Verb morphology, tense, and aspect in Tamazight*

Hamid Ouali
University of Wisconsin-Milwaukee

SUMMARY

This paper discusses verb morphology and the syntax of aspect and tense in Tamazight. Verbs in Berber in general and Tamazight in particular are classified based on temporal or aspectual descriptions. The aspectual verb classifications are aorist, perfective, and imperfective. The aorist is the default form used in non-finite clauses. The perfective and the imperfective verb forms do not necessarily indicate the meanings associated with Perfective and Imperfective grammatical aspects. Syntactically, the particle *la* (and its counterparts in other varieties) is the habitual/progressive Aspect Operator, whereas a null Operator encodes the perfective aspect. T, the locus of past, present, or future tense, selects for AspP or vP. The Asp operator scopes over eventive/dynamic verbs and is not projected with stative and resultative verbs. V-to-T correlates with perfective morphology regardless of the tense value of T.

RÉSUMÉ

Cet article traite de la morphologie des verbes et de la syntaxe de l'aspect et du temps en tamazight. Les verbes, en berbère en général et en tamazight en particulier, sont classés en fonction des descriptions temporelles ou aspectuelles. Les formes aspectuelles des verbes sont l'aoriste, le perfectif et l'imperfectif. L'aoriste est la forme par défaut utilisée dans les clauses non-finies. Les formes verbales du perfectif et de l'imperfectif n'indiquent pas nécessairement les significations associées aux aspects grammaticaux du perfectif et de l'imperfectif. Syntaxiquement, la particule la (et ses équivalents dans d'autres variétés) est l'opérateur aspectuel de l'habituel/progressif, tandis qu'un opérateur nul indique le perfectif. T, le lieu du passé, du présent ou du futur, sélectionne AspP ou *v*P. L'opérateur Asp s'étend sur les verbes événementiels / dynamiques et n'est pas projeté avec les verbes statifs et résultatifs. V-à-T est en corrélation avec la morphologie du perfectif quelle que soit la valeur de T.

* Special thanks Jessica Coon for the invitation to participate in the Workshop on Amazigh Languages. Thanks also to the participants in the workshop especially Nico Bair, Karim Achab, and Khokha Fahloune. All errors are mine.

McGill Working Papers in Linguistics, 26.1, 2020

1 INTRODUCTION

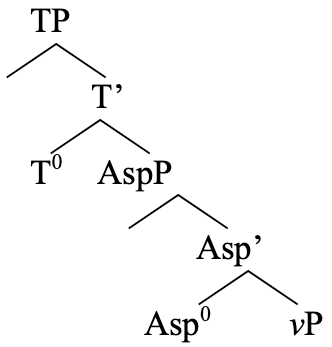
The goal of this paper is to discuss a few notes on verb morphology and the syntax of aspect and tense in Tamazight. I will start by discussing the different verb classifications in Tamazight, namely: the aorist, the perfective, and the imperfective, and discuss the syntactic distribution of each of these forms. After that, I will present the aspectual and tense properties of each of these classes. I will show that the aorist is the default form and that the perfective and the imperfective do not necessarily indicate the meanings associated with Perfective and Imperfective semantics, and are not inherently specified for tense.[1] Aspect operators, I will argue, are syntactically the locus of Perfective and Imperfective semantics. The different verb morphological forms are linked to the presence and the value of the Asp operator and to V-to-T or lack thereof as schematized in (1):

(1) Asp, T, and verb morphology:

$T_{[\pm PAST]}$ – Asp=$la_{Prog/Hab}$ – imperfective V	(eventive verbs)
$T_{[+PAST]}$ – Asp = $ø_{PFV}$ – perfective V	(eventive verbs)
$T_{[\pm PAST]}$ – perfective V	(stative verbs)

The syntactic analysis that I develop explains the link between aspect, tense and verb morphological forms, and accounts for simple tense as illustrated in (2):

(2) Standard structure for simple tense



This paper is structured as follows: section 2 provides a brief background on the dialect under study, and on verb morphology. Section 3 discusses mood and aspect, and section 4 is devoted to tense.

[1] I use perfective and imperfective with initial letters in lower case to refer simply to the morphological verb forms. Perfective and Imperfective with upper case initial letters refer to the Perfective and Imperfective grammatical aspects.

2 BACKGROUND

2.1 TAMAZIGHT VS. BERBER

Tamazight as a term is ambiguous. It is used to refer to the language family, especially among Amazigh people and Amazigh scholars who reject the term Berber. It is also the name of a dialect family spoken in central Morocco. The variety described here is spoken in the Zemmour region and the Khemisset province located in the northwest part of Morocco. The city of Khemisset is about forty miles west of Rabat.

2.2 VERBAL STEMS AND INFLECTIONAL MORPHOLOGY

Berber verb morphology is nonconcatenative. Verbs are derived by mapping roots onto vocalic templates (or vocalic melodies). In the literature, verb stems are classified either based on aspect or tense. Under the aspectual classifications, four types of verb stems are used: perfective, imperfective, aorist, and negative perfective (see Guerssel & Hale (1987), Ouhalla (1988), and Ouali (2011) to cite just a few). In the Francophone literature, Chaker (1995), among others, use the terms *accompli* 'complete'/*inacompli* 'incomplete'. Under the temporal classification, two opposed descriptions namely past/non-past, or preterit/aorist intensive. Neither the temporal classification nor the aspectual classification is completely accurate (see Belkadi 2013 for a detailed discussion). Certain verbs, especially stative verbs like *ssən* 'know', can be in what would be described as a past form but used in non-past contexts.

