Causativity and Transitivity in Arabic

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1. Introduction

This paper treats the issue of whether morphologically basic transitive verbs are structurally complex on par with (certain analyses of) morphologically derived causative verbs. An exploration of the behavior of morphologically basic and derived verbs in Arabic indicates that basic transitives are indeed structurally complex, but their complexity is not derived by causativization.

It is a common trait of natural languages that a class of verbs shows an unaccusative/causative alternation. For example, the English verbs *melt* and *flatten* can be used both unaccusatively, as in (1), and causatively, as in (2).

(1)   a. The ice melted.

           b. The metal flattened.

(2)   a. The radiator melted the ice.

           b. The smith flattened the metal.

In such alternations, the causative form is semantically, syntactically, and typically morphologically additive. Semantically, the causative form has a causative component that is not present in the unaccusative form. Syntactically, the causative form licenses an additional argument (the causer) not licensed by the unaccusative form. Morphologically, the causative form is typically marked. While not evident in the English examples above, the morphological markedness of the causative form is evident in two types of causative forms in Arabic, the language that this paper is primarily concerned with. The 'geminate' causative is marked by doubling of the middle consonant of the base.

(3) a. xalā   l-bayt-u

          be-vacant the-house-NOM

          'The house is vacant.'

    b. xallā   ˀaṣḥāb-ī   l-bayt-a

        vacate   friends-my   the-house-ACC

        'My friends vacated the house.'

The 'ablaut' causative is marked by ablaut of the 'stem vowel', the vowel of the second syllable of the base. The stem vowel is unpredictable in the base (the *a*-examples below) but invariably /a/ in the causative (the *b*-examples below). Arabic has three vowels.

(4) a. ḥaruma   l-xurūǧ-u   ᶜalay-hi

          be-forbidden the-leaving-NOM   to-him

          'It is forbidden for him to go out.'

b. harama ᵓab-ū-hu l-xurūǧ-a ᵓalay-hi

   forbid father-NOM-his l-leaving-ACC to-him

   'His father forbid him to go out.'

(5) a. ḥaziᵓa l-fannān-u

   be-ridiculed the-artist-NOM

   'The artist was ridiculed.'

b. ḥazaᵓa l-muḥarrir-u l-fannān-a

   ridicule the-editor-NOM the-artist-ACC

   'The editor ridiculed the artist.'

(6) a. falata l-kalb-u

   get-loose the-dog-NOM

   'The dog got loose.'

b. falata l-walad-u l-kalb-a

   let-loose the-child-NOM the-dog-ACC

   'The child let the dog loose.'

That the stem vowel is consistent in the causative and not in the unaccusative suggests that the

stem vowel of the unaccusative is lexically determined, while the stem vowel of the causative

reflects causativization. That is, it is the causative that is morphologically marked in the pairs in (4)-(6), not the unaccusative.
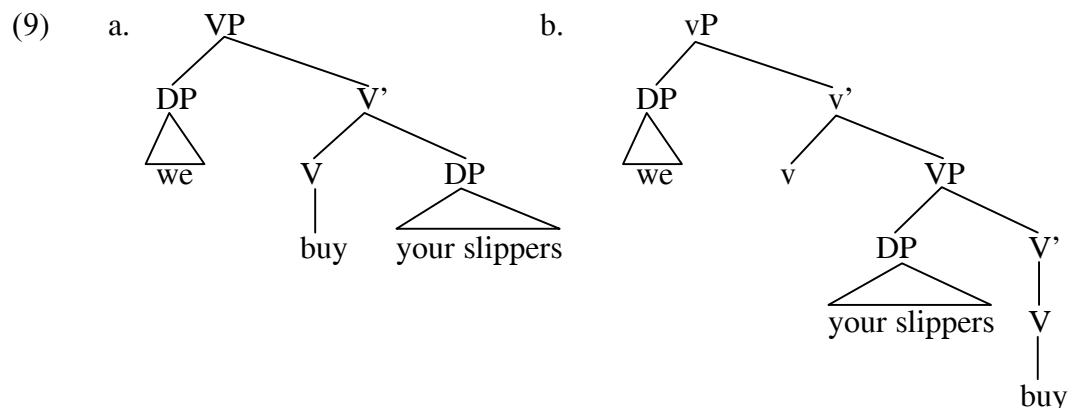
The argument that is licensed by the unaccusative is also licensed in the causative, and the attribution of the property denoted by the unaccusative to that argument also obtains in the causative. That is, the syntax and semantics of the unaccusative alternant persevere in the causative alternant, but not vice versa. These facts suggest that causatives are derivationally related to their unaccusative counterparts by a causativization process that is a morphosyntactic augmentation of that unaccusative counterpart. To use terminology introduced in Chomsky (1995), unaccusative expressions like *melt* are simplex VPs (7a), and their causative counterparts are complex structures, what Chomsky terms a 'little-vP', containing the simplex counterpart (7b). This 'syntactic' approach to causativization is well-represented in the literature on the matter (Kuroda, 1965; Kayne, 1975; Aissen, 1979; Marantz, 1985; Baker, 1988; Hung, 1988; Li, 1990; Travis, 1991; Koopman, 1992; and others mentioned below).[1]

