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PART II

Syntax, semantics, and pragmatics

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THE SYNTAX OF TENSE
IN ARABIC*Hamid Ouali***1 Introduction**

Many languages have grammaticalized means to convey temporal information about when actions and events occur or when states and processes hold. This temporal information is conveyed through *tense*. Arabic has been an interesting case where the verb ambiguously expresses *tense* and *aspectual* information. This raised some debate among modern linguists on whether the verb morphology marks tense or whether it only marks aspect, whereas tense is denoted through syntactic and pragmatic means. This chapter aims to tackle these questions and discuss the properties of tense in Arabic. I will first focus on the past and present tenses and discuss what morphological and syntactic factors contribute to their different temporal interpretations. Besides simple tense, Arabic also allows for different complex tense interpretations by employing a fully inflected copula combined with a fully inflected main verb. These constructions are of utmost interest to syntacticians since they raise questions about the type of clause structure required to derive clauses with these complex tenses.

This chapter is organized as follows. Section 2 puts the debate about tense in Arabic in its historical context and discusses whether verb morphology plays any role in marking tense. I will review various arguments from the literature showing that both the perfective verb, which is usually associated with past tense, and the imperfective, usually associated with present tense, are actually not limited to past and present tense contexts respectively. This led various scholars to conclude that verb morphology does not mark tense and that syntactic and pragmatic factors are crucial for the different tense interpretations. Section 3 focuses on simple tense and presents an analysis, within the Generative tradition, that tries to reconcile the lack of temporal morphology on the verb with the availability of semantic temporal interpretation. Section 4 shift gears to complex tense, discusses its properties, and provides an analysis that offers a possible explanation for the structure of the different compound tense clauses and their different tense interpretation.

2 Historical background and perspectives

One of the most popular definitions of the verb in the Arabic grammar tradition is: *ʔal-fiʔl kalimah tadullu ʕalaa ʕadaθ muqtaran bi zaman* ‘the verb is a word that indicates an event associated with a time’. Traditional grammarians have considered tense to be an inherent and integral part of the

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verb. They distinguished three verb forms namely: *fiʕl maḍi* ‘past verb’ and *fiʕl muḍariʕ* ‘resembling verb’, and *fiʕl ʔamr* ‘imperative verb’. In the Western descriptions of Arabic grammar, the perfective and the imperfective are used to describe the *fiʕl maḍi* ‘past verb’ and *fiʕl muḍariʕ* ‘resembling verb’ respectively. There was a long debate in the 20th century about whether Arabic is mainly an aspectual language, where the perfective and imperfective verb forms denote complete and incomplete aspect respectively (Jelinek 1981; Mughazy 2005; Wright 1981), or a tense language, where the perfective/imperfective express past/non-past distinction (Fassi-Fehri 1993; Eisele 1990, Benmamoun 2000 among others). There seems to be a consensus in recent literature that even though the verb morphology does not seem to mark tense; Arabic is still a tense language. There are numerous arguments for the claim that present tense and past tense are not morphologically marked (Aoun, Benmamoun, and Choueiri 2010; Benmamoun 2000). The difference between these two tenses is syntactic and, within the generative syntactic theory, this difference is explained by appealing to the clause structure and the derivation of past and present tense clauses. Past tense clauses involve overt verb raising to T(ense) (Benmamoun 2000, Soltan 2007), as will be detailed in section 3, whereas present tense clauses do not.

In both Standard Arabic (SA) and the Arabic dialects, the simple past tense is expressed by using the perfective form of the verb, the present tense (continuous or habitual) by using the imperfective form, and the future tense by using the imperfective form combined with a future marker. This is illustrated by examples from SA and Moroccan Arabic (MoA) in (1)–(6):

