The Three Forms of Arabic Causative

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ABSTRACT

Of great interest to the study of the syntax of Modern Standard Arabic (MSA) are the multiple ways in which a causative can be derived from a basic verb root. One of the hallmarks of Arabic grammar is the concept of the triliteral verb root, a basic string of three consonants that denotes the general idea of a verb. Inflections of this root through the use of short vowels, long vowels and specific consonantal affixes render different Forms of this basic root—a total of ten in common Arabic use—that are logically and systematically related to the underlying root (Scheindlin, 2007). This system of derivations is highly productive and extremely regular.

Three of these Forms render causative constructions—or at least render verb meanings that can be interpreted as such. However, few Arabic grammars regularly address all three varieties in a discussion on the causative. Most focus on Forms II and IV, and do not address the ability of Form I to take on a causative meaning, at least not in the same discussion. Hallman (2006) addresses a comparison of the causative Form I and Form II, but does not address Form IV at all. This paper brings all three Forms together for a concise comparison of all possible ways to form a causative in MSA. It examines the derivations and proposes Word Formation Rules, compares meaning patterns of the Forms and considers transitivity and semantic restrictions that are involved.

Derivations

An investigation of causative Form derivations will be somewhat easier if we begin with Forms II and IV, addressing the causative variety of Form I last. All causatives are derived directly from a basic, Formless triliteral root, a string of three consonants with no specified short vowels. Proof of this is provided later. In the longstanding tradition of Arab grammarians, the verb فعــل , or /f-ʕ-l/, meaning *'to do'*, is used to demonstrate the patterns of the derived Forms. At least until the grammar requires us to do otherwise, we shall adopt the assumption that higher Forms are all derived from the 'basic' Form I. Form II is derived by doubling or geminating the middle consonant through use of the *shadda*, ("strengthening") and assigning a standard short vowel pattern of *a-a-a* to the root.[1] Thus, Form II can be expressed as

1) فَعَلَ → فَعَّلَ   faʕala → faʕʕala

As a Word Formation Rule, this would be represented as:

$$2) \quad \left[\begin{array}{c} \left[C_1\,a\,C_2\,V\,C_3\,a \right]_{V\,FORM\,I} \quad \rightarrow \quad \left[C_1\,a\,C_2\,C_2\,a\,C_3\,a \right]_{V\,FORM\,II} \\ \text{to X} \qquad \rightarrow \qquad \text{to cause to X} \end{array} \right]_2$$

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[1] This vowel pattern only applies to the Perfect tense Active voice. Other tense/voice combinations receive different vowel patterns, which are equally regular although somewhat more complex. For the concerns of this paper, tense/voice vowel patterns are irrelevant, and all data will be given for the Perfect tense Active voice alone.

[2] Form I as the Basic verb is the only Form lacking an entirely consistent vowel pattern; the middle consonant can take any of the three short vowels with it.

Form IV is derived in the same manner. From Form I, an /ʔa-/ prefix is added, and the short vowel of the first consonant is deleted. The short vowel pattern becomes *ø-a-a*.

The Word Formation Rule for Form IV (initial glottal stop omitted):

3) فَعَلَ   →   أَفْعَلَ   faʕala →   ʔafʕala

The Word Formation Rule for Form IV (initial glottal stop omitted):

4) $$\left[\begin{array}{c} \left[C_1 \, a \, C_2 \, V \, C_3 \, a \right]_{VFORMI} \\ to \, X \end{array} \right. \quad \begin{array}{c} \rightarrow \\ \rightarrow \end{array} \quad \left. \begin{array}{c} \left[a \, C_1 \, C_2 \, a \, C_3 \, a \right]_{VFORMIV} \\ to \, cause \, to \, X \end{array} \right]$$

Now to turn to the third version of the Causative. This is a more complex issue, because this causative is a variant of Form I; the causative Form I is derived from itself, so to speak, because the basic, non-causative is Form I as well. The difference lies in the middle vowel pattern. In the basic Form I, the short vowel on the second consonant can be any of the short vowels in Arabic, /a/, /u/ or /i/. This basic Form can be intransitive or transitive. For select verbs, namely those that are unaccusative intransitives in Form I, a variant of the Form can be derived that has a causative meaning. This is done by regularizing the middle short vowel as /a/. Hallman labels this derived Form I as the Ablaut causative; a mutation marked by a change in vowel quality (Kroeger 2005). To avoid confusion between varieties of Form I, we shall use the terms Basic and Ablaut to distinguish.

