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Rethinking templates: A syntactic analysis of verbal morphology in Emirati Arabic

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This paper presents an analysis of the morphosyntax and lexical semantics of the system of verbal forms of Emirati Arabic (EA, the variety of Gulf Arabic spoken in the United Arab Emirates) in terms of syntactic decomposition of argument structure. We argue that verbal meaning is a function of at least two syntactic functional heads: Voice and little v; and a lexical head: the consonantal root. We will further show that the unified syntactic structure, resulting from the interaction of the semantics and argument structure of the root with little v and Voice, captures the regularities as well as the exceptions in the interpretation of the verb forms of EA.

Keywords: Templates; Arabic; Semitic; morphosyntax; verbs

1 Introduction

While the morphophonology of Arabic verbs has received much attention in the literature, following McCarthy's (1979) seminal work on Arabic nonconcatenative word structure, very few studies have dealt with the morphosyntax and semantics of Arabic verbs (more relevant work has been done on Hebrew, see for example Borer 1995; Doron 2003; Kastner 2016; 2018). In addition, most of previous research has focused on the classical or formal variety of Arabic (e.g. Wright 1896; Ryding 2005; Fassi-Fehri 2003), generally referred to as Classical Arabic (CA) or Modern Standard Arabic (MSA). The syntax and semantics of the verbal systems of colloquial spoken dialects remain highly understudied.

In this paper, we set out to investigate the complex verbal system of EA. We present an analysis that captures the regularities in the interpretation of the nine verb forms of this variety of Arabic, while at the same time allowing for exceptions to these regularities. We also provide brief comparisons of the verbal system of EA and the better investigated verbal system of MSA (cf. McCarthy 1979; 1981; Fassi-Fehri 2003; Tucker 2010). This theory is also briefly evaluated against the main claims in Doron's (2003) account of Hebrew verbal templates.

Our basic assumption is that there is no separate morphological component of structure-building mechanisms and that complex verbal forms are derived in syntax through the same mechanisms that derive syntactic phrases. This assumption is more or less held by numerous syntax-based frameworks, including Distributed Morphology (DM) (Halle & Marantz 1993; Marantz 1997 & related work), Antisymmetry (Kayne 1994; Koopman & Szabolcsi 2000) and more recently Nanosyntax (Starke 2009).

The analysis defended in this paper is couched within the theory of Distributed Morphology (DM) (Halle & Marantz 1993; Marantz 1997 and related work). In line with DM, we take it that the different EA verbal forms are derived in the syntax, not in a separate lexical component of the grammar. We then suggest a unified syntactic structure for

all EA verbs, which includes several functional heads within the extended projection of the verb, which have independently been proposed in the syntactic literature. The proposed hierarchy of verbal functional projections includes minimally *Voice* (as in Doron 2003) and little *v* (cf. Hale and Kayser 1993; Kratzer 1994), and a lexical head: the consonantal root. Each of the three heads projects its own phrase structure: VoiceP, vP, and RootP, respectively. We argue that the different interpretations of EA verbal templates emerge from the interaction of the semantics and argument structure of the root with little *v* and *Voice*, and features related to argument structure such as applicative/associative (McGinnis 2001; Pylkkänen 2008) and causative (Key 2013; Harley 2017).

We show that, following basic assumptions about the nature of the proposed verbal functional heads and the properties of the proposed syntactic structures, we can straightforwardly account for the morphosyntactic distribution and semantic content of the verbal templates attested in Emirati Arabic and possibly in other Arabic dialects, including MSA.

Any idiosyncratic properties of the derived verbal forms (e.g. productivity, semantic opacity and so on) are attributed to properties of syntactic rules which operate in the lower syntactic domain where these heads reside. This is what Hale and Keyser (1996) and Travis (2000; 2010) have termed l-syntax, the domain of syntactic structure where syntactic rules operate but which is subject to lexical idiosyncratic properties. We do not make any claims about where the boundary of l-syntax may be. Travis (2000; 2010) assumes that it is a higher aspectual head which binds the event variable of the verb and which she terms EventP. In other accounts, the level of idiomaticity is contained within VoiceP (e.g. the earlier approach in Marantz 1997; see also Anagnostopoulou & Samioti 2013). In all these approaches the domain that we discuss here, containing vP and VoiceP, is within this l-syntax domain and is thus expected to be subject to idiosyncratic properties.

The paper is structured as follows. Section 2 provides a discussion of our basic theoretical assumptions, while Section 3 lists the forms to be discussed and provides a brief discussion of how these forms have been analyzed in the related literature. Section 4 discusses the default Form I which has the most basic morphology and semantics. Section 5 discusses Forms II, III, and IX, whose morphosyntactic structure and semantic interpretation is based on formal features on the v head and its different *flavors*. We show that causative, inchoative, and applicative/associative interpretations arise from interactions between the structure and these formal features. In section 6, we analyze the verbs involving the spell out of the features hosted by *Voice*: Forms V, VI, VII and VIII, as well as the rather marginal, less productive, Form X. In Section 7, we lay out a few observations on the distribution of roots and templates across the whole verbal paradigm. Finally, comparative discussions of Kastner's (2018) and Doron's (2003) accounts are provided in Section 8.

2 Theoretical assumptions

Since work in Larson (1988), the verbal domain has been decomposed into smaller domains where different verbal arguments project and verbal properties such as valency and event and aspect structure are fixed. The higher VP-shell in Larson (1988) was later replaced by the little v head (e.g. Chomsky 1995), following ideas in Hale & Keyser (1993). Kratzer (1996) terms the projection VoiceP where Voice/v is the head hosting in its specifier the external argument of the verb, combining this argument with the verb's event structure, and assigning accusative case to the object, thus encompassing Burzio's generalization. In subsequent accounts both vP and VoiceP have been used to designate the projection hosting the external argument.

In contrast to these approaches, in DM, v is assumed to be a "verbalizer", i.e. a category-assigning head that transforms a root into a verb. Both Harley (1995) and Marantz (1997) maintain that, given this formulation, v must be present in unaccusatives and unergatives as well as in transitives. In DM approaches, Larson's lower VP-shell has been reinterpreted as the root domain where an acategorial root merges (possibly together with an internal argument, if present). This root domain can be selected by the category-assigning v head, which verbalizes the structure, creating a *first phase* domain where (possibly idiosyncratic) semantics are negotiated.

Starting with work in Pylkkänen (2008) and later work in Cuervo (2003), Collins (2005), Alexiadou, Anagnostopoulou, & Schäfer (2006), Merchant (2008), and Harley (2009), VoiceP and vP are assumed to occupy two different positions in the extended verbal projection. The external argument is introduced by the higher VoiceP projection, which is also the locus for voice morphology in passive voice structures. The lower vP maintains the role of verbalizing the root domain and also may carry semantic (and morphological) content with the introduction of causative or inchoative semantics (see Cuervo 2003 for detailed discussion of the different *flavors* of little v).

One of the main morphosyntactic functions that have been attributed to v and Voice (or related) syntactic heads in the literature is that of valency increasing and decreasing operations. This includes causatives and applicative structures which generally contain heads that introduce new arguments to the verbal argument structure and passive, middle, anticausative, and reflexive voice structures which usually either absorb one of the predicate's theta roles or assign it to an entity that has already been assigned a theta role, resulting in a reduction of the number of overt verbal arguments. For example, causative structures introduce a causative semantic component which is not available in the base structure (unaccusative, adjectival, nominal, and so on), manifested syntactically as a causative head (e.g. v or Cause), and are typically morphologically marked (Kayne 1975; Marantz 1985; Travis 1991; Chomsky 1995 and others). In terms of morphosyntactic contribution, the head CAUS (or little v with a causative flavor) introduces a structural relation between a causing event which forms the implicit argument of v_{CAUS} and the resultant state denoted by the root predicate plus any internal arguments. Since the causative event is superimposed on the resultative event, the causative predicate is necessarily bi-eventive. Similar properties are associated with applicative heads. On the other hand, passive formation usually absorbs the external theta role of the predicate, inducing valency reduction, while being similarly morphologically marked. Similar properties emerge in reflexivization and middle voice formation.

An additional property of some of these valency-changing processes is variability on the syntactic locus of their application. Thus, for both causative and applicative verb formation, at least two different syntactic heights of causative or applicative head projection have been proposed in the relevant literature: *low* causatives and applicatives and *high* ones. Each projection level is assumed to derive verbal forms with distinct morphosyntactic and semantic properties. Let us consider an example from causatives. Lexical or *low* causatives heads (as opposed to syntactic causatives, see Hale & Keyser 1993; Shibatani 1996; Travis 2000; 2010) are usually associated with transitivity in crosslinguistic studies (see work in Marantz 1997; Arad 1999; Travis 2000; Arad 2002; Bowers 2002; Pylkkänen 2002; Embick 2004; and others). These *low* causatives present a number of idiosyncratic properties including often changing the grammatical/phrasal category of the stems they attach to and exhibiting non-transparent semantics and non-productivity. For example, in Malagasy (Travis 2000; 2010) the lexical causative prefix *an-*, derives

transitive verbs form adjectival or nominal roots, where the semantic interpretation of the resulting string is not always transparent and with several verbs being transitive without affixing the causative/transitive morpheme. On the other hand, the *higher* causative prefix *amp-* derives verbs with transparent semantics and high productivity. Travis (2000; 2010) based on Hale and Keyser (1993), assumes that both cases of causativization involve syntactic processes, but with the case of the lower transitive *an-* being introduced in a lower lexical-syntax (*l-syntax*) domain, which is characterized by idiosyncratic properties, while the higher causative *amp-* merges in syntax proper (*s-syntax*) and displays productive syntactic properties similar to those of phrase formation. Travis, based on evidence from Malagasy and Tagalog, assumes that the divide between *l-syntax* and *s-syntax* is an aspectual projection which introduces the event argument of the verb, termed EventP (see Travis 2010). This indicates that, while we can retain a decompositional account for the formation of causative and applicative verbs in languages, we expect several of these forms to exhibit idiosyncratic properties, both in terms of semantic interpretation as well as productivity.
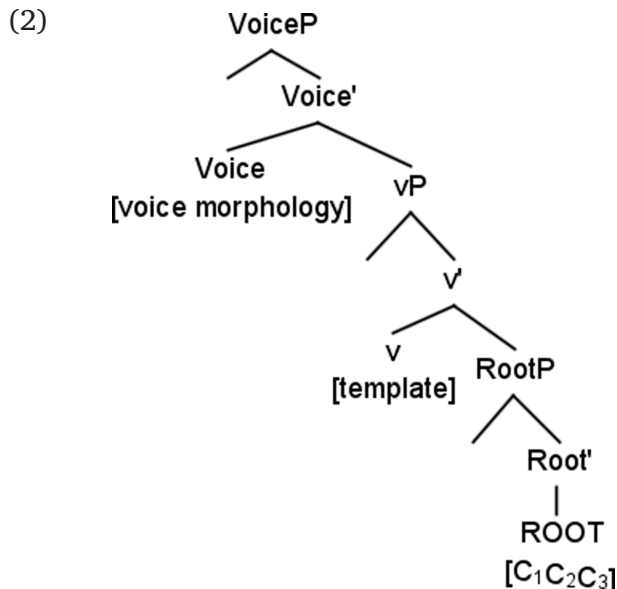
Following this work, we assume the following minimal structure for the verbal domain:

(1)　VoiceP
　　　　／＼
　　　　　Voice'
　　　　／＼
　　Voice　vP
　　　　　／＼
　　　　　　v'
　　　　　／＼
　　　　v　RootP
　　　　　／＼
　　　　　Root'
　　　　　｜
　　　　ROOT
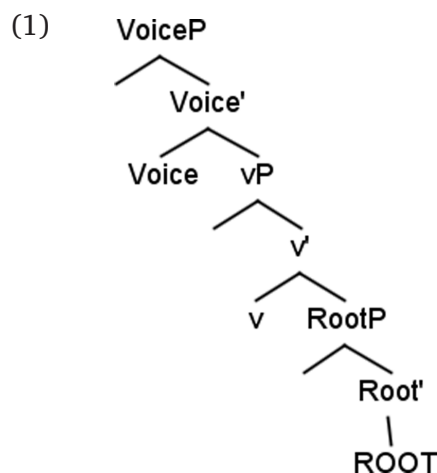
The consonantal root of the verb is introduced by the RootP level of the structure. This carries the main meaning of the verb, which at this lexical level may be completely idiosyncratic. Little v attaches above the root level, fixing the categorical status as verbal, and delimiting the *first phase* domain. Since v is a phase head, its complement domain is unavailable for further syntactic processes and has a fixed phonological representation and semantic interpretation. For the purposes of the latter, the vP (and every first cycle structure) has been assumed to be the domain for contextual allosemy, i.e. making a semantic choice out of the various related meanings of a polysemous morpheme. Marantz (2010) defines the vP as the domain where contextual allosemy is negotiated, i.e. the meaning is fixed as soon as a morpheme is interpreted, i.e., within its spell-out domain. In contrast, the domain for idiomatic interpretation as well as other lexical properties such as productivity, may be larger (Marantz 2013a), see also discussion on Travis (2000; 2010) above.

