

**LANGUES ORIENTALES
ANCIENNES
PHILOLOGIE ET LINGUISTIQUE**

N° 2 / 1989

EXTRAIT



**PEETERS
LOUVAIN - PARIS**

CLITIC ORDERING, MORPHOLOGY AND PHONOLOGY IN THE VERBAL COMPLEX OF IMDLAWN TASHLHIYT BERBER

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1. PRELIMINARIES

For anyone working on the phonology of Imdlawn Tashlhiyt Berber¹ (henceforth ITB) the most promising area of investigation is the verbal complex, a stretch at the beginning of ITB sentences which contains the verb and its satellites (preverbs and clitics). However, the mechanisms which underlie the phonological alternations found in the verbal complex include not only phonological processes of great generality in the language (e.g. those responsible for the alternations between high vowels and glides), but also others involving only specific morphemes in rather restricted environments. Some of the processes of the latter type result in pervasive homophonies between grammatical morphemes such as the complementizer *ad* and the aspectual *ar*, whose correct identification is crucial to an understanding of the syntactic and morphological regularities of the language.

This article describes the main features of ITB in the following areas: (i) the sequencing of the preverbs and verbal clitics, (ii) the selections between the four verbal stems on the one hand and the preverbs on the other, (iii) various phonological alternations occurring only in restricted environments inside the verbal complex, and (iv) verbal morphology. Although the research reported on here was done as a starting point for a systematic phonological study, we feel that its results might be of some use to other students of Berber with different interests. The extensive literature on Berber is far from replete with studies aiming at a systematic description of one particular dialect taken as a coherent whole².

ITB is the variety of Tashlhiyt Berber spoken in the Imdlawn valley, seventy kilometers northeast of the city of Taroudant, in the Western Higher Atlas. One of us (EM) is a native speaker of ITB. Like certain other Berber dialects ITB has an unusually wide range of syllabic consonants which provides a testing ground for theories of syllable structure. For informations on its syllable structure and other aspects of its phonology, cf. our previous work on ITB³.

¹ This work was supported by the Centre National de la Recherche Scientifique, Paris. We wish to thank Morris Halle for his comments on an earlier version of this article, and Mr. Mustapha Chapi, Dean of the Université Mohamed Premier, Oujda, for making it possible for one of us to participate in this research.

² Cf. for instance Abdel-Massih (1968), Applegate (1958), Basset and Picard (1948), Bentolila (1981), Chaker (1983), Guerssel (1983)b, Penchoen (1973).

³ Dell and Elmedlaoui (1985, 1988), Elmedlaoui (1985). On another Berber dialect with a wide range of syllabic consonants, cf. Guerssel (1985).

Transcription and abbreviations

In this article the term «vocoid» denotes the class {a, i, u, y, w}. All the other segments of ITB will be called contoids. The term «vowel» (V) denotes the class {a, i, u}, and all the other segments of ITB will be called consonants (C). The term «glide» (G) denotes the class {y, w} and K stands for any consonant which is not a glide, i.e. for any member of the set {b, m, f, t, d, n, s, z, ʃ, ʒ, k, k°, g, g°, γ, γ°, q, q°, l, r, h, h̄, ʕ}. We shall consider *h̄*, *h̄* and *ʕ* to be [+consonantal]. Our transcription is a hybrid between a phonological and a phonetic one. It contains blanks and hyphens to represent word boundaries and morpheme boundaries respectively. Syllabicity is not indicated except for high vocoids, which are transcribed as *y* and *w* or *i* and *u* as the case may be, even though their realization as glides or vowels is usually predictable from the environment in which they occur⁴. Our transcription does not record the effects of resyllabification across word boundaries⁵. The transcription of each word reflects the pronunciation of that word in those contexts where neither the final segment of the preceding word nor the initial segment of the following word is a vowel.

We follow the International Phonetic Alphabet except on the following points. *x* and *γ* represent uvular fricatives; ° indicates labiovelarization of the preceding sound; an exclamation point at the beginning of a unit (morpheme or word) indicates that that unit contains one or more emphatic segments. When a morph or word is a portmanteau, the glosses corresponding to its components are separated by a colon, e.g. whereas the English *boys* would be represented as *boy-s* and glossed as “boy-p”⁶, *men* would be represented as *men* and glossed as “man:p”. In order to avoid certain complications which are irrelevant in an article dealing with the verbal complex⁷, our transcription will not represent completely the internal structure of nouns. Nouns in the “construct state” will be systematically marked as such in the word by word glosses, even those whose construct state and free state are homophonous⁸.

⁴ Next to a syllabic segment only *y* and *w* can occur; elsewhere only *i* and *u* can occur. This generalization is exemplified by the alternation between *-wn* and *-un* in 2mp and 2fp in (6), and by that between *y-* and *i-* as the 3ms PNG prefix in (18) and (17). On the alternation between glides and high vowels in ITB, cf. our previous work.

⁵ The generalization stated in the preceding footnote is valid across word boundaries as well as inside words. For instance the initial segment of the noun meaning «boy», which we have uniformly transcribed as *u*, is phonetically [w] in (1) and [u] in (2).

⁶ “p” stands for “plural”. We use the following abbreviations: aor, aorist; c, construct state; caus, causative; comp, complementizer; dat, dative; dct, deictic; dem, demonstrative; det, determiner; f, feminine; impf, imperfective; interr, interrogative; IP, initial preverb; loc, locative; m, masculine; neg, negative; obj, object; p, plural; pass, passive; pf, perfective; prt, participial; rec, reciprocal; s, singular.

⁷ In particular those related to the morphology of the “construct state”, on which cf. for instance Basset (1932, 1945), Basset and Picard (1948), Guerssel (1983a).

⁸ Subjects which follow their verbs appear in the construct state, and so do the objects of prepositions. Direct objects appear in the free state.

2. CLITICS AND PREVERBS

2.1. *Preliminaries*

The ITB verb agrees with its subject in person, number and gender⁹. Agreement is marked by prefixes or by suffixes or by both. A complete list of the agreement markers, which will henceforth be called PNG (from “person, number, gender”), can be found in the first column of (6).

In basic sentences the verb precedes all its arguments and the subject precedes all other arguments:

- (1) i-ga ufrux ifullusn γ tgm̄mi
 3ms-put:pf boy:c chickens in house:c
 the boy put the chickens into the house

However certain items must be cliticised onto the verb. For instance (1) becomes (2) if “the chickens” (m.p.) and “the house” (f.s.) are replaced by the corresponding personal pronouns.

- (2) i-ga tn gi-s ufrux
 3ms-put:pf obj3mp in-3s boy:c
 the boy put them (m) into it (f)

A complete list of the clitics of ITB will be given below. Some of the morphemes which always precede the verb (e.g. complementizers, conjunctions) always attract the clitics in front of the verb. An example is *is*, a complementizer used for marking yes/no questions, among other things. (3) and (4) are the interrogative counterparts of (1) and (2) respectively.

- (3) is i-ga ufrux ifullusn γ tgm̄mi
 did the boy put the chickens into the house?
 (4) is tn gi-s iga ufrux
 did the boy put them (m) into it (f)?

Morphemes such as *is*, which have the property of attracting to the position in front of the verb items which otherwise follow it, will be called preverbs. Besides various complementizers and conjunctions, the preverbs comprise in particular the negation and the two particles *ar* and *rad*, which we will call the tense and aspect particles (henceforth TA).

Although we sometimes loosely speak about “sentences” in what follows, it must

⁹ Traditionally, one says that in a latin sentence such as *venit dominus* “the master came” the singular noun *dominus* is the subject, and that the third person singular verb *venit* agrees with the subject in person and number. Similarly, it is customary to say that in (1) the masculine singular noun *ufrux* is the subject, and that in the verb *iga* the third person masculine singular prefix *i-* is a marker of agreement with the subject. However Galand (1964, 1979) argues that it is the PNG *i-* which is the subject in (1), *ufrux* being what he calls a “complément explicatif” of that subject. Since nothing in this article hinges on this point, we shall continue to call *ufrux* the subject in (1).

be made clear from the outset that the cliticization phenomenon we are discussing is internal to *clauses*. For instance sentence (5) contains two clauses each enclosed in a pair of brackets:

- (5) [is a-m i-nna [mas tt i-ħubba]]
 [interr dat2fs 3ms-say:pf [that obj3fs 3ms-love:pf]]
 did he tell you (f) that he loved her?

