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From Lexical to Functional: The Grammaticalization of Temporal Particles in the Tarifit Dialect of Temsamane

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Abstract

This article examines the grammaticalization of three periphrastic tense particles in the Tarifit dialect of Temsamane (henceforth TT) . It is shown that in Stage 1, the semantic value of progressivity primarily triggered the grammaticalization of these temporal elements. One of them has fully developed into a temporal particle, evidenced by its capacity to host clitics, while the other two remain in the process of grammaticalization. This development gave rise to a tripartite temporal system: past derived from a copulative auxiliary, present from a locative predicate, and future from a lexical verb that has coalesced to a temporal particle. In Stage 2, other perfect forms emerged from these grammaticalized particles, and consequently allowed for the expression of progressive and stative meanings within both past and future contexts. The framework adopted in this study is the Minimalist Program (Chomsky, 1995).

1. INTRODUCTION

Grammatical change in Berber has been observed across various empirical domains. For example, in the context of grammatical aspect, verbal morphological change, altering the stem and resulting in additional distinctive aspectual and consequently innovated semantic values, is acknowledged in Tarifit (Lafkioui, 2007; Lafkioui & Kossmann, 2009; Lafkioui, 2018). Comparatively diachronically, Lafkioui (2018) outlines five major stages in the evolution of aspectual oppositions. In Stage I, the grammatical system comprised only an unmarked aorist and a marked perfective. During Stage II, the requirement to mark habituation and progression as innovated semantic values — through system-internal induced change such as *t-affixation*, *radical gemination*, and *vowel insertion* — signalled the emergence of the imperfective aspect.

In the context of interaction between clitics and functional categories such as tense markers, negative particles and complementizers, Ouhalla (2005) offers a comparative synchronic analysis that highlights clitic distribution as evidence for grammatical status. He observes that in most Berber varieties, cliticization adheres to the constraint that a clitic cannot precede its host when a preverbal functional head is lexically realized. In other words, an overt functional head consistently attracts the clitic to its own position, with the consequence of serving as its prosodic host and forming a cluster of: [F-Cl] V. However, in some varieties, clitics may follow the verb although a functional head is overtly realized (e.g., Tarifit, Ait Seghrouchen Tamazight, Tashlhit). Ouhalla (2005, p. 609) attributes this variation to grammaticalization by pointing out that "a category that is at different Stages of grammaticalization in different varieties may behave differently with respect to its ability to attract Cl in those varieties, and may do this in some but not in others. Reanalysis, in contrast, affects the distance over which Cl can

move, so that it can appear either lower or higher in a given domain, depending on whether the domain has undergone reanalysis in a given variety." This analysis predicts that when a clitic is attracted to a temporal functional element, this element must have fully grammaticalized — likely from the verb BE, given formal similarities — into a tense marker. Conversely, when such attraction does not occur despite the presence of an overt temporal element, the element in question has likely not completed the grammaticalization cycle and remains partly lexical. In support of this view, EL Hankari (2010) demonstrates that the auxiliaries *ara* and *ataf* that mark imperfective past and imperfective future respectively, do not attract clitics, in contrast to the aorist marker *ad*. He further contends that clitics are attracted by prosodically deficient functional heads. When combined with Ouhalla's framework, El Hankari's findings suggest that *ara* and *ataf* have not fully grammaticalized: (a) they do not exhibit subject agreement morphology (unlike lexical verbs or BE) and (b) they cannot host clitics. This implies that they have not yet transitioned from lexical to fully functional categories.

Following this line of inquiry, the present article explores the grammaticalization of three lexical categories as they evolve into periphrastic tense particles in TT. These lexical sources are: (a) the locative particle *aqa*, which roughly denotes a state of 'being', (b) the copulative auxiliary *iri* 'to be'; typically conjugated in the past; and (c) the lexical verb *af* 'to find', which has undergone formal coalescence into the future marker *ad* 'will'. The structure of the article is as follows: Section 2 examines the innovated temporal forms in TT. Section 3 investigates the relationship between progressivity and the grammaticalized temporal markers. Section 4 analyses the grammaticalized forms and their morphosyntactic behaviour. Section 5 concludes the discussion.

2. INNOVATED TEMPORAL FORMS

The central assumption of this article is that three lexical elements have undergone grammaticalization in TT, giving rise to periphrastic tense constructions. These elements are: (a) the locative particle *aqa*, which roughly corresponds to 'being'; (b) the copulative auxiliary *ili* 'to be' (realized as *iri* in TT), typically conjugated in the past; and (c) the lexical verb *af* 'to find', which has fused into the future particle *ad* 'will'. These elements are summarized in the following table:

TABLE 1 Grammaticalized periphrastic tense particles in TT

Innovated forms	Lexical source	Grammatical function
aqa	Locative predicate	Present tense particle
dja (past form of ili 'to be')	Copulative auxiliary	Past tense particle
ataf (ad+ af 'to find')	Lexical verb	Future tense particle

This table shows that the categorial status of the elements *aqa*, *dja*, and *ataf* was originally lexical — specifically, a locative predicate, a copulative auxiliary, and a lexical verb, respectively. However, once grammaticalized into T, these lexical heads gradually shed some of their original lexical features and diachronically acquired novel temporal ones. To demonstrate this process, the following evidence is adduced. In contemporary TT, these grammaticalized forms still bear residual traces of their earlier lexico-semantic identities: *aqa* continues to occur with locative uses, *dja* retains its copulative sense in some environments, and *af* appears as an independent lexical verb. These remnants are illustrated in (1):

(1) a. aqa-ayi di təsraft
Loc-Cl in well

'I'm in a well'

b. t.iri.x di ssuq rəbda

Impr.be.1s in market always

'I always go to the market'

c. ufi.x aqzin inu di təsraft

find.1s.Prf dog my in well

'I found my dog in a well'

In addition, it is important to provide the reader with relevant verbal paradigms into the interaction of tense and aspect in TT, as these form the backdrop against which the grammaticalization of the tense markers discussed above must be understood. To begin with, whether verb forms are derived syntactically or otherwise, following Guerssel & Halle (1987), Ouhalla (1988, p. 28) maintains that in Tarifit "the basic verbal oppositions […] are aspectual … [involving] … the perfective and imperfective." He further notes the existence of an additional opposition that is modal in nature, distinguishing between the aorist and irrealis.