(3) ur-ç ssin-əx
NEG-you know.NEG.PAST.-1S
'I don't know you.'

Also, the same is true for the aspectual classifications. Perfective and imperfective forms do not indicate the meanings associated with Perfective and Imperfective grammatical aspects. Using (3) again as an example, the verb is in what some would describe as a perfective form. Perfective indicates bounded events, but here we have a stative verb which denotes a state that holds true in the present. I will nonetheless, for the sake of description, use perfect/imperfective classifications devoid of the semantics associated with Perfective and Imperfective aspects. Below is a verb paradigm from Tamazight.

(4) Paradigm from Tamazight Berber

Aorist	Perfective	Imperfective	Negative Perfective	
af	uf	taf	ufi	'find'
ar	uri	tar	uri	'write'
ɣrf	ɣərf	ɣraf	ɣrif	'bake'

As illustrated by the verbs 'find', 'write', and 'bake', stems must be affixed with agreement markers. The Agreement morphology follows a concatenative pattern and is marked by prefixes, suffixes or circumfixes depending on the person and number features they encode (with some variation across Berber languages) as illustrated by the following examples from Tamazight:

(5) ri-x að afə-x lcθa:b-ino
want.PFV-1SM MOOD find.AOR-1SM book-mine
'I want to find my book'

(6) θ-uri Fatima θabrat
3SF-write. PFV Fatima letter
'Fatima wrote the letter'

(7) la t-ɣraf Fatima aɣrum
PRT 3S-bake.IMPRF Fatima bread
'Fatima is baking bread'

(8) ur θ-ɣrif Fatima aɣrum
NEG 3SF-bake.NEG. PFV Fatima bread
'Fatima didn't bake bread'

Some scholars consider the aorist form as the default form from which the other forms are derived. The aorist is found in tense-less contexts associated with Subjunctive or Irrealis mood. The perfective and imperfective forms occur in different contexts. The next section discusses the distribution of these three verb forms in detail.

3 MOOD AND ASPECT

3.1 AORIST STEM AND THE IRREALIS MOOD

Verbs in the aorist form, such as *af* in (9), encode neither tense nor aspect. The aorist verb form has received different treatment in the literature. Some researchers treat it as an aspectual form (Chaker, 1989, 1995; Heath, 2005), and others as a non-inflected form (Bentolila, 1981; Boukhris, 2013). As pointed out in Belkadi (2013), a number of researchers treat the aorist as the basic stem from which the perfective and imperfective are derived (Louali & Philippson, 2004; Kossman, 1997, 2007, 2011; Lahrouchi, 2010).

The aorist verb stem is used in non-finite contexts (with future interpretations) also called purpose clauses as in (9) and (10):

(9) ri-x að **afə-x** lcθa:b-ino
want-1SM.PRF MOOD find.AOR-1SM book-mine
'I want to find my book'

(10) di-x ɣr lmaħal ak að **ʒn**ə-x
go-1SM.PRF to house for MOOD sleep. AOR-1SM
'I went home to sleep'

The aorist verb stem is also used with the future tense marker as in (11) and with modals as in (12) and (13):

(11) að **afə-x** lcθa:b-ino
fut find.AOR-1SM book-mine
'I will find my book'

(12) xas að **afə-x** lcθa:b-ino
must MOOD find.AOR-1SM book-mine
'I must find my book'

(13) waqila a-θ **afə-x** g-lmaħal
maybe MOOD-him$_{ACC}$ find.AOR-1SM in-house
'I might find it at home'

The aorist is also used with optative expressions as in (14):

(14) að-aç **i-wʃ** rbbi lxi:r
MOOD-you$_{ACC}$ 3SM-give God bounty
'May God grant you bounty.'

The aorist without *ad (að),* has no meaning of its own and cannot stand alone as shown by the ungrammaticality of (15). It is basically equivalent to an inflected infinitive as noted by Ouhalla (1988).

(15) ***af**ə-x lcθa:b-ino askka
find.AOR-1SM book-mine tomorrow
'*to find my book tomorrow'

The aorist stem must be licensed by *ad*, unless it occurs in what is called "Aorist en chaine"/chained aorist, where it inherits the tense and aspect semantics from the matrix verb as shown in (16) and (17):

(16) ar-d t-ttasi tumẓin, t-frn-tnt,
PRT-VENT 3SGF-take.IMPRF barley.PL 3SGF-sort.aor =3PLF.ACC
t-Sli =tnt, t-awi =tnt s uzrg
3SG-grill. AOR=3PLF.ACC 3SGF-take=3PLF.ACC to mill
'She takes the barley, clean it, grill it (and) carries it to the mill.'
(Tashelhiyt: Galand, 1987: 367-368, cited in Belkadi 2013)