5) فَعَلَ   →   فَعَلَ   faʕala →   faʕala

faʕala, being a transitive root, cannot properly demonstrate derivation of the ablaut. Below are intransitive examples that properly demonstrate this derivation.

6)   ħazina   'to be sad'   →   ħazana 'to make s.o. sad'

      ħaruma   'to be prohibited'   →   ħarama 'to prohibit s.t.'

      falata   'to be released'   →   falata 'to release s.o.'

As example 3 of 6) shows, one cannot necessarily tell from isolation whether a Form I verb with middle vowel /a/ refers to a basic intransitive or a derived ablaut. While a middle vowel /u/ on the Basic invariably denotes intransitivity, /i/ and /a/ may occur with either transitive or intransitive verbs; though the generalization is that /a/ denotes transitivity, there is no uniform pattern of transitivity manifested by the short vowels. A Form I verb with middle vowel /a/ cannot be guaranteed to simply be the transitive form of a Basic root that contains an /i/ or /u/.

The Word Formation Rule for the Ablaut causative is given in 7).

7) $$\left[\begin{array}{c} \left[C_1 \, a \, C_2 \, V \, C_3 \, a \right]_{VFORMI} \\ to \, X \end{array} \right. \quad \begin{array}{c} \rightarrow \\ \rightarrow \end{array} \quad \left. \begin{array}{c} \left[C_1 \, a \, C_2 \, a \, C_3 \, a \right]_{VFORMIABLAUT} \\ to \, cause \, to \, X \end{array} \right]$$

All three varieties of the causative construction in Arabic are morphological causatives; the causative meaning is derived from the basic through the regular morphological processes of derivation through the use of different, consistent Forms. As far as research shows, the language does not have any standard way of expressing causation through periphrastic causatives, and certainly it does not possess a lexical causative, because the causative meaning is built into the very system of verb derivation through the use of the verb Forms.

Though we will not concern ourselves greatly with describing how deviant varieties of the Arabic verb are handled—those that do not correspond to the standard triliteral root—a few words should be said on this matter. Irregular, or "unsound" triliteral roots are divided into three classes:

a) Those for which one of the three radicals is a "weak" letter. These consist of *waw* and *ya*—the glides or semivowels, /w/ and /j/.

b) Those for which one of the three radicals is a *hamza*, a glottal stop.

c) Those for which the second and third radicals are identical—the doubled verb.

Additionally, the language has a relatively small number of quadriliteral roots, which must be derived in a different manner to the triliteral. It is not the concern of this paper to investigate how all possible varieties of the verb are derived, and we need only concern ourselves with the standard variety in the discussion, which Arab grammarians consider to represent the standard pattern for all verbs.

Meaning Patterns

Form II can render multiple meanings; the causative is only one meaning pattern of the Form II verb. Two other meaning patterns are the *intensive*, which renders a stronger connotation to the meaning of the verb, and the *estimative*, in which the subject's belief about the truth value of the verb is expressed. Form II has *denominal* verbs as well, rendering the idea of making, dealing with, or collecting the noun (Haywood & Nahmad 1965). This multitude of functions means that one cannot derive a correct meaning from derivational rules alone, at least not for Form II. There is no overt way of deducing whether ʕallama, derivded from ʕalima *'to know'*, would mean A) *'to inform; to cause to know/learn'*; B) *'to rigorously learn; study'*; C) *'to consider to have learned'*, from derivational patterns alone. 8) demonstrates some Form II verbs that take the causative sense.

8) qaruba   'to be near'   →   qarraba   'to bring near; cause s.t. to be near'

kaθura   'to be numerous'   →   kaθθara   'to cause s.t. to be numerous'

ʕalima   'to know s.t.'   →   ʕallama   'to teach; cause s.o. to know s.t.'

ðakara   'to remember s.t.'   →   ðakkara   'remind; cause s.o. to remember s.t.'