(7)   a.   VP   b.   vP
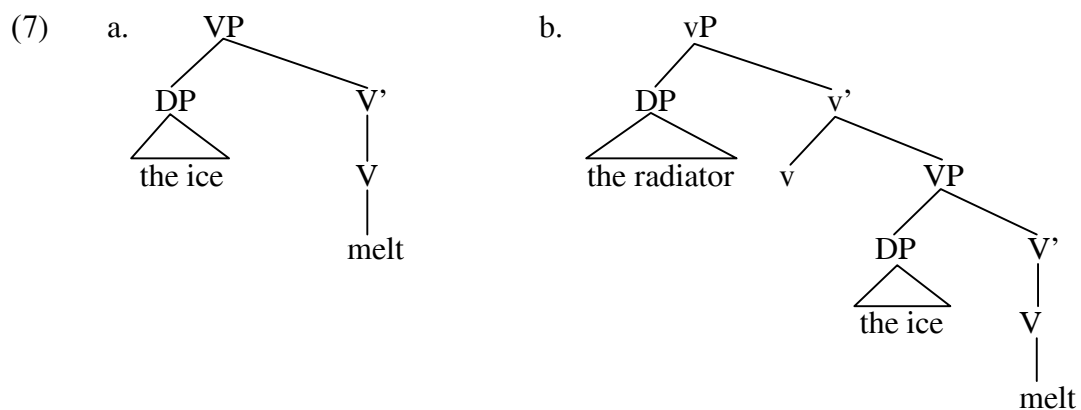
Some recent theorizing originating within the syntactic approach to causativity sketched in (7) seeks to expand the scope of the approach, to transitivity in general. It characterizes transitivity

as a structurally additive process, like causativization, and thereby reduces transitivity to causativity (Bowers, 1993; Hale and Keyser, 1993; Chomsky, 1995; Kratzer, 1996; Travis, 2000; Marantz, 1997; Arad, 1999; Pylkkänen, 2002; Bowers, 2002; Embick, 2004; and others). At issue here is the nature of transitive verbs that do not have unaccusative counterparts (in the remainder of this paper I use the term 'transitive' in this sense, referring only to verbs that do not have an unaccusative counterpart, and the term 'dyadic' to refer to any two-place expression, whether of the transitive or causative type). Is a verb like *buy*, which occurs in the syntactic frame in (8a) but not (8b), lexically transitive, and so syntactically simplex, as in (9a) (on analogy to (7a)), or is it syntactically transitivized, by causativization of an unaccusative subconstituent which, for one reason or another, has no independent morphological instantiation of its own, as in (9b) (on analogy to (7b))? The syntactic approach to transitivity, reified most famously in Kratzer (1996), claims that the structure of (8a) is that in (9b). Note that according to this approach, unaccusative verbs have a different syntactic category (VP) from dyadic verbs (vP).

(8)   a.   We bought your slippers in Marrakesh.

      b.   *Your slippers bought in Marrakesh.

(9)   a.   [VP tree: DP "we" and V' branching to V "buy" and DP "your slippers"]   b.   [vP tree: DP "we" and v' branching to v and VP, where VP branches to DP "your slippers" and V' dominating V "buy"]

This paper surveys data from two types of causative constructions in Standard Arabic that indicate that, while transitives like *buy* are indeed syntactically complex along the lines of (9b), the extra structure there, little-vP, is not causativizing or 'agentivizing'. Rather, it is a functional scaffolding in which a theta role lexically associated with the root is discharged. I.e., it is what Larson (1988) terms a 'VP shell'. A constraint is observed that a semantic root may not be associated with more than three VP shells. This structural constraint on word formation lends credence to the syntactic approach to word formation, though the analysis proposed here attributes a greater role to non-compositional lexical properties of roots than analyses in the tradition of Kratzer (1996).

2.   Causativization in Arabic

Two morphological processes form causative verbs in Arabic, ablaut and gemination.[2] The properties of these alternations are discussed in turn below. Section 3 presents an analysis of their behavior.

2.1   Ablaut

Causative verbs may be formed from unaccusatives by changing the stem vowel to /a/ (Kurylowicz, 1957; Fassi Fehri, 1987), illustrated in (10). The stem vowel in the base is one of the three phonemic (short) vowels of Arabic, /i/, /a/ or /u/. The vowel /u/ is quite rare in

unaccusative/causative pairs and /i/ quite common. Note that if the stem vowel in the base is /a/, ablaut has no net morphological effect (10i-k).