The higher clause begins with the complementizer *is*, and the sentential complement of *i-nna* ‘‘he said’’ begins with the complementizer *mas*. Both complementizers are preverbs, and each triggers cliticization within the limits of its own clause, as can be seen from the fact that *tt*, the 3fs object pronoun of the embedded clause, must be located to the right of *mas*. In section 2 we shall describe the sequencing of clitics with respect to other clitics, the sequencing of preverbs with respect to other preverbs, and the sequencing of clitics with respect to the preverbs.

2.2. *The clitics*

The verbal clitics can be divided in four classes: (A) the pronominal clitics, (B) the deictic clitics *d* and *nn*, (C) the adverbial clitics, and (D) *iyt* and the imperative clitics. On (D) cf. sections 4 and 5. We will examine the other classes in turn.

The pronominal clitics are the object clitics, i.e. pronouns which are direct objects of verbs, and the clitic prepositional phrases. When governed by a preposition, personal pronouns have special forms which are enclitic to the preposition. Moreover, for certain prepositions, the prepositional phrase as a whole behaves as a clitic. An example is *gi-s* ‘‘into it’’, in (2) and (4). Prepositions such as γ , which form clitic prepositional phrases, will be called cliticizable prepositions¹⁰. Alongside the paradigm of the PNGs, (6) gives the complete paradigms for the object pronouns and for clitic prepositional phrases headed by the prepositions *y* (dative), *dar* and γ .

(6)	PNG		obj	y	dar	γ
1s		-x	iyi	iyi	dar-i	gi-g-i
2ms	t-	-t	k	a-k	dar-k	gi-k
2fs	idem		km	a-m	dar-m	gi-m
3ms	i-		t	a-s	dar-s	gi-s
3fs	t-		tt	idem	idem	idem
1p	n-		ax	ax	dar-nx	gi-(t)-nx
2mp	t-	-m	k ^o n	a-wn	dar-un	gi-wn / gi-t-un
2fp	t-	-mt	k ^o nt	a-wnt	dar-unt	gi-wnt / gi-t-unt
3mp		-n	tn	a-sn	dar-sn	gi-(t)-sn
3fp		-nt	tnt	a-snt	dar-snt	gi-(t)-snt

¹⁰ There are seven cliticizable prepositions: *y* dative, γ locative, *d* ‘‘with’’ (comitative), *f* ‘‘upon’’, *s* ‘‘toward’’ or ‘‘with’’ (instrumental), *ssy* ‘‘from’’, and *dar* ‘‘at X’s place’’ (cf. French *chez*).

The object clitics are the only ones which distinguish gender in the 3s. Except in the first person singular¹¹, the clitic prepositional phrases all make use of the same set of pronominal forms, those after *gi-* in the last column of (6). These forms are used as objects of non cliticizable prepositions as well¹². The deictic locatives *γid* “here” and *γinn* “there” will be considered as included in the set of the clitic prepositional phrases, for they are subject to the same ordering restrictions with respect to the other clitics.

Concerning the meaning and uses of the deictic clitics *d* and *nn* the facts of ITB are similar to those described in Bentolila (1969).

Here is a list of all the clitic adverbs which we have identified: *akk*° “completely”, *ba:da* “as for”, *bahra* “very (much)”, *bd(d)a* “always”, *bzzaf* “very (much)”, *dax* “again”, *filli* “only”, *ka* “only”, *kullu* “all”, *sar* “never”, *sul* “still, finally”, *ta* “not yet”, *ukan* “only”, *yad* “already”, *za* “indeed, really”, *zwar* “first”, *fwi(y)* “a little”, *zʒu* “never”.

When a clause contains several clitics, they are always adjacent to one another. Non adverbial clitics occur in fixed order. Dative pronouns (1) always precede object pronouns (2), which always precede deictics (3), which always precede clitic prepositional phrases. Moreover items of classes 1 to 3 must form an uninterrupted sequence¹³; no clitic adverb is allowed between them. Clitic adverbs may however occur before clitic prepositional phrases. This is summarized below.

(7) CL:	datives	object	deictic	adverbs	prep.phrases
	1	2	3	4	5

We will use the label CL to refer to clitic sequences of the form represented in (7). Whereas slots 2 and 3 each can only contain one item at a time¹⁴, several dative clitics can occur in a sequence in slot 1, and similarly for adverbs and prepositional phrases in 4 and 5. Numerous examples of clitic sequences will be found throughout this article.

2.3. *The preverbs*

We will divide the preverbs into three subsets: 1) the tense/aspect preverbs (henceforth TA) *ar* and *rad*, 2) the negation *ur*, and 3) all the others, which we will call the initial preverbs for lack of a better term. We do not for the moment have a complete inventory of all the initial preverbs of ITB. Except for one (*ħra*), all of the

¹¹ Here are the 1s clitic prepositional phrases, listed in the order corresponding to that of the prepositions in note 10: *iyi*, *gigi*, *didi*, *flli* or *flla* (free variants), *sri*, *ssgigi*, and *dari*. With the other prepositions the form of the 1s pronoun is *iyi*, e.g. *gr-iyi* “between-1s”, *nnig-iyi* “beyond-1s”.

¹² The optional *t* in the plural is allowed by all the prepositions of note 10 except *y* and *dar*. It is also allowed by *gr* “between”. All the cliticizable prepositions except *dar* have a special form when they appear in clitic prepositional phrases. These forms are (same order as in note 10) *a*, *gi*, *di*, *flla*, *sr* and *ssgi*. They do not seem to be derivable by the regular phonological processes of ITB.

¹³ Setting aside the behavior of *iyt*, on which cf. section 5.

¹⁴ A verb in ITB can have at most one direct object; the deictics *d* and *nn* are mutually exclusive.

ones which we have identified are complementizers or subordinating conjunctions¹⁵. Here is their list: *ad*, *is*, *mmi*, *s*, complementizers; *amar* optative, *amk* negative oaths, *ar* affirmative oaths, *iy*, *!mqqar*, *mra*, *ukun*, *waxxa* conditional clauses; *ny* “or”, *may* “as long as, until”, *ar (d)* “until”, *kissar* “as long as”, *lliy* “when”, *hra* (immediate past).

Setting clitics aside, the left end of any clause containing a verb may be represented as in (8). The lower case *a* and *b* and the digits 1 to 3 are for ease of reference.

(8)	initial	$\left\{ \begin{array}{c} \emptyset \\ \text{ur} \end{array} \right\}$	a	$\left\{ \begin{array}{c} \text{rad} \\ \text{ar} \\ \emptyset \end{array} \right\}$	1	verb
	preverb(s)		b		2	
					3	
	IP		NEG		TA	V

The left-to-right ordering IP-TA-V is fixed for all sentences of ITB, and so is the ordering IP-NEG-V; on the other hand NEG precedes TA in some sentences and follows it in others, as will be seen below. As a first approximation, the range of choices in each of the four successive slots in (8) can be considered independent of that in the other three. In particular the slots NEG and TA taken together yield a paradigm of six possibilities which can be combined with any verb and with most¹⁶ initial preverbs.

Here is an example for each of the six combinations. The preverbs /rad/ and /ar/ are subject to various phonological alternations which will be described in sections 6 and 7. In the glosses they are represented as RAD and AR.

- (9) (a-1) *raγ γinn ili-n*
 RAD there be:aor-3mp
 they will be there
- (10) (b-1) *ur raγ γinn ili-n*
 neg RAD there be:aor-3mp
 they will not be there
- (11) (a-2) *ar γinn tt-ili-n*
 AR there impf-be-3mp
 they are there (habitually)
- (12) (b-2) *ur a γinn tt-ili-n*
 neg AR there impf-be-3mp
 they are not there (habitually)

¹⁵ There are subordinating conjunctions which are not preverbs, e.g. *a/ku* “because”. Other sentence initial words which are not preverbs are for instance *aqq* “but”, *maxx* interrogative, *γar* the equivalent of engl. “just” followed by an imperative (cf. French *il n’y a qu’à*).

¹⁶ Sentences with the initial preverb *ar* (resp. *amk*), which are specialized in expressing affirmative (resp. negative) oaths, cannot contain the negation *ur*. Selections between the initial preverbs and the slot TA will be discussed below.