A Form IV verb derived from a basic root has a default causative meaning to it. Another, apparently rarer class of verbs is estimative in function, comparable to Form II. Form IV also contains a large class of denominatives; Form IV verbs may be formed from select nouns, usually with the sense of "becoming" that noun (Haywood & Nahmad 1965). 9) gives examples of some Form IV verbs.

9) ħadˤara   'to be present'   →   ʔaħdˤara   'to bring; cause s.o. to be present'

dʒalasa   'to sit; be seated'   →   ʔadʒlasa   'to seat; cause s.o. to be seated'

ʕalima   'to know s.t.'   →   ʔaʕlama   'to inform s.o. of s.t.'

The meaning patterns of Form I has already been largely addressed. The ablaut is a special derived form of a basic intransitive root, which creates a transitive verb and applies a causative sense to the meaning. Few writings on Form I, save Hallman, have identified the derivational capacity that seems to be encompassed within this Form.

Transitivity

Foundational to a discussion on the causative is the issue of transitivity. The Causative is, of course, a valency-increasing operation, and as such there are likely to be natural restrictions on what types of verbs may undergo this operation. We can find regular and systematic differences, in regard to transitivity, in the restrictions and productivity that distinguish the ablaut from the Form II and IV causatives.

A causative derived from an intransitive base makes the base transitive. In this basic respect, the three varieties behave alike. Thus, all three of the following derivations are grammatical words:

10) ħazina   'to be sad'   →   ħazana   'to make s.o. sad'   (Ablaut)

→   ħazzana   'to make s.o. sad'   (Form II)

→   ʔaħzana   'to make s.o. sad'   (Form IV)

However, a closer investigation reveals that even for intransitive bases, there are differences in the restrictions that the different Forms make on which verbs may be grammatically derived. Hallman claims that Arabic has a split-S system, dividing intransitive verbs into unaccusative and unergative classes. In the former are stative verbs, in the latter the active. The unaccusative verbs Hallman gives as examples all logically fit as states; they may all either be rendered as 'to be…' the verb, or are active happenings that happen *to* the person without his deliberate acting. These all may be turned into an

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ablaut. In contrast, those verbs in the unergative class may not , yet they may well accept a Form II or IV derivation. For example, the unergative verb 'to laugh' patterns as shown in 11):

11) dˤaħika   'to laugh'   →   *dˤaħaka   'to cause s.o. to laugh' (Ablaut)

    →   dˤaħħaka   'to make s.o. laugh'   (Form II)

    →   ʔadˤħaka   'to make s.o. laugh'   (Form IV)

Hallman proposes a simple explanation for the unaccusative/unergative split for the ablaut. Quoting Hale and Keyser 1993, he suggests that unergative verbs, such as *'to laugh'*, *'to sleep'*, *'to sneeze'*, *'to cry'*, etc. are "hidden" transitives, of which the internal argument is incorporated into the verb stem. In other words, though it is not overtly specified, these verbs imply a direct object that is a result of the action, such as sneezing a sneeze. Thus, the ablaut possesses selectional restrictions that are based on the inherent transitivity of the verb alone. The unaccusative class is the only class of "true" intransitives, and the unergative class syntactically functions like a transitive, though this is not apparent in the surface structure of the sentence. Forms II and IV accept the unergative derivations because they accept the valency increasing of transitive clauses to ditransitive.

Like its effect on intransitives, the valency-increasing operation of the causative makes transitive clauses ditransitive. This operation may be performed to render the Form II and IV verbs, but is prohibited for the ablaut. 12) demonstrates the possible derivations of a transitive verb.

12) fahima   'to understand s.t.'

    → *fahama   'to cause s.o. to understand s.t.'   (Ablaut)

    → fahhama   'to instruct; cause s.o. to understand s.t.'   (Form II)

    → ʔafhama   'to instruct; cause s.o. to understand s.t.'   (Form IV)

Ditransitive verbs may not be causativized in any of the three Forms. The resulting clause would be tritransitive, and sound unnatural in trying to express a single, causative action. Examples are given in 13):

13) manaħa   'to give s.o. s.t.' →   *manaħa   (Ablaut)   'to cause s.o. to give s.o. s.t.'