(10)   a. ḥazina   (*be sad*)   ⇒   ḥazana   (*make sad*)

       b. hadima   (*fall to ruin*) ⇒   hadama   (*ruin*)

       c. wağira   (*be scared*)   ⇒   wağara   (*frighten*)

       d. kariba   (*be worried*)   ⇒   karaba   (*worry s.o.*)

       e. xariba   (*be destroyed*) ⇒   xaraba   (*destroy*)

       f. hazi ͻa   (*be ridiculed*) ⇒   haza ͻa   (*ridicule*)

       g. nağiza   (*be implemented*) ⇒   nağaza   (*implement*)

       h. xafiya   (*be hidden*)   ⇒   xafā   (*hide s.t.*)[3]

       i   fāta   (*pass away*)   ⇒   fāta   (*relinquish*)

       j. falata   (*be released*)   ⇒   falata   (*release*)

       k. faraša   (*spread out*)   ⇒   faraša   (*spread s.t. out*)

       l. ḥaruma   (*be prohibited*) ⇒   ḥarama   (*prohibit*)

Ablaut is a restricted process. It only applies to unaccusative bases, never to unergative bases (11), transitive bases (12), or ditransitive bases (13).

(11)   a. ḍaḥika   (*laugh*)   ⇒   *ḍaḥaka   (*cause to laugh*)

       b. nāma   (*sleept*)   ⇒   *nāma   (*cause to sleep*)

       c. ͨaṭasa   (*sneeze*)   ⇒   *ͨaṭasa   (*cause to sneeze*)

       d. bakā   (*cry*)   ⇒   *bakā   (*cause to cry*)

(12) a. darasa   (*study*)   ⟹   *darasa   (*cause to study*)

      b. fahima   (*understand*) ⟹   *fahama   (*cause to understand*)

      c. ᶜalima   (*know*)   ⟹   *ᶜalama   (*cause to know*)

      d. šariba   (*drink*)   ⟹   *šaraba   (*cause to drink*)

(13) a. manaḥa   (*give*)   ⟹   *manaḥa   (*cause to give*)

      b. ḥabā   (*award*)   ⟹   *ḥabā   (*cause to award*)

      c. ᶜaraḍa   (*submit*)   ⟹   *ᶜaraḍa   (*cause to submit*)

      d. wahaba   (*donate*)   ⟹   *wahaba   (*cause to donate*)

2.2   Gemination

Causative verbs may also be formed in Arabic by gemination of the middle radical of the root,

commonly described as the template $C_1aC_2C_2aC_3$, as illustrated in (14). Geminate causative

forms are found for many of the same roots that form ablaut causatives, as in (14a-d) (cf. (10a-

d)).

(14) a. ḥazina   (*be sad*)   ⟹   ḥazzana   (*make sad*)

      b. hadima   (*fall to ruin*)   ⟹   haddama   (*ruin*)

      c. xariba   (*be destroyed*)   ⟹   xarraba   (*destroy*)

      d. naǧiza   (*be implemented*) ⟹   naǧǧaza   (*implement*)

e.	waṣala	(*arrive*)	⇒	waṣṣala	(*accompany*)
f.	xalā	(*be vacant*)	⇒	xallā	(*vacate*)
g.	sariḥa	(*proceed freely*)	⇒	sarraḥa	(*grant leave*)
h.	našiṭa	(*be lively*)	⇒	naššaṭa	(*enliven*)
i.	samina	(*be fat*)	⇒	sammana	(*fatten*)

But gemination is less restricted than ablaut. Unergative verbs may show a geminate causative

counterpart, as in (15) (cf. (11)), as may transitive verbs, as in (16) (cf. (12)).

(15)	a.	ḍaḥika	(*laugh*)	⇒	ḍaḥḥaka	(*make s.o. laugh*)
	b.	nāma	(*sleep*)	⇒	nawwama	(*make s.o. sleep*)
	c.	ᶜaṭasa	(*sneeze*)	⇒	ᶜaṭṭasa	(*make s.o. sneeze*)
	d.	bakā	(*cry*)	⇒	bakkā	(*make s.o. cry*)

(16)	a.	darasa	(*study*)	⇒	darrasa	(*teach s.o. s.t.*)
	b.	fahima	(*understand*)	⇒	fahhama	(*make s.o. understand s.t.*)
	c.	ᶜalima	(*know*)	⇒	ᶜallama	(*inform s.o. of s.t.*)
	d.	šariba	(*drink*)	⇒	šarraba	(*offer s.o. s.t. to drink*)
	e.	ḥamala	(*carry*)	⇒	ḥammala	(*make s.o. carry s.t.*)
	f.	kataba	(*write*)	⇒	kattaba	(*make s.o. write s.t.*)

When a transitive verb is causativized, the resulting construction is ditransitive; both objects bear

accusative case.

(17) darrasa   l-muᶜallim-u   l-ʾaṭfāl-a   l-dars-a

      taught   the-teacher-NOM   the-children-ACC   the-lesson-ACC

      'The teacher taught the children the lesson.'

Although gemination is a freer process than ablaut, gemination is restricted in two important

ways. First, like ablaut, gemination may not apply to a ditransitive base.

