

# Syllables in Tashlhiyt Berber and in Moroccan Arabic

by

FRANÇOIS DELL

*EHESS-CNRS,*

*Paris, France*

and

MOHAMED ELMEDLAOUI

*Faculté des Lettres,*

*Oujda, Morocco*



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leads us to proceed differently. The stretches of linguistic material involved in judgements about text-to-tune alignment are not isolated words, but word sequences coterminous with lines of verse. In view of this we will discuss word sequences directly.

#### 4.2. TASHLHIYT VERSE AND SINGING

Let us begin with a caveat. The relevance of poetic meter for our understanding of the phonology of Tashlhiyt in its colloquial uses is apt to be obscured by associations which terms such as 'poetry' and 'verse' carry in literate cultures with a written corpus of poetry which has accumulated over several centuries. In France, for instance, these terms bring to mind activities which involve conscious effort, rote learning and specialized skills acquired through formal teaching. However there are occasions when native speakers of French engage in activities which are closer, for the purposes of our discussion, to Tashlhiyt poetry: as children, many have had the experience of making up new words and singing them to the tune of a well-known jingle or nursery rhyme.

In Imdlawn, poetry is inseparable from music. Except in one situation,<sup>19</sup> lines of verse are never heard unless sung to a musical tune. One cannot lay too much emphasis on the importance of the connection between poetry and singing in Ashliy culture. To be sure, the metrical structure of a line of verse is the same regardless of whether that line is sung or not. But singing brings the meter of verse in sharp focus, for the metrical structure of a sequence of words is a key element in the mental computations which enable the singer to keep the words in step with the tune.

In France virtually all singing involves pieces in which the words have been memorized. The people in Imdlawn have a repertory of such pieces, e.g. lullabies (*a-snuhnnu*) and songs sung while preparing the bride (*a-sallaw*), but in many occasions they engage in a singing of a different kind, in which a familiar tune is combined with newly coined words. This happens for instance in oratorical contests such as the one transcribed in Appendix III at the end of this book. It also happens in a genre called *t-iʃza*, in which a group of people sing together to a fixed tune verse improvised on the spot by one of them.<sup>20</sup> Only certain people in Imdlawn are able to improvise verse worth listening to, but anyone there has the ability to sing to a tune words which they have never heard sung to that tune before. There is no explicit teaching of the conventions which regulate the struc-

<sup>19</sup> During a conversation a well-known line may be quoted on account of its content, as one quotes proverbs.

<sup>20</sup> V. also the description of *a-ħwas* in Basset (1952/1987: 87). On *aħwas*, a rural party with dances, see Schuyler (1979: 49–52).

ture of verse or its relation to music. The children of Imdlawn simply acquire them through repeated listening, as French children do.

The conditions which ME has experienced in Imdlawn presumably hold throughout the Ashliiy area, or at least they did until very recently. For discussions of poetry and music in Ashliiy society, v. Galand-Pernet (1972) and Lortat-Jacob (1980). The relative linguistic homogeneity of the Ashliiy area has allowed it to evolve a common poetic tradition. This tradition is embodied in the *!rrays*,<sup>21</sup> a travelling singer and musician who makes a living by giving performances. Some *!rrways* are also poets who perform their own works. Nowadays cassette recordings and the radio contribute powerfully to the diffusion of these works, not only in Morocco, but also among the expatriates abroad.

During the last centuries *tashliyt* poems have occasionally been written down in Arabic script.<sup>22</sup> Since the Thirties many recordings have been made of performances by *!rrways*. Some of these have been put down in writing and published in anthologies aimed at Ashliiy people who are literate in Arabic, e.g. Amarir (1975).

In recent years some intellectuals have started a new trend of delivering their compositions without singing. The people in the audience are still able to spot ill-formed lines of verse, although there is no text-to-tune correspondence to help them in their judgements.

In what follows we will discuss certain basic properties of the structure of verse in *Tashliyt* poetry. Ultimately, the evidence we will make use of in our discussion is native speakers' judgements about the well-formedness of lines of verse. One way such judgements are manifested is through text-to-tune alignment in singing. Aligning a text with a tune is something that people do 'automatically', i.e. without deliberation. As already stated, all the speakers in Imdlawn can do it, and they do not have to be taught how to do it; they just pick it up during their early years. This suggests that while performing the mental operations which are needed to compute the metrical structure of lines of verse the Ashliiys rely to a great extent on abilities which they possess anyway as speakers of their language, independently of their musical experience, e.g. they presumably break down the poetic text into phonological units which are more or less those used in processing nonpoetic language.

Let us first discuss briefly the relationship between words and music in singing.

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<sup>21</sup> From underlying */l-!rays/*. The plural is *!rrways* and the feminine singular *!tarrayst*. On the *!rrways*, their music and the social and economic background of their activity, see Schuyler's (1979) outstanding work.

<sup>22</sup> See Stroomer (1992) and Boogert (1997).

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#### 4.3. SINGING WORDS TO A TUNE

Among the facts about how Ashlhiys put words to music, those which are relevant to our discussion of syllabification are quite straightforward. Let us illustrate the kind of facts we have in mind with an example from French. The facts of French are analogous to those of Berber but the data may be more familiar to some readers.<sup>23</sup>

Let us consider three lines in the first stanza of *Au clair de la lune*, a nursery rhyme widely known in the French-speaking world.<sup>24</sup>

- (12) a. Au clair de la lune, mon ami Pierrot.
- b. Prête-moi ta plume pour écrire un mot.
- c. Ouvre-moi ta porte pour l'amour de Dieu.

Each of the lines in (12) is sung to the same eleven note tune; in that tune the duration of the fifth, sixth and eleventh notes is twice that of that of any of the others. Limiting ourselves to durations, the tune can be represented as in (13), where '\*' and 'o' respectively represent an eighth note and a quarter note.

(13)	1	2	3	4	5	6	7	8	9	10	11
	*	*	*	*	o	o	*	*	*	*	o

To be able to sing the song, it is not enough to know separately the text and the tune. One must furthermore know how to align them together. The mental computations involved in text-to-tune alignment presumably require that certain features in the text be taken as landmarks and be matched with landmarks in the tune. In French singing it is syllable nuclei which provide the relevant landmarks for the mapping of texts onto tunes. One can infer certain aspects of the syllable structure of a sequence of words from the way it can be sung to a tune. Let us imagine that the phonology of French had yet been little studied and that we were trying to discover more about it by doing fieldwork on singing. Let us pretend in particular that we knew next to nothing about syllabification in French. What kind of evidence could we gather from singing? We give below a broad phonetic transcription which represents the words in (12) as they are pronounced when sung in that particular song. The blanks at word boundaries are for the readers' convenience. Square brackets indicate vowels which do not occur when the text is delivered by a speaker of Standard French with a pronunciation appropriate in everyday conversation.

<sup>23</sup> See the appendices at the end of this book for musical scores of Ashliyt tunes and words sung to these tunes.

<sup>24</sup> The music and words of the song can be found in Davenson (1955: 581).

(14) a. o kler dœ la lün[œ] mōn ami pyero  
 b. pret[œ] mwa ta plüm[œ] pur ekrir ē mo  
 c. uvrœ mwa ta pörtœ pur lamur dœ dyö

If we were to ask our informants to sing the song several times we would notice that the manner in which the speech sounds associate with the notes in the tune remains more or less the same in every repetition. In particular, certain vocoids always align with certain notes. The alignments one would observe are represented below. Each number in the top row stands for a note in (13).<sup>25</sup>

(15)	1	2	3	4	5	6	7	8	9	10	11
a.	o	kl	ɛ	rd	œ	l	al	ün	œ	m	õ
b.	pr	ɛ	t	œ	mw	a	t	a	pl	ü	m
c.	u	vr	œ	mw	a	t	a	p	ɔ	rt	œ

pur lámur dœ dyö

Although these alignments remain constant from one performance to the next, they need not be memorized by the singers. We would come to realize this when we discovered that all our informants have the ability to use a tune they already know as a carrier for words which they have never heard before, e.g. they can use tune (13) to sing *j'ai perdu ma montre dans un autobus* 'I lost my watch in a bus':

(16) *j'ai perdu ma montre dans un autobus*

1	2	3	4	5	6	7	8	9	10	11
ž	e	p	ɛ	rd	ü	m	a	m	õ	tr

œ d ā z ē n ɔ t ɔ b ü s

Most speakers can do this without rehearsal and with no apparent effort. The publishers of song anthologies assume that the readers have such an ability, witness the fact that in each song the text-to-tune alignment is indicated only for the first stanza.

The speakers can also determine whether a sequence of words and a tune fit together. Take *j'ai perdu ma montre dans un autobus* and replace *perdu* (two syllables: /per.dü/) with *oublié* 'forgotten' (three syllables: /u.bli.ye/), and the resulting text does not fit anymore with tune (13). The speakers know this by trying to sing the text to the tune and seeing whether they can reach the end of the text without 'getting stuck'. One 'gets stuck' when one stops singing because one loses all hope of achieving a legitimate association between the words and the tune. The reason the sequence

<sup>25</sup> Actually this is a simplification. It would be more accurate to say that each number represents a point in time, i.e. the onset of a note (v. Cornulier 1995: 116–120, 280) or a musical beat (v. Hayes and Kaun 1996). Text-to-tune alignments are effected primarily by pairing up the metrical structure of the text with the rhythmical structure of the tune.

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*j'ai oublié ma montre dans un autobus* cannot be sung to tune (13) is that that sequence has one syllable too many. A basic regularity which governs text-to-tune alignment in French – and in Berber – is that two successive syllables in the text cannot be associated with the same occurrence of one note in the tune.

Many speakers can also make judgments of a finer nature. They find certain fits between text and tune better than others. If *ma montre* is replaced with *mon stylo* (/mõ.sti.lo/ 'my fountainpen') in (16), the resulting text can still be sung on tune (13), but the speakers have the feeling that the fit between the text and the tune is not as good as in (16).<sup>26</sup>

The phenomenon which is recorded in (15) is an alignment between certain vocoids and certain notes. But such an alignment is only an observable consequence of a more abstract alignment which involves phonological constituents (syllables), not individual segments.

By now it should be obvious how text-to-tune alignment in singing can be used as a source of data on the syllable structure of French. Consider *éblouira* 'will dazzle' and *débrouillera* 'will disentangle', which are pronounced [e.blu.i.ya] and [de.bru.ya] in Standard French. As indicated by our transcriptions the first word is comprised of four syllables, and the second of three. When the words are embedded in a sentence spoken at normal speed the difference between [i] and [y] may not be easy to grasp to an ear unattuned to French. But have French speakers try to sing the two words to a particular tune, and the difference will no longer be in doubt. If tune (13) is used as a carrier for the sentence *Au clair de la lune, Luc s'y débrouillera* ([. . . lüksidebruyra]), the words flow effortlessly, with one vowel aligned with each of the notes in the tune. With sentence *Au clair de la lune, Sara t'éblouira* ([. . . saratebluira]), on the other hand, speakers will report that the words do not fit very well. They may be able to patch things up, for instance by cramming the two syllables of *Sara* into position 7 in (13), but this amounts to singing to a different tune, a tune derived from (13) by changing the eighth note in position 7 into two sixteenth notes.

