] provided it fills the R1 slot (cf. El Medlaoui (1985), Boukous (1987), El Aissati (1989)). Before proceeding to the examination of how segments are associated to syllable terminal positions, it is necessary to provide conditions ruling out unacceptable syllable representations in ATT. These are given in (4):

(4) Well Formedness Conditions :

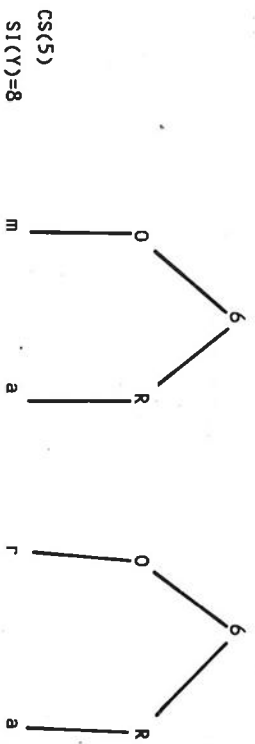
- a. Association lines do not cross (Goldsmith 1976)
- b. Adjacent identical segments at the segmental tier are not allowed (The Obligatory Contour Principle, Goldsmith 1978)
- c. Extrasyllabic segments are not allowed.

The first rule for building a syllable in ATT is the core syllable building which is formulated below :

(5) Core Syllabification (CS)

Build a core syllable O1 R1 on any sequence of unsyllabified segments XY, where the sonority index of Y is superior or equal to that of X. By CS(5) above, a form like marā 'if' will receive the following syllabification :

(6)



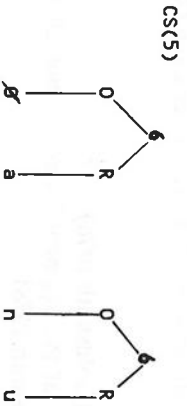
Yet a form like anu 'well' cannot be syllabified by CS(5), since there is no segment on the left of a to function as an X in a sequence XY. That a is an independent syllable in anu confirmed by the intuition of ATT native speakers who syllabify anu as anu (where the dot indicates a syllable boundary). Thus, it becomes clear that there is need for a special proviso to allow onsetless syllables, the effect of which is formulated in (7):

(7) Onsetless Syllables :

CS(5) can build syllables with an empty O1 position (i.e. onsetless syllables) if Y is immediately preceded by a pause.

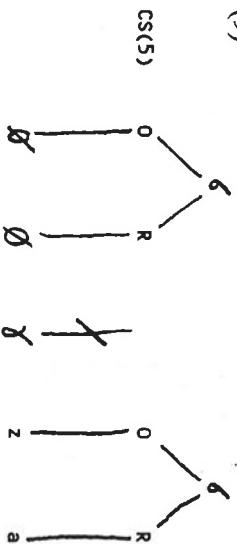
Now, the form anu can be syllabified in conformity with the intuition of ATT native speakers :

(8)



CS(5) and condition 7 can generate unacceptable syllable representations if they apply to forms such as asʃʃ; 'she digged', as illustrated below:

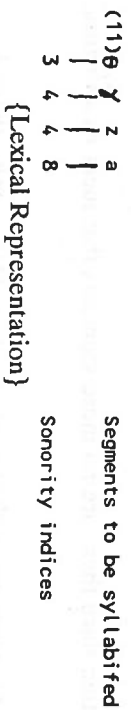
(9)



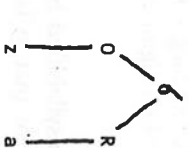
The representation in 9 is unacceptable because (a) it violates the W1 4c. and (b) it does not conform to the intuitions of ATT native speakers, who scan the form as ʃʃ.za. The following principle ordering the application of CS is proposed to account for the problem at hand :

(10) CS(5) operates first on sequences XY where Y has the highest sonority index in a string of segments to be syllabified, and proceeds to another sequence XY where Y has the next lower sonority index.