Following Arad's (2003; 2005) work on Hebrew verbal forms, we assume that the little v projection is morphologically realized as the template of the Emirati Arabic verb. That is, little v can have different *flavors* including causative, applicative and inchoative interpretations and the morphological exponent of these flavors is realized as one of the

specific forms described in the following section. The realization is manifested as prosodic changes affecting the surface form of both the root and template, namely the gemination of the second or third radical consonant (in causative Form II and inchoative Form IX, respectively) and second syllable vowel length (in applicative Form III). Finally, the higher VoiceP projection is spelled-out as voice morphology realized as a prefix/infix on the verb form:

(2)

```
        VoiceP
          /\
         Voice'
         /\
     Voice   vP
  [voice morphology]  /\
                     v'
                     /\
                    v    RootP
              [template]   /\
                         Root'
                          |
                         ROOT
                        [C₁C₂C₃]
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The analysis presented here, and the structure in (2) follows approaches that distribute verbal morphology across different projections in the lower clausal syntactic space. In particular, we espouse the system put forward by Arad (2003; 2005; see also Marantz 1997) where each of the morphemic constituents of the Arabic (and Semitic in general) verb has its own lexical and semantic contribution and is distributed in three different levels in the extended verbal projection. Following Arad (2003; 2005), we assume that the root provides the lexical content of the verb and merges at a low Root projection. We also follow Arad's (2003; 2005) proposal that the verbal template is a separate morphosyntactic entity, which merges at a higher, functional vP projection and contributes morphosyntactic content related to lower Causativity (*transitivity*), and inchoative structures. We enrich this system based on our data from EA, in assuming that additional flavors of the little v head are available in the composition of verbal morphosyntactic structures. If little v is part of the extended morphological make-up of the Semitic verb, there is no reason to exclude other morphosyntactic features and corresponding semantic content that has been associated with the little v head in the relevant literature. Thus, following work in (McGinnis 2001; Pylkkänen 2008), we attribute applicative/associative semantics to morphosyntactic features of the v head and support this with evidence from the EA data. Finally, we depart from Arad's (2003; 2005) work in proposing that the Voice head in EA hosts a series of voice prefixes and not (at least not exclusively) the vocalic melody of the associated template or a template. In Arad's analysis certain templates may merge at the v level, selecting for the root, or at the Voice level, selecting for another lower template. This can derive certain ambiguities in the Hebrew verbal system as the low-merged template will derive verbs with certain lexical idiosyncrasies, while the same template, when merged at VoiceP, will derive verbal forms with more regular, compositional semantics. In our account, we assume that all templates merge

at the v level and only voice/reflexive/mediopassive morphology merges at the Voice level. Idiosyncrasies, in our account are derived through a division of the domain where syntactic operations apply into two distinct domains. Thus, contrary to Arad's analysis of all roots being listed in the Lexicon (the Encyclopedia in DM) together with the template in which they acquire their meaning, we assume that the root is just listed in the Lexicon with a number of possible, related meanings. One of these meanings is fixed when the first functional head, little v, is attached to the root. Further idiosyncrasy in the verb semantics may be available all the way to the VoiceP, as this seems to be the level at which idiomatic expressions are formed.

Thus, while our proposed structure in (2) is the base on which numerous verbal forms in Emirati Arabic are formed, the syntactic domain where it projects is within the *lexical* domain of syntax (Travis 2000; 2010) and thus subject to a number of idiosyncratic properties. This means that while we expect the specific syntactic selectional properties of a voice head to restrict the type of vPs that it selects for, in many cases there will be exceptions to the type of verbal forms that are derived by merging this specific head. We will illustrate this in our discussion of the different verbal forms in Emirati Arabic in the following sections.

This allows us to provide a more coherent model for the derivation of EA verbs, which accommodates the data, including the cases where the frequently observed semantic patterns break-down, without assuming multiple distinct merger levels for the same morphemes. Each morpheme merges at a unique, clearly defined level in the extended verbal projection.

The following table illustrates the features we associate with the different morphosyntactic heads we pose in the relevant syntactic structures:

(3)

	Little v[1] [Ø]	Little v [Causative]	Little v [Applicative]	Little v [Inchoative]
Voice [Ø]	CVCVC FORM I	CVCCVC FORM II	CVVCVC FORM III	CCVCC FORM IX
Voice [Passive]	nCVCVC FORM VII	–	–	–
Voice [Middle/Reflexive]	CtVCVC FORM VIII	tCVCCVC FORM V	tCVVCVC FORM VI	–

In the following section, we will explore in detail how these basic assumptions of morphosyntactic structure, together with more general syntactic operations, can derive the desired interpretations and morphosyntactic distribution of the available verbal forms in Emirati Arabic, with reference also to the corresponding MSA forms.

3 Previous analyses of verbal forms in MSA and EA

There are ten verbal templates associated with three-consonant root verbs in MSA and nine in EA. These are listed in (4), where, in line with the standard practice in the literature, the different forms are referred to with Roman numerals, a convention we will follow throughout the paper. Purely phonological epenthetic material appears between brackets:

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[1] Form X would also be here, as we assume that it is formed with a default v head, but see discussion in Section 6.5, for the peculiar status of this Form in EA.

(4)

Form	MSA	EA
	Template	Template
I	faʕal	fəʕal
II	faʕʕal	faʕʕal
III	faaʕal	faaʕal
IV	ʔafʕal	—
V	tafaʕʕal	tfaʕʕal
VI	tafaaʕal	tfaaʕal
VII	(ʔi)nfaʕal	nfəʕal
VIII	(ʔi)ftaʕal	ftəʕal
IX	(ʔi)fʕall	fʕall
X	(ʔi)stafʕal	stafʕal

Not all templates are available for every root in Emirati Arabic (see also Arad 2003; 2005; Tucker 2010). Thus, a comparison of MSA data and EA data leads to the following observations. First, Form IV (e.g., *adxal* 'he made s.o. enter') is not attested in EA, where the causative, associated with it in MSA, is exclusively expressed by Form II (e.g., *daxxal* 'he made s.o. enter') and sometimes by Form I (see the sections on Form I and Form II for a discussion). Second, Form IX (used to indicate colors and bodily defects, e.g., *swadd* 'it/he became black' and *ħwall* 'to be cross-eyed') in EA is more productive than in MSA, in the sense that it applies to a wider range of physical properties than just colors and physical defects (see section 5.3 for a detailed analysis). Third, Form X, e.g., *staxdam* 'he used (for one's benefit)' is less productive in EA and may have been borrowed from MSA. Note also that the prefix *t-* in EA Forms V and VI is not followed by the vowel [a]. This difference between EA and MSA can be explained in terms of the syllable structure of the two varieties. One may argue that phonotactics is involved because EA allows certain word-initial consonant clusters which MSA does not, and so the vowel after the prefix is not necessary. Note also that since EA allows word-initial consonant clusters, the epenthetic [ʔi] is not added.

   Studies of the phonological and morphological properties of these forms (also called *templates* or *patterns*) include McCarthy (1979; 1981), McCarthy & Prince (1990 and subsequent work), see also Tucker (2010) for an analysis of Iraqi Arabic. However, very few researchers have investigated their semantic properties (see Benmamoun 2000; Fassi-Fehri 2003).

   Within McCarthy's (1979; 1981) analysis, different templates are characterized as fixed sequences of consonantal and vowel slots in what he calls a *skeleton* or *template*. During morphological derivation, root consonants are mapped onto the consonantal slots in a left-to-right fashion, while the vowel slots are filled in with the vowel melody. According to McCarthy, roots, templates, and vowel melodies all constitute separate morphemes, represented on separate, parallel autosegmental tiers.

   Following recent approaches towards Arabic, which attempt to derive notions such as *skeleton* or *template* as emergent properties, Tucker (2010) argues that roots are real morphemes which combine with affixes (whether vocalic, e.g., passive {u -i} or consonantal, e.g., {n} and {t}), but templates are nothing more than the outcome of the interaction of universal syllabic and prosodic constraints.

   The status of templates as independent morphemes which occupy a specific category-determining v slot in the verbal functional domain relies mainly on two different assumptions about little x slots of this type (see Arad 2003; 2005; Tucker 2010):

    i) how the interpretation of the root is set (Marantz 2001 and later work)
    ii) argument structure (for example Embick 2004)

In both Arad's (2003; 2005) and Tucker's (2010) analyses, both of these assumptions are not confirmed by the morphosyntactic properties of Semitic verbal forms. Thus, with respect to the interpretive properties of verbal forms, in both Arabic and Hebrew, there is a many-to-many relationship between verbal form and verbal semantics. This seems to also be the case in Emirati Arabic. Thus, Form I verbs can have transitive, and intransitive interpretations, as the following table illustrates (see Section 4, for more examples and details):

(5)

Form I	Gloss	Interpretation
rəfaʕ	'raise'	Transitive
ʕaraf	'know'	Transitive
fəðˤaħ	'embarrass'	Transitive
nətˤag	'speak'	Unergative
bərad	'get cold'	Inchoative
ða(w)ab	'melt'	Unaccusative

On the other hand, the same interpretation, e.g. causative, can arise from different verb forms, as in the following examples:

(6)

Form	Example	Gloss
Form I	getˤaʕ	'cut'
Form II	getˤtˤaʕ	'cut'
Form I	rəfaʕ	'raise'
Form II	rəffaʕ	'promote'

The fact that there seems to be a many-to-many correspondence between verb forms and semantic content for these forms, has led Tucker (2010) to propose that the templatic part of the verb make-up in Semitic languages is not a morphological entity, but rather emergent properties of words which surface from the necessary satisfaction of high-ranking prosodic markedness constraints. This requires a restatement of certain assumptions about linearization of morphosyntactic strings (see for example Embick 2010) allowing for the phonological component to linearize morphosyntactic strings smaller than words, while word units are linearized as before within the syntactic component (see Tucker 2010 for details of the proposal). While, a prosodic linearization analysis explains adequately the many-to-many correspondence between templates and semantic interpretation in Semitic verbal forms, it fails to capture the significant degree of regularization that still exists in this correspondence (see for example Younes 2000 for Palestinian Arabic and Arad 2003; 2005 for extensive discussion based on a large number of Hebrew roots and available verbal forms). It is for example true that when both Form I and Form II verbs are available, Form II verbs have almost always greater valency than Form I verbs. In addition, it is not clear how a prosodic linearization analysis could be extended to capture the contribution of templates in other areas of word morphology in Arabic, such as the formation of irregular plurals or the expression of comparison in adjectival forms.

For these reasons, we follow here Arad's proposal that the template is in fact the realization of morphosyntactic features on the v head. In Arad's proposal, the fact that not all roots are available for all templates (discussed here in Section 8) falls from selectional restrictions of the v head. In other words, v selects for specific roots, resulting possibly in a different v head for each available verbal pattern. We adopt this approach here, assuming different *flavors* of v as has independently been established in the relevant literature and propose that any irregularities in the form-semantic interpretation correspondence are independently derived from the syntactic structure and the selectional restrictions of the functional heads contained in the structure as well as the level at which the relevant syntactic rules operate. In the following sections we discuss in detail all possible verbal forms in Emirati Arabic with occasional references to the corresponding MSA forms and we show how the proposed structure and generally held assumptions on the syntactic operations involved capture both the form and semantics of the derived verbs straightforwardly.

Given the fact that no contemporary linguistics studies have examined EA, one of the main goals of this paper is to properly describe the EA verbal system and compare it to that of MSA. Data was collected from EA native speakers' spontaneous speech as validated against seven informants in addition to author intuitions. Verbal forms were then classified, depending on their prosodic shapes. Each verb was then analyzed along a number of criteria such as the nature of the agent and patient and transitivity.

4 Form I: The default form

Form I in MSA can be transitive or intransitive (Wright 1896; Ryding 2005). This transitivity is marked by the quality of the second vowel. This form has three shapes: $C_1aC_2aC_3$, $C_1aC_2uC_3$, and $C_1aC_2iC_3$. Generally, CaCaC is associated with transitive verbs and a few intransitive verbs (e.g., *katab* 'he wrote', *ʒalas* 'he sat'). By contrast, CaCiC and CaCuC usually go with stative intransitive verbs indicating a (permanent) quality or a (temporary) state (e.g., *ħasun* 'he was beautiful', *kabur* 'he was big/old' vs. *ħazin* 'he was sad', *fariħ* 'he was glad, *maridˤ* 'he was sick'). For many researchers who take Arabic verbs to be derived from whole words (as opposed to consonantal roots and templates), Form I often serves as the input for subsequent derivations.

In EA, just like its MSA counterpart, Form I is the simplest, unmarked form. However, unlike in MSA, it does not show the same semantically-driven alternations in the quality of the second vowel. Also, phonetically, the first vowel in Form I in EA is generally a schwa but turns into /a/ after a guttural consonant (*ka̲tab* 'he wrote' vs. *ħafaðˤ* 'he memorized'). This alternation is phonologically conditioned and has no semantic implications. The examples in (7)–(15) illustrate EA Form I. As can be seen from the interpretations next to each example, EA Form I has a wide range of meanings, including transitive (7)–(11), and intransitive of the unergative (12), or unaccusative/inchoative type (13)–(14).

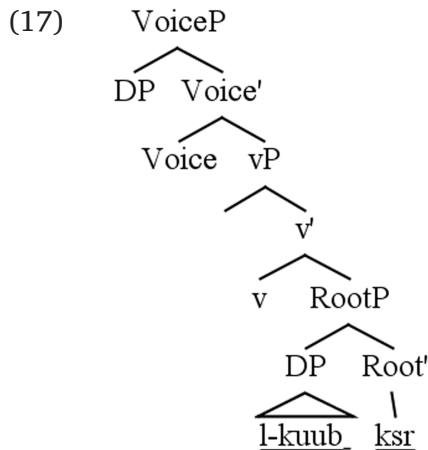(7)   Ahmed rəfaʕ   l-ʕalam.   (TRANSITIVE)
        Ahmed raised.3M.SG DET-flag
        'Ahmed raised the flag.'

(8)   Ali fəðˤaħ   Ahmed.   (TRANSITIVE)
        Ali embarrassed.3M.SG Ahmed
        'Ali made Ahmed embarrassed.'

(9)   Ali kəsar   l-kuub.   (TRANSITIVE)
        Ali broke.3M.SG   DET-cup
        'Ali broke the cup.'

(10)   Ahmed ʃaʕatˤ   l-ktaab.   (TRANSITIVE)
        Ahmed tore.3M.SG DET-book
        'Ahmed tore the book up.'

(11)   Saeed ʕaraf   l-xabar.   (TRANSITIVE)
        Saeed knew.3M.SG DET-news
        'Saeed knew the news.'

(12)   Ali nətˤag.   (UNERGATIVE)
        Ali spoke.3M.SG
        'Ali spoke.' (as in *he finally talked*)

(13)   Ahmed ʃəbaʕ.   (INCHOATIVE)
        Ahmed got-full.3M.SG
        'Ahmed got full.'

(14)   l-mayy   bərad.   (INCHOATIVE)
        DET-water got cold.3M.SG
        'The water got cold.'

(15)   l-θalʒ   ðaab. (/ðawab/)   (INCHOATIVE)
        DET-ice   melted.3M.SG
        'The ice melted.'

The following table provides some more examples of both transitive and intransitive verbs of Form I:

(16)

Transitive Verbs		Transitive Verbs		Unaccusative Verbs	
feðˤaħ	'he exposed'	ʃaal	'he removed'	sˤaar	'he became'
kisar	'he broke'	ʔaxað	'he took'	kaan	'he was'
ʃall	'he carried'	ðˤamm	'he hid'	ʃaaf	'he saw'
ðˤarab	'he hit'	mesak	'he held'	gaam	'he got up, rose'
daʃʃ	'he entered'	kitab	'he wrote'	yaa	'he came'
ʃaat	'he shot'	baaʕ	'he sold'	kebar	'he grew old'
ħall	'he solved'	xaaf	'he feared'	maat	'he died'
simaʕ	'he heard'	dagg	'he knocked'	naam	'he slept'
ʕibar	'he crossed'	zaar	'he visited'	Unergative Verbs	
tiras	'he filled'	sˤaad	'he hunt'	wegaf	'he stopped'
fitaħ	'he opened'	yaab	'he brought'	gaʕad	'he sat, stayed'
ʕatˤaa	'he gave'	ʃerab	'he drunk'	taffal	'he spit'
ʕagg	'he threw'	zaxx	'he caught'	beraz	'he was ready'
				ʃarad	'he ran away'
				ħass	'he felt'
				regasˤ	'he danced'
				raaħ	'he went'

The diversity of verb types derived through Form I in Emirati Arabic point towards this being a default form, as has been assumed in various grammars for both Emirati Arabic (Qafisheh 1977; Holes 1990) and MSA (Ryding 2005). Thus, we assume the syntactic structure in (17) for Form I (which represents Form I *kəsar* as it appears in (9)):

(17)