Text-to-tune alignments such as (15) provide direct evidence about the location of syllable nuclei. It may be the case that they could also give direct evidence about syllable boundaries. We have not looked into that question. In our work on Tashlhiyt, verse is used as a means of observing where syllable nuclei lie in a string. Our claims concerning syllable boundaries were arrived at indirectly, through inferences based on our observations about the location of nuclei.

French was brought in only as an expository device, and there is no point

<sup>26</sup> The implicit conventions which govern text-to-tune alignment in French nursery rhymes favor a 'feminine schwa' on the sixth note of tune (13). *montre* may be pronounced with such a vowel in its final syllable, whereas *stylo* cannot.

here in pursuing the question of exactly how much one can infer about the syllable structure of French from a systematic study of alignments such as those in (15). We now turn to the same question for Tashlhiyt.

#### 4.4. PARSING TASHLHIYT VERSE: PRELIMINARIES

The starting point of our work on poetic scansion is Hassan Jouad's pioneering work on versification in Tashlhiyt and Tamazight, for recapitulations of which v. Jouad (1990, 1995). Jouad's corpus contains both Tashlhiyt and Tamazight poems and he does not distinguish between the two dialect groups in his discussion of the data. Since we want to be able to characterize exactly the relationship between phonological structure and poetic convention we have found it wise to begin by limiting ourselves to Tashlhiyt, for which we have detailed firsthand knowledge of the phonology. We have examined close to one thousand lines of Tashlhiyt verse. The pieces in our corpus fall in two classes.

A first class is comprised of poems taken down in Arabic script by Ashlhiy speakers and published in various books. ME retranscribed these pieces according to his own pronunciation. This is not always a straightforward matter because of some ambiguities in the Arabic transcriptions. To retranscribe a piece ME sang it line after line to the tune to which it was sung when first taken down; when he did not know the tune in question he used another to which he felt the lines sang naturally. Two pieces belonging to this first class can be found in Appendices II and III at the end of this book.

This part of our corpus contains the following pieces: two songs by !rrays El-hajj Belaid, in Mestaoui (1996: 24, 38–39); one by !rrays Hmad Biyzmawn, one by !tarrayst Rqiya Tandmsirt and one by !rrays Mohmmad Andmsir, in Amarir (1975: 139–143, 147–150, 132–138); two improvised oratorical encounters between Asid and Lachgar, transcribed from tape in Asid and Lachgar (1996: 23–29, 83–86). The total number of lines in these pieces is 380.

The other part of our corpus is comprised of poems presented by Jouad and Bounfour in their studies of Berber versification. Either author gives each line in a broad phonetic transcription, together with a French translation and a parsing which is consonant with his particular views about Berber versification. In addition to the whole corpus of Bounfour (1984), i.e. 322 lines in Igliwa Tashlhiyt, we have examined 276 lines in various Tashlhiyt dialects published by Jouad, viz. 8 lines in poem II in (1990: 284) and the 268 lines transcribed in pp. 94–116 and 134–141 of his 1995 book; these lines are parsed in pp. 178–201 and 216–223 in that book.

In poetic scansion, a Berber text is broken into small successive chunks. Borrowing a term from Malone (1996), we shall call these chunks orthometric syllables, to distinguish them from the syllables of the colloquial

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language.<sup>27</sup> For the sake of brevity, in what follows we shall refer to orthometric syllables as syllables *tout court* when there is no risk of ambiguity.

Jouad was the first to realize that Tashlhiyt and Tamazight versification distinguishes between heavy and light syllables and that the syllables in a poem can often be arrayed to form a table such as (19) below, where all the syllables in the same column have the same weight. Tahar (1975) had earlier made the same discovery for *melħun*, a verse genre in Arabic.<sup>28</sup>

In all of Jouad's work orthometric syllables are set up for reasons which are independent of any particular views concerning the phonology of Berber. In DE (1988) we pointed out the connection between orthometric syllabification and syllabification outside of poetry.

The analysis we will present here is essentially the same as that in DE (1997a). It differs in some respects with our predecessors' views about poetic scansion, for which v. Bounfour (1984), Jouad (1983, 1986, 1987, 1990, 1995), Jouad and Lortat-Jacob (1982). A comparison of our analysis with theirs can be found in DE (1997a). Let us simply say here that the main difference between our analysis and theirs concerns the distribution of syllable nuclei. As we shall show below the location of syllable nuclei in a string is to a great extent predictable from the segments and their order in the string. Jouad in effect takes syllable nuclei as already given in the strings which are inputs to his parsing operations. Unlike Jouad, Bounfour attempts to predict the location of nuclei in consonant sequences. Unfortunately his whole approach is predicated on the assumption that the syllable structure of the Tashlhiyt dialect of his corpus (Igliwa Tashlhiyt) is the same as that of Ayt Ndir Berber, a dialect of the Tamazight group whose syllable structure is discussed in Saib (1978). This assumption, which we feel is wholly unwarranted, leads to serious problems, about which see DE (1997a).

#### 4.5. PATTERN SATISFACTION

In Berber poetry it is common for all the lines of a piece to be sung to the same tune, e.g. the music of a piece of thirty lines is a sequence of thirty repetitions of the same tune. As a consequence of this, all the lines of the piece share the same meter. A meter is characterized, among other things, by what we shall call a metrical pattern. A metrical pattern is a certain sequencing of light (L) and heavy (H) syllables. In the lines given below, for instance, the metrical pattern is LLHLLLHLLLLH, that is, a line must be comprised of twelve orthometric syllables, of which the third, the seventh and the twelfth must be heavy while the others must be light. Let us first

<sup>27</sup> Malone (1996: 124) uses the term 'orthometric' to 'denote the set of systematic euphonic patterns deployed by a given language-cum-tradition in the verbal arts.'

<sup>28</sup> On the versification of *melħun*, see Chapter 8.

give the phonological representation of these lines, where certain segments are highlighted for the sake of conspicuity.<sup>29</sup>

(17) a. i-lla=nn **I**-!rža n=u-!madun γ=imikk n=t-ammn-t  
 b. ur=as i-!zdar **ad**=tnt=d i-kks ula **ad**=tnt lkm-n  
 c. i-ddu dar bab n=t-addar-t **ad**=fll=as alla-n

The pronunciation used in singing differs little from that used elsewhere.<sup>30</sup> In /l-r/ in line a, /l/ assimilates to the following /r/, whence *rr* (v. § 2.5.3.1). In the three occurrences of /ad=/ in lines b and c the final /d/ assimilates with the initial consonant of the following clitic (v. § 3.2.1.3), hence the surface geminates *tt* (line b) and *ff* (line c); similarly /t=d/ yields *dd* in line b; in /ula ad/ in line b, finally, the sequence /a a/ would be pronounced as a long (tautosyllabic) vowel in normal speech. In singing two adjacent identical vowels may be reduced to a single one. We give in (18) the strings of segments which result from these processes.

(18) a. i-lla=nn **r**-!rža n=u-!madun γ=imikk n=t-ammn-t  
 b. ur=as i-!zdar **at**=tnd=d i-kks ul **at**=tnt lkm-n  
 c. i-ddu dar bab n=t-addar-t **af**=fll=as alla-n

Morphosyntactic boundaries do not play any role in orthometric syllabification. We give them only for the readers' convenience. Table (19) indicates how the material in (18) is parsed. The exclamation points indicating emphasis have been omitted to make the vertical alignments more perspicuous. Geminates which straddle successive syllables are indicated by a tilde. We will see that such geminates play a special role in the assignment of syllable weight.

(19)

1	2	3	4	5	6	7	8	9	10	11	12
L	L	H	L	L	L	H	L	L	L	L	H
a. il~	lan~	nrr	ža	nu	ma	dun	γi	mik~	kn	tam~	mnt
b. u	ra	siz	da	rat~	tnd~	dikk	su	lat~	tn	tl	kmn
c. id~	du	dar	ba	bn	tad~	dar	taf~	fl~	la	sal~	lan

Table (19) displays at once two kinds of information which, although closely related, must carefully be kept apart. On the one hand it presents data as to how the material in (18) is sung. Each successive line in (18) is sung

<sup>29</sup> These are the first lines of a poem by Mohammad Andmsir in Amarir (1975: 132ff). 'A sick man needed a little honey / He could not gather any (from a hive) nor reach any / All in tears he went to see the owner of the hive'. Our translations do not seek elegance and they are sometimes rather approximative. We give them only to allow those who know Berber to identify morphemes and syntactic structures.

<sup>30</sup> V. below on the phonological differences between the forms of language used in speaking and in singing.

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to the same tune, and each column in (19) corresponds to a particular point in that tune, so that two chunks of the text which belong to the same column are sung on the same portion of the tune.<sup>31</sup> On the other hand, table (19) displays an analysis of the metrical structure of the material in (18). According to that analysis the material in question is parsed so as to satisfy the metrical pattern LLHLLLHLLLLH. Analyses of this kind are the main topic of this section and those that follow.

In (19) certain syllables do not contain any vowel, e.g. a3, a10, a12. Syllables can even lack any voiced segment, as is the case for syllables a5, b5 and c9 in the following three lines, which have the same metrical pattern as those in (19):<sup>32</sup>

(20)	1	2	3	4	5	6	7	8	9	10	11	12
	L	L	H	L	L	L	H	L	L	L	L	H
a.	i	ga	zun	dl	fq~	qi	hitt	fa	ru	ka	nl	ħaqq
b.	r	wa	ħag <sup>w</sup>	ma	st	ma	zir	tn	na	γak~	ka	wiγ
c.	i	ga	sak <sup>w</sup>	fa	fn	ti	bin	sr	tt	lu	ħa	man

These voiceless orthometric syllables must be pronounced in singing in the same way as they are in speaking, viz. without any glottal vibrations. The occurrence of a voiceless syllable does not cause any perturbation in the alignment of the neighboring syllables with the tune. The note aligned with the voiceless syllable is simply skipped in singing.

Besides satisfying a metrical pattern such as LLHLLLHLLLLH, there are other conditions which a stretch of text must meet if it is to count as a well-formed line of verse. These conditions restrict the distribution of consonant types in a line, v., e.g., Jouad (1990: 302ff). We will not take these restrictions into account in what follows. Also, there is more to the metrical organisation of a line than a mere sequencing of H and L syllables. Jouad (e.g. 1995: 237ff) has proposed that orthometric syllables are grouped into foot-like constituents, and as a consequence of this organisation H and L do not combine freely to form metrical patterns. We will not take into account constituent structure above the level of syllables either, because we feel we do not understand it well enough. We shall focus our discussion on the grouping of segments into orthometric syllables.

<sup>31</sup> Actually this is a simplification. The music on which ME sang this particular piece in order to retranscribe it requires lines to be grouped in couplets. The tune for the first line of a couplet is different from that for the second line, but both tunes have the same rhythmical structure. Each column in (19) thus corresponds to a given point in that rhythmical structure. The score of the tune in question is given at the end of this book, see Tune 1 in Appendix IV.