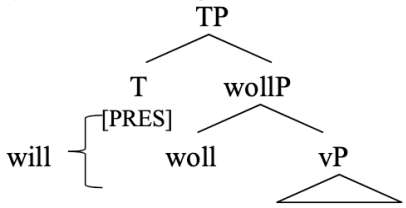
(17) tukm tsw aman...
2SF-entrer.PFV 2SF-drink.AOR water…
'she entered, ((and) drank water)'
(Tamazight: adapted from Boukhris, 2013: 52)

In (16) and (17) the aorist verb cannot be analyzed as part of a purpose embedded clause. It is temporally-and aspectually dependent on the temporal and aspectual properties of the matrix clause, and it is also associated with indicative and not irrealis mood. Inserting *ad* before the second verb in (17) changes the meaning to irrealis as illustrated by (18):

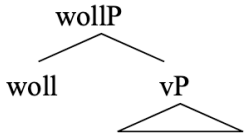
(18)	θukm	a	t-sw	aman...
	2SF-entrer.PFV	MOOD	2SF-drink. AOR	water…
	'She entered to drink water'			

There is consensus in the literature about the nature and the function of the particle *ad*. Belkadi (2013) and Chaker (1995) argue that *ad* and the *aorist* verb express subjunctive/irrealis mood. Ouhalla (1988) treats *ad* as an infinitival marker and *ad*-clauses as infinitival clauses. Given the fact that purpose and control clauses in Berber are invariably *ad*-clauses, the aorist form can be treated as a sort of inflected infinitival of the type reported for European Portuguese (Raposo 1987). In Tarifit Berber (and some Tamazight varieties) the particle *ad* used in embedded clauses is homophonous with the future marker used in simple declarative clauses. For this reason, Boukhris (2013) treats *að/ad* as a marker of future tense in declarative clauses and as a tense operator in embedded contexts. van Gelderen (2011) argues that, in general, future is ambiguous between being tense (future) and mood (irrealis). Wurmbrand (2014) proposes that, syntactically, future is expressed by a *woll* head selected by present tense T which is spelled out as *will* as illustrated by (19a). Non-finite future is expressed by a *woll* head are represented in (19b).

(19) a. *Finite future*



b. *Nonfinite future*



Considering Wurbrand's (2014) classification of infinitives in English and her treatment of future infinitives as tenseless involving a syntactically inserted future modal *WOLL*, it is very tempting to treat *ad* as a lexical realization of the *woll* head in some Berber languages since it is also used in finite future as illustrated by (20) and (21).

(20)	ri-x	**að**	afə-x	lcθa:b-ino	askka
	want-1SM.PFV	MOOD	find.AOR-1SM	book-mine	tomorrow
	'I want to find my book tomorrow'				

(21) **að** safər-x askka
FUT travel.AOR-1SM tomorrow
'I will travel tomorrow'

There are embedded clauses, however, where *ad* does not have a future irrealis interpretation, but instead its reference time corresponds to the reference time of the matrix clause as shown in (22) and (23).

(22) ħawl-əx að **af**-əx lcθa:b-ino (iðˁlli/*askka)
try.PFV-1SM MOOD find.AOR-PFV-1SM book-my (yesterday/*tomorrow)
'I tried to find my book (yesterday/*tomorrow)'

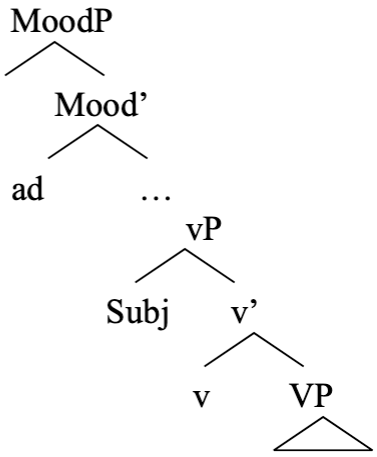
(23) ri-x að **af**ə-x lcθa:b-ino iðˁlli
want-1SM.PFV MOOD find. AOR-1SM book-mine yesterday
'I wanted to find my book yesterday'

Both (22) and (23) can be followed by a negative continuation « but I didn't find it » as shown by (24):

(24) …walajnni ur-θ ufi-x
…but NEG-it find.PFV-1SM
'…but I didn't find it'

Whether to treat *ad* as the realization of *woll* is not entirely clear and I will simply treat it here as a Mood head that projects above *v*P.

(25)



Note that the particle *ad* is one of the various possible hosts of object clitics as shown in (26).

(26) ri-x-k að-as-t uʃə-θ
want-1SM.PFV-you.ACC MOOD-him$_{DAT}$-it$_{ACC}$ give.AOR-1SM
'I want you to give it to him'

The verb is in the aorist form, the default inflected form, and *ad* is the *irrealis mood*.

I will conclude this section with a conjecture on the so-called the *chained-Aorist* cases such as (27).

(27) t-ukm t-sw aman...
2SF-entrer.PFV 2SF-drink.AOR water…
'she entered, (and) drank water)'

The chained aorist constructions, I conjecture, are derived by *v*P-coordination. Perfective morphology, as we will see below, indicates V-to-T. Only the first verb in the coordinate structure moves to T. The second verb appears in the default form. The next section is about the imperfective verb.