```
        VoiceP
        /\
      DP  Voice'
          /\
      Voice  vP
             /\
             v'
            /\
           v   RootP
              /\
            DP  Root'
           /‾‾\   \
         l-kuub  ksr
```

As discussed in Section 2, the external argument of the verb is introduced in the specifier of VoiceP (Kratzer 1994; Harley 2009; 2013; 2014a; 2014b).

Little v in this template carries no special selectional restrictions and simply acts as a verbalizer in the sense of Marantz (2001). The meaning of the form is fixed following locality restrictions on contextual allosemy (Marantz 2013a). That is, at this low *first phase* domain, containing the root and any possible internal arguments, the polysemy of the root allows for numerous choices of meaning to be negotiated and fixed. Once the little v is projected, the meaning is fixed to one of these possible interpretations. For example, the fact that the root *ksr* 'break' implies an action, and given that it projects an object complement, the resulting Form I is transitive. By contrast, since the root *ðwb* 'melt' is unaccusative, the output Form I is derived by moving the internal argument of the verb to spec-VoiceP as in standard assumptions of unaccusative formation (see for example Marantz 1985; Baker 1988; Hung 1988; Travis 1991; Koopman 1992; and many others).

5 Little *v* features: The causative, applicative and inchoative

5.1 Form II: The causative

Form II is morphologically characterized by the gemination of the medial root consonant: $C_1aC_2C_2aC_3$. Ryding (2005) describes Form II verbs as causative or transitive counterparts of Form I verbs. For example, Form I *fariħ* 'he was glad' corresponds to Form II *farraħ* 'he gladdened s.o.' (i.e., he caused s.o. to be glad). As for the verbs, which are already transitive in Form I, they become causative (or in traditional terms *double transitive*) in Form 2 (e.g., *katab* 'he wrote' versus *kattab* 'he made someone write'). In addition, this form is typically associated with 'intensity' or 'extensity' in terms of the nature of the action (where the latter is generally violent such as in *dˤarrab* 'he beat violently', as opposed to Form I *dˤarab* 'he beat'), temporally extensive actions (as in *kassar* 'he broke into pieces', as opposed to Form I *kasar* 'he broke'), numerically extensive actions (as in *farraq* 'he dispersed groups or people', as opposed to Form I *faraq* 'he dispersed/split'), and repeated or frequentative actions (as in *tˤawwaf* 'he went around often', as opposed to Form I *tˤaaf*, with the underlying form /tˤawaf/ 'he went around'). Following Greenberg (1991), Fassi-Fehri (2003) proposes that Form II has the meaning of 'plurality', which is realized as the reduplication of the medial consonant, and is associated, in addition to intensity, with (i) temporal repetition (or repeated action) as in (18) and (19), (ii) plural action on many with transitives (20) and by many with intransitives (21).

Form II in MSA[2]

(18)   kassar   l-raʒul-u   l-kaʕs-a.
        broke-3M.SG   DET-man-NOM   DET-glass.ACC
        'The man broke the glass into pieces.'

(19)   ʒawwal-3M.SG   l-raʒul-u.
        walked   DET-man-NOM
        'The man took many walks.'

(20)   ʒarraħ-3M.SG   l-raʒul-u   l-ʒunuud-a.
        wounded   DET-man-NOM   DET-soldiers-ACC
        'The man inflicted wounds on many soldiers.' (action on many)

(21)   barrak-3M.SG   l-naʕam-u.
        kneeled   DET-camels-NOM
        'The (whole herd of) camels kneeled.' (action by many)

Form II in EA *primarily* bears the causative meaning. That is, the template applies to Form I verbs (or adjectival and nominal bases) introducing a causative interpretation and increasing the valency of the predicate by introducing a causative argument. The following examples illustrate this with Form I intransitive verbs:

(22)
Form I	Gloss	Form II	Gloss
ðˤaħak	'he laughed'	ðˤaħħak	'he made s.o. laugh'
xelasˤ	'it finished'	xalˤlˤasˤ	'he finished s.th.'
naam	'he slept'	nawwam	'he put s.o. to sleep'
tˤalaʕ	'he went out'	tˤallaʕ	'he expelled'
nizal	'he went down'	nazzal	'he lowered'
tˤaaħ	'he fell'	tˤajjaħ	'he knocked down'
xarab	'he went bad'	xarrab	'he ruined'

Some sentential examples that showcase these alternations in valency are provided below. In each case, the corresponding Form II systematically expresses the causative and adds a causative argument to Form I verbs:

(23)   *Form I (unmarked)*   *Form II (CAUSATIVE)*
        l-səjjara wəgfat.   Ali waggaf l-səjjaara.
        'The car stopped-3M.SG.'   'Ali caused the car to stop.'

(24)   Ali rəkəb ʕala l-naaga.   Ali rakkab Fatma ʕala l-naaga
        'Ali rode-3M.SG a camel.'   'Ali caused Fatma to ride a camel'

(25)   Ali fəraħ.   Ali farraħ Fatma
        'Ali was happy.'   'Ali made Fatma happy.'

---

[2] In this manuscript, I am using the following abbreviations: 3 to refer to a third person, M to refer to masculine, SG to refer to singular, PL for plural, NOM for nominal, ACC for the accusative case, POSS for possessive particles and pronouns, and DET for a definite article.

In addition to the causativization of intransitive forms illustrated above there are several Form II verbs that seem to be derived from adjectival or nominal bases. In all these cases a causative interpretation and an additional causative argument is added to the argument structure of the predicate. Examples (26) illustrate Form II deadjectival verbs and examples (27) Form II denominal verbs:

(26)

Adjective	Gloss	Form II	Gloss
naðˤiif	'clean'	naðˤðˤaf	'he cleaned'
gasˤiir	'short'	gasˤsˤar	'he shortened'
wasˤix	'dirty'	wasˤsˤax	'he made s.th. dirty'
yediid	'new'	yaddaad	'he renewed'

(27)

Noun	Gloss	Form II	Gloss
fanasˤ	'end of service'	fannasˤ	'he terminated s.o'
ʕawaar	'pain'	ʕawwaar	'he inflicted pain'
ɣina	'singing'	ɣanna	'he sang'
xeema	'tend'	xajjam	'he camped'
fasˤal	'disappointment'	fasˤsˤal	'he disappointed s.o.'
geeðˤ	'summer'	gajjaðˤ	'he spent the summer'

Finally, the Form II template can apply to Form I transitive verbs, again increasing the valency of the verb and introducing an additional causative argument, beyond transitivity:

(28)

Form I	Gloss	Form II	Gloss
ʔakal	'he ate'	ʔakkal	'he fed'
simaʕ	'he heard'	sammaʕ	'he made s.o. listen'
ʃaaf	'he saw'	ʃawwaf	'he showed'
ʕaraf	'he knew'	ʕarraf	'he made s.o. know s.th.'
daras	'he studied'	darras	'he taught'

Some sentential examples are provided in (29):

(29)   Ahmad ʕallam   Fatma l-siwaaga.
         Ahmad taught-3M.SG Fatma DET-driving
         'Ahmad taught Fatma how to drive.'

(30)   Ahmad naðˤðˤaf   l-beet.
         Ahmad cleaned-3M.SG DET-house
         'Ahmad cleaned the house.'

(31)   Ahmad kassar   l-baab.
         Ahmad broke-3M.SG DET-door
         'Ahmad broke the door.'

(32)   Ahmed xajjam[3].
         Ahmed camped_out-3M.SG
         'Ahmed camped out.'

---

[3] Note that this verb is denominal (see examples in (27)), as there is no corresponding verbal Form I with such a root and that it is derived from the nominal root found in [*xiima*] 'tent', namely *xjm*.

More transparent and/or literal interpretations of the sentences in (29)–(32) could be as in (33)–(36), respectively.

(33)   Ahmad **caused** Fatma to know how to drive.

(34)   Ahmad **caused** the house to be clean/cleaned.

(35)   Ahmad **caused** the door to break/be broken.

(36)   Ahmed **used** the tent as it should normally be used.

In establishing a syntactic structure for Form II, it is important to emphasize what was stated above with regard to the main assumptions; the causative, just like the inchoative and applicative, is a feature of little *v* (see Harley 2013).

Note that the example in (32) might not seem to have an obvious causative interpretation, but if it is derived from a root with a nominal nature (c.f. footnote 3) then valency increasing is necessary in order to introduce the single argument of the derived verbal predicate (x BE (in) tend).

In some accounts, the causative interpretation as well as the introduction of the Causer argument is mediated by a causative functional head as in Pylkkänen (2008) and Key (2013) (c.f. also Harley 2017). In other words, the causative constructions involve two events:

   i) a causing event headed by *Cause* and
   ii) a caused event headed by the main predicate/verb, *Cause* being a relation between two events.

While this structure most likely derives higher causatives, in cases of low causation (i.e. transitivity alternations), the causative feature (and the causer argument) may be introduced by little v. Alternatively, one can assume that the CausP and vP projections are "bundled" in the sense of Pylkkänen (2008) and Harley (2017), i.e. that features relating to v and Cause are bundled together in EA (leaving open the possibility that in other languages these features are expressed by separate syntactic heads).

We propose the following structure for the derivation of pairs of intransitive (Form I) and transitive/causative (Form II) forms of the verb *wəgaf* 'he stopped'/ *waggaf* 'he caused to stop' in EA (from the examples in (23)):

(37)   (a)

(b)
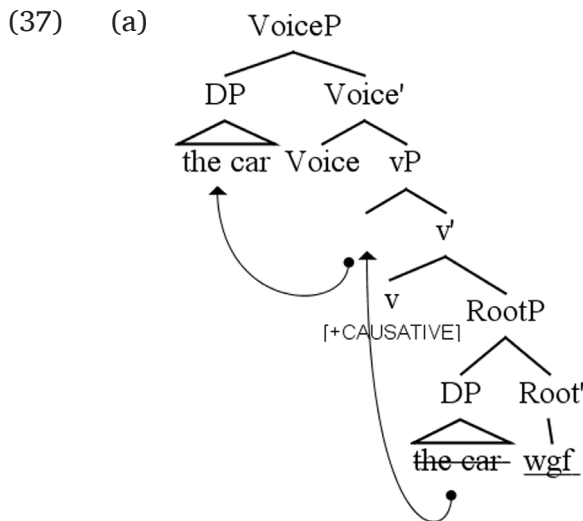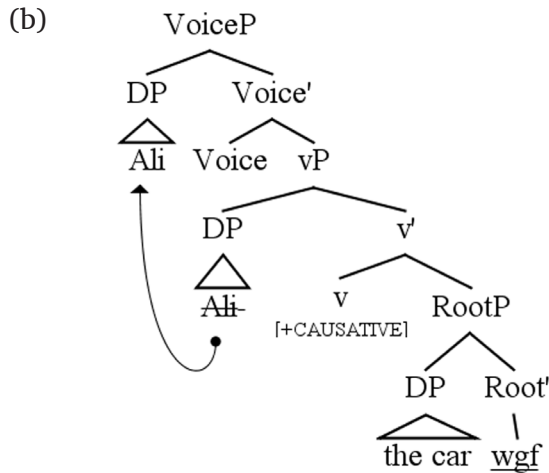
As shown in (37), the root *wgf* is selected by a causative v, which is then spelled out as gemination, resulting in *waggaf* (see Kastner (2016) for similar analysis of the Hebrew verbs). We assume here that the Causer is introduced in spec-vP as in standard accounts, although it could also be introduced directly in the higher VoiceP, as in Harley (2017), where the little v has no specifier and acts simply as a verbalizer with a causative feature. Both accounts result in the same derived structure.

It is important at this stage to point out that in MSA, the causative meaning is expressed mainly by Form IV and only occasionally by Form II. According to Wright (1896), Form IV is morphologically realized by the prefix ʔ-.[4] He suggests that it bears either the unmarked or the causative meanings, proposing that if the verb in Form I is intransitive, it becomes transitive in Form IV (compare (38) and (39)).

MSA Form IV (intransitive case)

(38)   ʒaraa (UR: /ʒaraj/)
        ran.3M.SG
        'he ran'

(39)   ʔʒraa (UR: /aʒraj/)
        ran-cause.3M.SG
        'he made someone run'

On the other hand, if the verb is transitive in Form I, it becomes doubly transitive in Form IV (compare (40) and (41)):

MSA Form IV (transitive case)

(40)   raʔaa   ʃayʔ-an.   (UR: /raʔaj/)
        saw.3M.SG thing.ACC
        'he saw something.'

(41)   ʔaraa   l-raʒul-a   ʃayʔ-an.   (UR: /arʔaj/)
        see-cause.3M.SG DET-man-ACC   thing.ACC
        'he showed the man.' ('he made the man see.')

---

[4] Note that all other changes that this form undergoes might be due to a ranking of constraints of prosodic structure and/or phonotactics (See McCarthy 1979; Tucker 2010)

Wright also implies that when verbs built on Form II and Form IV are both causative, then a slight difference in meaning could emerge (e.g., ʕallam 'to teach', ʔaʕlam 'to let know' or 'to inform') or, in most cases, they just mean the same. For example, both xabbar and ʔaxbar mean 'to let know'. Interestingly, Form IV is not attested in EA, and the causative meaning is exclusively expressed by Form II and, to a lesser extent, by Form I.

We have shown clearly that Form II verbs in Emirati Arabic are causative counterparts of Form I intransitive and transitive verbs and have provided a decompositional syntactic structure which accounts for this. However, it is not always the case that a Form I verb has less valency than a Form II verb in Emirati Arabic. Thus, in a very small number of cases, Form I verbs may share the same usage and meaning with the corresponding Form II verbs. For example, both Form I kəsar and Form II kassar have exactly the same interpretation 'he broke something' in EA.[5] We return to this in our discussion in Section 8.

5.2 Form III: The associative/applicative

Form III in MSA is morphologically characterized by vowel length in the first syllable: $C_1aaC_2aC_3$. It mainly introduces a new participant in the action denoted by the verb and is thus termed "associative" (Ryding 2005: 503). It can express reciprocity (e.g., raafaq 'he accompanied someone, where someone also accompanied him' and sˤaafaħ 'he shook hands with someone, where someone also shook hands with him'), in addition to repeated and/or attempted actions. Wright (1896) suggests that this form could be unmarked,[6] but reciprocity is always more or less implied (e.g., saafar 'to travel', where in the old Arab tradition and context travelling was always done in pairs or groups).

Related to the idea of reciprocity in Form III is the notion of plurality. Benmamoun (2000) argues that Form III is the plural form of Form I. He argues that this form denotes a plurality of events, and that each event involves at least one agent. He compares the morphological marker of Form III, vowel length, to that of plurals in Arabic, also marked with a long vowel.

According to Fassi-Fehri (2003), Form III in MSA expresses the meaning of 'participation' as in:

(42)   ʃaarab   l-rajul-u   l-ʃaabb-a.
         drink.3M.SG DET-man-NOM DET-young man-ACC
         'the man drank with the young man.' i.e., 'he shared a drink with him.'

It is important to note that 'participation' in Fassi-Fehri's sense means that both participants are interpreted as agents of the action, when the event is the same (as is in (42)). It emerges that Form III typically describes an event which involves two (or more) participants and expresses some reciprocity. From both these notions follows a sense of plurality of events/actions.

In EA, this form results in similar interpretations. However, unlike its counterpart in MSA, EA Form III does not really carry the reciprocal meaning. In EA, Form III is almost always[7] either transitive, in which case it requires a human object/patient (the 'theme' the-

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[5] This is not the case in MSA though, where Form II kassar is intensive: 'he broke something into pieces'.
[6] By unmarked, we mean a declarative that has none of the other meanings or uses of a marked form. In other words, unmarked verbs are basic, they are not causative, middle, reflexive, passive, or intensive.
[7] 'Almost' because denominals are intransitive and in EA there are denominal verbs in this form.

matic role) (e.g., *Ali ʕaaqab Ahmad* 'Ali punished Ahmad') or dative (the 'goal' thematic role) as with verbs that require a preposition (e.g., *Ali sˤaarax 3ala Ahmad* 'Ali yelled at Ahmad'). In short, the most consistent feature of this form in EA is the presence of two animate participants in the event. Consider the examples in (43):

(43)

Form III	Gloss
ʤaawab	'he answered (to s.o.)'
zaaʕag	'he yelled at s.o.'
xaasˤam	'he greeted s.o (traditionally)'
baarak	'he gave blessings (to s.o.).'
waafag	'he agreed with s.o.'
raasal	'he corresponded with s.o.'
ʃaarak	'he shared with s.o.'
ʕaalaʤ	'he dealt with s.th./s.o.'
saabag	'he competed with s.o.'

In all cases in (43), a Form III verb introduces a new participant to the event denoted by the verbal predicate. In English in most cases the participant is introduced with the preposition *with* but in EA it is an additional DP argument of the verb as the following examples illustrate:

(44)   Ali ləʕab   kuura.   (Form I: UNMARKED)
         Ali played.3M.SG football
         'Ali played football.'

(45)   Ali laʕʕab   l-walad kuura.   (Form II: CAUSATIVE)
         Ali caused_play DET-boy football.
         'Ali made the boy play football'

(46)   Ali laaʕab   l-walad.   (Form III: ASSOCIATIVE)
         Ali played-with DET-boy
         'Ali played with the boy.'

Some more sentential examples of Form III verbs are provided in (47)–(51):

(47)   Ali ʕaaqab   Ahmad.
         Ali punished.3M.SG Ahmad
         'Ali punished Ahmed.'

(48)   Ali ʕaawan   Fatma.
         Ali helped.3M.SG Fatma
         'Ali helped Fatma.'

(49)   Fatma raabaʕ-at   Shaikha.
         Fatma befriended.3F.SG Shaikha
         'Fatma befriended Shaikha.'

(50)   Ali baarak   li Ahmed.
         Ali blessed.3M.SG for Ahmed
         'Ali congratulated Ahmed.'

(51)   Ali waayag   (min l-baab)   ʕala l-walad.
        Ali gazed.3M.SG (from DET-door) on   DET-boy
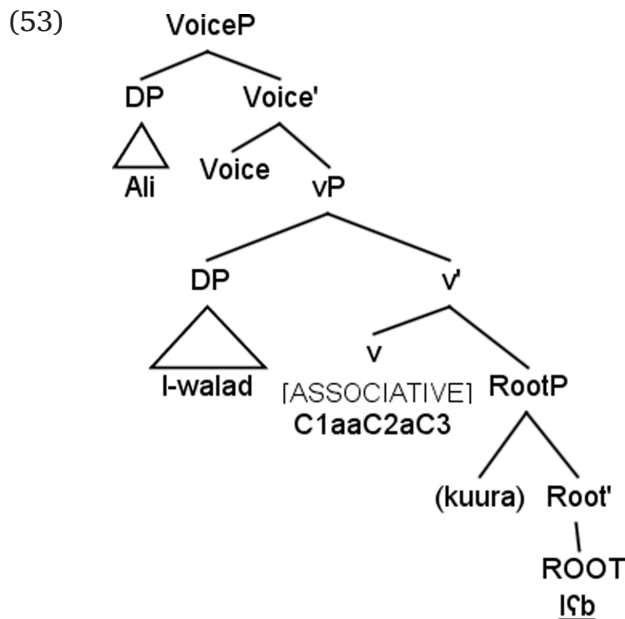   'Ali gazed or looked secretly (through the door) at the boy.'

The interpretation and argument structure of Form III resembles a type of associative/applicative morphology which is sometimes overtly realized in other languages. See for example the discussion of suffix -*an* in Bantu languages, which surprisingly provides the same interpretations as Form III with Arabic verbs: it denotes reciprocity with transitive verbs and a notion of "acting together" i.e. associativity, with intransitive verbs (see Schadeberg 2003 for discussion of these properties of Bantu -*an*). It is this second feature of associativity that we think encapsulates the semantic properties of Form III verbs in Emirati Arabic. We could analyze Form III verbs as applicatives in the sense of Pylkkänen (2008) who proposes an analysis where she defends two types of applicatives. The first type, high applicatives, relates new participants to the event described by the verb: it is a relation between an event and an individual. The second type, low applicatives, relates individuals to the direct object: it is a relation between two individuals. If Form III involves an applicative head that relates an additional argument (in addition to the agent) to the main predicate, it is not clear how the different EA Form III verbs fall into either of Pylkkänen's types. In fact, Form III seems to exploit both types depending on the root. For example, *Ali laaʕab l-walad* 'Ali played with the boy' is a case of a high applicative, where a new participant (*l-walad* 'the boy') is introduced by the event 'play' denoted by the root (see (46)). By contrast, *Ali waayag ʕala l -walad* 'Ali gazed/looked secretly at the boy' or, more accurately, 'Ali gave a look to the boy' is a case of low applicative, where Ali and the boy are related to the null argument, in (51). In most cases however (e.g. all the examples in the table of (43)) a high applicative account can be maintained, and we will adopt this analysis here. For purely terminological reasons and following the tradition in the MSA literature we will term this form the associative but will assume a high applicative structure and interpretation. (Pylkkänen 2002; 2008) assumes the following syntactic structure for high applicatives:

(52) $[_{\text{VoiceP}}$ DP$_{\text{AGENT}}$ $[_{\text{Voice'}}$ Voice $[_{\text{ApplP}}$ DP$_{\text{BNF/LOC/INSTR}}\cdots$ $[_{\text{Appl'}}$ Appl $[_{\text{VP}}$ V DP]]]]]

We base our treatment of Form III verbs on Pylkkänen's (2008) analysis of applicatives. However, we propose that in Form III, the applicative is a feature in little *v*. As can be seen in the structure in (52), Pylkkänen (2008) places the higher applicative head ApplP between the VP shell and VoiceP. This is exactly where we assume v resides and it is plausible to assume that ApplP is in fact vP with v having an applicative flavor. The additional participant is introduced in ApplP while the external argument merges in spec-VoiceP. The structure straightforwardly explains why in most cases, in EA, Form III involves two animate participants: one is primary (the agent) and the other is a secondary (a patient who is also involved in the event). However, the degree of the involvement of the so -called "secondary" participant in the event depends on the meaning and argument structure of the root itself. For example, in (49), both Fatma and Shaikha are involved in the process of becoming friends; whereas in the first sentence in (47), Ahmad undergoes the event of punishment more than he actually participates in it.
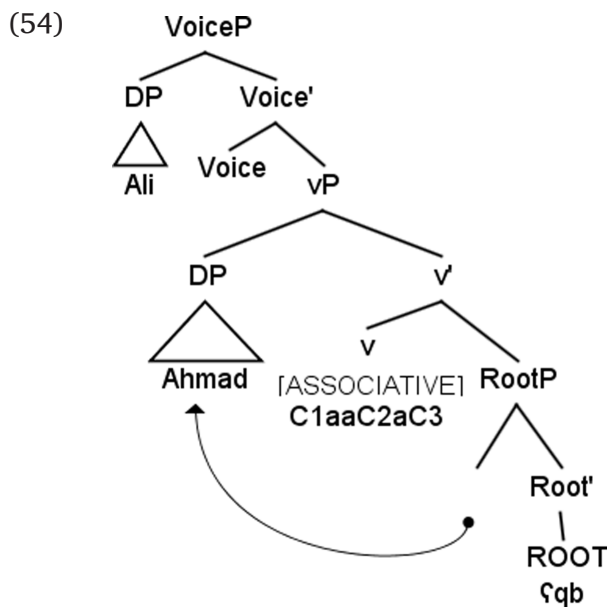
    Following the same pattern as discussed with causative Form II verbs in the previous section, we assume that Form III verbs are derived from the same minimal structure, albeit this time with a small v had which has an *associative* feature. This feature requires an additional (frequently but not always) human participant in the action denoted by the

verbal root. Thus, for a transitive Form III verb, as in example (46), we assume the following structure:

(53)