(18) a. manaḥa   (*give*)   ⇒   *mannaḥa   (*cause s.o. to give s.o. s.t.*)

      b. ḥabā   (*award*)   ⇒   *ḥabbā   (*cause s.o. to award s.o. s.t.*)

      c. ᶜaraḍa   (*submit*)   ⇒   *ᶜarraḍa   (*cause s.o. to submit s.t. to s.o.*)

      d. wahaba   (*donate*)   ⇒   *wahhaba   (*cause s.o. to donate s.t. to s.o.*)

Second, although gemination may apply to transitives in general, it may not apply to those

transitive verbs that are themselves derived by ablaut. I.e., the terms on the right hand side in

(10) do not have geminate counterparts (though the terms on the left hand side may); ablaut

bleeds gemination (Fassi Fehri, 1987).

(19) a. ḥazana   (*make sad*)   ⇒   *ḥazzana   (*cause s.o. to make s.o. sad*)

      b. hadama   (*ruin*)   ⇒   *haddama   (*cause s.o. to ruin s.t.*)

      c. waǧara   (*frighten*)   ⇒   *waǧǧara   (*cause s.o. to frighten s.o.*)

      d. karaba   (*worry s.o.*) ⇒   *karraba   (*cause s.o. to worry s.o.*)

      e. xaraba   (*destroy*)   ⇒   *xarraba   (*cause s.o. to destroy s.t.*)

| f.	haza'a	(*ridicule*)	⇒	*hazza'a	(*cause s.o. to ridicule s.o.*)
g.	falata	(*release*)	⇒	*fallata	(*cause s.o. to release s.o.*)
h.	faraša	(*spread s.t. out*)	⇒	*farraša	(*cause s.o. to spread s.t. out*)

3. Restrictions on Lexical-Syntactic Derivations

Ablaut and gemination are valency increasing morphemes. Their function is just that attributed to little-*v* by Chomsky (1995), and for that reason I refer to them as 'little-*v*'s', specifically v_{AB} and v_{GEM} respectively. Ablaut applies only to unaccusative bases, meaning the unaccusativity of lexical items is visible to the ablaut morpheme. On the syntactic approach to transitivity, unaccusative verbs are in fact visibly distinct from dyadic verbs, namely in syntactic category (VP vs. vP). Further, Hale and Keyser (1993) argue that unergative verbs are hidden transitives, of which the internal argument is incorporated into the verb stem. These therefore share a category with (other) dyadic verbs. The fact that ablaut applies to unaccusatives and not transitives, causatives or unergatives, then, is a sensitivity of the ablaut morpheme to the syntactic category of its base, i.e. a c-selectional restriction. The morpheme v_{AB} selects VP, represented graphically as below, where the solid line signifies selection from left to right.

(20) v_{AB} ——— VP

The fact that v_{AB} and v_{GEM} are in complementary distribution suggests they compete for a syntactic position, i.e., that v_{GEM} also selects VP; the two derivational morphemes then cannot both apply to the same argument at once.

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(21) v_{GEM}
 $>$VP
         v_{AB}
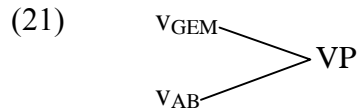
However, the picture in (21) incorrectly conflates the distribution of the two morphemes.

Although v_{GEM} may apply to an unaccusative base, it may also apply to transitive bases,

including unergatives. However, if it were possible for transitivity to be represented at the VP

level (to accommodate the fact that v_{GEM} applies to transitives) and v_{AB} and v_{GEM} compete for

VP, then v_{AB} should apply to transitive bases as well, contrary to fact. Indeed, the discussion in

section 2 illustrates that the derivational bases for v_{GEM} and v_{AB} do *not* coincide, though they

overlap in the unaccusatives.

The particle v_{GEM} applies to transitive verbs (as well as unaccusatives), but transitivity is not

represented at the level of VP, since v_{AB} applies to VP but does not apply to transitives.

The category of transitives, then, is not VP, nor is it v_{AB}P itself, since ablaut bleeds gemination

(see (19)). The category of transitives, then, is a distinct category that I label v_TP, projected by a

morpheme $v_{T[RANSITIVE]}$ whose meaning is discussed in section 3.1. The particle v_{GEM} may apply

to v_TP, the category of transitives (16), but not v_{AB}P, the category of ablaut causatives (19).

Ablaut does not apply to transitives, meaning the morphemes v_T and v_{AB} never occur in one

word; they are in complementary distribution. The diagram below represents this state of affairs,

where again, the solid lines represent selection from left to right.