<sup>32</sup> These lines are respectively line 69 in the preceding piece and lines 33 and 46 in that of Appendix II. Here is the text of the first line: i-ga zund l-fqiqh i-!ttfar ukān l-ħaqq 'like the man of learning, he is indeed entitled'.

Let us say that an analysis of a line into a succession of orthometric syllables is a (syllabic) parse of that line, e.g. (19)a is a syllabic parse of (18)a. One question one may ask is: What are the features in the phonological make up of a string such as (18)a, considered independently of its possible uses in poetry, which allow that string to be parsed as in (19)a?

Consider for instance the string /tn tl k mn/, which is parsed as LLH (*tn.tl.k mn*) at the end of line b in (19). Could that string be parsed instead as HLL (*tnt.lk.mn*) or as LHL (*tn.tlk.mn*) to allow it to appear in lines of verse with metrical patterns requiring HLL or LHL? In order to be able to answer questions like these, we shall try to answer the question 'How does one parse a sequence of words into a succession of orthometric syllables?'<sup>33</sup> We tackled that question previously in our 1988 article, where we argued that orthometric syllabification is determined in part by the sonority relations between adjacent segments, as is syllabification outside of poetry. In DE (1997a) we supplemented our earlier idea about the role of sonority with a detailed account of the role of geminates in orthometric syllabification. In what follows we draw heavily on DE (1997a).

Our goal in the following discussion is to make it clear what we mean exactly when we say that a string satisfies a metrical pattern. This problem has two subparts: parsing a string, and determining whether the syllabic parse(s) match the metrical pattern. We assume that parsing a string into a sequence of orthometric syllables is something which can be done independently of any particular pre-determined metrical pattern. Here is how we propose to formulate the problem of metrical pattern satisfaction.

#### (21) PATTERN SATISFACTION

Let  $S$  be a string of segments in Tashlhiyt and  $P$  a metrical pattern. In order to determine whether string  $S$  satisfies metrical pattern  $P$  one goes through two stages:

- a. SYLLABIFICATION: one parses  $S$ , that is, one lists the set  $SYL = \{\Sigma_1, \dots, \Sigma_n\}$  of all the (well-formed) syllabic parses of  $S$ ; these parses are determined independently of  $P$ ;
- b. EVALUATION: one searches  $SYL$  for a parse which satisfies  $P$ ;

String  $S$  satisfies  $P$  if one member of  $SYL$  satisfies  $P$ .

---

<sup>33</sup> Nowhere does one find an answer to that question in Jouad's work. In his various publications, Jouad tries to answer the following questions, which are different: (i) Given a metrical pattern and a line of verse which matches that pattern, how does one parse the line into orthometric syllables? (ii) Given a sequence of lines which all match the same metrical pattern, how does one discover what that metrical pattern is? Answering our question also answers Jouad's, but the converse is not true.

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answering our question

Take any text which can be viewed by Ashlhiyt speakers as a succession of well-formed lines with the same metrical pattern. In order to complete the program outlined in (21) we must devise a definition of the notion 'well-formed parse' which would enable us to parse such a text so that the resulting syllables can be arrayed in a table with a layout analogous to that of (19). The data we will examine are native speakers' acceptability judgements. The set of pieces in our corpus can be considered as a repository of acceptability judgements made in the past by the people who composed those pieces and by those who performed them when they were taken down. We will supplement the acceptability judgements frozen in our corpus by others which ME has elicited from himself by trying out various text-to-tune alignements. Let us give an example.

At the beginning of (19)a the final n in *illann* is an onset to *rr*. Imagine instead that we make one syllable with the two skeletal slots in *nn*, leaving everything else unchanged. Instead of (19)a, line (18)a would have the following parse:

(22)	1	2	3	4	5	6	7	8	9	10	11	12	13
	il~	la	nn	rr	ža	nu	ma	dun	yi	mik~	kn	tam~	mnt

A native speaker who tries to sing line (18)a in accordance with this parse runs into several problems. Let us limit ourselves to the easiest one to state: the parse has thirteen syllables, one too many to fit the tune of the song. In order to sing line (18)a in accordance with the new parse, *rr* must move over to the fourth position in the tune as shown in (22), *ža* to the fifth, and so on, so that one runs out of notes when one has reached *tam~*. Two successive syllables in the text cannot be associated with the same point in the tune. If a tune is comprised of n successive notes, a text with more than n syllables cannot be sung to it.

As will become clear later, we do not have a complete solution to problem (21); but framing our discussion in terms of (21) will at least enable us to state precisely how much empirical ground we have been able to cover and what areas require further study.

#### 4.6. GENERALIZATIONS ON ORTHOMETRIC SYLLABLES

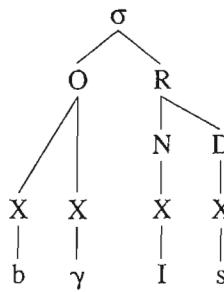
In this section we will present various generalizations on the form of orthometric syllables in Tashlhiyt. Let us first state our general assumptions about syllable structure.

The units which are grouped into syllables are prosodic positions, i.e. skeletal slots ('X slots'). Strings must be exhaustively parsed, i.e. every X in a string must belong to a syllable.<sup>34</sup> Syllables may not overlap, in

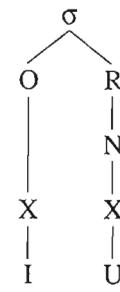
<sup>34</sup> See Selkirk (1981).

other words an X may not belong to more than one syllable. We take syllables to be arborescent structures analogous to those which represent constituent structure in syntax. Adopting well-known ideas and terminology (v. e.g. Harris (1983), Levin (1985)) we take a syllable ( $\sigma$ ) to be composed of an onset (O) and a rime (R); the rime is composed of a nucleus (N) and a coda (D). Every syllable contains a rime, and every rime contains a nucleus. A syllabic segment is a skeletal slot which is dominated by N. Skeletal positions not dominated by a nucleus are called margins. (23) displays the first syllables in three French words, *briscard* [b<sup>y</sup>iskar<sup>y</sup>] 'veteran', *yugoslave* [yugɔslav] and *ouvrage* [uvrɑ̃ʒ] 'work'.

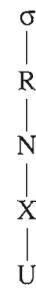
(23) a. *b<sup>y</sup>is*



b. *yu*



c. *u*



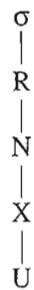
Following various authors,<sup>35</sup> we assume that glides have the same feature composition as the corresponding high vowels. The only difference between *i* and *y* is that *i* is syllabic while *y* is not, and similarly for *u* and *w*. Let us use 'U' and 'I' as stand-ins for the feature bundles of (*u*, *w*) and (*i*, *y*) respectively. The same feature bundle is a nucleus in (23)a and an onset in (23)b.

Constituents are said to be complex if they contain more than one skeletal slot. (23)a has a complex onset and a complex rime. A geminate is comprised of two skeletal slots; in Tashlhiyt these two slots may or may not belong to the same syllable, v. § 3.2.2. In (24) we represent syllables 1 to 3 in (19)a and syllables 7 to 10 in (19)c.

<sup>35</sup> See Kaye and Lowenstamm (1984). For more recent references see e.g. Harris and Kaisse (1999).

ible. We take which represent d terminology be composed a nucleus (N) me contains a nated by N. margins. (23) *ird* [bγiskay] c'.

c. *u*

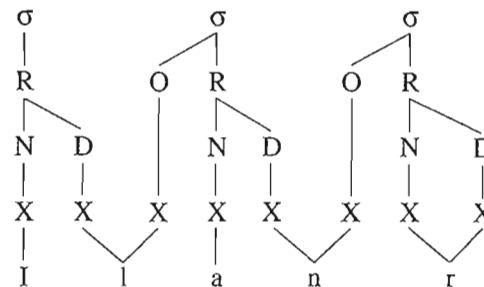


same feature nence between *u* and *w*. Let , *w*) and (*i*, *y*) and an onset

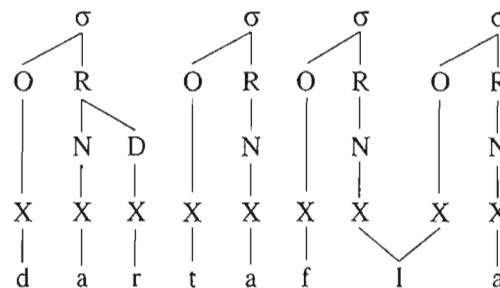
an one skeletal ninate is com- ay or may not syllables 1 to

e.g. Harris and

(24) a. *il~lan~nrr*



b. *dar.ta.fl~.la*



At this point, let us pause briefly to comment on one aspect of the notation used to represent the inputs to orthometric syllabification. This notation is very close to the broad phonetic transcription used elsewhere in this book. This raises no question for most segments, since in general our transcription does not represent syllable structure, e.g. an *n* which is an onset and one which is a nucleus are both represented simply as '*n*'. The only segments whose syllabic status is recorded in our phonetic transcription are the high vocoids, e.g. that transcription uses '*u*' to represent *U* when it is a nucleus, and '*w*' to represent it when it is a margin, and one might think that the input to orthometric syllabification should not have a distinction between '*u*' and '*w*', since the distinction is the result of syllabifying that input. In fact, *U* and *I* are different from the other feature bundles of Tashlhiyt, in that their syllabicity cannot always be predicted from the environment. As we shall see later, Tashlhiyt has an underlying distinction between two kinds of high vocoids. Some high vocoids alternate between vowels and glides, while others are marked in the lexical representations so as to guarantee that they (nearly) always surface as margins. We use the expression 'underlying glides' to refer to the high vocoids of the latter type. This chapter and the next focus primarily on the syllabification of segments other than the underlying glides. The syllabification of the underlying glides raises special problems whose discussion must await a later chapter. In the meanwhile, in our notation of the inputs to orthometric

syllabification, we follow the convention introduced in § 2.2: every word in a line is transcribed as it is pronounced when it is neither preceded nor followed by a vowel, e.g. when it is uttered in isolation.

We now start with two basic observations about orthometric syllables in Tashlhiyt.

- (25) NoHiatus: a syllable which is not line-initial has an onset.
- (26) RimeSize: a rime contains at most three slots; in three-slot rimes the last two constitute a geminate.

These generalizations can be illustrated with the lines in (19) and (20). The only onsetless syllables are those at the beginning of lines. In all the other syllables the first segment is an onset. Syllables with a single slot can only occur at the beginning of a line since they are onsetless: the slot in question must be a nucleus (v. (23)c). After a syllable has been stripped of its initial segment, the remainder (the rime) never contains more than three slots, and all the three-slot rimes have codas consisting of a geminate, v. b7 in (19) and a7, 12 in (20).