3.2 IMPERFECTIVE

Verbs are typically in the imperfective form when the event expressed is anchored in the present tense and can be ambiguous between habitual and progressive aspectual readings as in (28).

(28) la j-əs ʕli attay
PRT 3SM-drink.IMPR ali tea
'Ali is drinking tea/ he drinks tea'

The agreement morphology on the imperfective verb is circumfixal. Like the aorist, the imperfective form cannot occur by itself in a sentence as illustrated by (29):

(29) *j-əs ʕli attay wasa
3SM-drink.IMPR ali tea now
'Ali is drinking tea now'

It has to be in the scope of the particle *la-* and its counterparts from different Berber dialects (*da, xa, ha* and *a*). Kossman (2013) treats *la* as an imperfective affix. One could argue that *la* is an affix that derives the imperfective stem. Its syntactic behaviour, however, aligns it more with auxiliaries than with affixes. The adjacency between *la* and the verb demonstrated in (30) is not strict. Pronominal clitics can intervene between *la* and the verb as shown by (31) and the ungrammaticality of (32).

(30) la t-arj-x θabrat i-ʕli
PRT 2-write.IMPR-S letter to-ali
'I am writing a letter to Ali.'

(31) la-s-t t-arj-x
PRT-him-it 2-drink.IMPR-S
'I am writing it to him.'

(32) *la t-arj-x -s-t

In some cases both pronominal clitics and PP clitics can intervene between the particle *la* and the imperfective verb as illustrated by (33), (34), and (35).

(33) la-ç t-arj-x θabrat s-stilo
PRT-you 2-write.IMPR-S letter with-pen
'I am writing you a letter with a pen.'

(34) la-ç-s-is-t t-arj-x
PRT-you$_{DAT}$-with-it$_{GEN}$-it$_{ACC}$ 2-write.IMPR-S
'I am writing it to you with it/the pen.'

(35) *la t-arj-x -ç-t s-is
PRT 2-write.IMPR-S -you$_{DAT}$-it$_{ACC}$ with-it$_{GEN}$

This is similar to the competition between Aux and V in some Romance clitic distribution, French being a good example. A number of scholars have argued that the particle *la* is a grammaticalized form of the copula *illa 'be'*, which is used in the past progressive/habitual as in (36).

(36) i-lla la j-xddəm ʕli
3SM-be.PFV PRT 3SM-work.IMPRF Ali
'Ali was working/ Ali used to work.'

What is the grammatical function of *la* then?

3.3 THE GRAMMATICAL FUNCTION OF THE PARTICLE *LA*

The particle *la* has received different treatments in the literature. It was treated as present tense marker (Ouali 2011), and as a durative aspect marker (Boukhris 2013). The reason for treating *la* as a present tense marker is mainly because it occurs in clauses in the present tense as in (37).

(37) la j-əs ʕli attaj wasa/*id^{ʕ}lli
PRT 3SM-drink. IMPR ali tea now/*yesterday
'Ali is drinking tea now/*yesterday'

However, *la* also occurs in contexts incompatible with tense. One of these contexts is secondary predication.

The depictive secondary predicate, whether predicated of subject as in (38) or object as in (39), shows that *la* does not mark tense. The secondary predicate is nonfinite and is dependent temporally on the reference time of the main predicate, which is past tense in both (38) and (39).

(38) j- ɕʃəm ʕli la j-təs
3SM-enter.PFV ali PRT 3SM-laugh. IMPRF
'Ali entered laughing'

(39) ʕli-x ʕli la j-təs
1SM-see.PFV Ali PRT 3SM-laugh. IMPRF
'I saw Ali laughing'

Another argument against treating the particle *la* as a present tense marker is that it occurs in contexts with aspectual light verbs like the inceptive *kker "to stand/start"* as in (40), and the durative *qi:m "sit"* as in (41). In both of these examples the tense is past and it is associated with the light verb in the perfective from.

(40) j-kkər la j-tsɣoju ɣif-nəx
3SM-stand.PFV PRT 3SM-yell.IMPRF on-us
'he started yelling at us'

(41) θ-qqim la θ-xddəm aliðˤ
3SF-stayed.PFV PRT 3SF-work.IMPRF all day
'she kept working all day'

The last argument against treating the particle *la* as a present tense marker is that it does not occur in *wh*-questions:

(42) ma-aj j-təg fatima wasa?
what-COMP 3SF-do.IMPRF Fatima now?
'what's Fatima doing now?'