- | | | | | |
|-----|--|---|--|----------------------------------|
| (1) | <i>katab-a</i>
write.perf.-3.s. | <i>ʕalj-un</i>
ali-Nom | <i>r-risaalat-a</i>
the-letter-acc. | (SA) |
| | ‘Ali wrote the letter.’ | | | |
| (2) | <i>ʕalj</i>
ali | <i>ktāb</i>
write.perf. | <i>r-risaala</i>
the-letter | (MoA) |
| | ‘Ali wrote the letter.’ | | | |
| (3) | <i>ja-ktub-u</i>
3m-write.imp.-ind. | <i>ʕalj-un</i>
ali-Nom | <i>r-risaalat-a</i>
the-letter-acc. | (SA) |
| | ‘Ali is writing the letter.’ | | | |
| (4) | <i>ʕalj</i>
ali | <i>ka-j-ktāb</i>
asp.-3.m.-write.perf. | <i>r-risaala</i>
the-letter.acc. | (MoA) |
| | ‘Ali is writing the letter.’ | | | |
| (5) | <i>sa</i>
fut. | <i>ja-ktub-u</i>
3.m.-write.imp.-ind. | <i>ʕalj-un</i>
ali-nom. | <i>r-risaalata</i>
the-letter |
| | ‘Ali will write the letter’ | | | |
| (6) | <i>ʕalj</i>
ali | <i>ya-j-ktāb</i>
fut.-3.m.-write.perf. | <i>r-risaala</i>
the-letter | (MoA) |
| | ‘Ali will write the letter.’ | | | |



In these examples, the verb forms in both SA and MoA are derived from the tri-consonantal root *k-t-b*. The SA perfective form in (1) is derived from the vocalic pattern *CaCaC* and carries a suffix marking subject-verb agreement (in Person, Number, and Gender), whereas the imperfective form in (3) and (5) is derived from the vocalic pattern *CCuC* and carries a prefix marking agreement and a suffix marking Mood. In MoA, both the perfective and the imperfective verb stem, in this case, has a *CCəC* and carries a prefix marking agreement. In both varieties of Arabic, the verbs in all these examples above are associated with aspectual and temporal interpretations. The aspectual interpretation relates to the event completion. The interpretation in (1) and (2) is that the event of *writing* has been completed prior to the Speech Time (ST), whereas in (5) the event has not been completed; it is still in progress at ST in (3) and (4) and it will be in progress after ST in (5) and (6). There is no ambiguity in the aspectual interpretation of these two aspectual forms of eventive verbs, and there is no disagreement among scholars about this fact. The situation is of course different with stative verbs. The perfective form usually has the reading of beginning of a change in state. The disagreement among scholars has been about the contribution of the perfective and imperfective verb forms to the temporal interpretations. Some scholars attribute the tense interpretation of the sentence to the verb perfective/imperfective verbal morphology distinction. Others attribute the tense interpretation to syntactic factors related to the clause structure of Arabic.

2.1 Past tense

As pointed out previously, the perfective verb form, as in (7), has a *CaCaC* vocalic melody and carries an agreement suffix.

- (7) *ḥaḍara* *zajd-un* (SA)
 come.perf.-3.s. zayd-nom.
 ‘Zayd arrived.’

One could easily conclude that both the agreement affix and the vocalic melody are the realization of past. That would however be the wrong conclusion. Let us first focus on the agreement morphology. There are contexts where: (a) the suffixed agreement morphology is used but the tense denoted is not past, or (b) where the suffixed agreement morphology is not used but the tense denoted is past. An example of scenario (a) is (8) where the perfective form with its suffix expresses present perfect:

- (8) *ḥaḍara* *zajd-un* *l-ʔaan-a* (SA)
 come.perf.3.s. zayd-nom. Now
 ‘Zayd has arrived now.’

A second related example is the inflected negative *laysa* (Benmamoun 2000), which carries an agreement suffix, akin to perfective verbs, yet it is only used to negate verbless sentences in the present tense. This is illustrated in (9):

- (9) *hind* *lajs-at* *fi l-bajt*
 Hind neg-3.sg.f. in the-house
 ‘Hind is not in the house.’



The verb *maazaala* is a third example of a lexical item that can carry an agreement suffix and still only be used in sentences with a present tense reading:

- (10) *maa zaal-at hind fi l-bajt*
 still-3.sg.f. Hind in the-house
 ‘Hind is still in the house.’

A fourth example is the “physical state verbs” (Fassi Fehri 2004) as illustrated in (11):

- (11) *žuṣ-tu*
 hunger.perf.-1.s.
 ‘I am hungry.’

Examples of scenario (b), where the perfective form with a suffixed agreement is not used but the past tense reading is expressed, come from negative sentences such as (12):

- (12) *lam ja-drus*
 neg.pst. 3.sg.m.-study
 ‘He didn’t study.’