Let us now turn to syllable weight. If one sets aside those rimes in which a geminate is involved, the situation is a simple one: one-slot rimes are light and the others are heavy. When the geminates are brought into the picture the generalization in the preceding sentence remains true in most circumstances: it is still the case that one-slot rimes are all light (v. c9 in (19)), and furthermore rimes which contain both slots of a geminate are all heavy, v. e.g. syllables *nrr* (a3 in (19)) and *dikk* (b7 in (19)). The added complexity comes from codas consisting of a single slot which is the first half of a geminate, as in *il~* (a1) (and all other two-slot rimes in (19) which are followed by a tilde). All such occurrences involve a heterosyllabic geminate with a first half which is not a nucleus, v. the representations of the first two syllables in (24)a. In cases of that kind we dub the first slot of the geminate a hinged coda. Syllables with hinged codas are extremely common in our corpus, and they occupy L positions in the overwhelming majority of cases; the examples in (19) are typical in that respect. Our corpus also contains occasional occurrences in which a syllable with a hinged coda occupies a H position, v. e.g. the third syllable in lines 8, 11 and 39 in Appendix II. Since the proportion of such occurrences is quite small it is very tempting to consider them as violations of the constraints on syllable weight in Tashlhiyt versification. However ME feels that the lines containing such occurrences flow as naturally as others whose well-formedness is not in doubt, which compels us to consider them well-formed. Here, then, are the generalizations one can formulate about syllable weight:

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(19) and (20).  
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syllable weight:

(27) Weight:

- a. rimes with one slot are light;
- b. rimes with a hinged coda may be either light or heavy;
- c. other rimes are heavy.

We have just seen that geminates have two special properties which set them apart from other XX sequences: they are the only complex codas allowed (v. (26)), and the only XX rimes which may occupy a L position are those with a hinged coda (v. (27)b).

The ambiguity of hinged codas (v. (27)b) is a phenomenon which concerns only the weight of syllables, not the apportionment of X slots between syllables. As used in (21) and in the discussion below, the expression 'syllabic parse' is meant to refer to the distribution of syllabic nuclei and syllabic margins in a string, not to the associated distribution of syllabic weights. Consider a hypothetical string /rtta/ occurring at the beginning of a line. /r.tta/, /rt~.ta/ and /rt~.ta/ are three different syllabic parses in the intended sense (the underlyings indicate syllable nuclei), but counting the first syllable in /rt~.ta/ as H or as L does not result in two different syllabic parses. Let us use the expression 'weighed parse' to refer to a parse with its associated syllable weights. It will emerge from our discussion that /rtta/ has only one licit syllabic parse in Tashlhiyt verse, viz /rt~.ta/, and that this parse allows two weighed parses, (/rt~.ta/, LL) and (/rt~.ta/, HL).

In DE (1988) we followed Jouad and Bounfour in assuming that in poetry geminates may in general count either as one segment or as two to suit the needs of the poets. We have shown in DE (1997a) that this assumption is incorrect; it allows many syllabic parses which are never found to occur. Note that in singing, long consonants are pronounced distinct from their short counterparts, as they are in the colloquial language. This is in particular true in the case of rimes with a hinged coda which occupy a L position in the metrical pattern. When singing (19)c one does not pronounce the words *taddart* and *allan* as though they were *tadart* and *alan*.

Certain grammatical morphemes which must be pronounced with a long consonant in the colloquial language have a poetic variant in which the long consonant is replaced by its short counterpart. The colloquial form also occurs in poetry. For instance *walaynni* 'however' can also be pronounced *walayni* in poetry (v. line 43 in Appendix III); as we shall see, the former variant has four syllables (*wa.la.yn~.ni*) whereas the latter has three (*wa.lay.ni*). Other items which can be degeminated in poetry are the initial /nn/ in certain possessive determiners (v. line 12 in Appendix II) and the geminate which results from totally assimilating the genitive preposition /n/ to a following high vocoid (v. line 25 in Appendix III). The morphemes involved are all grammatical morphemes, e.g. *a-snnan* 'thorn' cannot be pronounced *asnan*. Furthermore not all grammatical morphemes can undergo

the degemination in question; the directional clitic /nn/, for instance, cannot be pronounced short.

Like the weight ambiguity of the hinged codas, the degemination above provides poets with a wild card to help them meet the demands of the meter, but this should not obscure the differences between the two phenomena. Weight ambiguity provides a choice between two different weight assignments for the same segment sequence. Degemination, on the other hand, provides a choice between two different segment sequences as exponents of a particular morpheme.

Table (28) lists the syllable types allowed by generalization (26) together with their weights according to generalization (27).

(28)	types	N= [-cons]	N= [+cons]	weight	
a. (O) N	nu	(a5)	kn	(a10)	L (light)
b. (O) N~	ri~ <sup>36</sup>		fl~	(c9)	
c. (O) N D~	mik~	(a9)	tnd~	(b6)	L or H
d. (O) N D	siz	(b3)	kmn	(b12)	H (heavy)
e. (O) N~D	biy <sup>37</sup>		nrr	(a3)	
f. (O) N D~D	dikk	(b7)	bndd <sup>38</sup>		

In the first column each occurrence of a capital letter represents a skeletal position. Those skeletal positions which are the first half of a geminate are indicated by a following tilde.<sup>39</sup> The parenthesized *Os* are a reminder that line-initial syllables may lack an onset. In the examples in the second column the nucleus is a vocoid, and in those in the third it is a contoid. Some examples occur in (19). Their location there is indicated by the parenthesized letters and numbers. The other examples occur in the pieces in Appendices II and III.

In the third column of the table the consonant which is a nucleus is a sonorant in all our examples. This is because we have tried as much as possible to draw the examples in the table from the three lines in (19), and all the nuclei in these lines happen to be sonorants. Although syllables with an obstruent as a nucleus are less common than those with a sonorant nucleus – why it is so will become clear in the next sections – they are every bit as well-formed and they divide likewise into the six categories a–f of table (28). Having gone over various pieces of poetry recorded by Jouad, Shaw (1996) pointed out that they did not contain closed syll-

<sup>36</sup> Appendix III, syllable 4 in line 64.

<sup>37</sup> Appendix III, syllable 8 in line 78.

<sup>38</sup> Appendix II, syllable 7 in line 49.

<sup>39</sup> In the first columns of tables (28) and (47) all geminates are indicated by tildes. Elsewhere only heterosyllabic geminates are indicated by tildes.

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bles with obstruent nuclei and she proposed that such syllables be excluded by Universal Grammar. However such syllables are not judged ill-formed, as the following examples will illustrate. The first example is a ditty about a bird, the hoopoe. Each line of the song's text is followed by its parse.

(29)	stu tutut	s tu tu tut
	stu tutut	s tu tu tut
	t-γla t-isn-t	ty la ti snt
	t-šqqa t-aka-t <sup>40</sup>	tšq~ qa ta kat

All four lines share the metrical pattern LLLH. The words in the first two lines are onomatopeias imitating the hoopoe's song. The first syllable in the last line is a closed syllable with š as a nucleus.

Our other examples are lines composed by ME. The lines below are sung to the tune of the song by Hmad Biyzmawn recorded in Amarir (1975: 139–143). The tenth syllable in each line has a heavy rime with an obstruent nucleus.<sup>41</sup>

(30)	1 2 3 4 5 6 7 8 9 10 11 12
	L L H L L L L L H L H
a.	i ya sur gu mnt~ tf ra wi na tzd mi γaln <sup>42</sup>
b.	al~ la huk ba rd~ du ni ti nu tšt nu linw

Like Shaw we did not find any closed syllable with an obstruent nucleus in our corpus. This absence may have to do with preferences in the matching of texts with tunes: there seems to be a preference for aligning H positions in the meter with portions of the tune which are musically prominent, and obstruent nuclei are not ideal carriers of musical notes. Consider the following lines, which sound quite natural to ME despite the fact that the third or the seventh syllable has a complex rime with an obstruent nucleus.<sup>43</sup>

(31)	1 2 3 4 5 6 7 8 9 10 11 12
a.	i γu rir si lh na tfk ta da ri lu tan
b.	i xa rinn ya ki ba nss fa ts~ su ta kal
c.	ta nq~ qzb rut~ ta da xas ts γa lal~ la tnx

<sup>40</sup> 'Stu tutut / Stu tutut / Salt is expensive / Making ends meet is difficult' (literally 'the hearth is difficult').

<sup>41</sup> (a) iy=as ur gum-nt t-fraw-in=a t-zdm i-γal-n, 'if these twigs are not enough, let her chop armfuls'; (b) !allahukbar d-duni-t=iu t-!štn ul=iu, 'Allahoakbar! Life here below troubles my heart'.

<sup>42</sup> This meter requires final syllables with 'compound rimes'. On syllables with compound rimes, see the end of this section.

<sup>43</sup> (a) iy ur i-!rsi l-hna t-fk-t a-!dar i=!lutan, 'if peace does not settle, begin your journey' (literally: 'give the foot to the lands'); (b) ixar inn γ=ak i-ban s-!sfa t-ssu-t a-kal, 'where serenity comes to you, there you should take the ground as your carpet'; (c) t-a-!nqqzbrud-t ad=ax=as t-sya lalla=tnx, 'it is a small poncho which our mistress has bought him'.

These lines have the same metrical pattern as those in (19) and in Appendix II. They can be sung without a hitch to certain tunes which are compatible with that metrical pattern, but not with all. In particular they do not fit with the tune of the song in Appendix II, a tune in which the notes associated with third syllable and the seventh are musically prominent.

Besides syllables with an obstruent nucleus, there is another syllable type which is implicit in table (28) and whose existence deserves explicit recognition: syllables in which the only X slot is the first half of a geminate, i.e. onsetless syllables of type (28)b. Such syllables appear at the beginning of the second and third line below. The first line is given to illustrate the metrical pattern shared by the other two.<sup>44</sup>

(32) a. a man a-drar ur nkki n-stara i-!zayar-n  
 b. !ss-rmi-γ kulu t-!tlba n-ss-!rmi i-gʷrram-n  
 c. kki-γ l-!bħur stara-γ i-gnwa-n d=i-kal-n

(33)

1	2	3	4	5	6	7	8	9	10	11	12
L	L	H	L	L	L	L	L	H	L	L	H
a. a	ma	nad	ra	ru	rnk~	ki	ns	ta	ray	za	yarn
b. s~	sr	miy	kul~	lut~	tl	ba	ns~	sr	miy	gʷr~	ramn
c. k~	ki	γlb	ħu	rs	ta	ra	yi	gn	wan	di	kaln

The initial *a* in the first line is a stop-gap vowel, a common device used by Ashlihiy poets to add an extra syllable at the beginning of a line.<sup>45</sup> Any geminate consonant can be a nucleus-onset sequence at the beginning of a line. We have chosen the above examples as further illustrations of our claim that even a voiceless consonant can play the role of a nucleus. Note in particular that the initial syllable in (33)c is completely silent.<sup>46</sup>

In our 1997a article, which the present discussion follows closely, we allowed for orthometric syllables of a special kind which were dubbed 'compound' syllables. The strings we considered as compound syllables are found only at the end of lines. Certain meters allow or even demand a compound syllable at the end of the line, e.g. the meter of the song from which the lines in (33) are excerpted. In these lines the twelfth position is occupied by strings *yarn*, *ramn* and *kaln*, which cannot be parsed as single

<sup>44</sup> Lines 19, 20 and 69 of the poem by Hmad Biyzmawn in Amarir (1975: 139–143). (a) Ah! Which mountain did I not comb, which plains!; (b) I have badgered the scholars and the marabouts; (c) I've crossed the seas and I've been all over the skies and the lands.