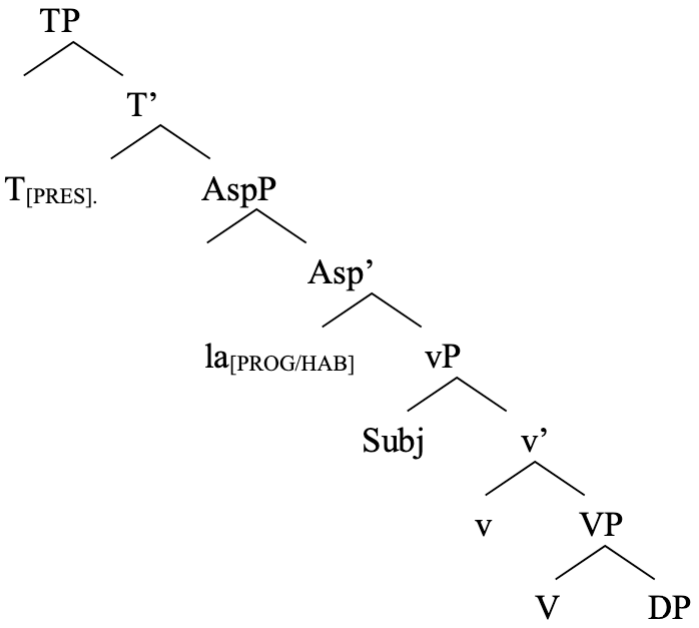
(43) ma-aj θ-xddəm fatima?
what-COMP 3SF-work.IMPRF fatima?
'what does Fatima do for work?'

Boukhris (2013) argues that *la* marks durative: habitual and progressive.

(44) la j-əs ʕli attay
PRT 3SF-drink.IMPRF ali tea
'Ali is drinking tea/ he drinks tea.'

Following Boukhris (2013), I will treat *la* as an aspectual marker that encodes grammatical aspect (Outer Aspect). It is syntactically the Asp head which is the locus of Habitual and Progressive.

(45)



3.4 PERFECTIVE

The other terms that are used in the Francophone literature to describe the perfective are: 'l'acompli' which is an aspectual classification, and 'le pretirit' which is a temporal classification. The perfective verb stem is found in three contexts. First, eventive verbs are typically in this form when they denote a completed (bound) event (Perfective aspect) as illustrated in (46).

(46)	θ-dda	fatima	ɣr ssuq	agd	saskka
	3SF-go.PFV	Fatima	to market	with	morning

'Fatima went to the store in the morning.'

Second, the perfective verb stem is also used to express the Perfect as shown in (47):

(47)	açin	θ-dda	fatima	ɣr	ssuq
	just	3SF-go.PFV	Fatima	to	market

'Fatima has just left to the store.'

Third, the perfective verb stem is observed with stative verbs as in (48), and verbs which express change of state or a result state as in (49), (50), and (51). These cases are not necessarily associated with past tense:

(48) Q: θ-snə-θ arjaz-a?
2-know.PFV-S man-this
'do you know this man?'

A: ajjeh, snə-x-θ
Yes, know.PFV-1S
'Yes, I know him.'

(49) θ-mqqur-θ
2-grow.PFV-S
'You're big/you've grown.'

(50) θ-skfə-θ
2-pale.PFV-S
'you're pale/you've become pale.'

(51) θ-mllul-θ
2-while.PFV-S
'you're white/you've become white.'

The Perfective statives and change of state verbs are not associated with grammatical aspect/Outer Aspect. Their aspectual properties involve lexical aspect/Inner Aspect (see Achab 2012 for Berber, and Travis 2010 for other languages). Unlike the imperfective verbs, perfective verbs can appear alone, not preceded by any particle, as in (52):

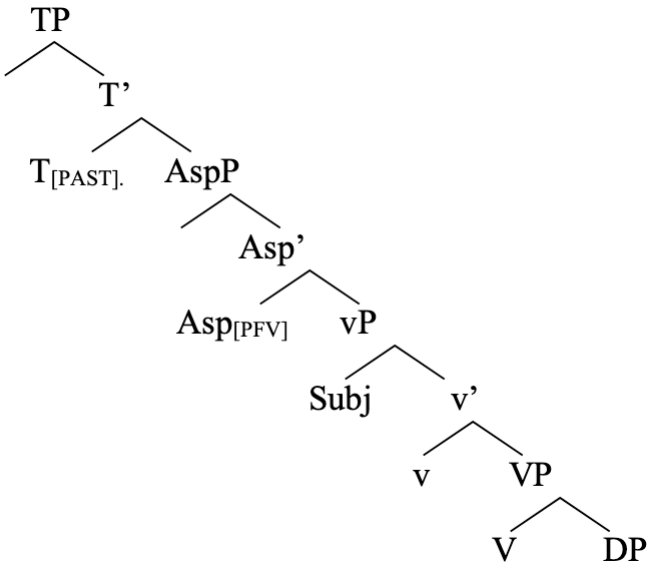
(52) θ-dda
3SF-go.PFV
'she left.'

Also, unlike imperfective verbs, perfective verbs can host object clitics as in (53):

(53) wʃi-x-as-θ
give.PFV-1S-her$_{DAT}$-it$_{ACC}$
'I gave it to her?'

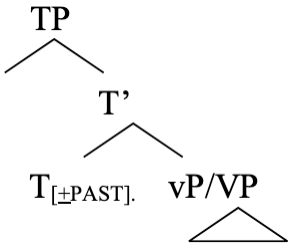
The perfective form is not inherently Perfective (encoding boundedness) since stative verbs can also take this form. Syntactically, the locus the Perfective is a null operator which scopes over a dynamic predicate. Lexically stative predicates are not selected by outer Asp. Clauses with dynamic/eventive perfective verbs are derived by a structure where Asp$_{[PFV]}$ is selected by T$_{[PAST]}$ and by raising the verb to Asp then T as schematized by (54).