```
                    VoiceP
                   /      \
                 DP       Voice'
                /▲\       /    \
               Ali     Voice    vP
                             /      \
                           DP        v'
                          /─▲─\      /  \
                        l-walad     v    RootP
                              [ASSOCIATIVE]  /\
                              C1aaC2aC3     (kuura)  Root'
                                                      |
                                                    ROOT
                                                    lʕb
```

As shown in (53), the structure of the associative template would be similar to the structure of the template of Form II, except that the little *v* in (53) has the feature [+ ASSOCIATIVE] which introduces the applicative argument. This generates the desired associative interpretation and is morphologically expressed by a prosodic change (vowel length) to the unmarked template.

   In other cases, the associative v does not introduce the applicative argument but rather forces movement of a lower Root argument to its specifier (perhaps due to an EPP requirement). This would derive transitive verbs of the type in (47)–(51). Thus, the derivation of (47) would proceed as follows:

(54)

```
                    VoiceP
                   /      \
                 DP       Voice'
                /▲\       /    \
               Ali     Voice    vP
                             /      \
                           DP        v'
                          /─▲─\      /  \
                        Ahmad       v    RootP
                              [ASSOCIATIVE]  /\
                              C1aaC2aC3         Root'
                                                  |
                                                ROOT
                                                ʕqb
```

The affected participant – *Ahmad* in the structure above – is an argument of the root, but it moves up to the Spec-*v* because of the EPP feature of this flavor of v.

One last case of Form III verbs involves denominal verbs:

(55)   Ali daawam.
         Ali went-to-work.3M.SG
         'Ali went to work.'

(56)   Ali ðaakar.
         Ali revised.3M.SG (lessons)
         'Ali revised his lessons (in preparation for a test).'

While there does not seem to be involvement of a second participant in the examples of (55)–(56), their status as denominal verbs, where the roots do not appear in other verbal templates, provide them with a subtle associative meaning.[8] In fact, just like *saafar* 'to travel', the actions denoted by the verbs *daawam* 'to go to work' and *ðaakar* 'to study or revise' are usually carried out with other participants. The sentences in (55)–(56) can be paraphrased as in (57)–(58):

(57)   Ali daawam   maʕa Ahmed.
         Ali went_to_work with Ahmed
         'Ali went to work with Ahmed.'

(58)   Ali ðaakar maʕa Fatma.
         Ali studied with Fatma
         'Ali studied with Fatma.'

We assume that in cases of denominal verbs, the EPP feature is satisfied by a null DP (roughly interpreted as 'with someone') where the additional participant is implied in the verb semantics. In sum, the presence of the associative feature straightforwardly accounts for the range of interpretations of Form III verbs in EA and the fact that the patient may not directly participate in the event.

An additional benefit of this account is that perceived *reciprocity* with (mainly) transitive Form III verbs is the result of the interaction of the requirement for an additional participant and the main lexical semantic contribution of the root. Thus, for verbs like *raasal* 'correspond', ʃ*aarak* 'share', and *saabag* 'compete', the perceived reciprocity is only a side effect of the lexical contribution of the root which requires action by the additional participant (i.e. '* I corresponded with Ali but he didn't send me any letters.').[9]

In discussing the EA verbal forms in the following sections, we will see that while a certain pattern of correspondences between verbal forms and interpretations can be established, in many cases these patterns are not straightforward, but rather allow for numerous exceptional forms which do not conform to the described patterns. This is also the case with Form III verbs. While many of them show this presence of an additional participant, a small number of them are pure transitive verbs and there are also some intransitive cases such as *saafar* 'he travelled' and *ħaawal* 'he tried'. We will mention these irregularities for each form but will delay the discussion of an account of these irregularities until Section 8.

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[8] Note that the verb for 'to remind of' is *ðakkar*. However, this root is not the same as the one in *ðaakar* 'to study'.

[9] Following grammatical descriptions of Arabic (e.g. Ryding 2005: 503) it is tempting to impose a [+HUMAN] or at least [+ANIMATE] feature on the additional participant (as a requirement for example of associative v). We choose not to pursue this here as we can find some examples where the additional participant is not animate. This is for example the case with ʕ*aalaj* 'deal' which can mean 'deal with someone' or 'deal with something', or in *Ali baarak l-beet* 'Ali blessed the house'. Thanks to an external reviewer for bringing this to our attention.

5.3 Form IX

In terms of the nature of prosodic change, Form IX in both EA and MSA is marked by the gemination of the third root consonant: $C_1C_2aC_3C_3$. In MSA, this form expresses states reflecting colors and physical defects (Wright 1896; Ryding 2005). Both Wright (1896) and Ryding (2005) note that this form is rare in MSA. Kouloughli (1994: 207) (as reported in Ryding 2005: 579, fn. 1) reports a 0.5% occurrence of these forms out of the total number of Forms II–X in MSA. Similarly, Tucker (2010) observes that these forms are not common in Iraqi Arabic. This form is also nonexistent in Moroccan Arabic, although a counterpart of it is attested: CCaaC (Ali Idrissi, personal communication).

Arbaoui (2010) argues that MSA Form IX is deadjectival, and that it is derived, not from a root that denotes a color or physical defect, but rather from an adjective, itself derived from the root. According to her, this adjective component is what regulates the prosodic position that leads to surface gemination.

Form IX in EA is mainly associated with colors and physical defects, but it also denotes any change in physical appearance. As such, it is inchoative, and may understandably be said to involve adjectival roots (i.e., roots which are also found in adjectives). As a matter of fact, any Form IX verb can be translated as 'become/be adjective'. This however does not necessarily mean that Form IX verbs are derived from adjectives; rather, both the verbs and the corresponding adjectives are built out of the same abstract root. In contrast to MSA, Iraqi, and Moroccan Arabic, Form IX is rather productive in EA. Some examples of Form IX in this language are given in (59)–(65). Note that word order is free – the subject can also precede the verb:

EA Form IX

(59) mtann   l-walad.   (PHYSICAL PROPERTY)
      became-fat DET-boy
      'The boy became fat.'

(60) wsaʕʕ-at   l-kanduur-a.
      became-loose-3SG.F DET-dress-f
      'The dress became loose.'

(61) ħlaww   l-walad.
      became-handsome DET-boy
      'The boy became beautiful/ handsome.'

(62) ðˤʕaff   l-walad.   (PHYSICAL DEFECT)
      became-thin/weak DET-boy
      'The boy became thin.'

(63) ħwall   l-walad.
      became-crosed-eyed DET-boy
      'The boy became cross-eyed.'

(64) xðˤarr-at   l-ʃjara.   (COLOUR)
      became-green-3p.s.f. DET-tree
      'The tree became green.'

(65) swadd   l-beet.
      became-black DET-house
      'The house became black.'

All these verbs have corresponding adjectives as shown in (66)–(70):

(66)   l-walad   mtiin.   (PHYSICAL PROPERTY)
         DET-boy   fat
         'The boy is fat.'

(67)   l-kanduura   wsiiʕ-a.
         DET-dress   loose-F
         'The dress is loose.'

(68)   a.   l-walad   ħilw.
              DET-boy   handsome
              'The boy is beautiful/handsome.'

         b.   l-walad   ðˤʕiif.   (PHYSICAL DEFECT)
              DET-boy   thin/weak
              'The boy is thin.'

(69)   a.   l-walad   ʔaħwal.
              DET-boy   crosed-eyed
              'The boy is cross-eyed.'

         b.   l-ʃyara   xaðˤr-a.   (COLOUR)
              DET-tree   green-F
              'The tree is green.'

(70)   l-beet   ʔaswad.
         DET-house   black
         'The house is black.'

It can be assumed that Form IX verbs are deadjectival, derived by adding a little v layer to an adjectival projection. However, here, following standard assumptions in the Distributed Morphology framework, we assume that Form IX verbs are derived by adding a vP layer to the root projection, while the corresponding adjectives are derived by adding a little categorial aP. Thus, Form IX is derived directly from the root, which happens to also be related to an adjective, but not derived from the adjective itself.[10] Phonologically, on a par with all other templates, Form IX may be derivable via constraints on prosodic structure. We take it that it is phonologically realized by a sub-syllabic position, a mora, which is then filled in by the spreading of the third root consonant: $C_1C_2aC_3C_3$. Since empty moraic positions can be filled by either consonants or vowels, this analysis predicts that some varieties of Arabic may exploit the other option and have the vowel, instead, fill in the sub -syllabic position. Ali Idrissi (p.c.) points out that Moroccan Arabic verbs expressing colors and physical properties show this pattern: *wsaaʕ* 'it became wide' (EA *wsaʕʕ*), *dˤʕaaf* 'he became thin/weak' (EA *ðˤʕaff*), and *xdˤaar* 'it became green' (EA *xðˤarr*).

Syntactically, we assume that Form IX has the same syntactic structure as all forms with the exception that little v bears an inchoative feature (translated as BECOME X). Thus, the structure of the first sentence in (66): *mtann l-walad* 'the boy became fat' would be as shown in (71).

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[10] The choice of deriving Form IX verbs directly from the root or from an adjectival source is not crucial for our account. We have chosen the first option, following a lot of current work in the Distributed Morphology framework, but a deadjectival source would work equally well here.

(71)

VoiceP
DP   Voice'
Ahmad   Voice   vP
DP   v'
v   [INCHOATIVE]   RootP
C1C2aC3C3
DP   Root'
ROOT
mtn
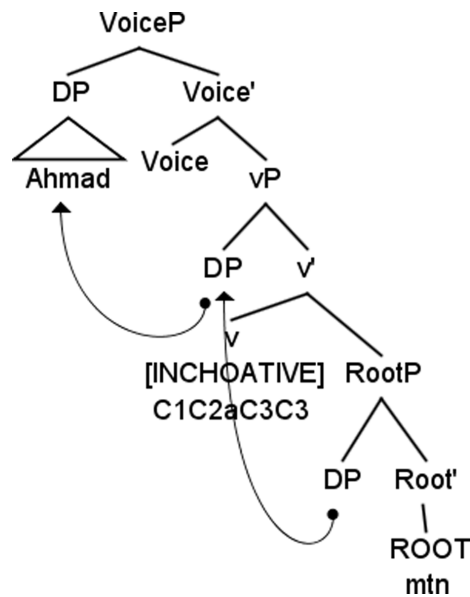
In accordance with basic assumptions of syntactic composition of lexical verb meaning (see for example Harley 1995; Marantz 1997), the inchoative interpretation is mediated by a an inchoative verbalizing v head, which does not select for its own external argument. The combination of the root and the v head provide the inchoative interpretation and the root argument raises to spec-vP and subsequently spec-VoiceP.

There are some roots that select other patterns along with Form IX. As the examples below show, the meaning of Form IX is consistent with the analysis provided.

Form I (Unmarked)	Form II (Causative)	Form IX (Inchoative)
l-ħabl tˤəwal.	Ahmad tˤawwal l-ħabl.	l-ħabl tˤwall.
'The rope became tall.'	'Ali lengthened the rope.'	'The rope lengthened.'
l-ħabl gəsˤar.	Ahmad gasˤsˤar l-ħabl	l-ħablg sˤarr
'The rope shortened.'	'Ali shortened the rope.'	'The rope became short.'
Ahmad ðˤəʕaf.	l-riʒiim ðˤaʕʕaf Ahmad.	Ahmad ðˤʕaff.
'Ahmad became thin.'	'The diet made Ahmad thin.'	'Ahmad became thin.'

6 Voice features: Reflexives/middles and passives

In the preceding section we discussed cases in which features on little v are realized via prosodic changes on the basic verbal stem. In what follows, we will turn to verb forms where morphosyntactic information is expressed by affixal material, namely *t-* (in either prefixal or infixal positions), *n-* and *st-*. The major claim in this paper is that these affixal segments are exponents of Voice and express reflexive, middle, and passive valency alternations.

6.1 Form V

Form V is morphologically characterized by the prefix *t-* and the gemination of the medial root consonant: t-C_1aC_2C_2aC_3. Wright (1896) adopts a linear view of this form in MSA and argues that it is formed by simply prefixing *t-* to Form II. Semantically, he argues that it bears the reflexive (e.g., *taxawwaf* 'to be scared') or the passive (e.g., *tafarraq* 'to scatter/be scattered') meanings and expresses the 'state into which the object of the action denoted by Form II is brought by that action, as its effect or

result.' (Wright 1896: 36). However, he points out that reflexivity is not a very prominent meaning and proposed instead that 'intensity' could emerge in this form as in *tafarraq* 'to scatter/be scattered' whose more accurate interpretation would be 'to scatter/be scattered into many small groups or into various directions'. Wright argues that Form V has an 'effective' meaning, which emerges from the reflexive meaning, in the sense that an act is done to a person whether it is caused by another agent or by the person himself/herself, as in *taʕʕalam* which can mean either 'to be taught' or 'to learn'.

Looking at the EA data in (72)–(73), we can see that Form V is also derived morphologically by adding the prefix *t-* to Form II causative verbs. The direct result of this morphological process is valency-reduction which may be interpreted in a number of different ways as is often the case cross-linguistically. The most frequent interpretations are those of reflexivization (79)–(80) and passivization (81)–(82):

(72)

Form II	Gloss	Form V	Gloss
ʕallam	'he taught'	tʕallam	'he learned'