<sup>45</sup> V. Galand-Pernet (1969).

<sup>46</sup> In lines 12 and 56 of the poem in Appendix III (but not in line 59) the first half of the initial geminate is 'left out' of the parse. ME finds such violations worse when the geminate involved is a sonorant than when it is an obstruent.

19) and in Appendix which are compatible particular they do not in which the notes are particularly prominent. Another syllable type deserves explicit recognition: half of a geminate, appear at the beginning is given to illustrate

0	11	12
I	L	H
ay	za	yarn
uiy	g <sup>w</sup> r~	ramn

common device used in the beginning of a line.<sup>45</sup> Any at the beginning of illustrations of our use of a nucleus. Note entirely silent.<sup>46</sup>

follows closely, we which were dubbed compound syllables are or even demand a er of the song from the twelfth position is t be parsed as single

ur (1975: 139–143). (a) idgered the scholars and skies and the lands.

> 59) the first half of the worse when the geminate

syllables which would fit into table (28).<sup>47</sup> In 1997 we considered each such string as a syllable resulting from the contraction of two light syllables into one: *ya.rn*, *ra.mn*, etc. We now believe that these strings are not syllables of a special sort. They must be analyzed instead as sequences of a heavy syllable followed by an onset, viz *yar.n-*, *ram.n-*. In the few pieces known to us in which lines end in such strings, the supernumerary segment at the end of each line is actually sung as an onset to a following vowel. In some pieces that vowel is a stopgap *i* or *a* which serves as a carrier to the final note(s) of the tune, while in others it is the first segment of a refrain which is repeated after each line.

#### 4.7. THE ROLE OF SONORITY

There are many ways to parse a given sequence of segments into successive chunks which all belong to one of the categories listed in table (28). Consider for instance sequence */lattntlkmn/*, which is parsed as *lat~.tn.tl.kmn* at the end of (19)b. If orthometric syllabification only required that each syllable fit into table (28), *latt.nt.lk.mn* would also be a licit parse, contrary to fact.

In order to fulfill the general program outlined in (21) we should produce a device capable of enumerating all the well-formed parses of any string in Tashlhiyt. Because more empirical work is needed on the syllabification of certain types of consonant clusters (v. § 4.9) we cannot present such a device. What we will present instead is a set of conditions which any parse must meet if it is to be well-formed. These considerably narrow down the set of parses associated with any string; in many cases in fact they reduce it to a single parse.

Our analysis gives a central role to the sonority relationships between adjacent segments. As far as sonority is concerned, the empirical generalizations which our analysis must account for are those stated in Elmedlaoui (1985) and DE (1985): in a nutshell, syllable nuclei must have the highest degree of sonority compatible with other requirements such as the prohibition of hiatus. In our works of 1985 and 1988 we operated within a rule-and-constraint framework. Starting from representations devoid of any syllabic structure, syllabic trees were built in a stepwise fashion through the operation of sequentially-ordered rules; the rules failed to apply when their operation would have created adjacent nuclei (a hiatus).

The data in our articles of 1985 and 1988 have been used as a testing ground for various theoretical proposals.<sup>48</sup> In particular, Prince and Smolensky (1993) proposed an account of Tashlhiyt syllable structure within

<sup>47</sup> For other examples, see for instance the piece recorded in Jouad (1995: 193).

<sup>48</sup> Goldsmith and Larson (1992), Prince and Smolensky (1993), Scobbie (1993), Zec (1995), Shaw (1996), Clements (1997), Frampton (1999).

Optimality Theory (henceforth OT). Clements (1997) has raised various objections to that account and set forth his own analysis, also in the OT framework. The analysis we will present here revolves around SonPeak (39) and NoRR (42), two constraints on sonority sequencing which are borrowed from Clements.

Let us first recapitulate the generalizations we have seen thus far.

(34) a. every skeletal slot belongs to one syllable and only one;  
 b. NoHiatus (25);  
 c. RimeSize (26);  
 d. complex onsets are disallowed.<sup>49</sup>

The propositions in (34) are descriptive statements which are true of all the licit parses. Let us construe them also as components of the grammar of Tashlhiyt, i.e. as well-formedness conditions on parses, and more specifically as constraints in the sense of OT. Except for the last, maybe, the items in (34) are not constraints in the strict sense but rather composites of several constraints. We will nonetheless treat them as unanalyzable wholes. We assume that (34)a–d are all undominated constraints, i.e. in case of conflict with other constraints those in (34)a–d always take precedence. In the discussion below, unless stated otherwise, we only take into consideration parses which abide by the constraints in (34)a–d.

We use the following sonority scale:<sup>50</sup>

(35) Sonority scale:  
 (a) low vocoids: a  
 (b) high vocoids: i,y,u,w  
 (c) liquids: r, l  
 (d) nasals: m, n  
 (e) fricatives: s, ſ, x, xʷ, z, ź, γ, γʷ, h̠, f̠, h  
 (f) stops: t, k, kʷ, q, qʷ, b, d, g, gʷ

The objects ranked on this scale are melodic units, i.e. bundles of feature specifications dominated by a Root node, feature bundles for short. The higher a feature bundle is on the scale, the more sonorous it is said to be, or equivalently, the higher its degree of sonority. *i* is more sonorous than *n*, which is more sonorous than *d*, which is as sonorous as *t*.<sup>51</sup> An assumption implicit in (35) is that the degree of sonority of a feature bundle is the same in all its occurrences; in particular is not affected by syllable structure. For the sake of explicitness the rung of the scale for high vocoids

<sup>49</sup> Implicit in table (28).

<sup>50</sup> On sonority and its role in syllabification, see Clements (1990) for a careful discussion and references.

<sup>51</sup> On the differences between the sonority scale in (35) and that used in our earlier work, see below the end of § 4.9.1.

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contains four symbols but it should contain only two since 'i' and 'y' are different labels for the same feature bundle, as are also 'u' and 'w'.<sup>52</sup>

Let us return to the question we asked at the beginning of this section about /latntlkmn/. We said that the licit parse is lat.tn.tl.kmn (unless indicated otherwise, underlinings indicate nuclei) and we asked what excludes latt.nt.lk.mn. According to Clements (1997) the answer is that latt.nt.lk.mn violates the constraint SonPeak whereas lat.tn.tl.kmn does not violate the constraint:

(36) SonPeak (a first approximation):

Every segment which is more sonorous than its immediate neighbours must be a syllable nucleus.

We repeat below the parses under consideration, together with the input string, in which the segments which are more sonorous than their immediate neighbours are in bold type for the sake of conspicuity:

(37) input **l a t t n t l k m n**

a. **l a t t n t l k m n**  
b. **\*l a t t n t l k m n**

Whereas the constraint does not incur any violation in parse (37)a, it is violated twice in (37)b: *n* and *l* are sonority peaks, i.e. they are more sonorous than their immediate neighbours, and yet they are not syllable nuclei in (37)b.

It is important to note the asymmetry in the constraint: while (36) requires sonority peaks to be nuclei, it does not require nuclei to be sonority peaks. Consider for instance the syllables 7 to 9 in (33)a, which are ki.ns.ta. The string *kinsta* only contains two sonority peaks, viz *i* and *a*, and yet there are three syllable nuclei in the licit parse ki.ns.ta. *s* is a nucleus, but it is not a sonority peak, since it is adjacent to *n*, which is more sonorous.<sup>53</sup>

In the input string in (37), neither consonant in the final sequence *mn* is a sonority peak, since either is adjacent to a segment of equal sonority, but the sequence taken as a whole is more sonorous than its immediate surroundings, and it is useful to have a notion of sonority peak general enough to be applicable not only to single X-slots, but also to sequences of X-slots. In the sense of 'sonority peak' which is relevant for the constraint in its final formulation (see below in (39)), the final sequence *mn* in (37) is a sonority peak, and consequently that sequence must contain a syllable nucleus. Let us say what we mean exactly by a sonority peak.

Following Clements (1997), let use the expression 'sonority peak' to refer

<sup>52</sup> V. text under (23) in § 4.6.

<sup>53</sup> *n* is not a sonority peak either since it is adjacent to *i*. The fact that *i* does not belong to the same syllable as *n* is irrelevant, as will be explained below.

to any sequence of segments which is a local maximum of sonority. A local maximum of sonority is a sonority plateau which is higher than its immediate neighborhood, or more precisely,

(38) Sonority peak (definition):

A sequence Q is a sonority peak within sequence R iff the following conditions obtain:

- (i) Q is contained in R;
- (ii) for any two adjacent segments  $q$  and  $r$ , with  $q$  contained in Q and  $r$  not contained in Q,  $q$  has a higher degree of sonority than  $r$ ;
- (iii) all the segments in Q are of equal sonority.

To take an example, consider the the phrase *i=y-gnwa-n* 'to the skies', which is composed of the dative preposition *i* followed by the bound state noun *ignwan*. *iygnwan* contains two sonority peaks, *iy* and *a*. The one-segment sequences *i* and *y* are not sonority peaks because they do not meet condition (ii). *an* and *nwa* are not sonority peaks because they do not meet condition (iii).

We now give the definitive formulation of the constraint.

(39) SonPeak: A sequence which is a sonority peak within the syllabification domain contains a syllable nucleus.<sup>54</sup>

In (39) the expression 'syllabification domain' refers to the unit which is coextensive with the strings taken as inputs to syllabification. In this chapter the syllabification domain is the Phonological Utterance, which is coterminous with the line in Tashlhiyt singing; in the next chapter the syllabification domain will be the inflectional stem.

Returning to the example in (37), the readers may check for themselves that the input *latntlkmn* contains four sonority peaks as defined in (38), viz *a*, *n*, *l* and *mn*, and that each sonority peak contains a nucleus in the licit parse lat.tn.tl.kmn ((37)a). In latt.nt.lk.mn, on the other hand (see (37)b), SonPeak is violated twice, for the sonority peaks *n* and *l* do not contain nuclei.

Now what about parse latt.nt.lk.mn, which has syllable boundaries located as in parse (37)b, but different nuclei in some syllables? This parse does not violate SonPeak, but it is excluded because syllables nt and lk violate NoHiatus (25): they are not line-initial and yet they lack an onset.

Since, as stated above, we will restrict our attention to parses which abide by NoHiatus and the other undominated constraints in (34), omitting from the parses the underlinings which indicate syllable nuclei will not result in any ambiguity except in line-initial position. For instance if sequence

<sup>54</sup> SonPeak is Clement's Sonority Peak Principle (p. 303), slightly reworded.

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*tlkmn* does not occur at the beginning of a line, the notation 'tl.kmn' can only stand for *tl.kmn*; parses *tl.kmn*, *tl.kmn* and *tl.kmn* would all violate NoHiatus, and the latter parse would furthermore violate the prohibition of complex onsets, as would the parse *tl.kmn*.