(54)



Clauses with statives verbs are derived by a structure that does not involve an outer Asp projection. T selects *v*P as schematized by (55).

(55)



The last section is about tense.

4 TENSE

Tense is what distinguishes finite from nonfinite clauses. Finite clauses are tensed and nonfinite clauses are tenseless, but both show subject-verb agreement. As noted above, Tamazight and other Berber varieties in general, akin to other Afro-asiatic languages, have inflected infinitives as illustrated by (56).

(56)	ur	ri-x	ʕli	að	i-ddu
	NEG	want.NEG-1S	ali	MOOD	3S-go.AOR
	'I don't want Ali to leave.'				

The embedded verb is inflected for agreement but it is in the aorist form. The clause is tenseless, at least as far real tense is concerned. What we have in (56) is a typical ECM construction with subject-to-object raising as illustrated further by (57). The embedded subject

cannot get Nominative Case in the embedded clause.

(57) ur-θ rix að j-ddu
NEG-him want. NEG-1S SUB 3S-go.AOR
'I don't want him to leave.'

Tensed clauses are of two types: clauses with simple tense and clauses with periphrastic/compound tense. According Reichenbach's (1947) classical view, tense is a set of time intervals and how they are ordered in relation to each other. These time intervals are: Speech Time (S), Reference Time (R), and Event Time (E) and to obtain simple tense, these time intervals are ordered as in (58):

(58) Simple present: E = R = S
Simple past: E = R < S (< is for "before than")
Simple future: E = R > S (> is for "after than")

Simple present is illustrated by (59).

(59) ʕli la j-tət tˁʕa:m wasa
Ali PRT 3SM-eat.IMPRF couscous now
'Ali is eating couscous now.'

Using object pronominal clitic placement as a diagnostic for verb movement, imperfective verbs cannot host clitics, indicating that the verb does not move at least as high as Asp. As shown by (60), the aspectual head *la* hosts the object clitic which must have moved to Asp. The particle then moves together with the clitic to T.

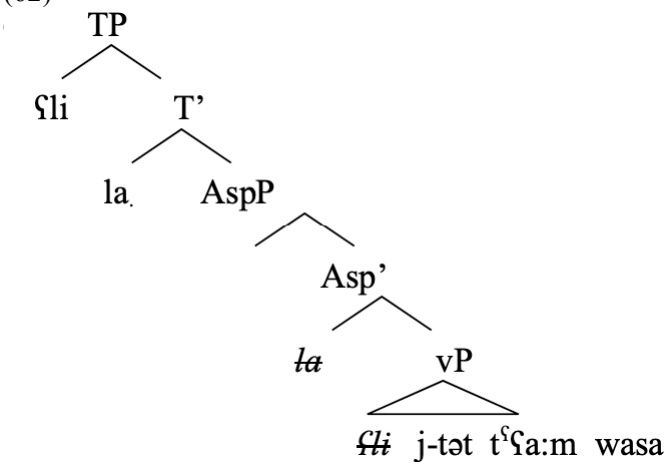
(60) ʕli la-t i-tət wasa
Ali PRT-it 3SM-eat.IMPRF now
'Ali is eating it now.'

Adjoining the clitic to the verb in the presence of a higher host in Tamazight results in ungrammaticality as shown by (61).

(61) *ʕli la j-tət-ət wasa
Ali PRT 3SM-eat.IMPRF-it now
'Ali is eating it now.'

In the present tense clauses with dynamic/eventive verbs, I argue that the aspectual particle *la* moves from Asp to T. There is no V-to-T in these clauses as illustrated by (62).

(62)

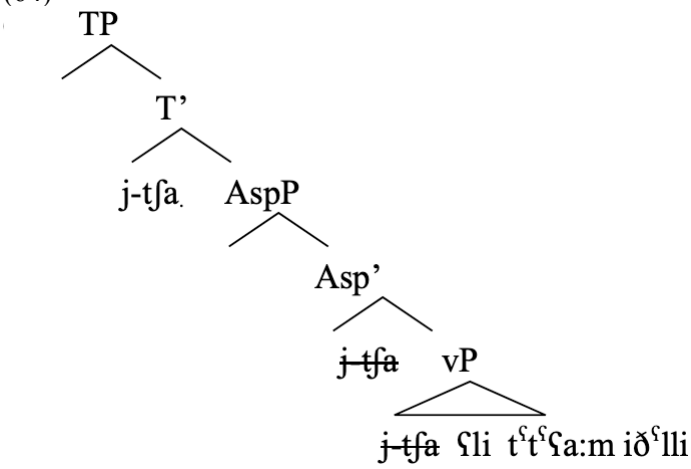


Simple past, which involves the following order of time intervals: E = R < S, is expressed by using perfective verbs as in (63).

(63) j-tʃa ʕli tˤtˤʕa:m iðˤlli
3SM-eat.PFV Ali couscous yesterday
'Ali ate couscous yesterday.'

Clauses with dynamic/eventive verbs, like *jtʃa* 'ate' in (63), are derived by moving the verb all the way to T through Asp as shown in (64). Note that there is nothing in Asp that would block this movement. Note also that the perfective verb can host object clitics.