    →   *mannaħa   (Form II)   "

    →   *ʔamnaħa   (Form IV)   "

Basic vs. Derived Roots

One very important selectional restriction on all causative Forms is that the input, from which the causative is derived, must be a basic root; the input cannot itself be a derived causative, and the transitivity of the verb may only be increased once from the basic Form.

Before addressing this issue in depth, let us address the question: How we know what the 'basic' form actually is? Apart from logical reasoning that tells us the causative is more complex and therefore must be derived from the simple, basic Form I, what proof is there that the basic is not derived from the Causative? Hale and Keyser (n.d.) address this very issue. They found the necessary proof in the alternation between what I have termed the Basic and Ablaut. In 6), it was shown that the middle vowel of the Basic was unpredictable; it could potentially be any of the three short vowels /a/, /u/, or /i/. In contrast, the Ablaut consistently has an /a/ as its second vowel. This alternation is taken to be proof that the Basic is, in fact, basic, because it is the form whose vowel alternation would need to be memorized by the speaker. To derive the Ablaut from it, a speaker only needs to apply a standard lexical rule to derive the correct Form with the correct vowel marking. The reverse could not be true; a lexical rule cannot predict the alternation from the standard /a/ of the Ablaut to any of the three vowels in the intransitive. The same would be true of Forms II and IV; only the Basic contains the variant vowel information. Thus, the label of Basic is correct for this Form, and the direction of derivation is from intransitive to transitive.

In actual fact, I feel that causative derivations actually come from the vowelless triliteral root, and not from the Basic Form I. This is because not all existing Form II and IV verbs have a corresponding Form I from which they could have been derived. Most do, but not all. An example of this is the root /s-l-tˤ/, which exhibits the following relevant Forms (V being the unspecified second vowel):

14) /s-l-tˤ/   →   *salVtˤa   (Basic Form I)

         →   *salatˤa   (Ablaut Form I)

         →   sallatˤa   (Form II)   'to give s.o. power; cause s.o. to rule'

         →   *ʔaslatˤa   (Form IV)

One point of interest is that many of the Form I gaps seem to have originally existed in Classical Qur'anic Arabic but have since been lost. According to Lane (1877), the Form I salutˤa did in fact exist in the lexicon of early Islamic-era Arabic.

14) demonstrates not only that some verbs have no Basic Form I, but also that not all verbs necessarily possess both a Form II and a Form IV if they accept one of the pair. In this case, Form IV is absent; other verbs have a Form IV without a Form II. These appear to be arbitrary gaps in the lexicon; no known logical explanation for these gaps exists, since the meanings of Forms II and IV can often be identical. Gaps in the Ablaut are also possible, but are harder to track down by nature of the fact that one cannot overtly detect alternation from any basic Form that has /a/ as the second vowel. One example of an ablaut gap appears to be found in the intransitive verb kariʃa, meaning *'to be wrinkled'*. It exhibits the following relevant Forms:

15) kariʃa   'to be wrinkled' →   *karaʃa   (Ablaut)

              →   karraʃa   (Form II)   'to wrinkle one's brow'

Despite apparent evidence for derivation straight from the triliteral root itself, I hold the position that it will suffice to write our lexical rules on the assumption that a derivation can be made from the Basic Form I. This position is primarily taken because the Basic Form I is the only Form without totally predictable vowel assignment. By making this Form the default lexical entry, we capture the information of that unpredictable middle vowel that cannot be found anywhere else. For those verbs that have no basic Form I, we can easily create a hypothetical Form I with unknown vowel quality that can be used to correctly derive higher Forms from it.

We now return to the issue of the causative derivations themselves. Hale and Keyser cite Fassi Fehri, who in his 1987 paper formulated the generalization for Modern Standard Arabic that "Derivational causativization is limited to one application." A causative cannot be derived from what is already a derived causative verb, which means that double causative constructions are prohibited in this language. The derivational system of the language is broad, but in terms of depth only allows for one application.