The morphology that expresses tense here is the affix – *m* on the negative marker.

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Eliminating Agreement as the element expressing past tense leaves the vocalic melody as a potential candidate. If we consider the verb *katab* ‘wrote’ in (1) repeated in (13), we see that it is derived by mapping the consonantal root *k-t-b* onto the template *CaCaC*. As pointed out by Benmamoun (2000), if the vocalic melody *-a-a-* was the element that carried past tense, one would expect it to be used regardless of whether the verb is in the active or the passive voice, but that is not the case. The vocalic melody used for passive forms is *-u-i-* as in *kutib* ‘was written’ as illustrated in (14). The vocalic melody then cannot be what carries past tense.

- (13) *katab-a ṣalj-un r-risaalat-a* (SA)
 write.perf.3.sg. ali-nom. the-letter-acc.
 ‘Ali wrote the letter.’

- (14) *kutib-at r-risaalat-u* (SA)
 write.pst.perf.-3.sg.f. the-letter-nom.
 ‘The letter was written.’

Benmamoun (2000) also notes that in dialects such as MoA, the vocalic melody is neutralized and the same verb stem, *kətb*, is used in active and passive voice sentences as in (15) and (16) respectively:

- (15) *faatima kətb-at r-risaala*
 Fatima write.perf.-3.sg.f. the-letter
 ‘Fatima wrote the letter.’

- (16) *r-risaala t-kətb-at*
 the-letter pst.-write.perf.-3.sg.f.
 ‘The letter was written.’

This leads to the conclusion that past in Arabic is not morphologically marked, neither by the vocalic melody nor by the suffixed agreement (Benmamoun 2000). The question arises: how is past tense realized? Benmamoun argues that past is a null morpheme. The notion of null morpheme has been very crucial and instrumental in Generative Grammar in explaining how some elements may be syntactically and semantically active but may not have phonological content. In this case past is a null morpheme on T that requires to be supported either by verb movement to T in simple declarative sentences such as (13), or by negation in negative sentences such as (12), or by the copula *kana* in verbless sentences such as (17), (18), and (19):

- (17) *kaan-at* *faatima* *mumarrid-a*
 be.perf.-3.sg.f. Fatima nurse-f.
 ‘Fatima was a nurse.’
- (18) *kaan-at* *faatima* *mariid-a*
 be.perf.-3.sg.f. Fatima sick-f.
 ‘Fatima was sick.’
- (19) *kaan-at* *faatima* *fi* *l-žaamiŕ-a*
 be.perf.-3.sg.f. Fatima in the-university-f.
 ‘Fatima was at the University.’

How about present tense? The next section deals with this question.

2.2 Present tense

Similar to the perfective form, the imperfective form is also found in a variety of contexts, not all of which are in the present tense (Benmamoun 2000). The first context is simple declarative clauses with a present tense (habitual or progressive) reading:

- (20) *ja-drus* *zajd* *fi* *l-maktaba*
 3.sg.m.-study Zayd in the-library
 ‘Zayd is studying/studies in the library.’

The imperfective verb is also found in sentences with future tense (21), in negative sentences (22) with past, future, and present tenses, in sentences with the modal *qad* (23) with a future tense reading, in embedded non-finite sentences (24), in sentences with aspectual verbs like *dalla* ‘kept’ (25) and in negative imperatives (26).

- (21) *sa-ja-drus* *zajd* *fi* *l-maktaba*
 fut.-3.sg.m.-study Zayd in the-library
 ‘Zayd will study the library.’
- (22) *lam* / *lan* / *laa* *ja-drus*
 neg.pst. / neg.fut. / neg.prs. 3.sg.m.-study
 ‘He didn’t/ won’t/ doesn’t study.’

- (23) *qad* *ja-drus* *fi* *l-maktaba*
 may 3.sg.m.-study in the-library
 ‘He may study in the library.’
- (24) *ʔaraad* *zajd* *ʔan* *ja-drus* *Fi l-maktaba*
 want.perf. Zayd comp. 3.sg.m.-study.imp. in the-library
 ‘Zayd wanted study the library.’
- (25) *ḍalla* *zajd* *ja-drus* *fi* *l-maktaba*
 keep-3.sg.m. Zayd 3.sg.m.-study in the-library
 ‘Zayd kept studying in the library.’
- (26) *laa* *ta-drus* *fi* *l-maktaba*
 neg. 2.sg.-study in the-library
 ‘Do not study in the library.’