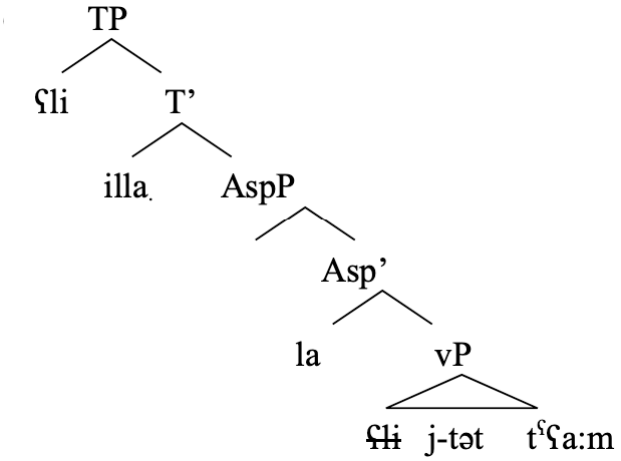
(64)



The past progressive and habitual are periphrastic, and involve the use of the copula *illa* 'be' as in (65), which I argue is in T as represented in (66).

(65) ʕli i-lla la j-tət tˤtˤʕa:m
Ali 3SM-be.PFV PRT 3SM-eat.IMPRF couscous
'Ali was eating couscous/he used to eat couscous.'

(66)



As pointed out before, clauses with perfective verbs can be ambiguous between simple past and Perfect and this ambiguity can be resolved by various means including adverbs (63) vs. (67).

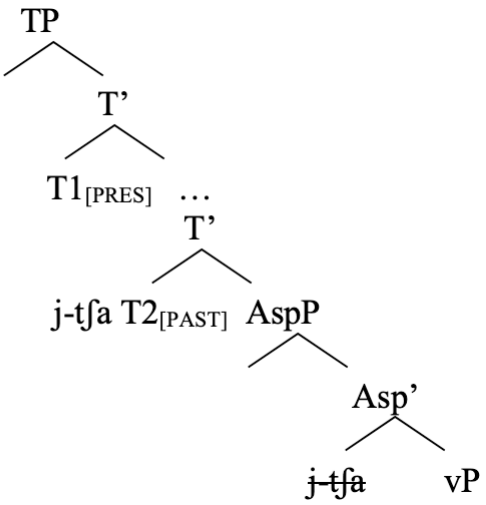
(67) j-tʃa ʕli tˤtˤʕa:m xas wasa
3SM-eat.PFV Ali couscous just now
'Ali has just now eaten couscous.'

The present perfect, as described by Comrie (1976), «indicates the continuing present relevance of a past situation ». In (67), the eventuality expressed by the VP is in the past in relation to the reference time (now). The reference time is contemporaneous with speech time. Using a neo-Reinchenbachian system, such as Hornstein (1990), this involves two ordering relations as in (68):

(68) Present Perfect:
E < R and R = S

Giorgi and Pianesi (1997) argue for a syntactic and semantic analysis where they hypothesize that the different S,R and E,R ordering relations instantiate two Tense projections, T1 and T2. (See also Gueron 2007 for English and French, and Fassi-Fehri 2004 for Arabic). For Tamazight (and Berber in general), I argue that the present perfect is derived by having two Tense projections. The lower T is specified for Past and the higher T for Present as represented in (69).

(69)



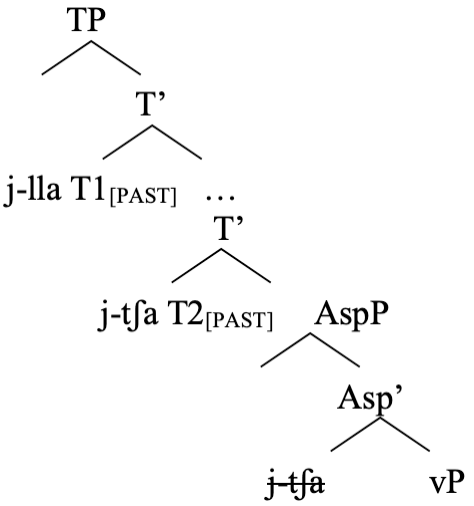
The past perfect is obtained by the ordering in (70). The structure of past perfect clauses also involves two T projections. Both Ts are specified for Past as represented in (72):

(70) Past Perfect
E < R and R < S

(71) j-lla j-tʃa ʕli tˤtˤʕa:m ag ʒʒuʒ alig θ-iwðˤə-θ ag
3SM-be 3SM-eat.PFV Ali couscous at two when 2-arrive.PERF-S at
tlata
three
'Ali had already eaten couscous at 2 when you arrived at 3.'

The Past Perfect:

(72)



Other compound tenses are presumably derived by a two T projection as well. These compound tenses are the future progressive, the future perfect, the future in the future, and the future in the past as exemplified by (73a-d) respectively.