zawwaʤ	'he married s.o. to s.o.'	tzzawwaʤ	'he got married'
ɣajjar	'he changed s.th.'	tɣajjar	'it changed'
wannas	'he showed s.o. a good time'	twannas	'he had a good time)
ɣadda	'he gave lunch to s.o.'	tɣadda	'he had lunch'
fasˤsˤax	'he tore s.th. apart'	tfasˤsˤax	'he took off his clothes'
bannad	'he closed s.th.'	tbannad	'he closed (intans.)'
ðakkar	'he reminded'	tðakkar	'he remembered'

(73)

Form II	Gloss	Form V	Gloss
bannad	'he shut s.th'	tbannad	'it was shut'
θamman	'he priced s.th.'	tθθamman	'it was priced'
wahhag	'he involved s.o.'	twahhag	'he was involved'
ʕawwar	'he inflicted pain to s.o.'	tʕawwar	'he was injured'
tˤaraʃ	'he sent s.th.'	tˤtˤaraʃ	'it was sent'

Some sentence examples are provided below:

(74)   Fatma tʕallem-at   l-swaaga.
        Fatma learnt-3.SG.F DET-driving
        'Fatma learnt driving.'

(75)   Ali tðakkar   l-ragəm.
        Ali remembered DET-number
        'Ali remembered the number.'

(76)   Ahmad tsalla.
        Ahmad enjoyed_himself
        'Ahmad enjoyed himself.'

(77)   l-ħabel   tgatˤtˤaʕ.
        DET-rope was-cut
        'The rope got cut.'

(78)   l-laħam   tjabbas.
        DET-meat got-dry
        'The meat got dried.'

(79)   Ahmad tjabbas.
        Ahmad froze
        'Ahmad froze.'/ 'Ahmed froze himself.'

(80)   Ahmad tsaddaħ.
        Ahmad lie_down
        'Ahmad lay down.' / 'Ahmed lay himself down.'

(81)   Ahmad tgatˤtˤaʕ.
        Ahmad was-criticized
        'Ahmad was (badly) criticized.'

(82)   Ahmad tʕayyan   mudiir.
        Ahmad was-appointed director
        'Ahmad was appointed director.'

In all these cases a mediopassive interpretation seems to arise from the verb forms with an additional reflexive meaning arising from the lexical semantics of the root. Thus, while in (74) it is plausible that Fatima is both the 'teacher' and the 'learner' in the act of 'learning', it is also OK to assume another teacher, and so no reflexive interpretation. Even in cases where a reflexive interpretation may seem more plausible, simple refelexivity tests show that the distributional behavior of these verb forms is not the same as with verbs with anaphoric objects, which involve a bound element (see Sells, Zaenen and Zec (1987) for such tests; see also Doron (2003) for their application in Hebrew verb forms with similar semantics). Importantly, the reflexive reading of the Form V verb does not involve a bound argument (83), unlike a verb with an anaphor object (84):

(83)   ɣassalt   ruuħ-i   aħsan ʕan   umm-i.
        washed.1SG self-1SG.POSS better from mom-1SG.POSS
        'I washed myself better than my mom.'
        Ambiguous: 'I washed myself better than my mom washes herself.'
                    'I washed myself better than my mom washes me.'

(84)   ɣtassalt   aħsan ʕan   umm-i.
        washed.1SG better from mom-1SG.POSS
        'I washed myself better than my mom.'
        Unambiguous: 'I washed myself better than my mom washes herself.'

The examples above indicate that Form V verbs in EA retain only a sloppy reading. We assume, following Sells, Zaenen & Zec (1987) that this is the case because a process of de-transitivization has taken place. In addition, the *statue* test provides a similar result (see Doron 2003 for Hebrew):

(85)   Ali tɣassal.
        Ali washed
        'Ali washed (himself).'

(86)   Ali ɣassal ruuħah.
        Ali washed himself
        'Ali washed himself.'

The example in (85), cannot be interpreted as Ali washing a statue of himself, while the example in (86) with the anaphoric object can. Thus, we conclude, following Doron

(2013), that the reflexive interpretation is not the realization of a reflexive argument as the morpheme *t-*, but rather that *t-* is the realization of a mediopassive feature of VoiceP, which suppress the causer argument introduced by the causative v (manifested as germination of the middle root consonant). This suppression occasionally (but not necessarily) can lead to reflexive interpretations.

We follow Alexiadou (2014) in assuming three different Voice heads, active, passive and middle (what we have termed here mediopassive). The middle voice head is just the non-active equivalent of active voice, both manifestations of the Voice head in Kratzer's (1994) account. Alexiadou assumes that passive projects in a higher Passive head which takes the active voice string as complement. However, for EA we assume that all voice manifestations are located in VoiceP (see also Alexiadou's 2014 similar analysis for Greek). In such an account then, EA projects two voice heads, an active voice which selects the vP (unmarked, causative or applicative/associative) and attracts (or merges) the highest projected argument to its specifier. Middle voice on the other hand suppresses this highest argument and allows for the next lower argument to be promoted. This results in valency-reduction as in the examples in (72)–(73), where the causative argument introduced by v is absorbed by Voice and the lower argument is attracted to spec-VoiceP. This results in a detransitivization of the verbal predicate, deriving an unaccusative from 2-place predicate bases. If the base is ditransitive (as in 'teach s.th. to s.o.') then the resulting predicate is transitive (e.g. 'learn s.th.').

Given that Form V verbs are usually intransitive because voice morphology absorbs a verbal argument, it is natural for the remaining argument to occasionally receive both actor-patient roles and occasionally patient roles (with an implied external actor) resulting in reflexive or mediopassive interpretations. This is in clear contrast with Form I and Form II verbs where the two roles are assigned to different arguments, as in (87) and (88), where Form I and Form II verbs are built out of the same root as Form V *tðakkar* (75).

(87)   Ali ðəkar   l-ragəm.   (Form I: Unmarked)
       Ali mentioned DET-number
       'Ali mentioned the number.'

(88)   Ali ðakkar   Ahmad b-l-ragəm.   (Form II: CAUSATIVE)
       Ali reminded Ahmad with-DET-number
   'Ali reminded Ahmad of the number.'

Finally, Form V can also take on the passive meaning, as in (81)–(82), where the verbs contrast with an active form (89)–(90) and imply an agent or causer that is distinct from the subject:

(89)   Ali gatˤtˤaʕ   Ahmad.   (Form II: CAUSATIVE)
       Ali badly-criticized Ahmad
       'Ali badly criticized Ahmad.'

(90)   Ali ʕayyan   Ahmad muddir.   (Form II: CAUSATIVE)
       Ali appointed Ahmad director
       'Ali appointed Ali as a director.'

Under our analysis, the structure of Form V will be like the one proposed for the causative form, with the addition of the middle morpheme under *Voice,* as shown in (91), representing the structure for the sentence in (77): *l-ħabl tgatˤtˤaʕ* 'The rope got-cut': In this representation, we adopt Marantz (1984) and Kayne's (1988) analyses in which they propose that *Voice* is itself a middle morpheme assigned the external theta role. This is

also compatible with recent approaches to the locus and function of voice morphology crosslinguistically, and provides a straightforward way to capture the different interpretations that the form receives (mediopassive, reflexive and so on):

(91)
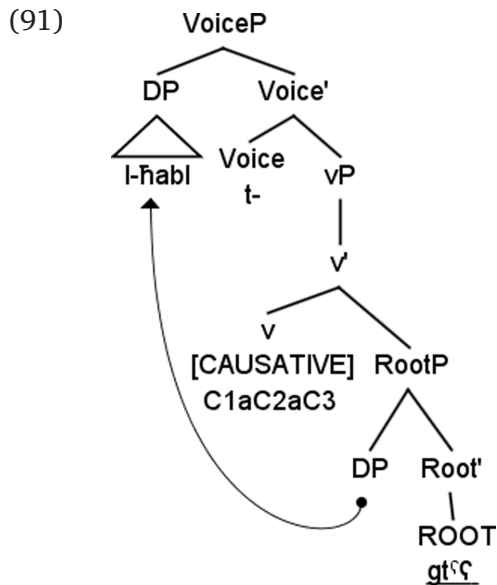
In the above configuration, the prefix *t-* heads a Voice projection which and instantiates non-active voice (the non-active equivalent of voice in Kratzer 1996). This mediopassive voice projects no specifier (see Alexiadou 2014 and references therein) but can host lower moved elements to its specifier (see also Schäfer 2008). Thus, we assume that the non-active voice morphology absorbs the higher causative argument (which in active voice cases merges in spec-vP) and provides the landing site for the lower argument of the verb, which moves to spec-VoiceP. This results in an intransitive structure which is underspecified for the semantic interpretation it can receive and thus it is interpreted as mediopassive or reflexive, based on the semantics of the root and speaker choice.

6.2 Form VI

Form VI is characterized by the prefix *t-* and a long vowel [aa] after the first root consonant: tC$_1$aaC$_2$aC$_3$. Based on its surface form, one may analyze it as a combination of the prefix *t-* and Form III. According to Ryding (2005: 543) and Wright (1896), in MSA this form bears mainly a reciprocal meaning. Additionally, it can have the meaning of pretense (e.g., *tamaawat* 'he acted as if he was dead'). Fassi-Fehri (2003) claims that form VI in MSA bears the reciprocal meaning. He suggests that it unifies the two subject participants of Form III. To illustrate Fassi-Fehri's view, let us consider the examples in (92)–(93):

(92)   saabaq   Ahmed Ali.
        raced.3M.SG Ahmed Ali
        'Ahmed raced Ali.'

(93)   tasaabaq   Ahmed wa Ali.
        raced. 3M.SG Ahmed and Ali
        'Ahmed and Ali raced.' (they raced each other.)

In (6a), the verbal form *saabaq* 'raced' suggests that both Ahmed and Ali are 'involved' in the action/event, although there is a slight difference in the degree of involvement between the two participants. The subject, Ahmed, is more active than the object, Ali. On

the other hand, the verbal form in (6b), *tasaabaq* 'raced (each other)', suggests that both participants are "subjects" of the same event (Fassi-Fehri 2003: 16–17).

In EA, Form VI is similar to Form V in that it attaches the same mediopassive prefix *t-* but this time the input is Form II verbs which we have termed associative/applicative in section 5.2. The function of the morpheme is similar to the one for Form V verbs: it absorbs the applicative argument that the v head has introduced, reducing the valency of the verbal predicate and allowing for the lower argument to project in spec-VoiceP. As a result, From VI in EA can give way to two interpretations: reciprocal and mediopassive. When it involves two animate participants (i.e., a plural subject, be it a dual or plural DP (e.g., *l-rjajil tðˁaarb-u* 'the men fought with each other'), or two conjoined DPs (e.g., *Ali wa Ahmed tðˁaarb-u* 'Ali and Ahmed fought with each other'), it acquires the reciprocal meaning. Whereas, when there is no implied agent, a mediopassive (with or without an external implied actor) reading is obtained.

Consider the examples in (31) that illustrate Form VI in EA.

(94)   tbaar-at al-Ain maʕa l-Weħda.   (Reciprocal)
        played-F Al-Ain with al-Weħda
        'Al Ain team played a match against Al-Weħda team.'

(95)   tsaabag Ahmed maʕa Ali.   (Reciprocal)
        raced   Ahmed with Ali
        'Ahmed raced/competed with Ali.'

(96)   tðˁaarab Ahmed maʕa Ali.   (Reciprocal)
        fought   Ahmed with Ali
        'Ahmed fought with Ali.'

(97)   tʃaatam Ali maʕa Ahmed.   (Reciprocal)
        cursed   Ali with Ahmed
        'Ali and Ahmed cursed.'

(98)   l-ryayil   tðˁaarb-u.   (Reciprocal)
        DET-men fought-PL
        'The men fought with each other.'

(99)   tfaaʒaʔ   Ali.   (Mediopassive)
        got_surprised Ali
        'Ali got surprised.'

(100)   tðˁaayag   Ahmed men Ali.   (Mediopassive)
        got_annoyed Ahmed from Ali
        'Ahmed got annoyed because of Ali.'

(101)   ttˁaaʕam Ali l-ʃuurba.   (Active/Transitive)
        tasted   Ali DET-soup
        'Ali tasted the soup.'

Examples in (94)–(98) show the reciprocal meaning of form VI, and those in (99)–(101) exemplify the mediopassive reading. One may suspect that the reciprocity reading arises from the use of the preposition *maʕa* 'with'. However, the example *l -rjajil tðˁaarb-u* 'the men fought with each other' shows that this is not true, as the verb is used with the plural subject 'men' while the reciprocal meaning still obtains, suggesting that reciprocity stems

from the verbal structure, rather than the preposition or conjunction. More such examples are provided below:

(102)

Form III	Gloss	Form VI	Gloss
ʃaawar	'he consulted s.o.'	tʃaawar	'deliberated with e.o.'
gaabal	'he met s.o.'	tgaabal	'met e.o.'
xaabar	'he telephoned s.o.'	txaabaraw	'telephoned e.o.'
ʤaawab	'he responded to s.o.'	tʤaawabaw	'responded to e.o.'
waafag	'he agreed with s.o.'	twaafag	'agreed with e.o.'
saaʕad	'he helped s.o.'	tsaaʕad	'helped e.o.'
faaham	'he understood'	tfaaham	'understand e.o.'

The following examples compare the meanings from Forms I, II, and VI clearly illustrating the reciprocal meaning of the latter:

(103)

Form I (Unmarked)	Form III (Applicative)	Form VI (Reciprocal)
Ahmed ʃetam Ali. 'Ahmed insulted Ali.'	Ahmed ʃaatam Ali. 'Ahmed insulted Ali.'	Ahmed wa Ali tʃaatam-u. 'Ahmed and Ali insulted e.o.'
Ahmed semaħ le Ali. 'Ahmed allowed Ali to do something'.	Ahmed saamaħ Ali. 'Ahmed forgave Ali'.	Ali wa Ahmed tsaamaħ-u. 'Ali and Ahmed forgave e.o.'
Ali sebag Ahmed. 'Ali bypassed Ahmed.'	Ali saabag Ahmed. 'Ali raced Ahmed.'	Ali tsaabag maʕa Ahmed. 'Ali and Ahmed raced e.o.'

Based on the analysis of Form III, which has the applicative meaning, we propose (34) to be the structure of Form VI.

(104)
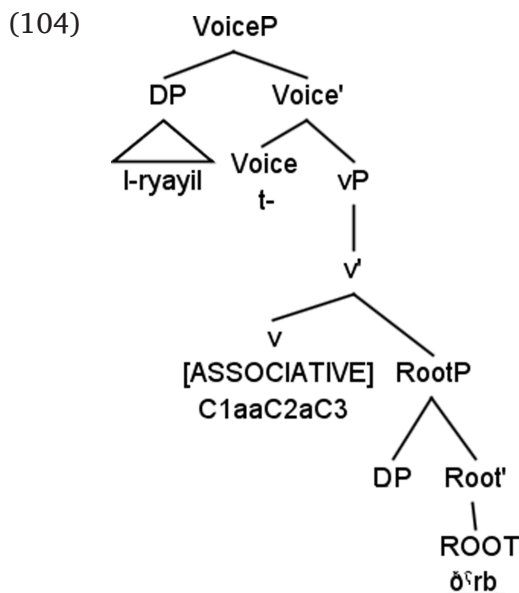
As the above syntactic tree shows, Form VI has the same structure as all forms. It precisely shares the structure of Form III (the applicative form), with the additional appearance of the prefix *t-* in Voice. The function of the prefix is the same as in Form V, i.e. it absorbs the higher argument which is introduced by the applicative v head and thus creates a mediopassive verb. The presence of the applicative verb Form III in the input implies the

involvement of one (or more) additional (usually human, see Section 5.2) participants and thus when the specifier of VoiceP appears as dual/plural or conjoined DPs, the string is interpreted as reciprocal. A singular subjects forces a mediopassive interpretation with an unaccusative (detransitivized) verb, as with the corresponding Form V discussed in the previous section (see examples (99)–(100)). Finally, a few transitive verbs are also derived in Form VII. This indicates a certain degree of lexical idiosyncrasy to the derivation of these forms, an issue which we discuss in detail in Section 8.