As pointed out by different scholars, the fact that the imperfective occurs in all these different contexts is a clear indication that the imperfective morphology does not carry any temporal information.

To summarize, neither past tense nor present tense are morphologically marked on the verb neither by the vocalic melody nor by the affixed agreement. The perfective and the imperfective verbs are found in various tense contexts. Any analysis of tense in Arabic will have to explain the difference between past and present tense clauses in the absence of any overt tense morphology on the verb and with the lack of any restriction on the occurrence of the perfective and the imperfective verbs exclusively in past or present tense contexts respectively. The next section will detail a possible syntactic analysis that deals with these two major issues.

3 Syntactic structure and simple tense

As pointed out in section 2, it has been established in the literature that perfective and imperfective forms in Arabic are aspectual and they semantically indicate bounded/complete events and unbounded/incomplete events respectively. This morphological and semantic property is the main motivation for proposing an aspectual projection (Aspect Phrase) in the clause structure of Arabic (Benmamoun 2000 and Soltan 2007 among others). If tense is not morphologically marked, is it active semantically and does it project in the clause structure? The answer is positive as was implied in the previous section. One piece of evidence for the semantic availability of tense is verbless clauses such as (27), (28), and (29) where the only possible tense interpretation is present:

- (27) *faatima* *mumarriid-a*
 Fatima nurse-f.
 ‘Fatima is a nurse.’
- (28) *faatima* *mariid-a*
 Fatima sick-f.
 ‘Fatima is sick.’

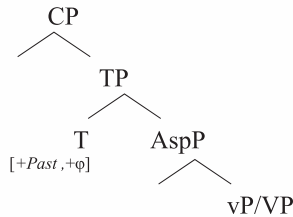
- (29) *faatima fi l-zaamiſ-a*
 Fatima in the-university-f.

‘Fatima is at the University.’

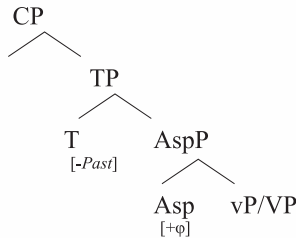
This motivates the projection of tense (Tense Phrase) in the clause structure. If present and past are not marked morphologically (i.e. morphologically null), what is it that sets past and present sentences apart? One possible syntactic analysis attributes the difference between these two tenses to the properties of the head that bears Tense in the clause structure, namely T (Benmamoun 2000 and Aoun, Benmamoun, and Choueiri 2010). In the clause structure of past tense sentences, T bears [+past] and attracts verbal elements such as the verb, the auxiliary, and negation. This results in syntactic verb movement in simple declarative sentences, tensed negation in negative sentences, and merging the copula *kana* in verbless clauses. In the clause structure of present tense sentences, T bears [-past]. In this case, it does not attract the verb, it does not attract negation (only the tenseless negation *laa* is allowed), and it does not require the copula *kana* in verbless sentences. AuQ5

Tense as a formal feature projects syntactically and there is almost a consensus that the clause structure of simple sentences involves one Tense projection (Benmamoun 2000; Fassi Fehri 2004; Soltan 2007 among many others). T can either be [+past] or [-past]. On one hand, T_[+past] must host or be hosted by verbal elements such as verbs, negation, and the copula *kana* in verbless clauses. T_[-past] on the other hand does not. What triggers movement to T_[+past] is that it has Agreement features, namely Person, Number, and Gender (also referred to as φ-features) (see Soltan 2007 and 2011). T_[-past] does not bear φ-features but the Aspect head does. For Benmamoun (2000) and Aoun, Benmamoun, and Choueiri (2010), T_[+past] is specified for [+D] and [+V] features, whereas T_[-past] is specified for [+D] only. All things being equal, we will assume (following Soltan 2007) that the difference between T_[+past] and T_[-past] is in the absence versus the presence of φ-features, as opposed to the kind of categorical features they are specified for. This is schematized in (30).