(22) v_{GEM} ———— v_T
                              $>$ VP
              v_{AB}
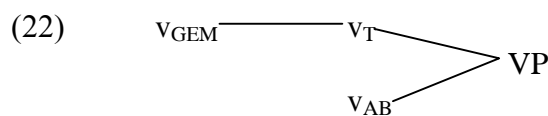
One finds words in which v_{GEM} applies to a transitive base (16), but also words in which it applies directly to an unaccusative base (14), indicating v_T is optional in the path from v_{GEM} to VP, globally speaking. For a given choice of V, though, v_T is either obligatorily present or obligatorily absent. We know this because if v_T were optional for a given root, that root would show a transitive/intransitive alternation superficially indistinguishable from ablaut causativization. But unlike ablaut, the transitive counterpart would potentially show a geminate causative form as well, being derived by v_T rather than v_{AB}. That this state of affairs is unattested is what Fassi Fehri observes. Fassi Fehri's generalization that ablaut forms may not be causativized may be alternatively stated as follows: whenever a transitive verb has an intransitive counterpart, that transitive verb never has a geminate causative counterpart (e.g. (23a)), and whenever a transitive verb has a geminate causative counterpart, that transitive never has an intransitive counterpart (e.g. (23b)).

(23) a. falata (*be released*) $\Rightarrow$ falata (*release s.t.*)$\Rightarrow$ *fallata (*cause s.o. to release s.t.*)

   b. *kataba (*be written*) $\Rightarrow$ kataba (*write s.t.*) $\Rightarrow$ kattaba (*cause s.o. to write s.t.*)

So whether a root occurs in category VP or v_TP is contingent on the identity of the root in an intimate, lexical, way, i.e., it is a lexical property of the root. Nonetheless, transitivity is in complementary distribution with the morpheme v_{AB}, indicating that, like v_{AB}, transitivity is a structural property of a verb. Both particles v_T and v_{AB} compete for a VP complement that they cannot both have in one word. Transitivity, though it is a lexical property of the root, is structurally instantiated (as v_T) distinctly from the root (VP). Larson (1988) presents a mechanism that reconciles these apparently contradictory properties of transitivity. Section 3.1

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explores this issue, but before turning to that discussion, I present some remarks on ditransitives

that flesh out the diagram in (22) somewhat.

Although gemination applies to transitive verbs, it does not apply to ditransitives (18). That is,

gemination is in complementary distribution with ditransitivity, meaning the relationship of

gemination to the ditransitivity property is like the relationship of ablaut to the transitivity

property. Where $v_{DT}P$ is the category of ditransitives, projected by $v_{D[I]T[TRANSITIVE]}$:

(24)

v_{DT}

v_{GEM}

v_{T}

v_{AB}

VP
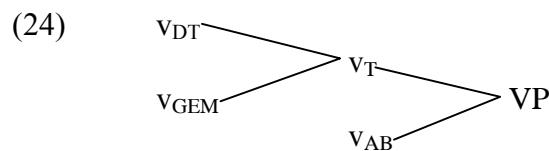
No arguments can be added to a ditransitive verb or a geminate causative, i.e., no four-place

verbs exist, whether morphologically augmented or not.[4] The three 'layers' shown in (24)

exhaust the argument structure possibilities for Arabic verbs.

3.1   On the Difference between Transitivity and Causation

Grammatical processes differentiate between those transitive verbs that have an intransitive

counterpart and those that do not. Only the latter are subject to gemination; the former are not.

This observation in itself demonstrates that transitive verbs are not simply causatives that for

some reason have no unaccusative counterpart. Morphosyntactic processes are sensitive to

whether the intransitive counterpart exists. Dyadic verbs are not a homogeneous class.

The particles v_{GEM} and v_{AB} are causativizing. They assert of a proposition p and an individual x that x causes p (what *cause* in turn means is another matter not addressed here). That is, they are genuinely valency increasing; they add an argument not represented in the root.

(25) $[\![v_{GEM/AB}]\!] = \lambda p_{<s,t>} \lambda x_{<e>} [cause(x, p)]$

According to the analysis proposed here, if a verb has category $v_T P$ or $v_{DT} P$ then no form of that root exists with lesser valency. That is, the transitive particles v_T and v_{DT} are inseparable from any base they apply to. That suggests they fulfill an obligatory function when they occur. The fact that verbs of category $v_T P$ or $v_{DT} P$ do not have lesser valency forms indicates that the *valency* of that verb (but not its structure) is not constructed additively in the morphosyntax; it is an invariant lexical property of the root.