6.3 Form VII

Form VII is characterized by the realization of the prefix *n-* in the first syllable: $nC_1aC_2aC_3$. According to Wright (1896), Form VII in MSA is typically associated with either a middle or reflexive meaning (e.g., *nxadaʕ* 'to be deceived', *nqaad* 'to let oneself to be led'), or what he calls 'reflexive passive' (e.g., *nkasar* 'to break', *nqatˤaʕ* 'to be cut off'). Ryding (2005: 555) associates a range of meanings with this form, including reflexive, resultative, passive, or mediopassive meanings. We argue that Form VII primarily marks the passive of Form I in EA as illustrated by the examples below:

(105)

| Form I	Gloss	Form VII	Gloss
tiras	'he filled'	ntiras	'was filled'
ʕaraf	'he knew'	nʕaraf	'it became known'
tirak	'he left'	ntirak	'was left'
simiʕ	'he heard'	nsimiʕ	'was heard'
dara	'he knew'	ndara	'was known'
remas	'he talked'	nremas	'was said/talked about'
serag	'he stole'	nserag	'was stolen'
ʃaal	'he lifted'	nʃaal	'was lifted'
getal	'he killed'	ngetal	'was killed'
ʕagg	'he threw away'	nʕagg	'was discarded'

Some sentential examples are provided below.

EA Form VII

(106)   Ali nðˤerab.   (MEDIOPASSIVE)
         Ali was_hit
         'Ali was hit.'

(107)   nkesar   l-kuub.   (MEDIOPASSIVE)
         was_broken DET-glass
         'The glass was broken.'

(108)   ngetˤaʕ l- xeetˤ.   (MEDIOPASSIVE)
         was_cut   DET-thread
         'The thread was cut.'

(109)   nɣesal   l-leħaaf.   (MEDIOPASSIVE)
         was_washed DET-blanket
         'The blanket was washed.'

(110)   nʃeɣal   Ali.   (MEDIOPASSIVE)
         was_made_busy Ali
         'Ali was (made) busy.'

(111)   nserag   l-ketaab.   (MEDIOPASSIVE)
        was_stolen   DET-book
        'The book was stolen.'

The function of the passive prefix *n-* is similar to that of the Voice prefix *t-* discussed in the previous two sections for Forms V and VII. It absorbs the external/highest theta role of the verbal predicate as well as accusative case assignment, allowing for the lower argument to raise to spec-VoiceP. Thus, we propose that Form VII would have the same structure as Form I with the passive morpheme *n-*, like all affixes, realized under Voice:

(112)
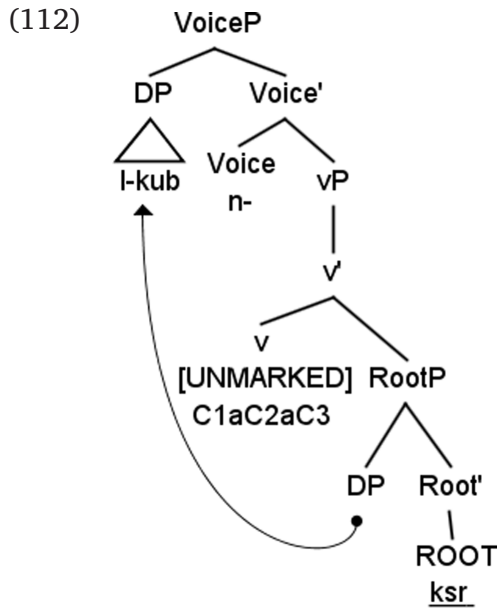
We take *n-* to realize mediopassive/middle voice and not passive voice as in Alexiadou's (2014) analysis where Passive heads a higher projection selecting the full active voice string as its complement. The prefix *n-* simply realizes the non-active equivalent of active voice Form I. That is, *n-* is in complementary distribution with *t-* in that the two mediopassive affixes select for different vPs – *n-* selects for the unmarked vP while *t-* selects for vPCAUSATIVE and vPAPPLICATIVE.

   In (113), we provide examples of all the forms covered so far formed with the same root. The reader can see that the different meanings of these verbs are consistent with the analysis developed in the preceding sections.

(113)   Forms   Example   Meaning

        Form I   Ahmed getˤaʕ l-xeetˤ.   (CAUSATIVE)
                      'Ahmed cut the thread.'

        Form II   Ahmed gatˤtˤaʕ l-xeetˤ.   (CAUSATIVE)
                      'Ahmed cut the thread.'

        Form III   Ahmed gaatˤaʕ Ali.   (APPLICATIVE)
                      'Ahmed cut ties with Ali.'

        Form V   l-xeetˤ tgatˤtˤaʕ.   (MIDDLE)
                      'The thread got cut.'

        Form VI   l-ryayil tgaatˤaʕ-u.   (RECIPROCAL)
                      'The men cut ties with each other.'

        Form VII   l-xeetˤ ngetˤaʕ.   (PASSIVE)
                      'The thread was cut.'

As we have seen with other forms so far, Form VII also presents a number of derived forms which present non-expected mediopassive structure and interpretations. A few examples are provided below:

(114)   Ahmed nxemad.   (INTRANSITIVE)
         Ahmed slept
         'Ahmed slept.'

(115)   Ali ntˤabb.   (INTRANSITIVE)
         Ali shut-up
         'Ali shut his mouth.'

We will discuss these exceptions in detail in Section 8.

6.4 Form VIII

Form VIII is morphologically marked with the infix *-t-* after the first root consonant: $C_1taC_2aC_3$. In MSA, Form VIII is mainly associated with reflexive, mediopassive, resultative and reciprocal meanings (Wright 1896; Ryding 2005: 565). In EA, Form VIII is also widely associated with mediopassive/reflexive/reciprocal interpretations (116)–(123). In fact, as Ryding (2005: 565) notes for MSA, Form VIII verbs "express a wide range of meanings that are difficult to predict". This is also true for EA:

EA Form VIII

(116)   Ali ntaħar.   (REFLEXIVE)
         Ali killed-himself
         'Ali committed suicide.'

(117)   Ahmed rtaaħ.   (REFLEXIVE)
         Ahmed rested-himself
         'Ahmed rested himself.'

(118)   fteðˤaħ   l-welad.   (REFLEXIVE)
         embarrassed-himself DET-boy
         'The boy got embarrassed.'

(119)   ʃtaɣal   l-telfizyuun.   (MIDDLE)
         worked DET-TV
         'The TV worked.'

(120)   ntefax   xaʃm-i.   (MIDDLE)
         got_swollen nose-1SG.POSS
         'my nose got swollen.'

(121)   ħterag   l-beet.   (MIDDLE)
         got_burned DET-house
         'The house got burned.'

(122)   mtaħan   Ahmed.   (UNMARKED)
         had_exam Ahmed
         'Ahmed had an exam.'

(123)   ʃtera   Ahmed sjjara.   (TRANSITIVE)
         bought Ahmed car
         'Ahmed bought a car.'

As can be seen from these interpretations, Form VIII carries a reflexive/mediopassive meaning based on the Form I morphology. However, the example in (123) bears the unmarked meaning, or the simple meaning of 'to buy'. Since Form VIII is derived from Form I, we propose that they are built on the same structure with the infix -*t*- being realized on the Voice head in Form VIII:

(124)
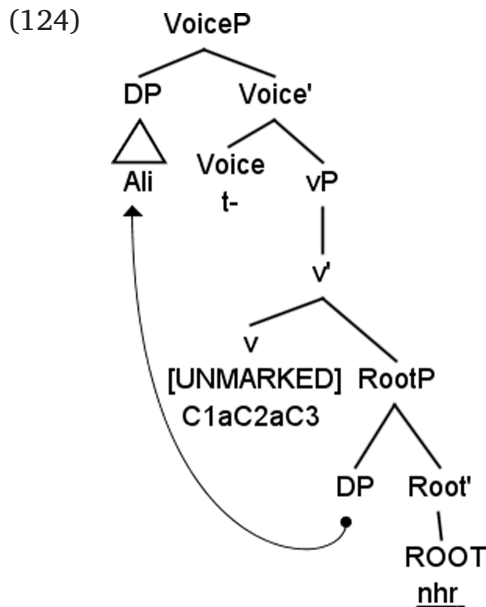
The fact that Form VIII is built on Form I straightforwardly explains the polysemy of the resulting verbal strings. Following our discussion in Section 4, Form I is the default form in Arabic and, as such, negotiates its meaning locally in the *first phase* domain, containing the root and any possible internal arguments. At this level, the *polysemy* of the root allows for numerous choices of meaning to be negotiated and fixed. Once the little v is projected, the meaning is fixed to one of these possible interpretations. This allows for a wide range of interpretations to be available. Once one of these numerous possibilities is locked, the meaning remains fixed with the addition of higher functional projections.

For other Arabic verb forms, this polysemy is not available, as the little v head which verbalizes the root carries additional features (causative, associative, inchoative) which force specific meanings when combined with the root.

Once again, to highlight the meaning of Form VIII, it is worthwhile looking at cases where the same root is used in Form VIII templates and other templates. This is illustrated by the root √*rfʕ* 'raise' in (125):

(125)	*Forms*	*Example*	*Meaning*
	Form I	Ahmed refaʕ l-ʕalam. 'Ahmed raised the flag.'	(CAUSATIVE)
	Form II	Ahmed raffaʕ Ali. 'Ahmed promoted Ali.'	(CAUSATIVE)
	Form V	Ali traffaʕ. 'Ali got promoted.'	(MEDIOPASSIVE)
	Form VIII	l-ʕalam rtefaʕ. 'The flag got raised.'	(MEDIOPASSIVE)
	Form VII	nrefaʕ l-ʕalam. 'The flag was raised.'	(PASSIVE)

6.5 Form X

Form X is morphologically marked by the prefixes *s-* and *t-*[11]. On the surface, Form X appears as a combination of the prefix (es) *st-* and MSA Form IV '*afʕal*' (as in *adxal* 'to cause to enter'): st-aC_1C_2aC_3.

According to Wright (1896), in MSA this form is a combination of the prefix *st-* and Form I. He claims, however, that its meaning is derived from Form IV (*afʕal*). Thus, Form X could be either the middle or reflexive of Form IV: e.g., *axraʒ* 'to cause something/somebody to come/go out' as opposed to *staxraʒ* 'to extract something for oneself'. Wright also proposes that Form X indicates 'possession' or some sort of 'beneficiariness' meaning (e.g., *aħall* with underlying *aħlal* 'to cause it to be lawful', *staħall* with underlying *staħlal* 'he made it lawful for himself'). Additionally, it may express demands/requests, as in *staʔðan* 'he asked for permission', *stajfar* 'he asked for pardon', *stasqa* (underlying *stasqay*) 'he asked for something to drink'. Wright also states that this form could have an unmarked meaning, as in *staħja* (underlying *staħjaj*) 'he was ashamed/embarrassed', *staħaqq* (underlying *staħqaq*) 'he deserved'. However, according to Wright, a close examination of this form should show that these verbs are reflexive in nature (e.g., *staħja* 'to make oneself ashamed', *staħaqq* 'to cause something to be due to oneself as a right; Wright 1896: 45).

Fassi-Fehri (2003) claims that Form X in MSA is the reflexive of the causative Form IV. This reflexivity is realized either as a pure reflexive (e.g., stajqaðˤ-a 'to wake oneself up' derived from Form IV *ajqaðˤ-a* 'to wake someone up') or as a benefactive (e.g., *staktab-a-haa* 'he made her write for his benefit' derived from Form IV *aktab-a-haa* 'he made her write'). Thus, for Fassi-Fehri, Form X is either reflexive causative or 'requestative' causative: *stafham-a* 'he asked to explain (make himself understand)'. In fact, Fassi-Fehri proposes that Form X involves a kind of *double* causation. For instance, in *Ali stafaham-a Ahmed* (meaning 'Ali asked information from Ahmed'), what we have is: Ali caused Ahmed to cause him (i.e., Ali) to know/be informed.

In EA, Form X is not very common, and most of the verbs built on it are borrowed from MSA or other Arabic varieties (particularly, Egyptian). We concur with the previous analysis of MSA in that Form X is built on Form IV (causative in MSA) but propose that Form X in EA is associated with the general meaning of reflexivity. This is consistent with our analysis of reflexive/middle forms where the morpheme *t-* realizes the reflexive/middle feature under *Voice*. In (42) are a few examples illustrating the uses of this form.

EA Form X

(126)   Ali staqaal.   (Reflexive)
        Ali resigned
        'Ali resigned'

(127)   Ahmed staʕbatˤ.   (PRETENCE)
        Ahmed acted_stupid
        'Ahmed acted stupidly.'

(128)   Ali stagwaa   ʕalina.   (PRETENCE)
        Ali acted_strong on us
        'Ali acted as if he were strong.'

(129)   Ali Staxdam l-galam.   (BENEFACTIVE)
        Ali used   DET-pen
        'Ali used the pen.'

---

[11] It is not clear if these are two separate morphemes or a single morphological unit.

(130) Ahmed staɣfar   Allah.   (BENEFACTIVE)
       Ahmed asked_pardon God
       'Ahmed asked pardon from God.'

This polysemy of Form X in EA can be explained if we assume (as in Fassi-Fehri 2003) that Form X in is historically the reflexive of the causative Form IV. The problem with this analysis is that the base on which Form X is built on, namely Form IV, is not available in EA. Given this gap, the only available analysis for us is that form X is built by merging a default verbalizer (with no causative, inchoative, or associative features) directly to the root, and having the semantic interpretation of the form negotiated at root level with all available options that the root contains. The affix *st-* merges at the Voice level and provides the mediopassive/reflexive interpretation, which is frequently associated with this form.

7 The distribution of roots and templates in EA

The observation that consonantal roots in Arabic generally select only a subset of the templates available has always been made (McCarthy 1979), but the phenomenon itself has never been explained. As mentioned earlier, we assume a local selection relationship between a root and features of little v and features of voice. In this section, we will present a few cases where the same root can appear with more than one verbal template and show that this distribution follows from the structure and analysis defended in this paper. When the meaning of a given form diverges from the general meaning of the roots, that meaning is provided in a foot note. Each form is indicated by the Roman numeral that corresponds to it.

(131)

Distribution of roots and templates in EA							
I	VII	VIII	II	V	III	VI	Root
							meaning
kesar	nkesar	–	kassar	tkassar	kaasar[13]	tkaasr	'break'
feðˤaħ	nfeðˤaħ	fteðˤaħ	faðˤðˤaħ	tfaðˤðˤaħ	–	–	'reveal'
fetaħ	nftaħ	ftetaħ	fattaħ	tfattaħ	–	–	'open'
refaʕ	nrefaʕ	rtefaʕ	raffaʕ	traffaʕ	–	–	'raise'
ʃeɣal	nʃeɣal	ʃtaɣal	ʃaɣɣal	tʃaɣɣal	–	–	'work'
ħerag	nħerag	ħterag	ħarrag[14]	–	ħaarag[15]	tħaarag	'burn'
–	–	–	tˤaʕʕam[16]	ttˤaʕʕam	tˤaaʕam	ttˤaaʕam	'taste'
–	–	–	–	–	xaawa	txaawa	'become friends'
semaħ	nsemaħ	–	–	–	saamaħ	tsaamaħ	'forgive'
–	–	–	–	–	naazaʕ	tnaazaʕ	'fight'
–	–	–	baddal[17]	tbaddal	baadal	tbaadal	'change'
–	–	–	–	–	faaʒaʔ	tfaaʒaʔ	'surprise'
deʕam	ndeʕam	–	daʕʕam	tdaʕʕam	daaʕam	tdaaʕam	'hit'
ɣemas	nɣemas	–	ɣammas	tɣammas	–	–	dip'
dexal	–	–	daxxal	tdaxxal	–	–	'enter'
sedak	–	–	saddak	–	–	–	'massage'

(Cont.)

sˤefaʕ	nsˤefaʕ	–	sˤaffaʕ	tsˤaffaʕ	–	–	'slap'
yebas	–	–	yabbas	tyabbas	–	–	'dry'
sebag	–	–	–	–	saabag	tsaabag	'race'
remas	–	–	rammas	trammas	–	–	'talk'
nesax	–	–	nassax	tnassax	–	–	'write'
mesak	nmesak	–	massak	tmassak	–	–	'hold'
mesˤaʕ	nmesˤaʕ	mtesˤaʕ	masˤsˤaʕ	tmasˤsˤaʕ	–	–	'take off'
lebas	nlebas	Ltebas	labbas	tlabbas	–	–	'wear'
kenas	nkenas	–	kannas	tkannas	–	–	'sweep'
Ketab	nketab	–	kattab	tkattab	–	–	'write'
geraa	ngeraa	–	garra	tgarra	–	–	'read'
geħam	–	–	gaħħam	tgaħħam	–	–	'enter'
ʕeraf	nʕeraf	ʕteraf	ʕarraf	tʕarraf	–	–	'know'
ʕekas	nʕekas	ʕtekas	–	–	ʕaakas	tʕaakas	'mirror'
xaʃʃ	nxaʃʃ	–	xaʃʃaʃ	txaʃʃaʃ	–	–	'hide'
ðekar	nðekar	–	ðakkar	tðakkar	ðaakar[18]	–	'remember
–	–	–	ʔaddab	tʔaddab	–	–	'be polite'
–	–	–	ɣayyar	tɣayyar	–	–	'change'