- (13) (a-3) *lla-n* *γinn*
 be:pf-3mp there
 they are there
- (14) (b-3) *ur* *γinn* *lli-n*
 neg there be:neg-3mp
 they are not there

The TA *rad* (but not the TA *ar*) can optionally carry a PNG prefix, but not a PNG suffix. When *rad* carries a PNG prefix the verb must still have its own PNG prefix. Here is for instance the paradigm for the future perfective of *fka* “to give”, with the dative 3s pronoun *as*: “I will give to him ...”, etc.

(15)	singular	plural
1	<i>rad as</i> <i>fk-x</i>	(n-)rad as n-fk
2m	(t-)rad as t-fk-t	(t-)rad as t-fk-m
2f	<i>idem</i>	(t-)rad as t-fk-mt
3m	(i-)rad as i-fk	rad as fk-n
3f	(t-)rad as t-fk	rad as fk-nt

2.4. *Clitic placement*

We will posit the following rule to account for the ordering of CL taken as a whole (cf. (7)) with respect to the rest of the clause.

- (16) CL-Placement:
- (a) if the clause contains one or more preverbs, CL immediately follows the rightmost of these;
 - (b) otherwise CL immediately follows the verb.

The first three examples below illustrate case (a) of CL-placement, and the fourth illustrates case (b) (*afku* “because” is not a preverb). CL is in italics for the sake of conspicuousness.

- (17) *rad a-s t γid* *i-fk*
 RAD dat-3s obj:3s here 3ms-give:aor
 he will give it to her here
- (18) *!mqqar ħra ra nn sr-s y-afk*
 even:if just RAD dct toward-3s 3ms-go:aor
 even if he goes to it only now
- (19) *ur a-s ka t-nni-t γayann*
 neg dat-3s only 2s-say:neg-2sg that
 if only you had told him that!
- (20) *afku i-ga nn sul flla-s atay*
 because 3s-put:pf dct finally upon-3sg tea
 because he finally put the tea upon it

Taken together (8) and (16) provide a faithful account of the orderings found in clauses not containing the negation *ur*. But whereas they imply that *ur* can never follow the TAs or the clitics, this is borne out only in clauses which do not contain initial preverbs, such as the following.

- (21) *afku ur iyi !zri-n* / * *afku iyi ur !zri-n*
 because neg obj1s see:neg-3mp
 because they did not see me (on *afku* cf. note 15)
- (22) *ur a di-s i-ftta* / * *a di-s ur i-ftta*
 neg AR with-3s 3s-eat:impf
 he does not eat with her

In clauses containing initial preverbs, although the predicted ordering is acceptable, there exists an alternative one, much preferred, in which *ur* immediately precedes the verb:

- (23) *is ur a i-ftta* / *is a ur i-ftta*
 interr neg AR 3s-eat:impf
 doesn't he eat?
- (24) *is ur a di-s iftta* / *is a di-s ur i-ftta*
 interr neg AR with-3s 3s-eat:impf
 doesn't he eat with her?
- (25) *waxxa ur iyi !zri-n* / *waxxa iyi ur !zri-n*
 even:if neg obj1s see: neg-3mp
 even if they did not see me

Assuming the underlying ordering to be as in (8), we will posit a rule which optionally operates in clauses containing initial preverbs and moves *ur* immediately in front of the verb.

- (26) UR-shift IP *ur* X V
 1 2 3 4 → 1 3 2 4

UR-shift must apply after CL-placement; given (8), the only (nonnull) strings that variable X in (26) will range over are strings consisting simply in a TA, as in (23), strings consisting in a CL sequence, as in (25), or strings consisting in a TA followed by CL, as in (24).

Besides occupying position 4 inside the sequence CL (cf. (7)) the clitic adverbs can also occur immediately in front of CL. Both sequences in (27) are in free variation.

- (27) *is t inn sul gi-s i-srs* / *is sul t inn gi-s i-srs*
 interr obj3ms det *finally* loc-3s 3ms-put:pf
 did he finally put it (m) into it?

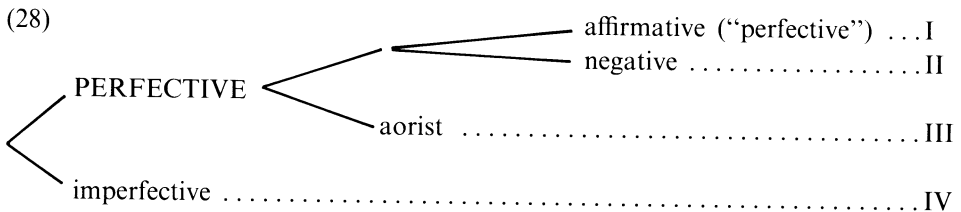
When a clause contains several clitic adverbs, they do not need all to be ordered alike with respect to the other clitics.

3. THE PREVERBS AND THE FOUR VERBAL STEMS

Let us use the term “stem” to refer to what remains of a verb once it has been stripped of its PNG. In *t-m-s-nkr-m* “you (mp) had one another get up”, the PNG is *t-m* and the stem *m-s-nkr* (rec-caus-rise:pf). The conjugation of an ITB verb makes use of four stems which will be referred to as the perfective stem (I), the negative stem (II), the aorist stem (III) and the imperfective stem (IV)¹⁷. For instance *lsa* “to dress” has stem I in *lsa-n* “they (m) dressed”, stem II in *ur lsi-n* “they (m) did not dress”, stem III in *rad ls-n* “they will dress (for a specific occasion)”, and stem IV in *rad lssa-n* “they (m) will (usually) dress”.

The morphology of the four stems will be discussed in section 8 and 9. For the moment, let us outline how they combine with the preverbs.

(28) represents the relations among the four stems. For lack of a better terminology, we will write the term “perfective” in capitals when we wish to refer to stems I, II and III taken together in contrast with the imperfective stem, and we will use lower case “perfective” to refer to that PERFECTIVE stem which is neither the negative stem nor the aorist stem, i.e. stem I.



Whereas the choice between PERFECTIVE and imperfective is an independent property of the sentence, the selection among the three PERFECTIVE stems can always be predicted from other properties of the sentence. In particular, certain preverbs require that a following PERFECTIVE verb take up stem II, others that it take up stem III. (29) represents the selections between the four stems and the six terms of the TA/NEG paradigm defined by (8). The selections represented in the table are those observed on the surface. The digit and lower case letters in parentheses at the beginning of each line correspond to those in (8). The sequential ordering of *ur* and the TA (i.e. whether rule (26) has applied or not) is irrelevant to the content of lines B and D.

¹⁷ Our labels for the four stems are translations of those proposed in French by Galand (1977), but our numbering is different from his. The correspondence between the two numberings is straightforward. On the aspectual values of the stems in other dialects of Berber, cf. also Basset (1929), Bentolila (1981), Chaker (1983, 1984), Galand (1973), Leguil (1982).

(29)

			PERFECTIVE			imperfective
			perfective I	negative II	aorist III	
A	(a1)	rad	—	—	+	+
B	(b1)	ur rad	—	—	+	+
C	(a2)	ar	—	—	—	+
D	(b2)	ur a ¹⁸	—	—	—	+
E	(a3)	∅	+	+	+	+
F	(b3)	ur	—	+	+	+

Whereas the TA *ar* can only cooccur with the imperfective (cf. C and D), the TA *rad* can cooccur with the PERFECTIVE and the imperfective as well; but when the verb which follows *rad* is in the PERFECTIVE, it must always have an aorist stem (cf. lines A and B). Here are other cases where both the PERFECTIVE and the imperfective are possible, and where the PERFECTIVE must always show up as an aorist.

- (30) a. when the clitic *iyt* is present (cf. section 5);
 b. in the imperative (cf. section 4);
 c. in certain clauses beginning with the complementizer *ad* (cf. below);
 d. in subordinate clauses beginning with (*ix*) *ar d* “until”;
 e. in conjoined constructions (cf. below).

The list in (30) is not exhaustive. Before going any further in our comments on (29), let us rapidly introduce cases *c* and *e* in (30).

Outside of cleft sentences, the complementizer *ad* occurs in negative imperatives (cf. section 4) and in compound complementizers, e.g. in *baf ad* “in order to”, *maxx ad* “why”. Furthermore certain verbs require that their sentential complements begin with *ad*, e.g. *ra* “want”, *!zdar* “be able”, *!xssa* “must”, *ssn* “know”, *lumr* “order”, *!ksud* “fear”, *fqqa* “be difficult”. (30)c is meant to cover all such cases (for examples, cf. (37) and (38)) but not cleft sentences, where the combinatorics between the four stems on the one hand and the TA and the negation on the other is the same as in the corresponding simple sentences¹⁹.