Larson (1988) attributes to what he terms 'VP shells' a function that is structure building but not valency increasing. According to Larson, VP shells occur in ditransitive constructions to provide a syntactic scaffolding for the introduction of DPs that cannot be introduced within the maximal projection of the root due to the binary branching restriction on X-bar projections (Kayne, 1984). Due to this restriction, a head cannot be locally related to more than two DPs (its complement and specifier). Because theta roles are assigned under locality (within the maximal projection of the theta role assigning head; Koopman and Sportiche, 1985; Koopman and Sportiche, 1991), a more-than-two-place predicate is unable to discharge all of its theta roles within its maximal projection and must move into a higher, semantically vacuous head position, where it becomes local to the specifier of that head, and is able to discharge a theta role to a DP in that specifier position.
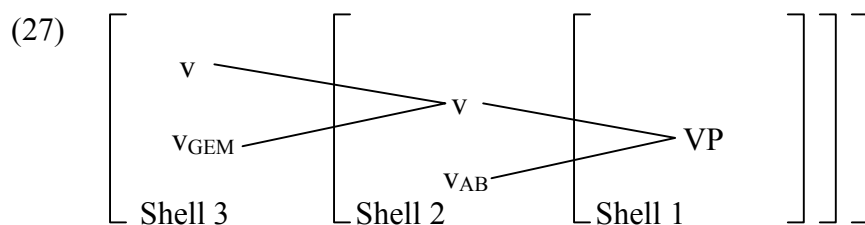
Bowers (1993), Kratzer (1996) and others propose that DPs are licensed uniformly in specifier positions (a uniformity that the syntactic analysis of lexical decomposition that they advocate makes possible), meaning that a theta-role assigning head is in fact local to only one DP position, its specifier. The hypothesis that v_TP is a VP shell then presents an explanation for why the VP layer in v_TPs is not eligible for independent wordhood. The root of a v_TP is a lexically dyadic predicate that is unable to discharge all of its theta roles—it has only one specifier—except in cooperation with v_T, which projects an additional specifier. The same considerations implicate the VP shell hypothesis for v_{DT}Ps. According to this proposal, then, there is no difference in function between v_T and v_{DT}, and henceforth I refer to both as simply 'little-v'. The denotation in (26) for little-v mimics the effect of V-to-v raising (it 'passes on' the theta role of V). For the present purposes, I leave aside the question of whether it is accompanied by actual syntactic V-to-v raising.

(26) $[\![v]\!] = \lambda P_{<e,t>} \lambda x_{<e>} [P(x)]$

Although little-v is essentially semantically vacuous according to this proposal, it is not superfluous. Little-v is in complementary distribution with causativization, which is a morphosyntactically autonomous process (i.e., independent of lexical properties of the base). This complementarity indicates that little-v is 'on par' with causativization, i.e., has the same type of syntactic instantiation, though not the same semantic function. This syntactic instantiation plays a non-trivial role in restricting possible verb denotations. In conjunction with the distributional generalization in (24), it derives Fassi Fehri's observation summarized by the

pattern in (23), that only those verbs that do not have reduced valency forms undergo

gemination.

The diagram in (27) shows the selectional restrictions expressed by the diagram in (24) superimposed on a structural hierarchy consisting of three shells. The structure in (27) is a word-forming template that offers 'slots' for at most three word-forming operators, including the root. Causative operators compete with little-v's for slots in this template. If a root denotes a triadic predicate, the two little-v's that obligatorily subserve theta role assignment monopolize shells 2 and 3, that are otherwise available for causativization. If a root denotes a dyadic predicate, shell 2 is obligatorily monopolized by a little-v involved in the assignment of the external theta role of the root, but level 3 is available for geminate causativization. If a root denotes a unary predicate, it is unaccusative, and levels 2 and 3 are available for ablaut and geminate causativization respectively (but ablaut bleeds gemination). The global restriction to three shells provides an overall restriction on the number of arguments a predicate may have, whether those arguments are acquired by causativization or are lexical arguments of the root.

(27)

$$
\left[\begin{array}{c} v \\ v_{GEM} \\ \text{Shell 3} \end{array}\right] \left[\begin{array}{c} v \\ v_{AB} \\ \text{Shell 2} \end{array}\right] \left[\begin{array}{c} VP \\ \text{Shell 1} \end{array}\right]
$$

The hypothesis advanced here correctly predicts that the expressions in (28) are well-formed, because they correspond to a path in the diagram in (27) and are semantically composable given (25), (26) and the appropriate root denotations.

(28)   a.   Basic unaccusative: ḥazina (*be sad*)

               [$_1$ ḥazina]

      b.   Ablaut causative of basic unaccusative: ḥazana (*cause to be sad*)

               [$_2$ v$_{AB}$ [$_1$ ḥazina]]

      c.   Geminate causative of basic unaccusative: ḥazzana (*cause to be sad*)

               [$_3$ v$_{GEM}$ [$_1$ ḥazina]]

      d.   Basic transitive: kataba (*write*)

               [$_2$ *v* [$_1$ kataba]]

      e.   Geminate causative of basic transitive: kattaba (*cause to write*)

               [$_3$ v$_{GEM}$ [$_2$ *v* [$_1$ kataba]]]

      f.   Basic ditransitive: manaḥa (*give*)

               [$_3$ *v* [$_2$ *v* [$_1$ manaḥa]]]

The hypothesis also correctly predicts that the expressions in (29) are not derivable, because they do not correspond to a path in the diagram in (27) (though they would be semantically composable if they were morphosyntactically well formed).