Building on this rationale, I argue that TT also exhibits a further, previously recognized opposition: *the irrealis imperfective.*[1] This adds nuance to the verbal system and plays a role in the morphosyntactic behavior of the grammaticalized tense markers. To illustrate, the verbs *af* 'to find', *ari* 'to write', and *ajm* 'to collect water' are presented below in various TAM forms. While these paradigms reveal a degree of systematicity, they also contain complexities and irregularities that cannot be fully explored within the scope of this article:

TABLE 2 Verb oppositions in TT (3rd person singular masculine)

	P-stem	***I-stem***	***A-stem***	***I-P-stem***	***I.I-stem***
Verb	Perfective	Imperfective	Aorist	Irrealis perfective	Irrealis imperfective
af 'to find'	*ufa*	*t.af*	*af*	*ufi*	*if*
ari 'to write'	*ura*	*t.ari*	*ari*	*uri*	*iri*
Ajm 'to collect water'	*ujm*	*t.ajm*	*ajm*	*uji*	*t.ijm*

In line with common convention, Table 2 also includes stem abbreviation forms — P (Perfective), I (Imperfective), A (Aorist), I-P (Irrealis-Perfective), and I-I (Irrealis Imperfective), — which correspond to specific morphological forms of the verb stem. As Table 2 illustrates, the A-stem represents the basic, unaltered form of the verb[2]. According to Ouali (2011), this stem is aspectually neutral, encoding neither tense nor aspect, but it may acquire different temporal interpretations depending on syntactic or discourse context. Although Ouhalla (1988) similarly treats the A-stem as the basic form, others, including Makhad (1996), Boukhris (1998), and Omari (2001) challenged this position.

[1] See also Lafkioui (2018, pp. 90-92).

[2] At this stage, it is not essential to determine whether the aorist is a derived or non-derived form — that is, whether it constitutes the basic verb form. For extensive arguments against treating the aorist as a base form, see Makhad (1996), who provides ample evidence for its derived status. A similar conclusion is reached in Lafkioui (2018), where the aorist is likewise analyzed as a non-basic, morphologically derived form.

In negative contexts, the irrealis form alters the stem, just as the perfective and imperfective stems do in positive contexts. The perfective and imperfective are the most morphologically marked forms, typically associated with past and present reference, respectively, as noted by Ouhalla (1988). However, following Ouali (2020), I argue that these aspectual oppositions are not sufficient on their own to convey tense. Temporal interpretation in TT also depends on other tense markers, including the grammaticalized elements discussed earlier. In fact, as Ouali (2020, p. 3) observes, "perfective and imperfective forms do not indicate the meanings associated with Perfective and Imperfective grammatical aspects," thereby reinforcing the need to decouple morphological form from functional interpretation in Berber TAM systems.

The temporal markers under consideration include *ad* and *ataf* for the future, *aqa*, for the present, and finally *dja*, for the past. The following sentences illustrate their use in context:

(2) a. ad ajm.x aman zi θara (θiwčča)
Fut collect water.1s.Prf water from spring (tomorrow)

'I'll collect water from the spring (tomorrow)'

b. aqa-ay t.ajm.x aman zi θara (ruxa)

Pres-Cl Impr.collect water.1s water from spring (now)

'I'm collecting water from the spring (now)'

c. dja ujm.x aman zi θara umi t.xdr Tima

Pst collect water.1s.Prf water from spring when 3s.f.arrive.Prf Tima

'I had already collected water from the spring when Tima arrived'

d. ataf ujm.x aman zi θara xmi-d ʁa t.xdr Tima

Fut collect water.1s.Prf water from spring when-Cl.dir Fut 3s.f.arrive.Prf Tima

'I'll have collected water from the spring when Tima arrives'

In (2a), the verb stem *ajm* 'to collect water' remains unaltered except for agreement morphology, marked here by *-x* (first person singular). This unmodified stem appears only in the presence of the future marker *ad*. The present form in (2b) corresponds to the English present continuous or what Reichenbach (1947) terms the "extended present." Notably, the present tense can also be expressed without the particle *aqa*, using only the imperfective morphology, as demonstrated in example (3a) below. This configuration yields a more habitual reading, typically accompanied by adverbials such as *these days*, *nowadays*, or *all the time*. Importantly, the time adverbial *ruxa* 'now' cannot be used in this habitual context. This restriction suggests that *aqa* encodes an instantaneous or situationally anchored present, which is why it is compatible with *ruxa* in (2b) but not with the bare imperfective.

In (2c), *dja* functions as a past tense marker, comparable to the English past perfect. It consistently appears with the perfective verb stem, which also licenses a past interpretation in example (3b). Finally, the particle *ataf* in (2d) expresses a meaning parallel to the English future perfect. This temporal reading cannot be generated in the absence of *ataf*, underlying its grammaticalized role as a future-in-the-past or resultative future marker.

(3) a. t.ajm.x aman zi θara g u.ssana / ida / rbda / *ruxa
Impr.collect water.1s water from spring Gen CS.days / nowadays / always /*now

'I always/nowadays scoop water from the spring *now'

b. ujm.x aman zi θara idnnat ʁa rʕasa

collect water.Prf.1s water from spring yesterday at afternoon prayer

'I collected water from the spring yesterday around the time of afternoon prayer'

Based on these data, we can reasonably conclude that in TT, the past can be expressed using the bare perfective form, as illustrated in (3b). Alternatively, a past perfect reading is available when the particle *dja* is included, as shown in (2c). The present tense is conveyed through the bare imperfective form of the verb. However, this use does not indicate a progressive or instantaneous present (i.e., one that coincides with speech time), but rather a habitual interpretation akin to the English simple present. This contrast is illustrated by examples (2b) and (3a), respectively.