Let us now consider the four lines in (40) and their scensions in (41).<sup>55</sup>

(40) a. yan i-g<sup>w</sup>mr-n ar !id iγ=d ur umz-n yat<sup>56</sup>  
 b. !udn-γ yaw w-!attan<sup>57</sup> i-!dbib-n žla-n=aγ  
 c. alliγ=d n-wafaq-n f=l-maʃna nna-n  
 d. a l-mskin !attan l=l-ħubb<sup>58</sup> af=fllak<sup>59</sup>

(41)	1	2	3	4	5	6	7	8	9	10
	L	H	L	L	L	H	L	H	L	H
a.	ya	nig <sup>w</sup>	mr	na	ri	diγ	du	rum	zn	yat
b.	u	dny	yaw~	wat~	ta	nid	bi	bnž	la	nay
c.	al~	liy	dn	wa	fa	qn	fl	maʃ	nan~	nan <sup>60</sup>
d.	a	lms	ki	nat~	ta	nll	ħub~	baf~	fl~	lak

The first line is given for the sole purpose of exemplifying the metrical pattern of the song. There is an interesting difference between sequence /udn<sup>w</sup>ya/ in line b, which is parsed as *u.dn<sup>w</sup>ya*, and sequence /iydnwa/ in line c, which is parsed as *iy.dn<sup>w</sup>ya*. The form of both sequences is VCCCCV, in which the last C must be an onset to the following vowel (that vowel is a sonority peak). In *u.dn<sup>w</sup>ya*, it is SonPeak (39) which is responsible for the fact that /n/ is syllabic. If /udn<sup>w</sup>ya/ were parsed as *ud.n<sup>w</sup>ya*, the sonority peak *n* would not contain a nucleus (it would contain an onset).<sup>61</sup> In line c, on the other hand, if the VCCCCV sequence /iydnwa/ were parsed in the same fashion as *u.dn<sup>w</sup>ya*, i.e. as V.CCC.CV, constraint SonPeak would not incur any violation in the resulting parse *i.γdn<sup>w</sup>ya*, because there is no sonority peak between /i/ and /a/ in /iydnwa/. Yet this is the wrong result. Therefore we need to call upon another constraint. After Clements (1997):

<sup>55</sup> (40)a,b,c,d are respectively lines 1, 18, 20 and 21 in the song by El-hajj Belaïd in Mestaoui (1996: 38ss). Here are translations. 'He who hunts till nightfall without catching anything / I am ill and physicians have lead me astray / Having agreed on the symptoms, they declare / Unfortunate! Your illness is that of love'.

<sup>56</sup> Every line in this song ends with a stop-gap vowel *i*, a common occurrence in Ashlhiyt singing. The final *i* has been left out from our transcriptions.

<sup>57</sup> From /yan w-!attan/.

<sup>58</sup> From /n=l-ħubb/; /a#a/ reduces to a short *a*, see the text under (17).

<sup>59</sup> From /ad=fllak/, see the text under (17).

<sup>60</sup> This line is ill-formed: its sixth syllable should be heavy.

<sup>61</sup> The same situation obtains later on in the same line, when /ibnžla/ is parsed as *i.bnž.la* rather than as \**ib.nž.la*.

303) we assume that parses such as *i.ydn.wa* are ruled out by the following constraint:<sup>62</sup>

(42) NoRR (No Rising Rimes):

The coda does not have a higher sonority than the nucleus.

If */iydnwa/* were parsed as *i.ydn.wa*, coda *n* would exceed nucleus *d* in sonority.

Let us clear up a possible misunderstanding concerning (42) and its resemblance with SonPeak (39). The parse *i.ydn.wa* could seem to violate SonPeak: *n* is a sonority peak inside syllable *ydn*, and yet it does not contain any nucleus. However let us go back to the formulation of SonPeak in (39): 'a sequence which is a sonority peak *within the syllabification domain* contains a syllable nucleus.' *n* is not a sonority peak within sequence */iydnwa/*, since it is adjacent to *w*, which is more sonorous. An important difference between constraints NoRR (42) and SonPeak (39) is that the latter does not legislate over sonority relationships within the syllable. SonPeak does not rule against syllables in which the most sonorous segment is not the nucleus. It is not violated by syllables in which the most sonorous segment is the onset, which are a common occurrence in our corpus, see for instance *lms* in (41)d2 or *rs* in (33)c5.

NoRR excludes heavy syllables in sequences with a rising sonority. Consider the (invented) sequence */ksmrwa/*, in which each segment is more sonorous than the preceding one. Because of NoRR, this must be parsed as *ks.mr.wa*. Constraint NoRR is violated only by certain rimes in which *r* is the nucleus and *w* is the coda. These will be discussed in Chapter 7, and for the purposes of the present chapter we consider NoRR as an undominated constraint.

The constraints introduced up to this point make predictions which are compatible with those of the syllabification procedure CS proposed in our works of 1985 and 1988. Let us recapitulate these constraints here.

(43) a. Every skeletal slot belongs to one syllable and only one  
 b. Complex onsets are prohibited ((34)d)  
 c. Condition (26) on well-formed rimes  
 d. NoRR (No Rising Rimes) (42)  
 e. NoHiatus (25)  
 f. SonPeak (39)

Setting aside (43)a, which is a general condition on well-formed parses, the other constraints fall into two categories. The constraints (43)b,c,d are conditions on syllable shape which must be met in any context. The

<sup>62</sup> In Dell and Tangi (1993) the same constraint is posited to prevent */r/* from being turned into *a* in certain contexts.

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#### 4.8. GEMINATES IN COMPLEX CODAS

As far as we know, any string of segments of Imdlawn Tashlhiyt can be parsed exhaustively as a sequence of orthometric syllables, i.e. any such string has at least one licit parse.<sup>63</sup> Are there sequences which have more than one licit parse? We know of two classes of such sequences. In this section we deal with one case, which involves complex codas. The other case will be taken up in the next section.

Consider the following song, which Imdlawn people sing in unison while winnowing on the threshing floor. The song has only one line, which is repeated over and over again, always to the same tune.<sup>64</sup>

(44) bab n=u-wwtif a<sup>65</sup> i-g !rbbi l-baraka γ=u-nnrar

What is the metrical pattern of this song? One cannot compare how successive lines align with the tune, since the song has only one line. The following parse is compatible with everything we have said up to this point.

(45)	1	2	3	4	5	6	7	8	9	10	11
	H	H	L	H	L	H	L	L	L	H	H
	bab	nuww	ti	fay	grb~	bil	ba	ra	ka	γunn	rar

But is this indeed the parsing used in the winnowing song? Here is why we think it is not. ME has replaced the actual words in (44) by others and tried to sing the resulting sequence to the original tune.<sup>66</sup> His acceptability judgements provide us with independent evidence as to the metrical pattern of the song. If *u-wwtif* is replaced by *u-γaras*, *u-gr:til* or *u-žddig* the resulting sequence still sings naturally to the tune. These words are trisyllabic; they begin with a LL sequence (*u.γa.ras*, *u.gr:til*, *u.žd.dig*), not with a H syllable, which is what is assumed about *wwtif* in (45). There is yet other data which confirm that in the winnowing song *wwtif* does not begin with a H syllable: the line becomes lame (i.e. one gets stuck when one tries to sing it) when *wwtif* is replaced by *u-wtil* or by *u-rgaz*, which begin with a H syllable (*u.w.til*, *u.r.gaz*). Instead of the H syllable in second position in (45), there should be two L syllables:

<sup>63</sup> It is not obvious that it should be so. For instance if closed syllables with an obstruent nucleus were universally excluded, as proposed by Shaw (1996), and if SonPeak were inviolable, such a sequence as *nakzdma* could only be parsed with *d* left unsyllabified.

<sup>64</sup> 'Owner of the threshed grain, let God bless the threshing floor'.

<sup>65</sup> /ad/ underlyingly. On the consonant in /ad/ and /rad/ see DE (1989: 188–189).

<sup>66</sup> For observations on French songs which were made using the same method, see Dell (1989).

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## PRELIMINARIES TO APPENDICES II AND III

In this appendix we give background information about the data to be presented in the next two sections. Our aim is not simply to help the readers understand the content of these appendices, but also to give them some sense of the process of elaboration which leads from the raw data in our sources to the sequences of Tashlhiyt words which are our starting point in our discussions of syllabification in singing in various places in this book.

The Tashlhiyt poems presented in Appendices II and III were composed by *!rrways*, viz professional Ashlhiy musicians. The music and poetry of the *!rrways* borrow widely from those performed by village aficionados during evening parties called *aḥwaš*. Being themselves actively involved in *aḥwaš* singing and dancing, villagers are a knowledgeable audience for the productions of the *!rrways* (Schuyler 1979: 49–52, 237 ff.). As Schuyler has already observed (p. 271), traditional singing is in sharp decline among the urbanized Ashlhiy. *aḥwaš* evenings are difficult to organize in an urban environment and the musical tastes of the young city-bred Ashlhiy tend to be the same as those of their Arab peers. As the older generations disappear and as the ties with the mountain villages slacken, experienced listeners become less numerous among city-dwelling Ashlhiy.

Our main reason for drawing our data from songs composed by *!rrways* is that ME is knowledgeable about the *!rrways'* production and is proficient in their singing style. It would be a worthy task to examine text-to-tune alignment in recent Ashlhiy songs whose style departs from the traditional canons. We leave it to younger Ashlhiy researchers with an ear attuned to these canons.

Appendices II and III present two songs drawn respectively from Amarir (1975: 147 ff.) and from Asid and Lachgar (1996: 23 ff.), two collections of Tashlhiyt songs written down using the Arabic script. The authors of the two volumes are Ashlhiy. They worked from recordings on tape. Going from their Arabic transcription to the one we give below cannot be done in a mechanical fashion; some amount of interpretation is unavoidable.<sup>1</sup>

Let us explain briefly how the Arabic script is put to use to notate Tashlhiyt. The reader may recall that in the Arab world the only variety of Arabic normally used in writing is Classical Arabic (CA). As they learn to read and write, children also learn CA. While CA is quite different from the local Arabic dialect the children speak, the correspondences

<sup>1</sup> Recordings of Tashlhiyt songs are easily available, but for practical reasons, using written sources was the only option open to us at the time we did our work on versification.

between them are systematic enough to be readily apparent to the literate speakers, who generally view the variety of Arabic they speak as a corrupted version of CA.