(29) a. Geminate causative of ablaut causative: *ḥazzana (*cause to cause to be sad*)

*[₃ v$_{GEM}$ [₂ v$_{AB}$ [₁ ḥazina]]]

b. Geminate causative of ditransitive: *mannaḥa (*cause to give*)

*[₃ v$_{GEM}$ [₍ᵢ₎ *v* [₂ *v* [₁ manaḥa]]]

c. Ablaut causative of transitive: *kataba (*cause to write*)

*[₂ v$_{AB}$ [₍ᵢ₎ *v* [₁ kataba]]]

d. Ablaut causative of ditransitive: *manaḥa (*cause to give*)

*[₂ v$_{AB}$ [₍ᵢ₎ *v* [₍ᵢ₎ *v* [₁ manaḥa]]]]

Lastly, several derivations which *do* correspond to a path in (27) are nonetheless ill formed because they are not semantically composable. The unaccusative use of e.g. *kataba* (as in (30a)) is blocked because the unaccusative category VP is unsaturated when the root is *kataba*, which is lexically dyadic. The transitive use of e.g. *manaḥa* (as in (30b)) is blocked because the transitive (shell 2) category vP is unsaturated when the root is *manaḥa*, which is lexically triadic. The unaccusative use of e.g. *manaḥa* (as in (30c)) is blocked because the unaccusative (shell 1) category VP is unsaturated when the root in *manaḥa*, which is lexically triadic.

(30) a. *kataba   l-kitāb-u

wrote   the-book-NOM

*'The book wrote.'

b.   manaḥa   l-muᶜallim-u   l-kitāb-a

           gave   the-teacher-NOM   the-book-ACC

           *'The teacher gave the book.'   (meaning 'Someone gave the teacher the book')

c.   manaḥa   l-kitāb-u

           gave   the-book-NOM

           *'The book gave'   (meaning 'Someone gave someone the book')

3.2   Productivity and the Place of Morphosyntax

Both ablaut and gemination show characteristics of lexical processes, specifically lack of

productivity and semantic idiosyncracy. Not all unaccusative verbs that would seem to be

semantically fit for ablaut causativization have extant ablaut forms. The verbs on the right in

(31), with the causative interpretations attributed to them there, appear to be accidental lexical

gaps; note that the bases on the left are subject to gemination (14e-i).

(31)   a. waṣala   (*arrive*)   ⇒   *waṣala   (*cause to arrive*)

       b. xalā   (*be vacant*)   ⇒   *xalā   (*vacate*)

       c. sariḥa   (*proceed freely*) ⇒   *saraḥa (*grant leave*)

       d. našiṭa   (*be lively*)   ⇒   *našaṭa (*enliven*)

       e. samina   (*be fat*)   ⇒   *samana (*fatten*)

Further, causativization commonly carries semantic connotations that are not semantically uniform from lexical item to lexical item. For example, *mariḍa* (*be sick*) encompasses a rather wide semantic field, including non-communicable illnesses like poisoning and cancer as well as maladies like heart attack, stroke and other organic injuries that do not canonically fall under the English counterpart *sick*. However, the ablaut causative counterpart *maraḍa* describes only sickness caused by spoiled food.

(32)   mariḍa   (*be sick*)   ⇒   maraḍa(*make sick, said only of food*)

These facts indicate that if causativization by ablaut is a syntactic process, it obtains in a 'lexical' component of the syntax module, a component that is prone to idiosyncrasies in productivity and semantic transparency. Hale and Keyser (1993), Marantz (1997) and Travis (2000) describe such a component, which Travis terms 'L-syntax'. Causativization by ablaut is an L-syntactic process.

Like ablaut, gemination shows hallmarks of a lexical process. It is not entirely productive, since no geminate causative forms exist for some roots that would seem to represent valid possible bases for gemination, as in (33).

(33)   a. ḍaraᶜa   (*be humble*)   ⇒   *ḍarrraᶜa   (*cause s.o. to be humble*)

       b. ḏahila   (*be perplexed*)⇒   *ḏahhala   (*cause s.o. to be perplexed*)

       c. faraḍa   (*decide s.t.*)   ⇒   *farraḍa   (*cause s.o. to decide s.t.*)

       d. fataḥa   (*open s.t.*)   ⇒   *fattaḥa   (*cause s.o. to open s.t.*)

Also like ablaut, geminate causative forms commonly have idiosyncratic semantic connotations not found in the base. For example, the geminate form in (14e), *waṣṣala*, means *accompany*, which is somewhat more than the causativization of the base *waṣala*, meaning *arrive*. I.e., *waṣṣala* means not just *cause to arrive*, but *cause to arrive by accompanying*. Similarly, *sarraḥa* (*grant leave*) may connote divorce, but not its unaccusative base *sariḥa* (*proceed at will*). The base *sawā* in (34), which means *be even with*, or *equal to*, forms a geminate causative that means *cook to perfection*.