- (30) a. Past



- b. Present



To derive sentences such as (31), the verb moves to T, as shown in (32), to check the Agreement features which are realized morphologically as a suffix.

- (31) *katab-a* *ʕalj-un* *r-risaalat-a* (SA)
 write.perf.-3.sg.m. ali-nom. the-letter-acc.
 ‘Ali wrote the letter.’

- (32) [_{TP} T_[+past, +φ] *kataba*_i [_{AspP} Asp t_i [_{v_p} *ʕalj-un* t_i *r-risaalata*]]

For sentences such as (33), the verb does not move to T. The verb only moves to Asp which is the head specified for φ-features (Soltan 2007, 2011). This is shown in (34).

- (33) *ja-ktub-u* *ʕalj-un* *r-risaalat-a* (SA)
 3.sg.-write.imp.-ind. ali-nom. the-letter-acc.
 ‘Ali is writing the letter.’

- (34) [_{TP} T_[-past] [_{AspP} Asp_[+φ] *ja-ktub-u*_i [_{v_p} *ʕalj-un* t_i *r-risaalata*]]]

This analysis is supported by sentences with past progressive such as (35) from Egyptian Arabic (EA) where the auxiliary is in the perfective form and is associated with past. The main verb marks only the progressive Aspect and is in the imperfective form.

- (35) *ʔil-wilaad* *kaan-uu* *bi-jilʕab-uu* *fii* *ʔil-ginejnah* (EA)
 the-boys be-3.pl.m. asp.-play-3.pl.m. in the-garden
 ‘The boys were playing in the garden.’

- (36) [_{TP} T_[+Past] [_{AuxP} Aux [_{AspP} Asp [_{VP} V ...]]]]] (Adapted from Soltan 2011: 246)

As illustrated in the derivation in (36), there is only one T head to which the copula/Auxiliary *kaana* moves. The main verb is in the imperfective form, which here denotes progressive aspect but does not mark tense. A similar example is the case of aspectual verbs like *dalla* ‘kept’ (marking durative aspect) and *qaama* ‘stood’ (marking inceptive aspect), which when combined with a main verb in past tense sentences, only the aspectual verb can be in Perfective form with suffixed agreement (Ouali and Al-Bukhari 2016). The main verb must be in the imperfective form and must be inflected for agreement. According to Ouali and Al-Bukhari, the main verb in such contexts only moves to Asp, a head specified for Agreement as well, whereas the aspectual verbs move to T.

- (37) *dalla* *Zajd ja-drus* *fii* *l-maktaba*
 keep-3.sg.m. Zayd 3.sg.m.-study in the-library
 ‘Zayd kept studying in the library.’

- (38) *qaama* *ja-xʔubu* *fii* *l-qawm-i*
 stood.perf.3.sg.m. 3.sg.m.-speak.imp. in the-people
 ‘He started giving a speech to the people.’

- (44) *kaan-a* *l-walad-u* *j-aktub-u* *r-risaalat-a* (SA)
 be.perf.-3.sg. the-boy-nom. 3.sg.-write.imp.ind. the-letter-acc.
 ‘The boy was writing the letter.’
- (45) *kan* *l-wəld* *ka-j-ktəb* *r-risaala* (MoA)
 be.perf.-3.sg. the-boy-boy asp.-3.sg.m.-write.imp. the-letter
 ‘The boy was writing the letter.’

Future in the past is denoted by the perfective form of *kana* and a main verb in the imperfective form combined with the future marker, as illustrated by the MoA example in (46):

- (46) *kaan-u* *ya* *j-akl-u*
 be.perf.-3.pl. fut. 3-play.imp-pl.
 ‘They were going to eat.’

These facts have been described and discussed extensively in the literature. Eisele (1990), Haak (2006), Ouali and Fortin (2007), and Ouali (2014) provide a full paradigm of this verbal complex. The paradigm in Table 5.1 is adapted from these various aforementioned sources.