In (30)e, what we are calling a conjoined construction²⁰ consists of two clauses which follow one another without any intervening connecting word. Furthermore, if the second clause in such a construction is in the PERFECTIVE, that PERFECTIVE must manifest itself as an aorist. The two clauses may describe two successive events (cf. (31)), or the first clause expresses some condition and the second an order (cf. (39)).

¹⁸ *ar* loses its final consonant when another preverb is present, cf. section 6.1.

¹⁹ Except in those environments where *ar* is dropped (cf. section 6.3).

²⁰ And what Leguil (1981) calls “schéma d’enchaînement”.

- (31)a E-III i-kfm d y-ak°i
 3ms-enter:pf dct 3ms-jump:aor
 he came in and then he jumped
- (31)b E-IV i-kfm d ar i-tt-ak°i
 3ms-enter:pf dct AR 3ms-impf-jump:impf
 he came in and then he started jumping around ²¹

Within the PERFECTIVE, the distinction between stems I and II on the one hand and stem III on the other reminds one of that between the indicative and the subjunctive in languages such as Latin or French.

As in clauses where *rad* is present (cf. (29)A,B), the only stems which can occur in the various cases listed in (30) are stems III and IV. This holds for negative clauses as well as for affirmative ones.

Let us go back to (29). The contents of lines E and F, which have to do with clauses with no TA, differ only in column I: when the negation *ur* cooccurs with a PERFECTIVE verb which is not in the aorist, that verb must be in stem II. *ur* is not the only preverb whose occurrence requires a stem II. A PERFECTIVE verb obligatorily has a stem II after the preverb *amk* (negative oaths), and it may have one after the preverb *mra* (counterfactual), hence the plus sign in E-II ²². The plus signs in E-III and F-III represent those cases where a PERFECTIVE obligatorily shows up as an aorist, cf. (30).

Notice that when a preverb triggering the appearance of a negative stem occurs in a clause which otherwise meets conditions under which PERFECTIVE verbs are required to appear in the aorist stem, as when *rad* is present or in clauses falling under the cases listed under (30), the verb must be in the aorist stem, not in the negative stem ²³.

Imperfective stems always have an accompanying TA, except in certain particular cases. Those particular cases, which are responsible for the plus signs in E-IV and F-IV, are on the one hand relative clauses where *ar* is dropped (cf. section 6.3.), and on the other hand cases *a*, *b* and *c* of (30), where *ar* is not allowed to occur ²⁴.

²¹ Sequence (31)b is shared by two homophonous sentences. The first sentence (i) has the meaning given in the main text; the second (ii) means “he came in jumping”. The actions described by the two verbs follow one another in (i), whereas they are concomitant in (ii). The latter sentence is not a conjoined construction, for in type (ii) sentences where the second clause is in the PERFECTIVE, that PERFECTIVE manifests itself as a perfective, not as an aorist, cf., e.g., *i-kfm d i-sda f !ukuray* “he came in leaning on the stick”. If one replaces the perfective *i-sda* by the aorist *i-sdu* the resulting sentence is a conjoined construction: *i-kfm d i-sdu f !ukuray*, “he came in and then he leaned on the stick”.

²² *!ullah amk i-ddi* “I swear he did not leave” (*!ullah*, a word introducing oaths, *amk*; a negative preverb used in oaths; *i-ddi*, 3ms-leave:neg). *mra i-ddi* “if he had left ...”.

²³ For the preverb *ur*, cf. (33)a, (38)a. For *amk* and *mra*, contrast the examples in the preceding note with *!ullah amk rad i-ddu/*i-ddi* “I swear he will not leave” (*i-ddu*, 3ms-leave:aor), and *mra rad i-ddu/*i-ddi* “if he leaves” (counterfactual in the future).

²⁴ Imperfective stems always require an accompanying *ar* in cases (30)d and (30)e. One should perhaps assume that at the most abstract level of representation stem IV never occurs without an accompanying *ar*, and extend to cases (30)a-c the *ar*-erasure rule posited for the relative clauses discussed in section 6.3.

The examples below illustrate the various well-formed combinations of table (29). Before each example we indicate which combination it illustrates. The stems of *ksa* “to tend grazing cattle” are *ksa* (I), *ksi* (II), *ks* (III) and *kssa* (IV); so as to help the eye concentrate on what is relevant, we let the initials “a.s.” stand for the phrase *ass n ssbt* “saturday”. Each pair of examples illustrates the opposition between the PERFECTIVE and the imperfective in a particular environment. In each pair the statement in the first example deals with a specific saturday, whereas that in the second example deals with the usual state of affairs on saturdays.

(37) and (38) illustrate (30)c, and (39) illustrates (30)e.

- (32)a A-III rad ks-n a.s.
they will pasture saturday
- (32)b A-IV rad kssa-n a.s.
they will pasture on saturdays
- (33)a B-III ur rad ks-n a.s.
they will not pasture saturday
- (33)b B-IV ur rad kssa-n a.s.
they will not pasture on saturdays
- (34)a E-I ksa-n a.s.
they pastured saturday
- (34)b C-IV ar kssa-n a.s.
they pasture on saturdays
- (35)a F-II ur ksi-n a.s.
they did not pasture saturday
- (35)b D-IV ur a kssa-n a.s.²⁵
they do not pasture on saturdays
- (36)a E-II !ullafi amk ksi-n a.s.²⁶
I swear that they did not pasture saturday
- (36)b C-IV !ullafi amk a kssa-n a.s.²⁷
I swear that they do not pasture on saturdays
- (37)a E-III i-!xssa ad ks-n a.s.²⁸
they must pasture saturday
- (37)b E-IV i-!xssa ad kssa-n a.s.
they must pasture on saturdays

²⁵ Cf. note 18.

²⁶ Cf. note 22.

²⁷ Cf. note 18.

²⁸ *i-!xssa* 3ms-necessary:pf, *ad* complementizer, cf. (30)c.

- (38)a F-III i-!xssa ad ur ks-n a.s.
they must not pasture saturday
- (38)b F-IV i-!xssa ad ur kssa-n a.s.
they must not pasture on saturdays
- (39)a E-III iγ t-mlul i-ls tt a.s.
if 3fs-white:pf 3ms-wear:aor obj3fs saturday
if it(f) is white, let him wear it(f) saturday
- (39)b E-IV iγ t-mlul ar stt i-lssa a.s.
if 3fs-white:pf AR obj3fs 3ms-wear:impf saturday
if it(f) is white, let him wear it(f) on saturdays

4. THE IMPERATIVE

In order to provide a complete inventory of the forms which can be built on a given stem, one must add the following paradigm, which is used in the imperative.

- (40) 2s. -∅ 2mp. at 2fp. amt

Zero represents a naked stem. The members of (40) can combine only with stems III and IV. They are compatible both with the active and with the passive voice. An example of a passive imperative is *tt-yagal* “let yourself hang”.

ITB has no forms specialized in expressing the imperative in the third person. For the first person one uses the 1p clitic *ax*. In combination with a naked stem it expresses a dual imperative: *nkr-∅ ax* “let us get up (pf), you and me”. In combination with *at* and *amt* it forms plural imperatives, that is, imperatives which involve at least two participants besides the speaker: *nkr at ax*, *nkr amt ax* “let us get up (pf), you and me”.

Imperative forms cannot cooccur with any preverb, in particular with the negation *ur*. In order to express negative imperatives one uses stems III or IV in combination with the preverbs *ad* and *ur*. In the first person the clitic *ax* is used as explained above. We give below the complete set of imperative forms which can be built on the aorist stem of *lsa* “to wear”.

- | | | | |
|------|-------|-------------|------------------------|
| (41) | | affirmative | negative ²⁹ |
| | 2s | ls | ad ur t-ls-t |
| | 2mp | ls at | ad ur t-ls-m |
| | 2fp | ls amt | ad ur t-ls-mt |
| | ldual | ls ax | ad ax ur t-ls-t |
| | 1mp | ls at ax | ad ax ur t-ls-m |
| | 1fp | ls amt ax | ad ax ur t-ls-mt |

²⁹ *ad* optionally loses its *d* before *ur* and *ax*, cf. (78)Bi. When there are clitics, these are placed according to the rules: *ad tt ur t-ls-t* “do not put it (f) on”, *ad ax tt ur t-ls-t* “let us not put it (f) on, you and me”, etc.