The future is marked by the particle *ad*, as shown in (2a). For a future perfect reading, the particle *ataf* must be incorporated, as demonstrated in (2d). To further support this analysis, examples (4a) and (4b) below illustrate the use of the irrealis-perfective and irrealis-imperfective forms, respectively.

(4) a. wa y.ujim ča ʊu u.aman zi θara idnnat
Neg1 3s.m.collect water.Prf Neg2 ? CS.water from spring yesterday

'He didn't collect any water from the spring yesterday'

b. wa y.t.ijm ča ʊu u.aman zi θara g u.ssana

Neg1 3s.m.Impr.collect water Neg2 ? CS.water from spring Gen CS.days

'He doesn't collect / isn't collecting water from the spring these days'

These tenses in TT can also be categorized according to the standard typology of simple, progressive, and perfect tenses:

(5) Simple tenses

a. y.ujm ačffay zi θəqduht i yəmm-as
3s.m.scoop.Prf milk from the pot for his mother-Cl.Dat.3s

'He scooped the milk from the pot for his mother'

b. y.t.ajm ačffay zi θəqduht i yəmm-as
3s.m.Impr.scoop milk from pot for his mother

'He scoops the milk from the pot for his mother'

c. ad y.ajm ačffay zi θəqduht i yəmm-as
Fut 3s.m.scoop.aor milk from pot for mother-Cl.Dat.3s

'He will scoop the milk from the pot for his mother'

(6) Progressive tenses[3]

[3] With the exception of stative predicates, all non-statives — such as azzr 'run', ggur 'walk', əš 'eat', ndu 'jump', siwr 'talk', gha 'read', ari 'write', az 'break', əg 'make', ini 'say', sqsa 'ask', ar 'reply',

a. dja t.ajm.x ačffay i xtiti idnnat ʁa rʕasa
Pst Impr.scoop.1s milk for my aunt yesterday at afternoon prayer

'I was scooping milk for my aunt yesterday around the time of afternoon prayer'

b. aqa-ayi t.ajm.x ačffay i xtit ruxa
Pres-Cl Impr.scoop.1s milk for aunt now

'I'm scooping milk for my aunt now'

c. ataf t.ajm.x ačffay i xtiti ʁa rwqt-a θiwčča
Fut Impr.scoop.1s milk for my aunt at time-Dem tomorrow

'I'll be scooping milk for my aunt at this time tomorrow'

(7) Perfect tenses

a. dja ujm.x ačffay umi t.udf xtiti
Pst scoop.Prf.1s milk when 3s.f.enter.Prf my aunt

'I had already scooped milk when my aunt entered'

b. ataf ujm.x ačffay xmi-d ʁa t.adf xtiti
Fut scoop.Prf.1s milk when-Cl.Dir Fut 3s.f.enter.Prf my aunt

'I will have scooped milk when my aunt enter'

(6a) and (7a) demonstrate that the particle *dja* may occur with both the imperfective and perfective verb forms, respectively. Likewise, *ataf* appears with the imperfective in (6c) and with the perfective in (7b). These patterns support the view that *dja* and *ataf* function primarily as temporal rather than aspectual markers. Based on these observations, we can conclude that TT distinguishes three core tense categories — simple, progressive, and perfect — with the perfect found only in the past and future domains.

It is worth noting, as El Hankari (2010) shows, that the particles forming these perfect constructions (*dja* and *ataf*) are unable to attract clitics — unlike the future marker *ad*. This syntactic behaviour further suggests that TT does not have a present perfect form equivalent to that of English.

The theory advanced here is that the compatibility of the particles *dja* and *ataf* with both perfective and imperfective stems reflects their temporal — rather than aspectual — status. Their use in perfect-like contexts, such as those in (7), is best understood as the outcome of an ongoing grammaticalization process. To summarize the discussion thus far, the table below presents these elements in both their primitive **(**lexical**)** and innovated **(**grammaticalized**)** forms, corresponding to Stage 1 and Stage 2 in the development of TT. The remainder of this section will be devoted to a detailed account of this grammaticalization trajectory.

TABLE 3 Primitive & innovated forms of temporality in TT

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sghuy 'scream', ragha 'call', ruh 'go', asd/arahid 'come', ffgh 'leave', awd 'arrive', ndh 'drive', and du 'fly' — can co-occur with the particles *aqa*, *dja*, and *ataf* in progressive contexts. This pattern is consistent with Comrie's (1976) observation that progressivity arises from the interaction between progressive aspect and non-stative verb meaning.

Diachronic stage	Forms	*Present*	*Past*	*Future*
	Primitive forms (Simple)	I-stem	P-stem	A-stem
Stage 1(Progressivity)	Innovated forms (Progressive)	*aqa*+I-stem	*dja*+I-stem	*ataf*+A-stem
Stage 2 (Other forms)	Innovated forms (Perfect)	-	*dja*+P-stem	*ataf*+P.stem

With Table 3, I propose that the grammaticalized tense elements in TT developed through two primary diachronic stages. The pre-Stage 1 period represents a primitive system, in which tense distinctions were conveyed solely through aspectual morphology. During this phase:

(i) The **I-stem** sufficed to express the **present**, as is widely accepted in Berber studies. This is illustrated by the simple sentence in (5b).
(ii) The **P-stem** was used to express the **past**, as shown in (5a).
(iii) The **A-stem** expressed the **future**, as exemplified in (5c). According to Lafkioui (2018), this marked aorist itself replaced an even more primitive form, not represented in Table 3.

Stage 1 appears to be driven by the need to encode progressive distinctions, which were not fully available in the earlier system. While the I-stem might have supported habitual readings, it did not inherently encode progressive aspect — particularly in the past and future domains. Thus, TT innovated new forms combining the I-stem with temporal particles:

(i) *aqa* for the present progressive
(ii) *dja* for the past progressive
(iii) *ataf* for the future progressive

These innovations not only enabled finer aspectual distinctions but also allowed some stative predicates to appear in progressive contexts — something the earlier system could not easily accommodate. We will return to such examples in Section 4.