Table 5.1 Complex tense paradigm

Form of <i>kan</i>	Form of main verb	Examples: EA and MoA	Translation
Perfective	Perfective	kaan katab (EA) kaan ktəb (MoA)	‘he had written’ Past Perfect
	Imperfective	kaan bi-ji-ktib (EA) kaan ta-j-ktəb (MoA)	‘he was writing/used to write’ Past progressive/ Past temporary habitual
	Fut + imperfective	kaan ha-jiktib (EA) kaan ya-j-ktəb (MoA)	‘he was going to write’ retrogressive future
imperfective	Perfective	bi-j-kuun katab (EA) ta-j-kuun ktəb (MoA)	‘he usually has written’ Present Perfect
	Imperfective	bi-j-kuun bi-ji-ktib (EA) ta-j-kuun ta-j-ktəb (MoA)	‘he usually is writing’ habitual
	fut + imperfective	bi-j-kuun ha-jiktib (EA) ta-j-kuun ya-j-ktəb (MoA)	‘he usually is about to write’ future habitual
fut + imperfective	Perfective	ha -j-kuun katab (EA) ya -j-kuun ktəb (MoA)	‘he will have written’ Future Perfect
	Imperfective	ha-j-kuun bi-ji-ktib (EA) ya -j-kuun ta-j-ktəb (MoA)	‘he will be writing/ in the habit of writing’ Future continuous/ habitual
	fut + imperfective	_____ (EA) ya -j-kuun ya-j-ktəb (MoA)	‘he will be about to write’ Future in the future



In analyzing this type of construction a number of scholars were inspired by Reichenbach's (1947) classical view of tense as 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). Eisele (1990) provides a detailed semantic analysis of how these time intervals are lexicalized and represented in Cairene Arabic. Consider this example, adapted from Eisele (1990, p. 183):

- (47) *h-aktib* *bukra*
 fut.-write Tomorrow
 'I will write tomorrow'

The R is future and E is also future, and S precedes both R and E, which Eisele (1990) schematizes as follows:

- (48) $S < R [..E..] R$

The R to S relation expresses a deictic time reference and is morphologically realized through the verbal tense. The E to R relation expresses a non-deictic time reference and in simple tense E and R are cotemporaneous. Deictic time reference is also expressed through non-grammatical means, namely through time adverbials, in this case *bukra* 'tomorrow'. The deictic time reference expressed by the verbal tense must agree with the deictic time reference contained on the time adverbial *bukra*, otherwise that would yield an ungrammatical sentence as in (49):

- (49) * *h-aktib* *imbaarih*
 fut.-write yesterday
 'I will write tomorrow' (adapted from Eisele 1990: 183)

Note that in simple tenses (namely: simple past, simple present, and simple future) E and R are cotemporaneous; in other words E time is the same as R time. The difference is in the relation R, S, which is a precedence relation. In simple present R equals S, in simple past R precedes S, and in simple future S precedes R, as follows.

- (50) Simple present: $S = E = R$
 Simple past: $S > E = R$
 Simple future: $S < E = R$

E and R are unordered in all simple tenses, and only S, in past and future, is ordered in relation to R, E. This fact is grammaticalized and lexicalized as a single T in the syntactic structure of clauses in simple tense.

In sentences with compound tense, such as future perfect, as in the example (51) from MoA, the auxiliary is marked for future tense and the main verb is in the perfective form, which is usually associated with past tense.

- (51) *ya-j-kun* *ʕali* *xrəž* *mnin* *t-wsəl* (MoA)
 fut.-3.sg.m.-be.imp. ali leave.perf.3.sg. when 3.sg.f.-arrive.imp.
Fatime *yadda*
 Fatima tomorrow
 'Ali will have already left when Fatima arrives tomorrow'



According to Eisele (1990) the time intervals in sentences with future perfect such as (51) are ordered as follows:

(52) $R > S$ and $E < R$

The relation R to S is a deictic time reference that is morphologically realized by future morphology and agrees and matches the deictic time reference contained in the adjunct clause. The E to R also expresses a time reference, but a non-deictic one, which some researchers refer to as Relative Tense. 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 $T2$. Giorgi and Pianesi provide crosslinguistic evidence of different morphological realizations of $T1$ and $T2$ and their different morphosyntactic behaviours.

In Arabic, both the deictic tense and non-deictic tense are morphologically realized in sentences with complex or compound tenses, hence the rich paradigm in Table 5.1. The following are five examples from MoA of compound tenses with clear S, R and E, R orderings.