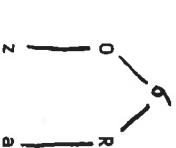
In other words, there are a number of ordered passes of CS(5), illustrated through the following derivation:³



CS(5): First pass: S1(Y)=8 ʃ z

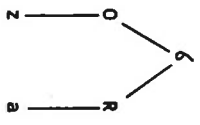


Second pass S1(Y)=7 ʃ z

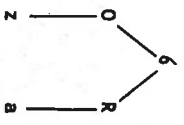


3. See Dell and El Medlaoui (1985) for ordered passes in Tashelhit.

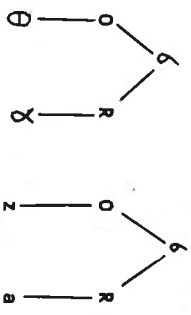
Third pass $SI(Y)=6$ θ λ



Fourth pass $SI(Y)=5$ θ λ



Fifth pass $SI(Y)=4$



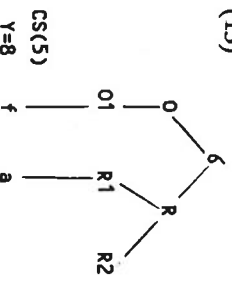
CS(5) stops operating since there are no more segments that meet its structural description.

Since CS(5) generates syllables of the type O1R1 only, there is an obvious need for a rule to generate larger syllables (see ATT syllable Template in (1) above). This rule is the coda assignment rule:

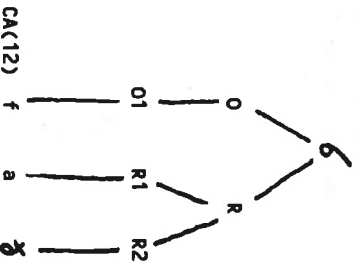
(12) Coda Assignment (CA)

Assign any segment unsyllabified by CS(5) to the syllable on its left to form an element of the rime of that syllable. A form like fao 'thirst' will be syllabified as in (13) below:

(13)



CS(5)
Y=8



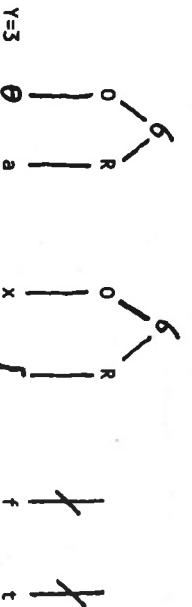
CA(12)

A problem with the ATT syllabification algorithm elaborated so far is revealed by forms such as θ axft 'the trap', which is syllabified by ATT native speakers as θ axft, whereas the application of the syllabification algorithm to this form will yield an unacceptable result (as in (14a)), or an acceptable one (14b), depending on whether it takes the segments x λ or the segments λ f as the sequence XY to be syllabified:

(14) a.



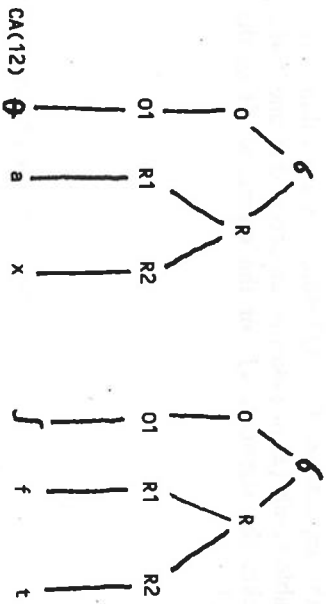
CS(5)
Y=8



Y=3

The segment *f* cannot be appended to the syllable on its left because its sonority index is the same as that of *ʃ* (See Sonority condition 2c. above). The segments *f* and *t* remain unsyllabified (or extrasyllabic) which violates the well-formedness condition (4c.).

b.



Specifying a parameter of Right-to-Left directionality for the syllabification algorithm will yield the acceptable syllable representation. The directionality parameter is formulated as follows:

(15) Directionality

CS(5) operates from right to left

By (15), CS(5) will operate from right to left. The form *OaxStf* 'the trap' therefore, will receive the acceptable syllabification given in (14b) above.