Stage 2 marks the emergence of perfect forms from the same grammaticalized markers. Once *aqa*, *dja*, and *ataf* became integrated into the grammatical system, they developed perfect readings, particularly with *dja* (past perfect) and *ataf* (future perfect). Notably, a present perfect form appears to be absent or still developing. One could argue, alternatively, that Stage 2 preceded Stage 1, as current data do not conclusively establish the chronological order. Nevertheless, the data suggest that progressive readings — expressed in simple sentence structures (e.g., (6)) — emerged before perfect readings, which generally require complex structures (e.g., (7)). This sequencing aligns with established grammaticalization theory, where complex forms typically evolve from simpler ones (see Heine & Reh, 1984; Heine & Kuteva, 2002; Dixon, 2009).

3. PROGRESSIVITY AND GRAMMATICALIZED LEXICAL HEADS: A FUNCTIONAL LIAISON

This section examines progressivity as a functional **liaison** between lexical heads and the grammaticalized periphrastic tense particles in TT. This relationship is grounded in the obligatory use of a progressive particle during Stage 1 to encode imperfective aspect without invoking habituality. As illustrated in (6), the addition of habituality adverbials renders the progressive construction ungrammatical, which in turn highlights this restriction.

In Stage 2, these grammaticalized particles expanded their function to encode not only progressivity but also perfect aspect, thus becoming interchangeable in their temporal interpretations. As noted earlier, Berber verb stems are marked exclusively for grammatical aspect, distinguishing primarily between the perfective and imperfective (Ouhalla 1988; Makhad 1996; Boukhris 1998; Omari 2001). Against this background, consider the following example sentences:

(8) Perfective
y.ufa aqzin inu

3s.m.find.Prf dog my

'He found my dog'

(9) Imperfective
? y.t.af aqzin inu

3s.m.Impr.find dog my

'He finds my dog'

Setting aside the perfective aspect, Comrie (1976) defines imperfectivity as marking a continuous event that progresses over time. In the Tarifit dialect under study, unlike other Berber varieties such as Tamazight (Boukhris 1998; Ouali, 2011) and Tashlhit (Makhad 1996; Omari 2001), the imperfective appears without periphrastic particles — that is, as a bare form, as demonstrated in (9). The key characteristic of the imperfective in (9) is its habitual interpretation in the present tense, rather than a continuous or progressive reading. By contrast, the progressive present is signalled by the particle *aqa*.

Comrie (1976) further distinguishes progressivity from imperfectivity by noting that imperfectivity implies habituality, whereas progressivity excludes this habitual meaning and instead encodes continuousness. This aligns with the instantaneous reading found in TT with *aqa* in the present tense. Notably, this instantaneous sense is absent from the temporal particles *ataf* and *dja*, which in turn reinforces the claim that *aqa* functions specifically as a present tense marker. In summary, habitual readings are compatible with the bare imperfective — regardless of whether the verb is stative or non-stative; progressive readings arise when the imperfective is combined with temporal particles; and habitual-progressive readings emerge when the imperfective plus temporal particles co-occur with stative predicates. The following table illustrates this distribution:

TABLE 4 Distribution of habitual & progressive readings in TT

	Habitual	***Progressive***	***Habitual & progressive***
Aspect	Imperfective	Imperfective + *aqa*, *dja*, *ataf*	Imperfective + *aqa*, *dja*, *ataf*
Predicate class	Stative & non-stative	Non-stative	Stative

Consider now the following sentence:

(10) ? y.azzu x u.qzin inu
3s.m.searching.Impr on CS.dog my

'He is looking for my dog'

(10) reinforces a continuous reading, though the question mark indicates that this form is ambiguous. In essence, a progressive present form in TT must always be accompanied by the temporal particle *aqa*. It is also worth noting that the verb stems in (9) and (10) differ: the verb *af* 'to find' in (9) cannot receive a continuous interpretation when in the imperfective, whereas *azu* 'to search' in (10) can be understood as inherently progressive, although this contrasts with English usage. Interestingly, despite the absence of an inserted particle in (10), the reading is never habitual but consistently ambiguous between continuous interpretations.

Although (10) allows for an ambiguously continuous reading, it does not convey an **instantaneous** interpretation. By *instantaneous*, I mean an event that occurs precisely during speech time, in line with what Reichenbach (1947) terms the *present continuous*. This distinction foregrounds the role of (non-)stative predicates. In (10), the verb *azu* 'search' is non-stative, which accounts for its compatibility

with the progressive particle *aqa* in (11). Crucially, this compatibility results strictly in a progressive interpretation, as Table 4 above illustrates.

(11) aqa-θ y.azzu x u.qzin inu
Pres-Cl 3s.m.search.Impr on CS.dog my

'He is searching for my dog'

Semantically, there is no significant difference between (10) and (11): both yield a progressive interpretation. However, (10) remains somewhat ambiguous. This raises a plausible question — if the aspectual morphology in (10) already suffices to convey continuity, why does the language make use of the particle *aqa* in (11)? It is worth recalling that *aqa* is originally a lexical head functioning as a locative predicate, as illustrated in (1a).

The same logic extends to other situations in the past and future in the following sentences:

(12) dja y.azzu x u.qzin inu umi kis m-rqi.x
Pst 3s.m.search.Impr on CS.dog my when with Recip-meet.Prf.1s

'He was searching for my dog when I met him'

(13) ataf y.azzu x u.qzin inu xmi ʁa n.awd
Fut 3s.m.search.Impr on CS.dog my when Fut 3p.arrive

'He will be searching for my dog when we arrive'

If the continuous tense can be sufficiently encoded through the imperfective aspectual morphology — as evidenced in the past and future constructions in (12) and (13), respectively — then the question arises: why are periphrastic particles still employed in these contexts? Once again, it is important to recall that *dja* originates as the past form of the copulative auxiliary, as shown in (1b), and that *ataf* is a morphologically complex form resulting from the coalescence of the lexical verb *af* 'to find' and the future marker *ad* 'will', as illustrated in (1c).