(53) a. Future perfect: $R > S$ and $E < R$

<i>ya-j-kuun</i>	<i>ʕali</i>	<i>xrəž</i>	<i>mnin</i>	<i>t-wsəl</i>
fut.-3.sg.m.-be.imp.	ali	leave.perf.3.sg.	when	3.sg.f.-arrive.imp.

<i>Fatima</i>	<i>ɣədda</i>
Fatima	tomorrow

‘Ali will have already left when Fatima arrives tomorrow.’

(54) b. Past perfect: $R < S$ and $E < R$

<i>Kaan</i>	<i>ʕali</i>	<i>xrəž</i>	<i>mniin</i>	<i>wəsl-at</i>	<i>Fatima</i>	<i>lbaarh</i>
be.imp.	ali	leave.perf.3.sg.	when	arrive.perf.	Fatima	yesterday

‘Ali had already left when Fatima arrived yesterday.’

(55) c. Retrogressive future: $R < S$ and $E > R$

<i>kaan</i>	<i>ʕali</i>	<i>ya-j-xrəž</i>	<i>mnin</i>	<i>wəsl-at</i>	<i>Fatima</i>	<i>lbaarh</i>
be.imp.	ali	fut.-3.sg.m.- leave.imp.	when	arrive.perf.	Fatima	yesterday

‘Ali was going to leave when Fatima arrived yesterday.’

(56) d. Future in the future: $R > S$ and $E > R$

<i>ya-j-kuun</i>	<i>ʕali ya-j-xrəž</i>	<i>mnin</i>	<i>tə-wsəl</i>
fut.-3.sg.m.-be.imp.	ali fut.-3.sg.m.-leave.imp.	when	3.sg.f.-arrive.imp.

<i>Fatima</i>	<i>ɣədda</i>
Fatima	tomorrow

‘Ali was going to leave when Fatima arrived yesterday.’

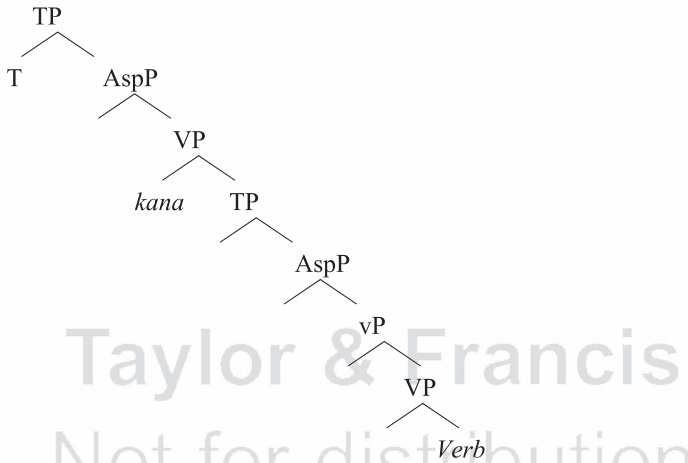
(57) e. Past continuous: R < S and E = R

<i>Kaan</i>	<i>ʕali</i>	<i>Diima</i>	<i>ta-jə-kmi</i>		<i>lʕam</i>	<i>lfajt</i>
be.perf	ali	always	asp.-3.sg.m.-smoke.imp.		the-year	the-previous

‘Ali used to always smoke last year.’

These facts are attested in most Arabic dialects, if not all and raise a question about the structure of complex tense clauses. Ouali and Fortin (2007 and Ouali (2014), following Giorgi and Pianesi (1997), have argued that these complex tense sentences are biclausal with two Tense projections in the structure as shown in (58), a position I take here as well (see also Fassi Fehri 2004).

(58)



Having two T projections explains the complex tense paradigm in Arabic where the auxiliary can be marked for past, present, or future and combine with a main verb associated with any of these tenses. The multiple agreement facts also follow from the assumption that both the lower T and the higher T enter into an agreement relation with the subject. One piece of evidence for the structure in (58) is the possibility of having two negative markers in the same clause as in (59) from SA, as follows.

(59)	lan	ta-kuun	Fatima	lam	ta-nʕaħ (SA)
	neg.-fut.	2.sg.f.-be.imp.	Fatima	neg.pst.	2.sg.f.-pass.imp.
	fi	l-ʔimatihan			
	in	the-exam			

‘It won’t be the case that Fatima didn’t pass the exam.’