–	–	–	ʕallam	tʕallam	–	–	'teach'
tˤera	ntˤera	–	–	–	–	–	'mention'
ʕewar	nʕwar	–	ʕaawar	tʕawwar	ʕaawar[19]	–	'hurt'

A close look at the data reveals that when a root selects Form II and Form V, it tends not to be attested with Form III and Form VI. However, when this happens, generally the roots are only homophonous but lexically different. This may suggest that the features [+causative] and [+associative] dispensed by little v are selected by roots in a mutual exclusive fashion. While this generalization is interesting, we will leave the issue open for further research.

8 Discussion

Since the seminal work on Semitic verbal morphology in McCarthy (1979; 1981), decompositional accounts of the Semitic verb stem have assumed a tripartite structure consisting of the consonantal root, the template and the vocalic melody, and thus allowing for three distinct morphological entities to be mapped to different phonological tiers. While this analysis has provided an elegant answer on how the attested verbal forms are derived, it has nothing to say about the semantics of the derived verbs. More recent work (Arad 2003; 2005; Doron 2003; Tucker 2010; Wallace 2013; Kastner 2018, among others) has attempted to recast these three different morphological units into a syntax-based account of verb form derivation couched mainly in the DM framework. However, while the consonantal root has easily found its place in the DM framework, which assumes that the root is the base of any lexical derivation, and while the vowels in the vocalic melody tier have been assumed to merge at the VoiceP level, in all these accounts, the status of the template as a morphological primitive has been questioned. In fact, both Kastner (2018) and Tucker (2010) take the template to be a mere phonological byproduct, derived from a syntactic structure which provides the root and template vowels through hierarchies of

soft violable constraints couched within Optimality Theory (Prince & Smolensky 1993; 2004).

Following Arad (2003; 2005), we argue here that the template is in fact a morpheme, occupying the little v projection, in contrast for example to Kastner (2018) who takes the v head in Hebrew to always be phonologically null. The main argument for our approach comes from the systematic regularity of meanings that the different patterns carry. Thus, the pattern $C_1aC_2aC_3$ for Form I and $C_1aC_2C_2aC_3$ for Form II in EA, almost always result in equal or greater valency for Form II with otherwise very similar meanings derived from the consonantal root. Form V on the other hand always detransitivizes Form II using voice morphology to absorb its external/highest argument.

An additional argument for the status of the template as a morphosyntactic entity comes from selectional properties. The prefix *t-*, which here we have assumed to project a Voice phrase with mediopassive properties, selects for specific templates: it selects Form II verbs to derive mediopassive Form V verbs with the higher causative argument absorbed and mediopassive/reflexive interpretations and it selects Form III (the applicative/associative form) to derive Form VI verbs, absorbing the additional applicative argument and deriving again mediopassive/reciprocal verbs. No other Form (e.g. Forms I, VII, VIII, IX and X) can be the input to any of these two Forms. This is explained straightforwardly in the account presented here as the prefix *t-* is just the non-active version of the Voice head in the causative and applicative constructions and selects for the specific $v_{CAUSATIVE}$ and $v_{APPLICATIVE}$ which head Forms II and III respectively.

The main argument against a decompositional account of verbal morphology in EA as presented here may come from the idiosyncratic character of the derived verbal forms. As has been noted in numerous studies of verbal lexical decomposition crosslinguistically (see for example Hale & Keyser 1993; Travis 2000; Marantz 2001; Travis 2010 among others), syntactic operations that apply to the lower part of the syntactic spine, namely the VP and its immediate higher projections, derive syntactic strings which exhibit a number of idiosyncratic properties which have been attributed to the lexicon in the broader literature. One such property is weak productivity, i.e. not all processes apply to all forms, in order to derive the target strings with the expected interpretations. A second property is semantic transparency. Thus, the output of a morphosyntactic operation at this level may exhibit unexpected semantics. Other lexical properties may include category-changing operations (nominalizations, verbalizations) and so on. These idiosyncratic properties contrast with syntactic operations that apply to higher verbal functional projections (e.g. Tense and the CP layer) in that the latter are productive (apply to all possible strings) and exhibit predictable compositional semantics.

In order to capture this contrast, Hale and Keyser (1993) and Travis (2000; 2010) introduce a division in the syntactic spine, assuming the existence of a lexical syntax (l-syntax) and a syntax proper (s-syntax) which are subject to exactly the same set of syntactic rules/operations. The only difference is that operations applying to the lower l-syntax domain are subject to lexical idiosyncratic properties while rules that apply to s-syntax are not. Based on evidence from Malagasy and Tagalog, Travis (2000; 2010) assumes that the boundary between l-syntax and s-syntax is the EventP projection, a higher aspectual projection which binds the event argument of the verb. Malagasy and Tagalog causatives which are formed below EventP exhibit idiosyncratic properties in the same way that Form II causatives in EA do. Let us consider a number of examples to illustrate this. The lower, lexical Malagasy causative prefix is *an-*, which derives transitive verbs from Malagasy roots. A separate prefix *i-* derives the intransitive equivalents. Here are some examples:

(132)   *Malagasy*

Root	Gloss	*i*-form	Gloss	*an*-FORM	GLOSS
latsaka	'dirt'	milatsaka	'fall'	andatsaka	'drop'
sasa	*	misasa	'wash self'	manasa	'wash x'
seho	'fear; terror'	miseho	'appear'	maneho	'show'
petraka	'illness'	mipetraka	'sit'	mametraka	'put'
sitrika	'be buried'	misitrika	'hide'	manitrika	'hide x'
solo	'substitute'	misolo	'be substitute'	manolo	'substitute x'

Travis (2000; 2010) based on these data proposes that *an-* is a low causative head, which acts as a transitivizer of the verb, adding a causer argument. The prefix *an-* attaches above a lower AspP projection which dominates the root domain (VP in Travis' 2000; 2010 account). However, Travis assumes that this causative rule is *lexical* in that it exhibits several idiosyncratic properties. While most roots in (3) are assumed to be adjectival or nominal, the resulting string is always a verb. Secondly, the derived string does not always exhibit transparent semantics. Thus, the root *latsaka* in (132) means 'dirt', but the resulting transitive verb means 'to drop'. In terms of productivity, these forms while relatively productive have numerous exceptions. Thus, there are Malagasy transitive verbs which are formed by adding the intransitive prefix *i-*, such as *mividy* 'buy x' from the root *vidy* 'price, value', in addition to Malagasy *an-* prefixed forms which appear to be intransitive, such as *mandeha* 'go' from the root *leha* or *mandixy* 'dance' from *dihy* 'a dance'. Finally, there is a clearly lexical phonological rule which deletes voiceless root-initial consonants after the nasal of the prefix, which undergoes nasal place assimilation: man- + petraka –> mametraka 'put'. This contrasts with postlexical rules, such as prenasalization of root-initial consonants, observed for example in reduplication. Based on all these properties, Travis proposes that *an-* prefixation is a syntactic rule which operates in l-syntax, the lower idiosyncratic lexical domain.

A quick examination of Form II derivation in EA shows that it exhibits similar properties with the Malagasy *an-* prefix. Thus, Form II verbs very often are derived from non-verbal bases, e.g. they are denominal or deadjectival (see Section 5.1, examples (26)–(27)). In terms of semantic opacity, not all verbs in Form II add an additional causative meaning. As we have already seen in Section 5.1, in many cases Form I verbs may share the same usage and meaning with the corresponding Form II verbs. For example, both Form I *kəsar* and Form II *kassar* have exactly the same interpretation 'he broke something' in EA. In addition, there are cases where the Form II verb adds a kind of intensity to the action described by the corresponding Form I verb and not causation. Thus, from Form I *gatal* 'he killed' we have Form II *gattal* 'he massacred' and from Form I *taras* 'he filled' we have Form II *tarras* 'he filled to the brim'. Thus, as with the Malagasy causative prefix, Form II in EA does not always have transparent semantics, nor perfect productivity. It is logical to assume then that Form II verbs are formed on a similar transitivizing causative head, which we have termed $v_{CAUSATIVE}$ here, and which operates at the level of l-syntax.

A similar type of semantic idiosyncrasy operates at the higher Voice level as we have seen in sections (6.1 and 6.2). Many Form V and Form VI verbs in EA have a mediopassive meaning, but others can be interpreted as simple intransitive (unaccusative) verbs or carry a reflexive (for Form V) or a reciprocal (for Form VI) meaning. This seems to be a crosslinguistic generalization. In many languages, the same verbal form (with or without overt voice morphology) can have a middle, passive, or reflexive interpretation. For example, the traditionally termed passive voice suffix (glossed as NACT (non-active)) is used in Greek to mark reflexive, passive, anticausative, and middle forms, as exemplified in (133)–(136):[12]
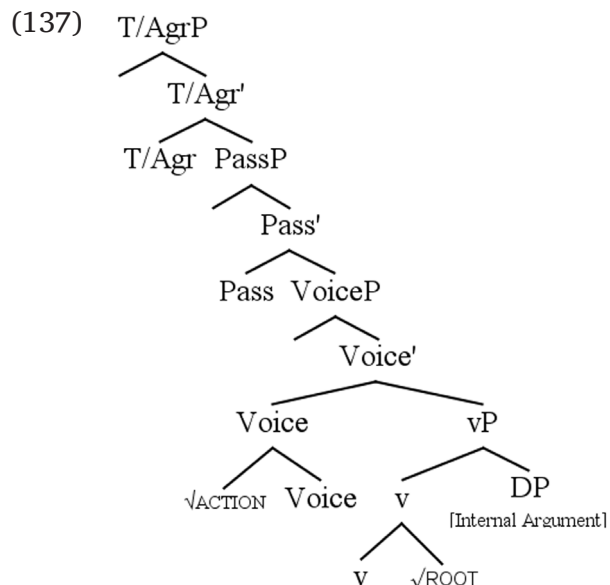
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[12] Examples from Alexiadou (2014).

(133) *Greek*
    To vivlio diavastike   apo to Jani.   (PASSIVE)
    the book read-NACT-3SG by the John
    'The book was read by John.'

(134) *Greek*
    I supa   kaike.   (ANTICAUSATIVE)
    the soup-NOM burnt-NACT-3SG
    'The soup burnt.'

(135) *Greek*
    I Maria   htenistike.   (REFLEXIVE)
    the Mary-NOM combed-NACT-3SG
    'Mary combed (herself).'

(136) *Greek*
    Afto to vivlio   diavazete   efkola.   (MIDDLE)
    this the book-NOM reads-NACT-3SG easily
    'This book reads easily.'

This is also the case with several other languages, including Eastern Armenian, Hebrew and German. Based on these data, Alexiadou (2014), building on work in Doron (2003; see also Alexiadou & Doron 2012; Alexiadou, Anagnostopoulou & Schäfer 2015) proposes three distinct Voice heads: active, middle and passive. She assumes that passive merges above VoiceP as a separate Passive head and that VoiceP hosts two distinct Voice heads: the (active) Voice of Kratzer (1996) and the non-active/middle Voice head. The latter does not project a specifier and thus it exhibits unaccusative properties. However, its interpretation may vary depending on the semantics of the root: roots with natural reflexive semantics (like 'wash' or 'shave') will trigger a reflexive interpretation. Other roots will trigger inchoative or passive interpretations. As Alexiadou (2014: 34) notes "(such a) structure […] is thus underdetermined for the semantic interpretation it can receive: […] depending on the type of root the structure contains, it can yield a reflexive or a passive interpretation. This crucially means that middle Voice is underspecified, which leads to ambiguity with the same root, unless the context provided further specification. The former interpretation is readily available with natural reflexive roots, the latter with natural disjoint predicates. Since this structure is underspecified, speakers are relatively free to choose an interpretation that would go along with it."

  A final issue that needs to be discussed is how non-linear morphology such as the verbal template is linearized at PF. Linearization accounts of Semitic verbal morphology (such as Tucker 2010 for Iraqi Arabic; Kastner 2018 for Hebrew) are essential in order to understand how the morphosyntactic structures, which are independently necessary in order to also capture the semantic interpretations of the derived verbal forms, interface with the phonological component. Both accounts use an optimality theoretic analysis for translating morphosyntactic structures into surface strings, with the only difference that Tucker (2010) only discusses citation forms, while Kastner (2018) provides a more detailed analysis of fully inflected verbal forms, including Tense and Agreement morphology. We have chosen to avoid any discussion of linearization here, as our focus is the internal morphosyntactic structure of the attested verbal forms and how it maps to their semantics. We just briefly provide an example of such linearization below, taken from Kastner (2018), for illustrative purposes.

Kastner (2018) assumes a standard hierarchy of verbal functional projections with a root base, followed by a verbalizing, phonologically null, v head and a VoiceP projection which can have three different flavors, depending on whether it requires or not a DP in its specifier (or remains unspecified). The root domain provides the consonantal root of the verb in Arabic, while v verbalizes this root and provides a projection for the internal argument if present, while voice hosts the templatic vowels. A separate head √ACTION may be attached at the VoiceP level, imposing a [+ HUMAN] requirement on the DP in spec-VoiceP. Passive voice (if present) merges above VoiceP, followed by a complex Tense/Agreement head:

(137)