To address these inquiries, I propose that in TT, progressivity in the past and future cannot be expressed through the bare imperfective form, as such a form would yield only a habitual reading. In contrast, in the present tense, the imperfective aspectual morphology can give rise to an ambiguous sense of continuity. However, since no dedicated morphological form has evolved to mark imperfectivity in the past and future — apart from the irrealis imperfective (see Table 2 above) — the language has grammaticalized the lexical heads *dja* and *ataf* to express progressivity in these temporal domains. This proposal lends support to clarify why the periphrastic particle is necessary in (11) and retained in (12), despite the use of imperfective morphology. This development aligns with the principle of analogy as a common mechanism in grammaticalization, as illustrated in the following table:

TABLE 5 Analogical grammaticalization of present tense in TT

Form	**Base**	**Analogy**
aqa → *dja* & *ataf*	Progressive present	→ Progressive past & future

The analogy illustrated in this table reflects a grammaticalization technique whereby new grammatical forms are modelled on existing ones (Meillet, 1912). It becomes evident that the past and future progressive forms are analogized from a previously established present progressive structure. This suggests that the grammaticalization of the present tense preceded that of the past and future. A compelling argument supporting this chronology involves the

behaviour of clitics: only fully grammaticalized particles have the ability to attract clitics, whereas those still undergoing grammaticalization do not exhibit this property (Ouhalla, 2005).

4. GRAMMATICALIZATION OF PERIPHRASTIC TENSE IN TT

This section presents empirical evidence in support of the temporal status of the grammaticalized lexical categories discussed thus far. The mechanism at play mirrors the **Move > Merge** operation involving the lexical heads analysed in the previous section. Before addressing the three central themes in detail, it is essential to first highlight certain properties of the auxiliary *iri/ili* 'to be' in TT. These properties are directly relevant to the discussion on the grammaticalization of periphrastic tense constructions.

4.1.The auxiliary 'iri/ili'

The auxiliary *iri/ili* 'to be' in Tarifit has been analysed in detail by Ouhalla (1988). He argues that this auxiliary functions as a verb that projects syntactically and undergoes movement from its base position in V, through Agr, and ultimately to T. This syntactic behaviour aligns with that of other lexical verbs. To illustrate this, consider the following sentences:

(14) a. iri ð[4] ayaz
aux Cop man

'Be a man!'

b. iri.m ð y.ayaz.n

aux.2p.m Cop p.man.p

'Be men!'

The imperative form realized with the auxiliary *iri* in (14) is inflected for agreement morphology. It appears in sentence-initial position, mirroring the behaviour of other lexical verbs in the imperative mood. Whether an implicit subject follows or precedes the verb, as shown in (15), we may assume that this represents the basic structure of *iri* when it occurs in the imperative.

Consider now its occurrence in the future:

(15) ad iri.x ðin θ.amddi.θ-a
Fut be.aor.1s there f.night.f-dem

'I will be there this evening'

The same morphological form of the auxiliary is also realized following the future particle *ad*, where it remains inflected for agreement. However, morphological irregularities in this auxiliary become evident in both the past and present contexts, as illustrated in (16a) and (16b), respectively.

(16) a. dja dji.x ðin iđṇṇat
Pst Cop.1s there yesterday

'I was there yesterday'

[4] Following El Hankari (2015), I treat **ð** as a copula.

b. aqa-ayi ðin

Cop- Cl there

'I am there'

The auxiliary exhibits significant morphological irregularity in both its present and past forms. This irregularity is particularly evident in the present tense, where the auxiliary combines with the clitic *ayi* (=1st person singular) but lacks the corresponding agreement suffix *-x* (=1st person singular). This likely reflects the fact that agreement is already realized on the clitic, which is co-indexed with an implicit subject in Spec,*v*P. It is noteworthy that the auxiliary undergoes morphological changes in both present and past contexts and is inflected for agreement in the imperative, future, and past tenses, but not in the present.

In addition to agreement morphology, the auxiliary can also be inflected for aspect, such as the imperfective. Consider the example in (17):

(17) t.iri.x ðin rʊda
Impr.aux.1s there always

'I attend there a lot'

The fact that the auxiliary *iri* inflects for both agreement and aspect, and can function as a main verb, has led Ouhalla (1988) to conclude that it does not differ from other lexical verbs. This observation explains the grammaticality of the following sentence:

(18) ad̲-ili.n uggur.n rux-nni
to-aux AOR.AGR(3p) go.PRF.AGR(3p) time-that

'They will have left by that time'

(Ouhalla 1988, p. 47)

It is important to keep in mind that the auxiliary *iri* 'to be' is attested in TT and inflects for both agreement and aspect, much like other lexical verbs. This fact will provide a crucial foundation for comparing various tense particles with this auxiliary. We begin with the present tense, following the hypothesis that the present particle was the first to grammaticalize. The following subsections draw on a corpus of both stative and non-stative (action) predicates, with judgments of grammaticality, marginality, or variation indicated throughout.

4.2. Present

Empirical studies show that the common way to express the present tense in most Berber varieties is through the imperfective aspect, used with both non-stative (examples (19–20)) and stative predicates (examples (21–22)):

(19) t.t.ʒʒi ħənna θ.afunas.t
Impr.3s.f.milk my grandmother f.cow.f

'My grandmother is milking the cow'

(20) t.azr.x zič mkur θ.ufu.t

Impr.run.1s early every f.morning.f

'I always go for a run in the early morning'

(21) y.t.xs Tima
3s.m.love.Impr Tima

'He loves Tima'

(22) t.sn.x y. ayaz.n…
Impr.know.1s p.man.p

'I know (real) men…'

While other instances of this aspectual pattern exist, many are marginal for a number of speakers. With some reservation, one may assume that the imperfective corresponds to the present tense and that the imperfective morphology alone suffices to express present tense reference. However, the present tense conveyed by the sentences in (19–22) is not progressive in nature; rather, it has a more habitual interpretation, referring broadly to actions or states.