Proof of this limitation is found in examining the transitivity allowed by a verb in its various Forms. Recall that in 10), all three causative constructions could be derived from the basic intransitive verb ħazina, *'to be sad'*. All three causative Forms bear the meaning *'to make s.o. sad'*; all three causative constructions are transitive. According to the generalization above, it is prohibited to apply a causative derivation to any one of the non-basic Forms. Hallman shows that this is true. For example, even though Form II and IV can render ditransitive constructions, they do not accept the ablaut form of this verb as the input, because the resulting construction has too many arguments due to multiple increases in transitivity. This is summarized in 16):

16) ħazina   'to be sad'   →   ħazana   'to make s.o. sad'

    ħazana   'to make s.o. sad'   →   ħazzana   *'to cause s.o. to make s.o. sad'

                                                (means 'to make s.o. sad')

                         →   ʔaħzana   *'to cause s.o. to make s.o. sad'

                                                (means 'to make s.o. sad')

The chart in Figure 1 summarizes the possible causative derivations allowed by each Form, based on transitivity.

Figure 1: Chart of Possible Derivations Based on Transitivity
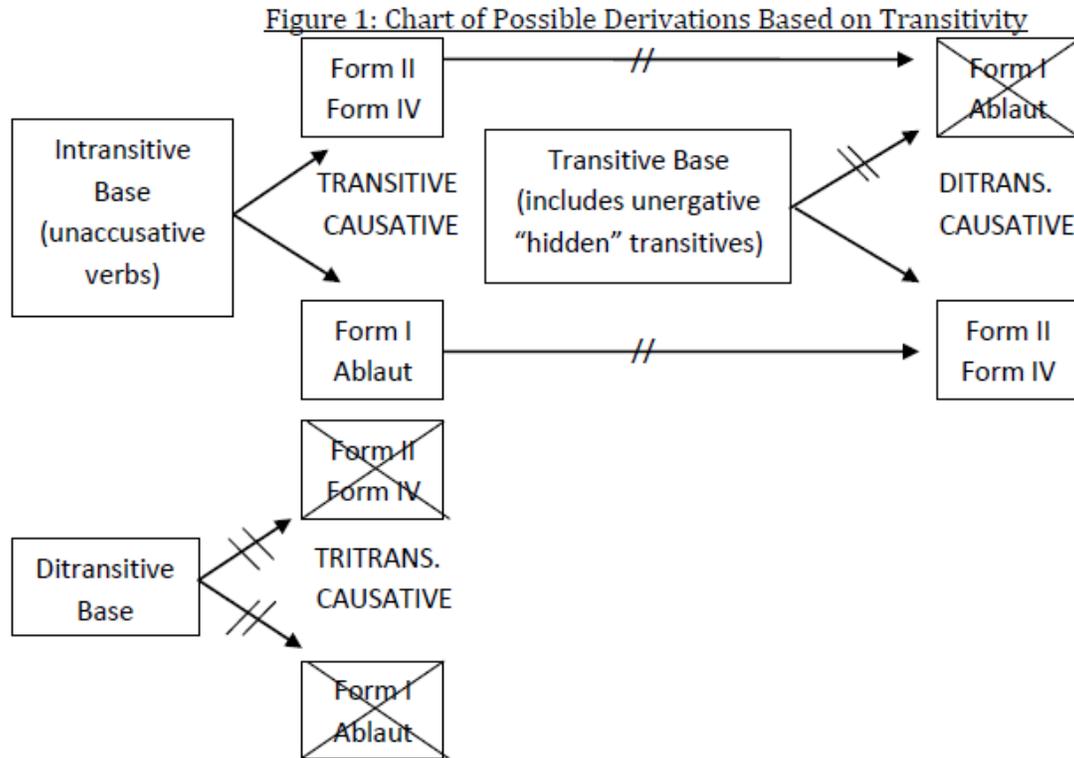
Case Marking

Arabic does not have an elaborate bank of case forms, so case marking is quite simple. The subject of a causative construction, marked in nominative case, is the causer. Both the causee and the patient/theme are marked with the accusative case as objects. There is no difference in case marking between the different causative Forms. In ditransitive constructions, both basic and causative, this means that the construction contains two accusative arguments. Below is an example from Hallman illustrating the ditransitive case marking on a Form II causative construction.

17) darrasa   l-muʕallim-u   l-ʔatˤfaal-a   l-dars-a.

taught (FORM II) the-teacher-NOM the-children-ACC the-lesson-ACC
'The teacher taught the children the lesson.'