In what follows, forms written in the Arabic script are represented by sequences of roman letters enclosed between angled brackets. Thus  $\langle s \rangle$  represents the Arabic letter *siin*, which notates the sound *s*, and  $\langle ktb \rangle$  stands for a sequence of three Arabic letters, those representing the sounds *k*, *t* and *b*. As is well known, conventional Arabic spelling only represents consonants. Short vowels are not represented at all. The word *taħduθ* is written  $\langle \thdθ \rangle$ , also the spelling of the words *tuħdaθ*, *tuħdiθ*, *taħaddaθ* and *tuħaddiθ* (consonant gemination is not represented either). Long vowels are represented by consonant letters: *uu* by  $\langle w \rangle$ , *ii* by  $\langle y \rangle$  and *aa* by the letter aleph, which we represent here by  $\langle A \rangle$ . While *katab* is written  $\langle ktb \rangle$ , *kaatab* is written  $\langle kAtb \rangle$  and *katabaa* is written  $\langle ktbA \rangle$ ; while *wuzin* is written  $\langle wzn \rangle$ , *wuzinuu* is written  $\langle wznw \rangle$  and *wuuzinuu* is written  $\langle wwznw \rangle$ .

Since the 8th century the Arabs have devised diacritics to represent short vowels and consonant gemination. Aside from its systematic use in the Koran, the spelling which comprises these diacritics, 'vocalized (*maškuul*) spelling', as it is called, is mainly used for pedagogical purposes. Vocalized spelling is also resorted to in order to notate MA or Tashlhiyt in those rare instances where these languages are committed to writing.

In the Arabic script the diacritics are written above or below the letters, but we will represent them as superscripts immediately after the letters to which they are attached. In a vocalized text, geminates are indicated by a special diacritic which we represent by  $\langle^2 \rangle$ , and each occurrence of a vowel is represented by a diacritic sign attached to the letter corresponding to the consonant which precedes that vowel. /a/, /i/ and /u/, the three vowels of CA, each have their own diacritic, which we represent here by  $\langle^a \rangle$ ,  $\langle^i \rangle$  and  $\langle^u \rangle$ . The vocalized spelling of *tuħaddiθ*, a word normally written simply as  $\langle \thdθ \rangle$ , is  $\langle t^u \hbar^a d^{2,i} \theta^0 \rangle$ , with two diacritics attached to  $\langle d \rangle$ , one to indicate gemination and the other to represent the fact that *dd* is immediately followed by *i*. The raised zero at the end of the above spelling stands for the *sukūn* diacritic, a sign which indicates that the consonant to which it is attached is not followed by any vowel. Other illustrations of the use of the *sukūn* are found in such vocalized spellings as  $\langle t^u \hbar^0 d^a \theta^0 \rangle$  for *tuħdaθ* (standard spelling  $\langle \thdθ \rangle$ ),  $\langle k^a A t^u b^0 \rangle$  for *kaatab* (standard spelling  $\langle kAtb \rangle$ ) and  $\langle m^a \š^0 k^u w l^0 \rangle$  for *maškuul* (standard spelling  $\langle mškwI \rangle$ ). The last two examples illustrates the notation of long vowels in the vocalized spelling.

Before we see how the vocalized spelling is put to use to notate Tashlhiyt and MA, a caveat is in order. Although the Arabic script has sporadically been used for many centuries to record poems in Tashlhiyt,<sup>2</sup> this practice

<sup>2</sup> See, e.g., Boogert (1997, 1998) and Stroomer (1992).

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e represented by brackets. Thus ⟨s⟩, and ⟨ktb⟩ stands for the sounds *k*, *t* only represents the word *taħduθ* is *uħdiθ*, *taħaddaθ* (ier). Long vowels are *aa* by the letter often ⟨ktb⟩, *kaatab* is written ⟨wzn⟩, ⟨znw⟩.

itics to represent systematic use in itics, 'vocalized gogical purposes. MA or Tashlhiyt tted to writing. below the letters, after the letters to are indicated by a rrence of a vowel corresponding to the three vowels nt here by ⟨³⟩, ⟨⁴⟩ lly written simply d⟩, one to indicate d is immediately pelling stands for onant to which it ions of the use of d⁴θ⁰⟩ for *tuħdaθ* d spelling ⟨kAtb⟩) wl). The last twoocalized spelling. o note Tashlhiyt t has sporadically iyt,<sup>2</sup> this practice

has not evolved its own system of conventions.<sup>3</sup> At present there is no way of writing down Tashlhiyt which is deemed the only correct one. The problems faced by the authors of the Arabic transcriptions are of the same nature as those faced by the authors of phrase books for travellers, in which sentences in one language are notated using the spelling of another. Different authors may use different letter combinations to represent the same sound, and alternative renditions or even inconsistencies can be found within the same phrase book.

The Arabic transcriptions of Tashlhiyt poems published during this century present variations in the delimitation of words and in the notation of full vowels, but they are consistent on the following point: As far as vocoids are concerned, these transcriptions represent all the occurrences of the glides and full vowels present in the Tashlhiyt material, and only those. If a consonant is not immediately followed by a full vowel in the Tashlhiyt material, its written counterpart in the Arabic transcription has a sukuun diacritic or no diacritic. We illustrate this generalization with three lines from a Tashlhiyt poem by A. Hafidi which the author himself has notated with Arabic letters.<sup>4</sup>

(1) a. bayn-n i-tra-n x=t-agut-t mas=sul<sup>5</sup> n-ss-ntal  
 b. l-!amar-t nm a t-i-ddukkla n-ssn=tnt=akʷkʷ  
 c. ss-ifif-γ=it kra=d i-s-lulli w-a-fus<sup>6</sup> nx

We give below the author's rendition of these lines in the Arabic script.

(2) a. b<sup>a</sup> A y n<sup>2,0</sup> ?<sup>i</sup> t<sup>0</sup> r<sup>a</sup> A n x t<sup>a</sup> A g<sup>u</sup> w t<sup>2,0</sup> m<sup>a</sup> A  
 s<sup>2,u</sup> w l n<sup>0</sup> s<sup>2,0</sup> n<sup>0</sup> t A l<sup>0</sup>  
 b. l<sup>0</sup> y<sup>a</sup> A m<sup>a</sup> A r t<sup>0</sup> n m ?<sup>a</sup> t<sup>i</sup> y d<sup>2,u</sup> w k<sup>0</sup> l A  
 n<sup>0</sup> s<sup>2,0</sup> n<sup>0</sup> t<sup>0</sup> n<sup>0</sup> t ?<sup>a</sup> k<sup>2,0</sup>  
 c. s<sup>2,i</sup> y f<sup>0</sup> γ<sup>i</sup> y t k<sup>0</sup> r<sup>a</sup> A d<sup>0</sup>  
 ?<sup>i</sup> s<sup>0</sup> l<sup>u</sup> w l<sup>2,i</sup> y w<sup>a</sup> A f<sup>u</sup> w s<sup>0</sup> n<sup>0</sup> x<sup>0</sup>

The metrical pattern of the poem requires each line to have 12 syllables, with a H rhyme in the 3rd, 7th and 12th syllable:

<sup>3</sup> Such conventions have recently been proposed, see Chafik (1990, 1991) and Elmedlaoui (1999) and references therein.

<sup>4</sup> The lines below are lines 7, 10 and 14 in the poem in Hafidi (1996: 33–34). Here are the meanings of these lines: (a) The stars appeared through the clouds; there is not anymore anything to hide. (b) The signs of friendship, this I know very well. (c) Let me then sift all that my arm would have grinded.

<sup>5</sup> From /mad=sul/.

<sup>6</sup> Bound state form of *a-fus* 'arm', in which the initial vowel fails to drop in order to meet the needs of the meter. In *Imdlawn*, only *u-fus* is acceptable in nonpoetic speech.

(3)

1	2	3	4	5	6	7	8	9	10	11	12
L	L	H	L	L	L	H	L	L	L	L	H
a. ba	yn~	nit	ra	nx	ta	gutt	mas~	su	lns~	sn	tal
b. l	ya	mar	tn	ma	tid~	dukk	la	ns~	sn	tn	tak <sup>w</sup> k <sup>w</sup>
c. s~	si	fif	yi	tk	ra	dis	lul~	li	wa	fu	snx

Besides illustrating our observation about the notation of full vowels of Tashlhiyt and that of their absence, the lines in (2) are also typical of various problematic aspects of Arabic transcriptions. The labialization of /k<sup>w</sup>k<sup>w</sup>/ at the end of line (3)b is simply glossed over in the Arabic transcription. Unlike Tashlhiyt and MA, CA does not possess any labialized consonants in its phonemic inventory and the Arabic script does not have letters representing labialized consonants. Note also the variation in the representation of the full vowels. CA has an underlying contrast in vowel length, which Tashlhiyt does not. The full vowels of Tashlhiyt are spelled as long in some instances and as short in others, e.g. the rightmost *a* in line (a) and the two occurrences of *a* in *!l-yamar-t* in line (b) are spelled as long, whereas the rightmost occurrence of *a* in line (b) is spelled as short. These variations do not reflect any phonological distinction in Tashlhiyt. Finally there are typographical uncertainties. There is actually a sukuun diacritic in the second word of line (3)b, but the typographical layout in our source makes it unclear whether it belongs to ⟨n⟩ or to ⟨m⟩. Ditto for another sukuun, near the end of the first word in the next line, where it is unclear whether the intended spelling is ⟨y<sup>ø</sup>t⟩ or ⟨yt<sup>ø</sup>

While the authors' Arabic transcriptions enable a speaker of Tashlhiyt to retrieve without ambiguity the words in the original recordings, they do not always enable one to make the appropriate choice between alternative pronunciations of the same word. The authors have a tendency to transcribe the words as they are pronounced in isolation. ME has sung each line before re-transcribing it. When a sequence of words transcribed in Arabic letters could be pronounced in several ways, he chose the pronunciation which he felt sang most naturally to the tune. Here is an example to give an idea of the kind of decisions ME had to make. The words in (4) below are those of line 31 in the song whose first lines were parsed in (19) in § 4.5:

(4) is a=ka i-siggil ag=giwn afi-n l-mγafl-t<sup>7</sup>

The sequence of words in (4) can be pronounced in two ways depending on whether the final segment in *afi-n* is assimilated to the following lateral.

<sup>7</sup> 'He is merely seeking distractions from you'. The phonological representation *a=ka* is /ar=ka/ and that of *ag=giwn* is /ad=giwn/.

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One can pronounce /n/ without assimilation to the following /l/, hence the sequence of segments represented in (5)a below, which can only be parsed as (5)b in view of our discussion of syllabification in Chapter 4:<sup>8</sup>

(5) a. is aka isiggil aggiwn afin lmγaflt  
b. i sa kay sig~ gi lag~ giw na fi nlm ya flt  
1 2 3 4 5 6 7 8 9 10 11 12

On the other hand, if the optional assimilation takes effect, (4) is realized as the segment sequence in (6)a, whose orthometric parse is given in (6)b:

(6) a. is aka isiggil aggiwn afil lmγaflt  
b. i sa kay sig~ gi lag~ giw na fil~ lm ya flt  
1 2 3 4 5 6 7 8 9 10 11 12

While syllable #10 is H in (5), it is L in (6). (6) sings without a hitch, which is not the case for (5); this accords with the fact that the meter of the song requires a L syllable in the tenth syllable. In this particular line, then, the optional assimilation should apply, and ME chooses pronunciation (6)a.

In re-transcribing the songs ME has merely chosen between variant pronunciations compatible with the Arabic transcriptions; he has not straightened the lines out. Some lines in the songs are ill-formed. Such lines are marked with an asterisk whose location indicates the point where the meter is violated. Some of the violations may be due to transcription errors in our sources.