Digressing slightly, incorporating additional periphrastic elements such as adverbials into the same sentences can yield an ambiguous continuous reading of the present:

(23) t.t.ʒʒi ħənna θ.afunas.t iða/ʔruxa
Impr.3s.f.milk my grandmother f.cow.f nowadays/now

'My grandmother is milking the cow nowadays/now'

(24) t.azr.x zič mkur θ.ufu.t/ʔruxa
Impr.run.1s early every f.morning.f/now

'I always go for a run in the early morning/now'

(25) * y.t.xs Tima ruxa
3s.m.Impr.love Tima now

(26) * t.sn.x y.ayaz.n ruxa
Impr.know.1s p.man.3p.m now

The non-stative predicates in (19–20), when combined with the adverb *ruxa* 'now' in (23–24) to express a continuous present reading, remain marginal for many speakers. Similarly, the stative predicates in (21–22) yield an ambiguous continuous present interpretation in (25–26) with the same adverb. However, in this case, the addition of the adverb results in ungrammaticality. This ungrammaticality in (25–26), alongside the marginal status of (23–24), suggests that not all (non-)stative predicates encoded in the habitual present can be coerced into a progressive interpretation that coincides with the moment of speech. Nevertheless, another strategy exists for reinforcing a progressive present reading in such structures. As we will see, the grammaticalization of the temporal particle *aqa*, originally a locative predicate, forces a present progressive interpretation anchored to the speech time.

Consider the sentence in (27), which contains an overt topic, and its elliptical counterpart in (28), where the topic is omitted.

(27) ħənna, aqa-t t.ʒʒi θ.afunas.t ruxa
my grandmother, Pres-Cl 3s.f.Impr.milk f.cow.f now

'My grandmother, she is milking the cow now'

(28) <<nč>>, aqa-ayi t.azr.x ruxa
<<ELLIP>>, Pres-Cl Impr.run.1s now

'I am now running'

The sentences in (27) and (28), featuring non-stative predicates, express a progressive present through the use of the particle *aqa*. This particle is both non-marginal and frequently attested in TT, consistently yielding grammatical constructions. However, the status of *aqa* remains somewhat controversial. On one hand, it can be easily confused with the complementizer *qa* in (29), due to their strong homophony. On the other hand, it may also be mistaken for the locative predicate introduced in (1) and repeated below in (30):

(29) y.nna qa y.usd u.nza
3s.m.say.Prf that 3s.m.come.Prf CS.rain

'He said that rain is coming/expected'

(30) aqa-ayi ði təsraft
Loc-Cl in well

'I am in the well'

Beyond its attested usage by speakers, the first empirical argument supporting the temporal nature of *aqa* in (27) and (28) is that this particle does not inflect for agreement morphology, a property clearly demonstrated in the examples above.

Secondly, consider the following sentences:

(31) *aqa*-ayi ði θ.adda.θ
Loc-Cl in f.house.f

'I am in the house'

(32) ði θ.adda.θ i *dji*.x
in f.house.f Foc be.1s

'<<It is in the house>> where I am'

Example (31) contains a locative predicate phrase (in the house), with the agent theta role assigned to an implicit subject. The complex [*aqa* + clitic] can be shown to function somewhat like an auxiliary. The relevant diagnostic is clefting, demonstrated in (32), which reveals the auxiliary's inflection with the agreement suffix *-x* (=1st person singular). This test also clarifies the true grammatical status of *aqa* in this context — as copulative. Recall that I have assumed *aqa* retains its original lexical status as a lexical verb here. This leads to the conclusion that, in this sentence, *aqa* is not functioning as a tense particle. As we have observed, the grammaticalized temporal particles in TT do not carry agreement morphology. We can safely assume that the particle *aqa* syntactically behaves differently from its copulative counterpart since applying the same test to the complex [*aqa* + clitic] in (31–32) reveals interesting findings:

(33) =(31) ð ħənna i y.~~tzz~~y.n θ.afunas.t
Foc my gramdmother.Poss1s who milk.Impr.Prtc f.cow.f

'It is my grandmother who is milking the cow'

(34) =(32) ð nč i y.tazzr.n ruxa

Foc I who run.Impr.Prtc now

'It is me who is running right now'

(33) and (34) demonstrate that the particle *aqa* cannot undergo clefting, unlike its lexical counterpart in (31). This sensitivity to clefting may be due to its affixal nature. However, the key point here is that when *aqa* occurs within a clefted construction, it does not exhibit the auxiliary properties seen in examples (31) and (32). In other words, if *aqa* were a lexical auxiliary, it would behave similarly to its clefted counterpart in those examples.

The third argument is based on subcategorization. For instance, the verb *af* 'to find' in TT subcategorizes for DPs (including clitics), as shown in (35), or for CPs (clausal complements), as illustrated in (36), but not both adjacently. Similarly, this verb does not subcategorize for TPs, except in conditional constructions that express volition.

(35) ufi.n-t [y.ʒʒi θ.afunas.t]
find.3p.m.Prf-Cl [3s.m.milk.Prf f.cow.f]

'They found him already milked the cow'

(36) ufi.n [$_{CP}$ ʊlli y.ʒʒi θ.afunas.t]
find.3p.m.Prf [$_{CP}$ that 3s.m.milk.Prf f.cow.f]

'They found that he has already milked the cow'

(37) * ufi.n-t [$_{CP}$ ʊlli y.ʒʒi θ.afunas.t]
find.3p.m.Prf-Cl.Acc3s.m [$_{CP}$ that 3s.m.milk.Prf f.cow.f]

(38) * ufi.n ad y.ʒʒi θ.afunas.t
find.3p.m.Prf Fut 3s.m.milk.Prf f.cow.f

(39) * ufi.n [$_{XP}$ aqa y.t.ʒʒi θ.afunas.t]
find.3p.m.Prf [$_{XP}$ X 3s.m.Impr.milk f.cow.f]

Except in conditionals where clauses appear as complements, and no clitic or [clitic + CP] complex is present, the XP in (39) can be identified as a TP. Since *af* 'to find' does not subcategorize for this XP as a complement — and, by parallelism, given the absence of both an accusative clitic and a CP — it follows that this XP is a TP headed by *aqa*, with X = T. Therefore, if X does not inflect for agreement (i.e., it is not an auxiliary) and heads an XP that a verb like *af* 'to find' does not subcategorize as a valent complement, then *aqa*, as the head of X, functions as a grammatical particle encoding present tense.