The imperative combines with the PERFECTIVE and with the imperfective. (41) illustrates PERFECTIVE imperatives. One can build a parallel set of forms on the imperfective stem *lssa*. For instance the imperfective analogues of the 2s forms of (41) are *lssa* (affirmative) and *ad ur t-lssa-t* (negative).

In first person plural affirmative imperatives the clitic *ax* can either occur after *at* or *amt*, as in (41), or it can occur before them: *ls ax at*, *ls ax amt*. The first possibility is much preferred, but the second is still acceptable, which implies that *at* and *amt* are clitics, not PNGs. *ax* is the only clitic which can occur before them, as illustrated by the following example.

- (42) !γrs at as / *!γrs as at
 cut:throat:aor at dat3s
 cut (mp) his throat

ax can precede *at* or *amt* when it is used to form a plural imperative, but not when it is a normal direct object or dative. *fk ax at* means “let us give, you (p) and me”, and it cannot mean “give (p) to us”. In order to express the latter meaning, one must say *fk at ax*.

5. IYT

By using the clitic *iyt* the speaker implies that the truth of the proposition expressed in the utterance is indifferent to him. *iyt* can only cooccur (1) with stems III or IV at any of the persons of paradigm (6), and (2) with the 2s and 2p affirmative imperatives, PERFECTIVE (i.e. aorist) or imperfective.

- (43) i-kkat t iyt nγ a t ur i-kkat, swa dar-i
 3ms-beat:impf obj3ms iyt or AR obj3ms neg 3ms-beat:impf, same at-1s
 whether he beats him or not, it does not matter to me
- (44) i-g iyt asn t inn gi-s
 3ms-put:aor iyt dat3mp obj3ms dct loc-3s
 let him put it (m) in it for them (m) (it does not matter to me)

Negative sentences with *iyt* must begin with the complementizer *ad* and the clitic prepositional phrase *gi-s* (*γ* locative, with a 3s object), which in this case has an idiomatic use similar to that of the French clitic *y* in *il y a* “there is”.

- (45) ag gi-s iyt ur t-tt-!fdar-t
 AD loc-3s iyt neg 2s-impf-breakfast-2s
 you may well not take any breakfast (I don't mind)

iyt can be ordered freely with respect to the other clitics. In particular it can occur between terms 1 and 2 or 2 and 3 in (7), a position in which clitic adverbs are not allowed. The following sentences are all acceptable. They are all synonymous with (44).

- (46) a. i-g asn iyt t inn gi-s
 b. i-g asn t iyt inn gi-s
 c. i-g asn t inn iyt gi-s
 d. i-g asn t inn gi-s iyt

6. *AR* AND RELATIVE CLAUSES

6.1. *R apocope*

The TA *ar* is pronounced as [ar] when it is the leftmost preverb in its clause; otherwise it obligatorily loses its final *r*. The alternation operates regardless of the presence of clitics. Each of the four examples below represents two sentences, one with and the other without an object clitic. *is* and *ur* are preverbs, but not *maxx* (cf. (48)).

- (47) ar (t) t-ftta-m
 AR (obj3ms) 2mp-eat:impf-2mp
 you (p) eat (it)
- (48) maxx ar (t) t-ftta-m
 but:interr AR (obj3ms) 2mp-eat:impf-2mp
 but do you (p) eat (it)?
- (49) is a (t) t-ftta-m
 interr AR (obj3ms) 2mp-eat:impf-2mp
 do you (p) eat (it)?
- (50) ur a (t) t-ftta-m
 neg AR (obj3ms) 2mp-eat:impf-2mp
 you (p) do not eat (it)

The apocope of *r* is a phenomenon which is particular to the TA *ar*. Let us posit the following rule.

- (51) R-AS $ar \rightarrow a / \text{preverb} \dots \left[\begin{array}{c} \text{---} \\ + \text{TA} \end{array} \right]$

ar always loses its *r* in relative clauses. The final *r* surfaces in (52)a but not in (52)b, where the same clause is embedded as a relative clause (the relative clause is enclosed between brackets for the sake of conspicuousness).

- (52)a ar nn i-tt-gga fmad tasrdunt γ tazribt
 AR dct 3ms-impf-put Ahmed mule loc stable:c
 Ahmed usually puts the mule in the stable
- (52)b ml iyi tazribt [γ a(*r) nn i-tt-gga fmad tasrdunt]
 show:ar dat1s stable [loc AR dct 3ms-impf-put Ahmed mule]
 show me the stable where Ahmed usually puts the mule

clause. Thus in (55)b the relativized noun phrase is the direct object of *i-fka* “he gave”, and it has no overt marker³².

- (55)a *i-fka ak baba-k tasrdunt*
 3ms-give:pf dat:2ms father-2ms mule
 your father gave you the mule
- (55)b *manza tasrdunt [ak i-fka baba-k]*
 where mule [dat:2ms 3ms-give:pf father-2ms]
 where is the mule that your father gave you?

When the relativized noun phrase is a subject the verb of the relative clause takes on a special form that some students of Berber call a participle.

- (56)a *t-γ°i tmγart amakr*
 3fs-seize:pf woman:c thief
 the woman caught the thief
- (56)b *is t-ssn-t tamγart [i-γ°i-n amakr]*
 interr 2s-know:pf-2s woman [prt-seize:pf-prt thief]
 do you know the woman who caught the thief?

Participles are formed with the prefix /i/ and the suffix /n/. /i/ is probably an instance of the 3ms PNG. Both prefixes have exactly the same phonological behavior. For instance the participial /i/ and 3ms /i/ interact in the same fashion with the final *d* of the preverbs *ad* and *rad*. The sequence /rad y/ is obligatorily pronounced [ray] in (57) and in (58), and it is obligatorily pronounced [radi] in (59)³³.

- (57) *is t-ssn mddn [ra i-zdγ-n γ tgm̄mi-ad]*
 interr 3fs-know people [RAD prt-dwell:aor-prt loc house:c-dem]
 does she know the people who will live in this house?
- (58) *ra i-zdγ γ tgm̄mi-ad*
 RAD 3ms-dwell:aor loc house:c-dem
 he will live in this house
- (59) *rad !iwriγ-n*
 RAD become:yellow:aor-3mp
 they will become yellow

In ITB participles do not agree in number nor in gender with their antecedent, except in a small class of residual cases³⁴. The so-called participles should probably

³² We will continue to present the examples in pairs, as in (52). The first example of each pair presents a certain clause in a sentence where it is the main clause, and in the second example that same clause appears as a relative clause.

³³ On the final consonant in *ad* and *rad*, cf. (78)D. (57) and (58) illustrate the case where the initial segment in the verbal stem is a contoid. Here is an example where the segment in question is a vocoid: one pronounces [...a(y)yu...] in /nttat ad y-ut-n/ “it is she who struck” and in /rad y-ut/ “he will strike”.

³⁴ The participles of the so-called quality verbs optionally agree in number with a plural antecedent and optionally agree in gender with an antecedent which is both plural and feminine. Consider for

be considered as impersonal forms³⁵, and their initial *i-* as a default 3ms PNG like the one in *i-!xssa* “must” in (37). Instead of speaking of the four “participles” which can be built on stems I to IV of any verb, as for instance when *i-lsa-n*, *i-lsi-n*, *i-ls-n* and *i-lssa-n* are formed on the four stems of *lsa* “to wear”, one should speak of four impersonal stems which are derived by suffixing /-n/ to the primary stems *lsa*, *lsi*, *ls* and *lssa*. These stems are then inflected with the 3ms PNG. Nonetheless, for the sake of convenience, we will continue to use the term “participle” and its abbreviation “prt”.

In all the cases discussed up to this point the relativized noun phrase is either a direct object or a subject. When it is the object of a cliticizable preposition, the preposition appears at the beginning of the relative clause:

- (60)a *ra awn sawl-x f tfruxt*
 RAD dat2mp talk:aor-1s on girl:c
 I shall talk to you about the girl
- (60)b *fa tfruxt [f ra awn sawl-x]*
 here:be girl [on RAD dat2mp talk:aor-1s]
 here is the girl about whom I shall talk to you

We shall call widow prepositions prepositions such as γ in (52)b and *f* in (60)b, which occur at the beginning of a relative clause in which their object is relativized. The anteposition of widow prepositions is a distinct operation from cliticization. Widow prepositions occur at the very beginning of relative clauses, and hence before whatever preverb(s) a relative clause may contain. In (60)b, for instance, *f* appears to the left of the preverb *rad* and dative clitic *awn*. In (60)c on the other hand, the clitic prepositional phrase *flla-s* appears to the right of *rad*, in conformity with CL-Placement, and also to the left of the dative clitic *awn*, in conformity with (7).