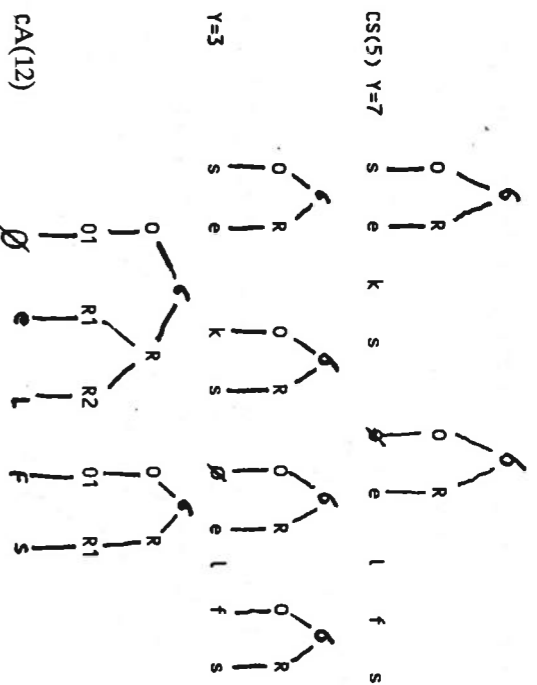
II. ATT Syllable Structure And Learning Dutch as a Second/Foreign language:

Native speakers of ATT realize the Dutch monosyllabic forms in (16a) as disyllabic (16b.):

(16)a. *elfs* 'eleven' *seks* 'sex' *kans* 'luck'
 b. *el.fs* *se.ks* *kan.s*

The form *elfs* and *kans* cannot be realized as monosyllabic in ATT. The syllabification algorithm, and in particular CS(5) would treat the segments *ks* in *seks* and *fs* in *elfs* as XY sequences where $SI(Y) > SI(X)$ [fn. in *ks* $SI(s) > SI(k)$; $SI(s) = 3$, $SI(k) = 1$; thus $SI(s) > SI(k)$. In *fs*, $SI(f) = 3$, $SI(s) = 3$; thus $SI(f) = SI(s)$] and build a core syllable of the sequence *ks* (17a.), and a core syllable on the sequence *fs* (17b.):

4. Forms like *mJO* 'learn, you, Pl.', *XmO* 'work, you, Pl.', *ʃnO* 'step over, you, Pl.', and *ʃn* 'repair, you, Pl.' are obvious counter-evidence to the analysis presented here. It is curious that these forms, and other ones presenting the same problem, are second person plural verb forms. Boukon (*pers.com.*) brought to my attention the fact that the plural morpheme in *tashelhit* -corresponding to *t* or *ʃ* in *Tarifit* - is *al* in *Tashelhit*. It might be the case that the problem presented by the plural paradigm in question is due to historical considerations. Other forms presenting problems to the present analysis are those with a word final sequence XYZ where the $SI(X) > SI(Y) > SI(Z)$, like *Oisinf* 'needle'. Allowing for a principle to make a non-syllabic syllable would result in adjacent syllable nuclei. It is not crucial to the topic of the paper to investigate into this issue.



In addition to the forms analyzed closely above, our Moroccan informants were presented with a list of words from ATT, and they were required to give the corresponding Dutch translations. Thesetranslations had been given to Dutch informants to syllabify them. In some cases the translations did not correspond to the forms given to Dutch speakers (the control group), in which case the forms were not included in the list below: (column a: syllabification of Dutch native speakers, b: syllabification of ATT native speakers.)

18 a.	b.	c: glossary
zwar.tst	zwar.tst	'the blackest'
herfst	her.fst	'autumn'
hengst	hen.gst	'stallion'
erfst	er.nst	'serious'
aan.komst	aan.ko.mst	'arrival'
af.knip.pen	a.fk.nip.pen	'cut off'
af.stell	a.fs.tell	'adjust'
af.tre.den	a.ft.re.den	'retire,reging'

The obvious conclusion to draw from the analysis above is that ATT native speakers do transfer, or simply apply, syllabification rules at play in their

native language to Dutch form, and thus realize a lot of these forms differently from the way these are pronounced by Dutch native speakers.

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