One might argue that *af* 'to find' in these examples is perfective, thus encoding a default past tense. This could explain why its tense morphology does not align with the present tense template of the embedded XP. However, this is countered by evidence involving the past particle *dja*. (40) shows that the same verb is sensitive to this tense particle, reinforcing the conclusion that *dja* is an independent tense particle as well.

(40) * ufi.n [$_{TP}$ dja y.t.ʒʒi θ.æfunæs.t]
find.3p.m.Prf [$_{TP}$ Past 3s.m.Impr.milk f.cow.f]

The final empirical argument in favor of *aqa*'s status as a tense particle rests on the consistent observation that it never inflects for agreement morphology, as demonstrated throughout the preceding

examples. A comparative look at a structurally similar particle found in the Al-Hoceima variety of Tarifit reveals a syntactic variation across regional dialects. Consider the following sentence:

(41) ira aqa-θ y.t.irari-θ
Past ?-Cl 3s.m.Impr.play-Cl

'He was playing it'

Regardless of the syntactic nature of *aqa* in (41), it is clear that it does not mark present tense, as the event is encoded in the past using the particle *ira* (a variant of *dja*). If such a structure were mapped onto the temporality syntax of TT, the result would be ungrammatical. This is because, in the remote/progressive past — typically marked by *dja* — the presence of *aqa* is unnecessary, and their co-occurrence leads to ungrammaticality. In a similar vein, stative predicates do not appear to be compatible with the instantaneous present particle *aqa*.

(42) * aqa-ayi t.sn.x y.ayaz.n
Pres-Cl Impr.know.1s p.man.p

(43) * aqa-ayi t.xs.x Tima
Pres-Cl Impr.love.1s Tima

The final point to conclude this section is that, in all the data presented above where the sentences are both grammatical and non-marginal, *aqa* consistently hosts clitics. This strongly indicates that *aqa* has fully grammaticalized as a functional temporal particle. In TT — and in Berber more broadly — only functional categories are capable of hosting clitics (Ouhalla, 2005).

4.3. Past

Presumably, stative predicates marked with the perfective aspect express general habituality and thus lose their direct connection to the past, although empirical studies suggest that this usage is the most marked in past contexts. Consider (44) and (45), where perfectivity appears to lose its link to past time:

(44) ssn.x attas n ybridn iđa *(iđn̩n̩at/azʁaθ)
know.1s.Prf a lot of paths nowadays (yesterday/last year)

'I know a lot of paths nowadays'

(45) θ.ssn xtiti θ.a.sppanyu.t iđa *(iđn̩n̩at /azʁaθ)
3s.f.know.Prf my aunt f.FS.Spanish.f nowadays (yesterday/last year)

'My aunt speaks Spanish nowadays *(yesterday/last year)'

The usage in (44) and (45) is marginal for many speakers, confirming Ouali's (2020) observation that the perfective verb form does not always convey the meanings traditionally associated with the perfective aspect.

In contrast, for non-stative predicates, the perfective form readily establishes a connection to past time:

(46) θ.n̩da xtiti θ.azaθ (iđn̩n̩at/azʁaθ)
3s.f.throw.Prf my aunt f.figs (yesterday/last year)

'My aunt threw away the figs (yesterday/last year)'

The verb stem *nda* 'to throw' in (46) exemplifies an event encoded in the past, with the present time as the reference point. The empirical support for this interpretation is its compatibility with time adverbials such as *yesterday* and *last year*. However, the example in (46) is not progressive, which indicates that a bare perfective form cannot express a past progressive reading. From this, two key points emerge: (a) the bare perfective does not encode past progressivity, and (b) stative predicates marked with the perfective aspect cannot establish a past temporal reference.

The conclusion above should not lead to the assumption that the perfective form never encodes past progressivity, as (47) demonstrates a progressive form. In this case, the verb appears with imperfective aspect marking, accompanied by the particle *dja*:

(47) dja t.qzza xtiti θyazit iđn̪n̪at
Pst 3s.f.pluck.Impr chicken yesterday

'My aunt was plucking the chicken yesterday'

In addition to marking progressivity, the incorporation of *dja* also allows stative predicates to be linked to the past:

(48) dja θ.ssn xtiti čway.t n ə.t.sppanyu.t azʁaθ
Pst 3s.f.know.Prf my aunt some.f of CS.f.Spanish.f last year

'My aunt knew some Spanish last year'

Similar to the grammaticalization of the particle *aqa* from its locative origin to mark the present, (47) and (48) illustrate the grammaticalization of a past tense marker. The lexical head *ili*/*iri* loses its status as a full verb and instead acquires past tense features. While its lexical form remains in frequent use, the auxiliary form conjugated in the past gradually develops into an independent past tense particle. This grammaticalization serves to reinforce past progressivity by combining with the imperfective aspect and to enable stative predicates to establish a link to the past, since their bare perfective forms typically encode habituality with present reference. This grammaticalized particle is not compatible with the present. This can be shown with the adverb *iða* 'today/nowadays' which yields ungrammaticality in (49):

(49) * dja θ.ssn xtiti θ.a.sppanyu.t iða
Past 3s.f.know.Prf my aunt f.FS.Spanish.f nowadays

Moreover, the particle *dja*, along with its regional variants such as *ila* (Tarifit spoken in Ait Kebdan), *ira* (Tarifit spoken in Al-Hoceima), and *tuʁa* (Tarifit spoken in Nador), is clearly distinct from an auxiliary verb. This distinction is supported by the sentence in (50), where *dja* is realized alongside the homophonous auxiliary discussed above.