Another piece of evidence, comes from sentences with temporal modification using when-clauses and temporal adverbs as in (60):

(60)	ʕindama	wasaltu	ʔamsi	kaanat	Fatima
	when	arrive.perf.2.sg.	yesterday	be.perf.	Fatima
	qad	yaadarat	qabla	jawmajn (SA)	
	part	leave.perf.-3.sg.f.	before	day-d.	

‘When I arrived yesterday Fatima had already left two days before.’

In (60) the when-clause modifies the reference time R and locates it prior to S and the before-phrase modifies the event time E and locates it prior to the reference time R, hence the past in the past interpretation (or Past Perfect). A biclausal structure accounts for this fact. The when-clause modifies the matrix T associated with Absolute tense, which is past, and the before-phrase modifies the lower T associated with Relative tense which is past in relation to past.

5 Conclusion and future directions

Despite the long and contentious debate about whether Arabic verb forms mark tense, aspect, or both, the discussion seems to converge towards a consensus that the two main verb forms in Arabic do not mark tense, but aspect only, however tense is still available and the tense interpretations are deduced from the syntactic structure. The analysis presented here distinguishes between present, past, and future in terms of the type of features that T, lexicalizing each of these tenses, bears. Present tense T bears [-Past] only and syntactically does not host any lexical item either by direct merge or by movement. Past tense T bears [+Past] and ϕ -features and must be filled by a verbal element, a requirement that could be satisfied by verb movement, negation, and the copula *kana* in verbless clauses. Future tense T is specified for [+Fut] and is realized either as the modal *sawfa* or its clitic form *sa-*. Structurally, simple tense clauses involve one TP. Complex tense clauses however involve two TP projections. The copula *kaana* is used with a main verb to derive sentences with compound tense readings. Using a Reichenbachian model, following Eisele (1990), compound tenses are shown to involve ordering Speech time S with regard to Reference time R and R with regard to Event time E. These different orderings yield different readings. Following Giorgi and Pianesi (1997), I argued that the S,R and R,E relations are lexicalized in Arabic and are instantiated as two Tense projections. This led to the hypothesis, following Ouali and Fortin (2007) and Ouali (2014), that sentences with complex tense are structurally biclausal involving two TP projections: the matrix T denotes Absolute Tense and the embedded T denotes Relative Tense. Having two Ts explains the complex Tense paradigm in Arabic where the auxiliary is associated with past, present, or future and combines with a main verb associated with any of these tenses. Evidence for the biclausal structure of complex tense clauses comes from the possibility of two negative markers in the clause when preceding the copula and one the main verb, and from the temporal modification where two separate temporal modifiers can be used in the clause: the first modifies the reference time and the second modified the event time. The biclausal analysis is not required to account for all cases with a copula and a main verb. The past continuous or progressive that requires the perfective copula and the imperfective main verb, for example, is such a case. It does not involve compound tense and is therefore not derived by using a biclausal structure.

Tense is intertwined with aspect. Aspect situates an event relative to a temporal frame, and identifies the beginning and endpoints of the event in relation to the temporal frame. What was not dealt with in this chapter is how aspect interacts with tense in Arabic. More research on the different aspectual readings that both the perfective and imperfective verb form allow in different contexts and on how aspect interacts with tense in Arabic is desperately needed.

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Further reading

- Benmamoun, E. 2000 *The feature structure of functional categories: a comparative study of Arabic dialects*. New York: Oxford University Press.
- This is an important reference for anyone interested in Arabic syntax in general and the properties of tense and other grammatical issues in Arabic dialects in particular.
- Eisele, J. 1990. Time reference, tense and formal aspect in Cairene Arabic. In: E. Mushira, ed. *Perspectives on Arabic linguistics I*. Amsterdam: John Benjamins Publishing Company.
- This work provides a detailed description of the temporal and aspectual properties of the verb forms in Egyptian Arabic but could also be extended to other Arabic varieties.
- Giorgi, A. and Pianesi, F., 1997, *Tense and aspect: from semantics to morphosyntax*. Oxford: Oxford University Press.
- This work offers a rich crosslinguistic description of morphosyntax and semantics of tense, aspect, and complex tense.