- (60)c *ra awn flla-s sawl-x*
 RAD dat2mp on-3s talk:aor-1s
 I will talk to you about her/him

When the relativized noun phrase is the object of the preposition *i* (dative) the relative clause begins with *mmi*:

- (61)a *nni-x t i ufrux*
 tell:pf-1s obj3ms dat boy:c
 I told it to the boy

instance *fwa* “good” (pf). Besides the participle *i-fwa-n* (a), which is compatible with any antecedent, it also has the participles *fwan-in* (b) and *fwan-in-t* (c). (b) can only cooccur with plural antecedents (masculine or feminine); (c) can only cooccur with antecedents which are both plural and feminine:

argaz i-fwa-n “good man”; *tamɣart i-fwa-n* “good woman”;

irgazn { i-fwa-n | fwan-in } “good men”;

!timɣarin { i-fwa-n | fwan-in | fwan-in-t } “good women”.

³⁵ Basset (1949: 35) writes of the participle: “c’est évidemment [...] une forme impersonnelle”.

- (61)b *fi* *afrux* [*mmi t nni-x*]
 here:be boy [*mmi obj3ms tell:pf-1s*]
 here is the boy to whom I told it

mmi also occurs at the beginning of relative clauses in which the relativized noun phrase is the complement of a noun or the object of a preposition which is not cliticizable. The relativized noun phrase then shows up as a resumptive pronoun. The resumptive pronoun is in boldface in the examples below.

- (62)a *ar i-ggan ddu waswik*
 AR 3s-sleep:impf under walnut:c
 he usually sleeps under the walnut
- (62)b *y-ut iggig aswik* [*mmi i-ggan ddaway-s*]
 3ms-strike:pf lightning:c walnut [*mmi 3ms-sleep:impf under-3s*]
 the walnut under which he usually sleeps was struck by lightning³⁶
- (63)a *!zri-x tiggmi n ifrxan*
 see:pf-1s house of boys:c
 I saw the boys' house
- (63)b *fi* *ifrxan* [*mmi !zri-x tiggmi nn-sn*]
 here:be boys [*mmi see:pf-1s house of-3mp*]
 here are the boys whose house I saw

The relativized noun phrase also appears as a resumptive pronoun when it is inside a sentential complement contained in the relative clause. In that case the relative clause begins with the complementizer *s*. In the examples below the brackets with the label *Sa* indicate the edges of the relative clause, and those labelled *Sb* indicate the limits of the sentential complement³⁷.

- (64)b [*nni-x ak* [*a(t) t-!γrs-t i ikru*]]
 Sa Sb
 [*tell:pf-1s dat:2s* [*AD 2s-cut:throat:aor-2s dat kid:c*]]
 I told you to cut the kid's throat
- (64)b *manza ikru* [*s ak nni-x* [*a(d) as t-!γrs-t*]]
 Sa Sb
 where kid [comp dat:2s tell:pf-1s [AD dat3s 2s-cut:throat:pf-2s]]
 where is the kid whose throat I told you to cut?

When the relativized noun phrase is the subject of a sentential complement, the verb of the sentential complement does not take the form of a participle.

³⁶ The preposition *ddu* has the variant *ddaway* when its object is a personal pronoun in the singular.

³⁷ The verb *!γrs* "to cut the throat" requires the patient NP to be governed by the dative preposition *i*. The complementizer *AD* has already appeared in (30)c, (37), (38). On the pronunciation of its final consonant, cf. section 7.2.

- (65)a [ri-x [ad d t-afk tmɣart]]
 Sa Sb
 [want:pf-1s [AD dct 3fs-come:aor woman:c]]
 I want the woman to come
- (65)b fia tamɣart [s ri-x [ad d t-afk]]
 Sa Sb
 here:be woman [comp want:pf-1s [AD dct 3fs-come:aor]]
 here is the woman whom I want to come

We already said that inside a sentential complement a relativized noun phrase usually leaves behind a resumptive pronoun. When the relativized noun phrase is the object of a verb or of a preposition, the resumptive pronoun is a clitic. Examples like (65)b suggest that when the relativized noun phrase is a subject, since ITB has no clitic subject pronouns, it uses PNGs to play the part of resumptive pronouns. In (65)b the PNG is *t-*, 3fs³⁸.

The mechanisms for the formation of relative clauses which we have just described are also found at work in cleft sentences and in questions bearing on a constituent. These sentences generally consist of a noun phrase and a relative clause separated by the complementizer *ad*. Everything said earlier about those relative clauses which function as modifiers of nouns remains true for those which appear in cleft sentences or in questions. To illustrate the parallelism between the three sentence types, let us give a cleft sentence and a question in which the focussed noun phrase is the relativized noun phrase in (60)b, which is given again below as (66):

- (66) fia tafruxt [f ra awn sawl-x]
 here:be girl [on RAD dat2mp talk:aor-1s]
 here is the girl about whom I shall talk to you
- (67) tafruxt a [f ra awn sawl-x]
 girl AD [on RAD dat2mp talk:aor-1s]
 it is *the girl* that I shall talk to you about
- (68) man tafruxt a [f ra awn sawl-x]
 which girl AD [on RAD dat2mp talk:aor-1s]
 about which girl shall I talk to you?

We can now go back to our discussion of the apocope of the final consonant of *ar* in relative clauses (cf. (52)b) and to our proposal to posit an abstract preverb at the beginning of relative clauses, let us call it WH. The apocope of *ar* is not the only phenomenon observed in relative clauses which is otherwise never found except in the presence of a preverb. Another is the placement of clitics. The behavior of clitics in relative clauses is exactly what one would expect if all relative clauses began with a preverb. In (52)b and (55)b we see clitics preceding the verb of a relative clause despite the absence of any overt preverb. Here are other examples.

³⁸ Galand (1969: 91-92) suggests an analogy between PNGs and clitic pronouns.

- (69)a y-ukr ax tnt ufrux
3ms-steal:pf dat1p obj3fp boy:c
the boy stole them from us
- (69)b i-tt-γ°i ufrux [ax tnt y-ukr-n]
3ms-pass-seize:pf boy:c [dat1p obj3fp prt-steal:pf-prt]
the boy who stole them from us has been caught
- (70)a y-iwi km nn sr-s d !imħadarn-nn-s
3s-bring:pf obj2fs dct toward-3s with pupils:c-of-3s
he took you there with his pupils
- (70)b sqqsa-x γ !imħadarn [d km nn sr-s y-iwi]
ask:pf-1s loc pupils [with obj2fs dct toward-3s 3s-bring:pf]
I asked about the pupils:c with whom he took you there

The last example illustrates the fact that when a widow preposition is present the clitics always follow it.

If, as we are assuming, relative clauses begin with a preverb, according to the UR-Shift rule, the negation *ur* should be able to occur immediately in front of the verb, even when a TA or clitics are present. And such is in fact the case:

- (71)a ur a t-sawal-t s urgaz / * a(r) ur t-sawal-t s urgaz³⁹
neg AR 2s-talk:impf-2s toward man:c
you usually do not talk to the man
- (71)b ml iyi argaz [s a ur t-sawal-t]
show:aor dat1s man [toward AR neg 2s-talk:impf-2s]
show me the man whom you usually do not talk to
- (72)a ur ak t inn lur-n !imħdarn
neg dat2s obj3ms dct give:back:pf-3mp pupils:c
the pupils did not give it back to you
- (72)b !ʃʃγ°rf !imħdarn [ak t inn ur i-lur-n]
thrash:aor pupils [dat2s obj3s dct neg prt-give:back:pf-prt]
give a thrashing to the pupils who have not given it back to you

In sum, we have encountered three phenomena where the category «preverb» plays a crucial role: clitic placement, *ur* shift, and the apocope of *ar*'s consonant. We have just shown that with respect to each of these three phenomena the left end of relative clauses behaves exactly like a preverb.