(50) dja n.dʒa ð imʒyanə.n azʁaθ
Past 3p.be.Prf Cop young.3p.m last year

'We were still young last year'

In (50), the particle *dja* serves solely a temporal function. It does not contribute to verbal clausal transitivity, nor does it affect the thematic structure of the sentence. Its role is exclusively to indicate that the event is situated in the past. Notably, unlike the auxiliary *iri* 'to be', which here appears as *dja* and is inflected with the plural agreement prefix *n-* (3 person plural), the particle *dja* is a bare, uninflected form. As demonstrated in subsection 4.1, this auxiliary is inflected for both agreement and aspect, in contrast to the fully grammaticalized particles.

Due to their remarkable phonological similarity, the particle *dja* has been diachronically grammaticalized from this lexical verb and subsequently developed as a distinct element. This close resemblance explains why it is often confused with the auxiliary *dja*. Both forms occur in homophonous contexts, and in some Tarifit dialects, this particle is absent altogether, as noted in previous studies (Ouhalla 1988; Cadi 1990). In terms of regional variation, the particle *dja* in TT corresponds to *tuʁa* in the variety spoken in the Nador region:

(51) tuʁa-ax ð i.mzyanə.n azʁaθ
Past.Cl Cop p.young.p last year

'We were young last year'

Furthermore, the particle *dja* cannot be considered an aspect marker, primarily because it combines with both perfective forms in (47) and imperfective forms in (52) and (53) below. It would be contradictory to attribute aspectual values to *dja*, as it cannot simultaneously convey perfectivity and imperfectivity. These two points — (a) its status as a non-auxiliary, and (b) its inability to encode aspectual distinctions — strongly support the conclusion that *dja* (and its regional variants) functions as a past tense particle in TT.

(52) dja t.ət.x a.ʁrum ʁa θufut ði θmʒi
Past Impr.eat.1s FS.bread at morning in youth

'I used to eat bread in the morning when I was young'

(53) dja n.t.xs ayawya aʒʁaθ
Past 1p.Impr.love each other last year

'We used to love each other last year'

Unlike *aqa*, the particle *dja* is unable to host clitics:

(54) * dja-ayi t.azr.x ig uma
Pst-Cl Impr.run.1s with my brother

* dja-anx n.t.xs ayawya

Pst-Cl 3p.Impr.love each other

Both sentences demonstrate that the particle *dja* cannot host clitics, reflecting its status as a functional category that has not yet fully developed by shedding all its lexical properties.

4.4. Future

The future tense of both stative and non-stative predicates is typically expressed using the complex form [*ad* + *root*] (see (55)–(57)), regardless of whether the event has a realized or "unrealized interpretation," to borrow Ouali's (2011, p. 50) terminology. The latter case is particularly evident with verbs of *wanting*. All these examples convey a non-progressive meaning.

(55) ad ʒʒy.x θ.afunas.t θiwčča
Fut milk.1s.aor f.cow.f tomorrow

'I will milk the cow tomorrow'

(56) ad-t y.xs mara θ.qqim amm-u
Fut-Cl 3s.m.love if 3s.f.stay.Prf similar-Dem

'He will love/like her if she does not change'

(57) azzu.x ad s-rmð.x θ.ira i-y.ə.mma
want.1s Fut Caus.learn.1s f.writing Dat-my mother

'I want to teach my mother handwriting'

The particle *ataf* is used to reinforce progressivity within a future event as (58-59) illustrate:

(58) ataf y.aʒʒm xdnnit
Fut 3s.m.open.Impr by then

'He will be opening by then'

(59) ataf t.snn.x xdnnit
Fut Impr.know.1s by then

'I will be aware by then'

Contrary to the observation reported by El Hankari (2010), the particle *ataf* is not exclusively associated with the imperfective aspect. At times, this particle inherits the semantic features conveyed by other elements within the sentence:

(60) ataf y.azm ruxnni
Fut 3s.m.open.Prf by then

'He will have opened at that time'

In this final example with *ataf* from Tarifit spoken in the Al-Hoceima region, the particle is used to convey a future perfect-like meaning, analogous to its English counterpart in (61).

(61) I will have signed all these papers by midnight.

Following the same rationale applied to other particles, *ataf* can be identified as a tense particle. Its status as a non-auxiliary is evident since it does not inflect for agreement morphology. Additionally, *ataf* appears in both perfective and imperfective contexts, indicating that it is not an aspectual marker. Consider example (62):

(62) ? ad af.x tt.ət a.ʁrum
Fut .find.1s Impr.3s.f.eat FS.bread

'I will find her eating the bread'

Diachronically, it is assumed that *ataf* has grammaticalized from the form in (62): [*ad* + *af*]. The verb *af* ('to find') is typically inflected for agreement. However, at some stage, the particle *ad* and the verb *af* fused into a single morpheme, resulting in *ataf* as an independent future tense particle. This process can be understood as the verb *af*, originally a lexical verb (V), merging rigidly with the T head to become a grammaticalized tense particle.

To conclude this subsection, the particle *ataf* is unable to host clitics:

(63) * ataf-ayi t.azr.x ig uma

Fut-Cl Impr.run.1s with my brother

* dja-anx n.t.xs ayawya

Fut-Cl 3p.Impr.love each other

Unlike the present particle *aqa*, *dja* and *ataf* are shown to be unable to attract and host clitics. Consequently, only *aqa* has fully grammaticalized as a functional tense particle, while others are still in the process of grammaticalization.

5. CONCLUSION

This paper has examined the grammaticalization of three lexical categories in the Tarifit dialect of Temsamane: (a) *aqa*, originating from a locative particle; (b) *dja*, derived from the copulative auxiliary *ili* 'to be' (pronounced *iri* in TT) as conjugated in the past; and (c) the lexical verb *af* 'to find', which has coalesced with the future particle *ad* 'will'. It was shown that progressivity served as the primary factor driving their grammaticalization. Consequently, perfect-like forms emerged with *dja* and *ataf*, but not with *aqa*. Furthermore, the analysis demonstrated that *aqa* has fully grammaticalized into a functional temporal particle, as evidenced by its ability to host clitics. In contrast, *dja* and *ataf* remain in the process of grammaticalization, as reflected in their inability to attract clitics.

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