(73) a. að ilin la t-ddu-n aðay nawəðˁ
FUT BE-AOR.3P PRT 3-go.IMPRF-P when 1P-arrive.AOR
'They will be leaving when we arrive.' ***Future Progressive***

b. að ilin da-n aðay nawəðˁ
FUT BE-AOR.3P 3-go.PFV-P when 1P-arrive.AOR
'They will have left when we arrive.' ***Future Perfect***

c. að ilin að ddu-n
FUT BE-AOR.3P FUT leave.AOR-3P
'They will be about to leave…' ***Future in the future***

d. lan að ddu-n
past-BE-AOR.3P FUT leave-AOR.3P
'They were about to leave/going to leave.' ***Future in the Past***

Morphologically, the picture that emerges is that perfective is derived by V-to-T. With eventive verbs, T must be specified for PAST; for stative verbs, T can be either PAST or PRES. The aorist and imperfective verbs are not derived by V-to-T.

5 CONCLUSION

Verbs in Berber in general and Tamazight in particular are classified based on temporal properties or aspectual properties. The aspectual verb classifications are aorist, perfective, and imperfective. The aorist is the default form used in nonfinite clauses. The perfective and the imperfective verb forms do not necessarily indicate the meanings associated with Perfective and Imperfective grammatical aspects. Syntactically, the particle *la* (and its counterparts) is the habitual-progressive aspect operator, and a null Operator serves as the Perfective Asp head. V-to-T correlates with perfective morphology regardless of whether T is past or present. Periphrastic

tense with compound tense readings involve two T projection.

REFERENCES

Achab, K. (2012). *Internal Structure of Verb Meaning: A Study of Verbs in Tamazight (Berber)*. Cambridge Scholars Publishing.

Belkadi, A. (2013). *Aspect and mood in Berber and the aorist issue*. SOAS Working Papers in Linguistics, 16.

Bentolila, F. (1981). *Grammaire fonctionelle d'un parler berbère*. SELAF: Paris

Boukhris, F. (2013). Les clitiques en Berbère Tamazighte: Approche Minimaliste. Publication de l'Institut Royal de la Culture Amazighe Série : Etudes et recherches N° 38. IRCAM, Rabat.

Chaker, S. (1989). Aspect (Verbe). In *Encyclopédie berbère VII* (pp. 971-977). Edisud: Aix-en-Provence.

Chaker, S. (1995). L'Aspect Verbal. In *Linguistique berbère: Etudes de syntaxe et de diachronie* (pp. 53-63). Peteers Publishers : Louvain.

Comrie, B. (1976). *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems*. Cambridge University Press.

Fassi-Fehri, A. (2004). Tense/aspect interaction and variation. In Gueron, J., & Lecarme, J. (Eds.), *The Syntax of Time* (pp. 235-257). Cambridge, Mass.: MIT Press.

Galand, L. (1987). Lee emplois de l'aoriste sans particule en berbère in Jungraithmayr, H. & W. Müller (Eds.), Proceedings of the Fourth International Hamito-Semitic Congress (Marburg 20-22 September 1983). Benjamins: Amsterdam.

Gelderen, E. v. (2011). *The Linguistic Cycle: Language Change and The Language Faculty.* Oxford University Press.

Giorgi, A., & Pianesi, F. (1997). *Tense and aspect: From semantics to morphosyntax*. Oxford University Press, Oxford.

Gueron, J. (2007). On tense and aspect. Lingua 117, 367–391.

Guerssel, M., & Hale, K. (Eds.) (1987). *Studies in Berber syntax*. Cambridge, Mass: MIT Press.

Heath, J. (2005). *A Grammar of Tamashek Tuareg*. Mouton De Gruyter.

Hornstein, N. (1990). *As Time Goes By: Tense and Universal Grammar*. Cambridge, Mass: MIT Press.

Kossman, M. (2007). Berber Morphology. In Kaye, A.S. (Ed.), *Morphology of Asia and Africa*. Eisenbrauns publishers.

Kossman, M. (2011). A Grammar of Ayer Tuareg (Niger). In Stroomer, H. (Ed.), *Berber Studies*, 30. Rüdiger Köppe

Kossman, M. (2013). *The Arabic Influence on Northern Berber*. Brill.

Lahrouchi, M. (2010). On the internal structure of Tashlhit Berber triconsonantal roots. Linguistic Inquiry 41(2), 255-285.

Louali, N., & Philippson, G. (2004). Le thème de l'aoriste intensif : formes multiples, contenu unique. In Nait-Zerrad, K., Vossen, R. & Ibriszimow, D. (Eds.), *Nouvelles études berbères : le verbe et autres articles*. Berber studies, 8, (pp. 79-94)

Ouali, H. (2011). *Agreement, Pronominal Clitics, and Negation: A Unified Analysis*. Continuum.

Ouhalla, J. (1988). *The Syntax of Head Movement: a study of Berber*. PhD dissertation. University of College London.

Raposo, E. (1987). Case Theory and Infl-to-Comp: The Inflected Infinitive in European Portuguese. Linguistic Inquiry 18(1), 85–109.
Reichenbach, H. (1947). *Elements of symbolic logic*. The Macmillan Company, New York.
Travis, L. (2010). *Inner Aspect: the articulation of VP*. Dordrecht: Springer.
Wurmbrand, S. (2014). Tense and Aspect in English Infinitives. Linguistic Inquiry, 45(3), 403-447.