6.3. *AR drop in relative clauses*

Whereas the distribution of *rad* in relative clauses is in every respect parallel to that in the corresponding unembedded clauses, *ar* cannot occur in relative clauses

³⁹ *a ur t-sawal-t s urgaz* is well-formed if it is interpreted as an imperative sentence: “do not talk to the man”, in which case the initial *a* is a variant of *ad* (cf. (78)Bi). This is irrelevant here.

beginning with *mmi* or in those where the relativized noun phrase is a subject or a direct object:

- (73)a ar y-!aqqra ħmad i !udbib
AR 3ms-call:impf Ahmed dat doctor:c
Ahmed (usually) calls the doctor
- (73)b ssn-x !adbib [mmi (*AR) y-!aqqra ħmad]⁴⁰
know:pf-1s doctor [mmi 3ms-call:impf Ahmed]
I know the doctor that Ahmed usually calls
- (73)b' ssn-x argaz [(*AR) y-!aqqra-n i !udbib]
know:pf-1s man [prt-call:impf-prt dat doctor:c]
I know the man who usually calls the doctor

The erasure of *ar* is only optional when the negation *ur* is present:

- (74)a ur a tt-bbi-x !anzadn i-mllul-n
neg AR impf-cut-1s bristles prt-white:pf-prt
I usually do not cut white bristles
- (74)b mllul-n !wanzadn [ur (a) tt-bbi-x]
white:pf-3mp bristles:c [neg (AR) impf-cut-1s]
the bristles which I (usually) do not cut are white

On the other hand *ar* is retained in relative clauses beginning with a widow preposition (cf. (52)b and (71)b) and in those where the relativized noun phrase is inside a sentential complement, as is the case in the following example:

- (75) ml iyi ibrdan [s a ak i-tt-ini [ad tn t-ls-t]]
show:aor dat1s clothes [comp AR dat2s 3ms-impf-tell:impf [AD obj3mp
2s-wear:aor-2s]]
show me the clothes that he usually tells you to wear

In our presentation of table (29) we said that except in imperative sentences, imperfective verbs must always be preceded either by a TA or by the complementizer *ad*. In order to maintain this generalization in the face of examples like (73) and (74) one must posit a rule which deletes *ar* in certain environments. We leave to further research its precise formulation.

7. ALTERNATIONS RESTRICTED TO SPECIFIC MORPHEMES

7.1. γ insertion

A γ is obligatorily inserted between the preverb *ar* and a preceding word ending in an *a*, provided that there is no intervening clause boundary. Consider the following sentences.

⁴⁰ “*AR” indicates that both variants of *ar*, with and without a final *r*, are excluded.

- (76) ur ta a kkrz-n
 neg already AR impf:plough-3mp
 they are not as yet ploughing
- (77) i-nna ar tn i-tt-gga γ tazribt
 3ms-say:pf AR obj3mp 3ms-impf-put loc stable:c
 he said that he usually puts them in the stable

Whereas in (76) the sequence *ta ar* is obligatorily pronounced as [taya]⁴¹, in (77), where *ar* occurs at the beginning of a sentential complement, epenthesis is impossible. *inna ar* can only be pronounced as [inna:r]. Epenthesis also occurs after the preverbs *hra* “just”, *waxxa* “even if”, *mra* “if”, and after all the clitic adverbs ending in an *a*⁴². The epenthesis seems to be restricted to *ar*. It does not occur with the clitic adverb *akk*^o.

7.2. *AD* and *RAD*'s final consonant

The TA *rad* and the complementizer *ad* are subject to identical alternations under the influence of a following morpheme. Depending on the environment, the final *d* may drop, or it may assimilate completely to the following segment, or it may remain unaffected. Erasure and assimilation are optional in certain contexts and obligatory in others. The various possibilities are presented in the table below. They depend on the morphological or syntactic status of the following morpheme, as well as on whether the first segment of that morpheme is a vocoid or a contoid. The numbers between angled brackets refer to remarks which are to be found immediately under the table. Except for the fact that *rad* cannot occur immediately in front of a widow preposition, *ad* and *rad* can each occur in all of the contexts listed in the table⁴³.

(78)	A	B	C	D	E
	widow prepos.	pronoun, deict. or preverb <1>	adverb	PNG	stem <2>
(i) – cons	<3>	opt. drop <4>	opt. drop <5>	<6>	d
(ii) + cons	oblig. drop	oblig. assim. <7>	opt. assim.	assim. or drop in free variation	d

⁴¹ *ar* loses its *r* because it is preceded by another preverb, cf. section 6.1.

⁴² Sentences where one of these adverbs occurs before *ar* are not unacceptable, but the reverse order is much preferred.

⁴³ The complementizer *ad* which occurs in cleft sentences and questions (cf. section 6.2) and the one which requires a following PERFECTIVE to manifest itself as an aorist (cf. (30)c) behave identically from a phonological point of view. They are probably one and the same morpheme. The former *ad* can occur before a widow preposition (cf., e.g., (67)-(68)), not the latter.

- ⟨1⟩ By a pronoun we mean here any clitic which is a dative, a direct object or a prepositional phrase.
- ⟨2⟩ A verb in which the leftmost morpheme is not a PNG.
- ⟨3⟩ There are no widow prepositions beginning with a vocoid.
- ⟨4⟩ *iyi* and those clitics which begin with an *a* (obj1p, dative); the preverb *ur*.
- ⟨5⟩ only existing cases: *ukan* and *akk°*.
- ⟨6⟩ only one PNG: 3ms. If the first segment after that PNG is [– cons] (V), /*(r)ad y-V/* is pronounced [*(r)a(y)yV*]; if it is [+ cons] (K), /*(r)ad y-K/* can be pronounced only [*(r)ayK*].
- ⟨7⟩ The only possible preverbs (after *ad* only), are *ħra* and *rad*. *rad* is an exception in that the assimilation it triggers is only optional.

Here are examples which illustrate these various possibilities.

- (79) (Aii) ħmad a s i-sawl
Ahmed AD toward 3ms-speak:pf
it is Ahmed that he spoke to
- (80) (Bi) ri-x a(d) as !γr-x
want:pf-1s AD dat3s call:aor-1s
I want to call him/her
- (81) (Bii) ħmad as sr-k i-sawl-n
Ahmed AD toward-2ms prt-speak:pf-prt
it is Ahmed who spoke to you⁴⁴
- (82) (Bii) i-!xssa ah ħra i-ttrs
3ms-necessary:pf AD just 3ms-lay:down:aor
it should just have been laid down
- (83) (Ci) ri-x a(d) akk° i-!ħrg
want:pf-1s AD all 3ms-burn:aor
I want it to burn down
- (84) (Cii) i-!xssa { ad / ah } filli t-gn-t
3ms-necessary:pf AD only 2s-sleep:aor-2s
you should do nothing but sleep
- (85)a (Di) man ikru a i-!xiyr
which kid AD 3ms-choose:pf
which kid did he choose?
- (85)b (Di) man ikru a(y) y-ukr
which kid AD 3ms-steal:pf
which kid did he steal?
- (86) (Dii) ra(n) n-gn
RAD 1p-sleep:aor
we will sleep

⁴⁴ Compare with (79).

- (87) (Ei) rad asi-x aryal
 RAD take:aor-1s basket
 I shall take the basket
- (88) (Eii) nttat ad sala-x
 3fs AD take:care:pf-1s
 it is her that I took care of

ad's consonant is obligatorily pronounced before the clitic *iyt* (about which cf. section 5), and it optionally drops in front of the complementizer *s* which occurs at the beginning of those relative clauses where the relativized noun phrase is inside a sentential complement (cf. section 6.2.).

The alternations presented above are particular to the morphemes *ad* and *rad*. The clitic adverb *yad* «already» is not subject to these alternations, nor are the clitic prepositional phrase *yid* «here» and the variant *id* of the verbal deictic *d*. Not being able to formulate rules which account for these alternations in a satisfactory manner, we will content ourselves with two remarks. First, it is probably not a coincidence that the behavior of clitic adverbs (column C) is a bit different from that of the other clitics. Recall that adverbs can occur in two different positions with respect to the other clitics in sequence (7), whereas the ordering of the latter with respect to one another is fixed. Second, note that the final consonant in *ad* and *rad* behaves differently when the leftmost morpheme in a following verb is a PNG (column D) and when it is a root or an augment⁴⁵ (column E). This seems to be a case where word sandhi is sensitive to the morphological structure of words.