(34)   sawā (*be even*)   ⇒   sawwā   (*cook to perfection*)

The culinary connotation of *sawwā* seems to reference the same metaphor that the terms *overcook* and *undercook* reference in English, that is, that cooking something causes it to approach a level at which it is perfectly cooked. Cooking it under or over that level results in 'undercooked' or 'overcooked'. In Arabic, 'causing it to be even' with that level results in 'cooked to perfection'. In these cases and the cases of semantic idiosyncrasy in the ablaut causatives, the causative interpretation is present in the causative derivative, though these causative derivatives carry additional connotations beyond the meanings of their parts, that are lexical associations of the word so derived. That is, causativization may not *change* the meaning of the base, but may carry additional connotations not carried by the base. Causatives have a compositional component to their meaning, but causativization forms lexical items, which, by virtue of having a place in a registry of information (the lexicon), have the possibility to acquire semantic baggage beyond their compositional content.

4   Concluding Remarks

In light of the considerations discussed in the previous section, the analysis proposed here is best viewed as a structurally defined filter that limits the morphosyntactic complexity of lexical items, or, to use a term mentioned previously, a template to which new coinages and reanalyses must conform, that restricts the types of bases for ablaut to a subset of those for gemination, that prohibits gemination from applying over ablaut, and that restricts verbs to three or fewer arguments, regardless of how they get that way. Although transitivity is a lexical property of a root in the analysis proposed here, it is a lexical property that monopolizes an argument slot in a structural template, blocking derivational morphemes from adding a new argument in that slot. In that respect it is a structural property. The answer to the question posed at the outset of this paper, then, is that transitive verbs are indeed structurally isomorphic to causatives, and in this point the present analysis is consistent with that of Kratzer (1996) and others. However, the data surveyed here indicate that while the external argument of a causative verb is an argument of the causative morpheme, the external argument of a transitive verb is an argument of the root, and in this point the present analysis diverges from that of Kratzer (1996).

The discrepancy between the present analysis and analyses along the lines of Kratzer's, which are based largely on English, raises the question of whether the results of the present study on Arabic are applicable to English at all, or whether the present analysis and Kratzer's are both correct analyses of their respective areas of inquiry. Similarities between the English causative/unaccusative alternation illustrated in (35) and ablaut in Arabic suggest that the areas of inquiry overlap.

The Syntax of Transitivity

Causativization in English only applies to unaccusative verbs ((35a) and (1)-(2)), not unergatives (35b), transitives (35c), or ditransitives (35d). More strikingly, the alternation is occasionally marked by ablaut (35e-h).

(35)   a. sadden   ⇒   sadden s.o.

        b. laugh   ⇒   *laugh s.o.

        c. write s.t.   ⇒   *write s.o. s.t. (meaning *make s.o. write s.t.*)

        d. give s.o. s.t.   ⇒   *give s.o. s.o. s.t. (meaning *make s.o. give s.o. s.t.*)

        e. rise   ⇒   raise

        f. sit   ⇒   set

        g. fall   ⇒   fell (a tree)

        h. lie   ⇒   lay

These parallels suggest that the causative/unaccusative alternation shown in (1) and (2) is the very process described as 'ablaut' in Arabic. English fails to show a counterpart of gemination, i.e., causativization of unergatives and transitives. In view of the Arabic facts, the failure of unergatives and transitives to causativize in English can be chalked up to a lexical gap. The particle v_{GEM} does not exist in English.

The analysis presented here derives the interaction between transitivity and causativity described in section 2. Causativization observes the same global constraint that constrains the number of arguments a root may have: a root may not have more than three direct arguments, and causativization may not derive a form that has more than three direct arguments. That is, causativization 'uses up' a root's allotment of argument slots. This interaction between basic

transitivity and causativity suggests they are parallel properties. Yet, the fact that transitivity is inseparable from any root it is associated with suggests that it is a lexical property of that root, not one constructed in the syntax. I have proposed that the arguments of a transitive verbs are licensed in VP shells that use up slots in the root's allotment of argument positions that could otherwise host causativization. This analysis derives the pattern seen in section 2 and reconciles apparently contradictory characteristics of transitivity.

Notes

[1] The syntactic approach that is the subject of the present study is not the only approach represented in the literature. 'Lexical' approaches take both causative and unaccusative verbs to be structurally atomic lexical items, whose relatedness is represented in the form of lexical operations, redundancy rules or meaning postulates (Dowty, 1979; Foley and Van Valin, 1984; Pinker, 1989; Jackendoff, 1990; Rosen, 1990; Levin, 1993; and others).

[2] A third process, prefixation of ʾa-, also forms causatives, and differs from gemination only in that it typically signifies lack of coersion. This lexical difference aside, the restrictions on the distribution of ʾa- are exactly those that restrict gemination, and since these restrictions are the subject of inquiry here, this paper does not treat ʾa- separately.

[3] Glides delete between short vowels under conditions described in detail by Brame (1970) and Levy (1971), as in (10h,i), where /xafaya/ surfaces as [xafā] and /fawata/ surfaces as[fāta].

[4] Additional relata may be introduced in prepositional phrases, but I take these to be arguments of the prepositions that introduce them, which form a complex predicate with the verb.

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