One kind of violation is worth mentioning here although it does not occur in the two songs presented below. In Ashlhiy singing it is not unfrequent for a line to have one syllable less than the number required by the meter. In singing, the gap created by the missing syllable is patched by stretching a neighboring syllable. Here is for instance line 32 in the song by Hmad Biyzmawn already cited in (33) in § 4.6:

(7) a yan u-tbir i-bbi flla !laxbar nns<sup>9</sup>

We give the scansion of this line below in (8)b, together with that of line (33)a in § 4.6, which is reproduced as (8)a for the sake of comparison:

(8) 1 2 3 4 5 6 7 8 9 10 11 12  
L L H L L L L L H L H  
a. a ma nad ra ru rmk~ ki ns ta ray za γarn  
b. a ya nut bi rib~ bi fl~ la lax ba rnns

<sup>8</sup> In (5)a the spaces between words are given only for the readers' convenience.

<sup>9</sup> Ah! the loved one (lit 'a dove'), he stops sending news.

In the singing of line (8)b the syllable *bi* is used as a carrier of the portion of the tune which is carried by *ra* and *ru* in (8)a. In some instances of this kind the stretching of a syllable over two positions sounds so natural to ME that he may not notice the metrical violation immediately. This, however, should not make us lose sight of the following point: although lines like (8)b lack one syllable, they also give us data about syllabification when their alignment with a tune is examined.

In Tashliyt as in French, all the pronunciations acceptable in non-poetic speech are also acceptable in singing, but the converse is not true. In our transcriptions of the songs the pronunciation is always that in use in Imdlawn, except for the realizations of /ʃ/. In Imdlawn this phoneme is realized as a long *a* in some contexts (v. § 3.7) but in some other Tashliyt dialects it is always realized as a consonant. The people of Imdlawn are used to hearing that pronunciation from other Ashliyis and they can use it themselves in singing. Setting /ʃ/ aside, those pronunciations notated in our transcriptions which are not acceptable in everyday language in Imdlawn are all pointed out in footnotes.<sup>10</sup>

Our transcription is the same as that used elsewhere in this book, with the following modifications. The exclamation point indicating emphasis (dorsopharyngealization) is prefixed to the morpheme which contains emphasis in the underlying representations. Parentheses around a vowel indicate an underlying vowel which is elided (the contraction of two occurrences of the same vowel into a single short vowel does not occur outside of the poetic language). We have notated with a capital 'A' the vocative particle *a* and the vowel *a* often used as a stopgap syllable at the beginning of lines, to distinguish them from other words pronounced *a*, which are realizations of /ad/ with its consonant deleted. 'y' between square brackets represents the hiatus-breaking glide.

In the texts of Appendices II and III, two successive occurrences of the same letter not separated by a space always represent a geminate, regardless whether they belong to the same morpheme. Let us review three kinds of heteromorphemic geminates which are a common occurrence in the songs cited below.

First, Berber nouns which are loanwords from Arabic begin with the prefix /l-/ which assimilates to a following coronal (v. § 2.5.3.1). In the texts below, all the words which begin with two identical letters separated by a hyphen are nouns with an underlying shape /l-Z/, see e.g. II:3 (third line of the song in Appendix II).

<sup>10</sup> Some of these are in use in everyday language in other Tashliyt dialects, but this is irrelevant for our purposes in this book. We will not dwell on syntactic irregularities. In II:51, for instance, the pronoun *flas* should immediately follow the verb *i-!dr*, and in III:62 the noun *t-i-/rzi*, which is governed by a preposition, should be in the bound state. On the distinctive characteristics of the syntax of poetic language, see the works of Galand-Pernet, Jouad and Bounfour.

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Second, the consonant of the grammatical morpheme /ad/ often assimilates to the next consonant. In the texts below, all the occurrences of *aC* in which *C* is identical to the consonant at the beginning of the next word, are realizations of /ad/, see e.g. II:12, 50, 51.

Third, in certain contexts word-final /n/ optionally assimilates to a following sonorant. In the texts below, all the occurrences of a word with the shape *R=*, where *R* represents a sonorant identical to that which follows the = boundary, are realizations of the genitive preposition *n*, see e.g. II:25,39 and III:1,49.

## SONG

This poem is a song by Rqiya Tandmsirt, a professional singer (*!tarayst*). ME knew the original tune of this song, and he sang every line to that tune in order to transcribe it.<sup>1</sup> Every line ends with the vowel *i*, which is omitted below.

1. A [y] a-marg ur=ak nzi-γ ula sllm-γ=ak
2. A kiyin d=l-ħubb(a) ad=any<sup>2</sup> i-kkis-n t-iram
3. ula s-!saħħ-t inu t-mdā flla laħħ l-lun
4. nkki n-niy-t inu a=yy(i) i-hlk-n lli=ka !fmmr-γ
5. n-ga=nn r-!rža γ=bnadm fki-n=aγ i=t-illas
6. i-sggʷ-as-n a [y] ad !udr-γ l-iyam ur n-ssin
7. is i-lla γk-a=d lli gi-γ yassa γ=l-ħayat
8. nkka kullu t-i-mizar yat<sup>3</sup> t-!trf n=yat
9. kullu man=d n-kka s=u-!dar n-kka=tn s=l-!frħ
10. A zud l-hna n=u-gadir ur i-li t-taman
11. walayinni<sup>4</sup> t-a-mazir-t mra y-ufi yan
12. ag=gis i-skr t-a-mazir-t n-s<sup>5</sup> aru-n arrow
13. i-ga sus zud l-ħiżżejj ix y-ufa yan l-mal
14. as=srs i-sγ l-mlk i-g=nn kullu t-i-!mitaš
15. ukān i-γz l-γin i-g=nn fllas l-mutur
16. i-g=nn !rža nn-s γ=!rbb(i) a=ys<sup>6</sup> i-kmml s=l-!xir
17. !ullah amradd ur l-hmm nn-un a wi-nnay
18. A tt-ini !zdar-ay ad ut-γ ukān a-!γaras
19. a mmi=d uški-γ a mmi=d ut-γ ukān a-!γaras
20. a n-issan ma mmi=k=id n-fl a winu γ=u-fus
21. A winu waħqq !rbbi ini sisn t-amn-t
22. A t-asa nu tt-ini gis yan amr kiyin
23. ar għġan-γ ar=i<sup>7</sup>=k=id i-s-mala yan l-mlk

<sup>1</sup> V. Tune 1 in Appendix IV.

<sup>2</sup> Variant of the 1p object pronoun *ax*. This variant is only used in poetry.

<sup>3</sup> Even in singing the release of this consonant is only optional, v. § 6.3.3.

<sup>4</sup> This pronunciation is acceptable only in poetry. The normal pronunciation is *walaynni*.

<sup>5</sup> From /nn-s/ 'of him/her'. In poetry, the initial morpheme in certain possessive determiners, which is normally pronounced *nn*, can be pronounced with a simplex consonant.

<sup>6</sup> Underlyingly /ad=as/.

<sup>7</sup> The 1s pronoun /iyi/, which is realized as *yyi* or as *iyi* depending on the context, has a variant /iy/, which is realized as *yy* or *iy* depending on the context. In poetry the latter realization can be shortened to *i*.

24. ar=i<sup>8</sup>=d i-s-mala t-iddi nn-k ul(a) awal nn-un  
 25. A !sbħan wallillah a kra u=w-awal nn-un  
 26. i-ga zun d r-ribab iγ=tn y-ut u-!snnañ  
 27. i-ga zun d l-luz iγ i-sli y-ili t-ammn-t  
 28. A zun i-tt-yara γ=iggi n=t-asa nu s=l-qlm  
 29. ur a=yyi=k<sup>9</sup>n i-ssirid u-!nzar ul(a) a-!smmid  
 30. !rwaħ a n-mun nkki dik yan i-ra-n i-mun  
 31. !rwaħ a n-mun i=t-udr-t n-mun i=s-siwal  
 32. n-mun i=s-!sirat inn γ ur t-uki-t n-ss-ak<sup>w</sup>i=k  
 33. !rwaħ a g<sup>w</sup>ma s=t-mazir-t nn-aγ ak=k awi-γ  
 34. ad=ak n-bnu t-a-gadir-t ammas n=w-aman  
 35. A !birra nn-s ad=as n-g r-ryal i-la-n a-fus  
 36. a-g<sup>w</sup>ns nn-s ad=as n-g l-ħrir n=t-ukay-in  
 37. awi=yyi s=darun iγ ur t-!rdi-t ak=k awi-γ  
 38. ad=ak n-g t-a-wayya γ=u-nwal i=ma t-uru-t  
 39. ad=ak n-tt-asi mad=dark i-lla-n u=w-arraw  
 40. ad=ukan t-nni-t mbarka s nni-γ nħam  
 41. A t-anna ur n-!suwib n-ħħ=flas a-!kuray  
 42. !imrbba s=yan i-tt-azzal-n l-firaq nn-aγ  
 43. at=tn gi-n d u-safu gi-n w-aman a-safar  
 44. amar i-bna-n a-gadir s=i-!mšd n=t-ammn-t  
 45. i-g=as=nn t-i-għażda d=u-!syan n-k<sup>9</sup> a r-!riħan  
 46. i-g=as a-k<sup>w</sup>faf n=t-i-!binsr-t t-luħ aman  
 47. t-i-flw-in ti n=ž-žaž l-qfl wi n=n-!nqqr-t  
 48. t-a-saru-t n=d-dahab i-fili win l-mlf  
 49. ukān i-fk=ak a bab n=d-!draf-t t-a-saru-t  
 50. !imrbba s=t-asa y-ugi-n t-!ayyad at t-!iγyar<sup>10</sup>  
 51. ak=kullu t-g l-!barud i-!dr u-safu flas

	H						H						H	
	1	2	3	4	5	6	7	8	9	10	11	12		
1.	a	ya	mar	gu	ra	kn	*zi	γu	la	sl-	lm	γak		
2.	a	ki	yin	dl	ħub-	ba	dan	γik-	ki	sn	ti	ram		
3.	u	las-	saħ	ti	nu	tm	*da	fl-	la	laħ-	ħl-	lun		
4.	nk~	kin~	niy	*tin	way~	yi	ħlk	nl~	li	ka	fm~	mry		
5.	n	gan~	nrr	ža	γb	na	dmf	ki	na	γi	til~	las		
6.	i	sg <sup>w</sup> ~	g <sup>w</sup> as	na	ya	du	dry	li	ya	mu	rns~	sin		
7.	i	sil~	lay	ka	dl~	li	giγ	γas~	sa	γl	ħa	yat		
8.	nk~	ka	kul~	lu	ti	mi	zar	ya	tt~	tr	fn	yat		

<sup>8</sup> See note 7.

<sup>9</sup> From /nn-k/; v. note 5.

<sup>10</sup> From /ad t-!iray/.

## Tune 1



## Tune 2



## Tune 3



## Tune 4



## Tune 5