7.3. /tt/ ~ /stt/

The 3fs object pronoun *tt* is always pronounced [stt] immediately after a non continuant coronal obstruent. Thus *ut tt* “hit her” is pronounced [utstt]. This alternation is particular to the 3fs object clitic; it is not found in the imperfective augment *tt* nor in the passive augment *tt*. The alternation seems to operate regardless of the nature of the morpheme which precedes the 3fs object clitic or of the two morphemes' mutual syntactic relationship. For instance the object clitic *tt* is pronounced [stt] in *tafruxt tt i-ssiwd-n* “the girl who frightened her» (girl obj3fs prt-frighten:pf-prt), where *tafruxt* belongs to the main clause whereas *tt* belongs to the relative clause. The sequences *ad tt* and *rad tt* are pronounced [astt] and [rastt]⁴⁶.

Elsewhere than immediately after a non continuant coronal obstruent, *tt*'s realization as [stt] is only optional. It is always possible behind a contoid whatever the syntactic environment. It is also possible behind a vocoid, for instance after *i* in *amakar lli (s)tt y-iwi-n* “the thief who took her away» (thief det obj3fs prt-

⁴⁵ Augments are stem forming prefixes, cf. section 8.

⁴⁶ Not [asstt] and [rasstt], as one would be led to expect by analogy with the other Bii cases in table (78).

take:away:pf-prt), but in that case certain syntactic conditions must be fulfilled, a question which we leave for further research.

7.4. *i*-epenthesis

An *i* vowel is optionally inserted between a geminate noncontinuant coronal obstruent and a /t/ which is the initial segment of a verb. In the examples below the asterisk indicates the point where *i* can appear⁴⁷.

$$(89) \quad \text{I-EP: } \emptyset \rightarrow i / \quad \begin{matrix} \text{X} & \text{X} & \text{---} & \left[\begin{matrix} \text{X} \\ \vee & \text{v} & \left[\begin{matrix} \text{X} \\ | \\ \text{t} \end{matrix} \end{matrix} \right. \\ \left[\begin{matrix} + \text{cor} \\ - \text{cont} \\ - \text{son} \end{matrix} \right] \end{matrix} \right.$$

(90)	a	/is γ id tt * t-fl/	interr here obj3fs 3fs-let:pf ⁴⁸
	b	/ad d * t-ili-t/	AD dct 2s-be:aor-2s
	c	/rad d * tafil-n/	RAD dct marry:aor-3mp
	d	/rad t * t-awi-t/	RAD obj3ms 2s-bring:aor-2s
	e	/aydi d d * t-uŋki-t/	dog with dct 2s-go:pf-2s
	f	/is yad d * t-uŋki-t/	interr already dct 2s-go:pf-2s

Examples (a-f) illustrate the fact that the left environment of the rule is met by any surface geminate, regardless of whether its source is an underlying geminate or a heteromorphemic sequence⁴⁹.

I-EP can operate between the clitic /tt/ and the PNG /t/ in (90)a but not in the following example, where an *i* cannot be pronounced in place of the asterisk.

- (91) y-usi tt * t-!rz
 3ms-take:pf obj3fs 3fs-break:aor
 he took it and then it broke

In (91), which is a conjoined construction (cf. section 3), the clitic /tt/, which is the direct object of the first verb, does not belong to the same clause as the PNG /t/ in the second verb. Here are other examples where epenthesis is impossible.

- (92) t-ut t * t-als as
 3fs-strike obj3ms 3fs-repeat:aor dat3s
 she struck him and then struck him again
- (93) !tassbbatt * t-usi
 shoe:dim 3fs-take:pf
 the small shoe that she took

⁴⁷ On the representation of geminates in (89) cf., e.g., Hayes (1986) and the references therein. The translations of the examples in (90) are: (a) ‘‘did she leave her here?’’, (b) ‘‘that you be’’, (c) ‘‘they will marry’’, (d) ‘‘you will bring him’’, (e) ‘‘the dog with which you came’’, (f) ‘‘did you already come?’’

⁴⁸ /tt/ is pronounced [stt], cf. section 7.3.

⁴⁹ In (90)d, cf. case Bii in (78). One pronounces [ratt(i)tawit].

- (94) !afnid d * t-krf ayyul
 mule with which 3fs-tie:pf donkey
 the mule with which she tied the donkey

The epenthesis is prevented by a clause boundary which is located between the second and third coronal in (92) and (93), and between the first and second coronal in (94). In order for the epenthesis to be possible the verb initial *t* and the preceding geminate must not belong to different clauses⁵⁰. Data such as (94) have the following theoretical import: they suggest that for phonological rules to treat a geminate as belonging to a certain constituent, both halves of the geminate must belong to that constituent.

7.5. *i* in the verbal deictics

The verbal deictics *d* and *nn* are pronounced [id] and [inn] in certain environments which cannot be defined only in terms of distinctive feature specifications.

d is obligatorily pronounced [id] when it immediately follows one of the three object clitics *k* (2ms), *t* (3ms) and *tt* (3fs)⁵¹. It is pronounced vowelless everywhere else. For instance it is realized as [id] in /y-iwi k d urgaz/ “the man brought you” (3ms-bring:pf obj2ms dct man:c) and in the corresponding sentences meaning “the man brought him”, “the man brought her”. The appearance of the variant [id] specifically requires the presence of the aforementioned object clitics, not simply that of any sequence with the same phonological make up. For instance *d* is pronounced [id] in /i-fka awn t d urgaz/ “the man gave it (m) to you (m)” but not in /i-fka awnt d urgaz γayann/ “the man gave that to you (f)”. In the first example the deictic is preceded by the 3ms object clitic *t* which is itself preceded by the dat2mp clitic *awn*, whereas in the second it is preceded by the dat2fp clitic *awnt*.

/hra t d t-!zra/ “she just saw him here” (just obj3ms dct 3fs-see:pf) is pronounced [hratit!zra], not [hradd(i)t!zra]. This shows that the variant *id* of the deictic must be selected before voicing assimilation can change the sequence /t d/ into /dd/, a geminate whose occurrence before the verb initial *t* would allow rule (89) to operate.

nn is obligatorily realized as [inn] when it immediately follows an object clitic ending in a contoid. It must be pronounced vowelless, however, when it immediately follows a dative clitic. This is illustrated by the following pair.

- (95) is a k { inn / * nn } i-tt-!adn
 interr AR obj2ms dct 3ms-impf-miss
 does he miss you?

⁵⁰ Epenthesis is not allowed at the location indicated by the asterisk in !tassbbatt * t-bbi “the little shoe is torn”, where the subject occurs in front of the verb. This is what is to be expected if, as has been claimed for other dialects of Berber (cf., e.g., Galand (1964), Guerssel (1983)b, Ennaji and Sadiqi (1986), Penchoen (1973)), subjects which occur in front of their verb are topicalized subjects.

⁵¹ Furthermore *d* optionally geminates after /tt/; /y-iwi tt d urgaz/ “the man brought her” can be pronounced [yiwittidurgaz] or [yiwittiddurgaz]. This phenomenon requires further research.

- (96) maxx is ak { nn / * inn } i-saw
 but interr dat2ms dct 3ms-speak:pf
 but dit he speak to you?

7.6. *The PNG t followed by imperfective tt*

In word initial position the sequence /t-tt/ is normally realized as [t, t:], where [.] represents the oral release of a preceding stop and [:] its prolonged closure. For instance /t-ttu/ “she forgot” (3fs-forget:pf) is pronounced [t,t:u], and /t-tt-ut/ “she was hit” (3fs-pass-hit:pf) is pronounced [t,t:ut]. But when in the initial sequence /t-tt/ the first segment belongs to a PNG (2ms, 3fs, 2mp, 2fp) and when /tt/ is the imperfective augment, the /t/ in the PNG does not surface at the phonetic level, and the sequence /t-tt/ is pronounced as though it were /tt/, that is to say as [t:]. Thus /is ar t-tt-awi/ “does she (usually) take away?” is pronounced [isat:awi], not [isat, t:awi]⁵².

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⁵² interr AR 3fs-impf-take:away:impf; AR loses its final consonant after the preverb *is*, cf. section 6.1. [isat,t:awi] is well formed as the phonetic representation of /is ar t t-tt-awi/ “does she (usually) take him away?” (/t/ obj3ms).

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