```
                    T/AgrP
                    /\
                   T/Agr'
                   /\
              T/Agr  PassP
                     /\
                   Pass'
                   /\
               Pass  VoiceP
                     /\
                  Voice'
                  /\
             Voice      vP
             /\         /\
     √ACTION  Voice   v    DP
                     /\   [Internal Argument]
                    v  √ROOT
```

It is crucial for Kastner's analysis that while all other heads in the structure have a morphological exponent, v is null. When the structure is sent to Spell-Out, the DM morphological component applies an operation of Pruning (Embick 2010), eliminating null heads like v and thus establishing adjacency between heads that are otherwise too far to license contextual allomorphy, like Voice and the Root. As a result, the idiosyncratic lexical properties of the root can license contextual allomorphy on the vowels in Voice. In addition, if the passive is not present, Tense (and Agreement) can additionally license allomorphy to the stem vowels. This is not possible when passive is overtly realized. We will not go into the details of the system here, but it seems to capture elegantly the distribution of vowels in the different Hebrew verbal forms based on specific rankings of numerous optimality theoretic soft constraints, which relate to phonological and prosodic properties of the relevant forms.

In such an account, the template is not a morphosyntactic primitive and is derived at the syntax-phonology interface. We will not discuss the analysis here, as it would have to be significantly adjusted to capture the EA data, where the non-active, mediopassive, reflexive and reciprocal forms involve additional morphology. We will only point out that dispensing with the template results in a peculiar *coincidence* of having the right number of vowels in VoiceP to avoid consonant clusters. If root and voice are completely different morphological primitives, then there is a priori no requirement that they have matching *length* descriptions. A three-consonantal root could easily combine with three or four consonants in Voice to create forms which could potentially be optimal candidates for the rankings of soft constraints imposed in Kastner (2018). The fact that this is not the case is at least surprising. Imposing such a restriction on the number of available vowels as

exponents of Voice seems to us a way to bring back the template as a significant factor in the derivation of the verb stem.

Doron (2003) adopts a syntactic-semantic analysis in order to account for the compositional structure and meanings of Hebrew templates. She particularly introduces two syntactic heads to capture the different meanings associated with those templates: *agency* and *voice* heads. She also suggests that the root and its arguments are optionally embedded under a light verb v which introduces the agent. Under Doron's analysis, causative is a possible value of the agency head whereas middle and passive are values of the voice head.

As far as her analysis of the causative is concerned, Doron states that a causative verb should be interpreted as a single event which has a causer participant. She argues that there is no evidence for event decomposition in her analysis of causative. Therefore, there is no need to introduce a new "causing event" in addition to the main event denoted by the verb. She argues that Semitic templates give supporting evidence for introducing the agency head, in that both causative and intensive templates characterize an event as an action. Thus, in Doron's view, the only way to distinguish between the events/actions introduced by the intensive and the causative templates is by considering the different thematic relations in each template: the causer role in the causative template and the actor role in the intensive template. Agency, therefore, is an important syntactic head because it is mainly what distinguishes between the causative and the intensive templates.

The analysis of the causative we defend in this paper is different from Doron's. Causative verbs in our analysis are interpreted as denoting two events; one is denoted by the causative feature of little v and the other, by the root. Additionally, the agency head is not necessary as there is no intensive template in EA. However, before going any further, it is important to note that the morphological realization of the Hebrew causative is different than that of EA. Specifically; the causative in Hebrew involves prefixes which we claim are the realization of voice in EA. Then, causative in Hebrew says something about the external argument, while Form II causative in EA says something about the causing event. In sum, the causative in Hebrew is analyzed with information about the external argument in voice, while causative in EA is associated with information about the causing event in little v.

All the Hebrew templates are given in (138):[13]

(138)   Hebrew Templates

	Active voice	*Passive*	*Middle*
Simple template	[C]a[C]a[C]	–	ni[C][C] a[C]
Intensive template	[C]i[C]([C])e[C]	[C]u[C]([C])a[C]	hit[C]a[C]a[C]
Causative template	hi[C][C]a[C]	hu[C][C]a[C]	–

As shown in (138), Hebrew has two passive forms: the intensive passive and the causative passive. It appears that the intensive passive involves vowel change, whereas the causative passive is realized by vowel change and the prefix {hu-}. Doron requires the presence of a voice head to account for the passive reading of the templates. She establishes that the passive morphology essentially modifies the verb, not just the root. This would explain why passive in Hebrew verbs are derived only from roots for which the active verb exists, unlike middles which (can) occur alone.

With respect to the middle, Hebrew has two middle templates, both involving prefixation.[14] Doron posits that middles, just like passives, could be accounted for within the voice head. However, the middle morpheme is not a modifier of the verb, but rather a

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[13] The templates are taken from Doron's paper (2003).
[14] On the surface, the middle template of Form I is morphologically similar to the passive template of the causative form, as can be seen in (138).

modifier of the root. Thus, middles, as opposed to passives, do not require a corresponding active form. Doron defines two types of middles: unaccusative and reflexive. She points out that middles do not introduce their own argument since they are modifiers of the root, but they identify their arguments with the arguments of the root. Consequently, the middle morpheme may assign the agent thematic role to the argument of the root, which explains why certain middle verbs are interpreted as reflexives.

Our account of middles in EA is consistent with Doron's. We assume that EA has no Passive head and that passive is just an interpretation of the non-active (middle) head together with middle and reflexive (and possibly anticausative). In this respect EA behaves exactly like Greek in Alexiadou's (2014) account where the non-active head is unspecified and can take different interpretations depending on the root. As we showed earlier, the middle morpheme is the realization of the voice head. Yet, this morpheme can be interpreted as reflexive; depending on the semantics and argument structures of the roots.

In sum, Doron provides an analysis in which the syntactic constructions of templates and the meanings associated with them are accounted for within a unified system that employs roots and the functional heads: voice and agency. The system we propose exploits roots and an equal number of functional heads: voice and little v.

9 Conclusion

In this paper, we have discussed the verbal system of EA. We have defended a unified analysis where all the nine verbal forms of EA are built on the same syntactic structure, *modulo* differences in the featural makeup of functional heads in the structure. The different meanings associated with each verbal template follow from the combination of an abstract root (with its lexical semantic and syntactic properties) and a limited set of morphological units (namely, little *v* and *Voice* features). While Voice features generally emerge as prefixes, little v features are realized as changes to the prosodic templates. The analysis presented accounts for the regularities in the interpretations and uses of EA verb patterns as well as for the exceptions.

While the discussion we have provided relies heavily on previous approaches to Semitic verbal morphology, we depart from these approaches in a number of significant ways. We adopt the tripartite verbal spine, with a root base, a vP layer, and a VoiceP layer. However, we attribute slightly different morphosyntactic properties to these three layers. We enrich the status of vP by assuming that it can have inchoative and applicative flavors, in addition to the causative one previously assumed in the literature, and we place the number of prefixes that are attested in EA verbal forms to the VoiceP layer. This allows us to capture both the emerging interpretations of the derived forms and more importantly the observed selectional properties of these heads.

As a result, the EA data seems to indicate that a purely morphosyntactic account of Arabic verbal forms can be maintained, with the verbal template playing a clearly defined role in morphosyntax. This contrasts, as we have seen, with a number of recent approaches, which derive the verbal template from linearization principles couched in an optimality theoretic framework. The approach here re-establishes the Semitic template as a valid morphosyntactic entity that plays an important role in the morphosyntactic make-up and semantic interpretation of the verb. The status of the template as a morphosyntactic primitive is supported, at least in EA, by the empirical data. The morphemes that reside in VoiceP in EA select for specific templates (the causative Form II, the applicative Form III and so on) a fact that would have been otherwise peculiar if the template was not part of the morphosyntactic structure of the verb. In addition, the derived verbal strings present mostly predictable semantic interpretations, albeit with certain idiosyncratic properties which are familiar to syntactic approaches to the lexical domain of verb derivation (e.g.

l-syntax, Travis 2000; 2010). This latter fact proves problematic for certain approaches which challenge the status of the template as a morphosyntactic primitive.

Abbreviations

1 = first person, 3 = third person, ACC = accusative, DET = definite article, M = masculine, NACT = non-active, NOM = nominal, SG = singular, PL = plural, POSS = possessive particles and pronouns.

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Competing Interests

The authors have no competing interests to declare.

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