This system of case marking is the same for a basic ditransitive verb as it is for a derived causative; case marking does not differ depending on whether the verb is an original or derived Form.

18) razaqa   ʔallah-u   l-radʒul-a   tˤʕifl-an

provided (BASIC FORM I)   God-NOM the man-ACC child-ACC.Indef
'God provided the man with a child.'

Arabic has quite free word order, and in most circumstances, arguments can occur in any order, though the default unmarked order is usually VSO. Variation in word order can easily occur in transitive clauses, because the different case markings overtly distinguish the subject from the object. It may also be possible for varied word order to occur in a ditransitive sentence like 17). Even though there is no case differentiation between the two objects, the meaning of the sentence can clearly be understood from semantics; the lesson, as an inanimate theme, cannot be caused by the teacher to do something, nor can the children be considered factual material that someone else is learning. The immediate incorrect interpretation is distinguished as easily as the ill-formedness of the English sentence, "The teacher taught the lesson the children."

However, when the semantics fail to adequately distinguish the arguments of a construction, whether basic or causative, word order becomes crucial as the only way to eliminate ambiguity. In example 18), for instance, the verb razaqa can easily take two human entities. Their case marking is

identical. It may not easily be apparent which argument is being provided with whom. In this example, the default word order, in which causee occurs as the primary object, closer to the verb than the patient/theme, is obligatory. Reversing the order of object arguments would inherently switch their semantic roles.

Of particular interest is that when it comes to causative constructions, it seems that the lexicon does its own job at eliminating potential ambiguity and keeping word order free. Most volitional transitive verbs that have been sampled—the type that would easily allow for and expect two human objects when causativized—appear to be almost systematically banned from accepting a causative derivation. This gapped category, including verbs like *'to kill'* and *'to hit'*, either does not have a causative Form, or that Form takes one of the non-causative meanings only (Wehr 1994). It is likely that there are some exceptions to this pattern, but there is enough evidence to support this principle as a generalization. 19) demonstrates how a ditransitive causative construction with such a volitional verb would be ungrammatical, and would have to be rewritten into something like 20):

19) *muħammad-un   dˤaraba/dˤarraba/ʔadˤraba ʔaħmad-an   xaalid-an

Muhammad-NOM cause.to.hit (I/II/IV)   Ahmad-ACC Khalid-ACC

For *'Muhammad caused Ahmad to hit Khalid.'* (or *'Muhammad caused Khalid to hit Ahmad.'*)

20) muħammad-un   zaʕʕala/ʔazʕala   ʔaħmad-an   ħatta   j-adˤriba xaalid-an

Muhammad-NOM cause.to.be.angry (II/IV) Ahmad-ACC so.that 3SG-hit   Khalid-ACC

'Muhammad caused Ahmad to be angry, so that he hit Khalid.'

However, a second category of transitive verbs, particularly sensory verbs, can accept either human or nonhuman arguments as the secondary object, but do not inherently expect that an ambiguous human argument will be there. Verbs such samiʕa *'to listen/hear'* thus allow causative Forms. Strict word order is enacted in order to unambiguously render the intended meaning. Thus, 21) is grammatical (though perhaps mildly odd to have a human entity rather than a sound as the theme):

21) muħammad-un   ʔasmaʕa   ʔaħmad-an   xaalid-an

Muhammad-NOM cause.to.listen.to (IV)   Ahmad-ACC Khalid-ACC

'Muhammad caused Ahmad to listen to Khalid.'

The Arabic causative construction, with its two undistinguished objects, clearly falls in the Swahili category according to the two patterns observed by Baker 1988. Default word order suggests that the causee, typically placed closer to the verb, is always assigned the Grammatical Relation of Object, rather than following the more common Turkish pattern of assuming the next available Grammatical Relation on the Relational Hierarchy.

A causative construction may also take an oblique prepositional phrase, whose object is marked in the genitive case. This construction is quite straightforward, since there is no ambiguity of meaning. As 22) demonstrates, when there is no ambiguity, two animate entities may occur as predicate arguments, since they may be distinguished by case.

22) muħammad-un   ʔadʒlasa   ʔaħmad-an   dʒanb xaalid-in

Muhammad-NOM cause.to.be.seated Ahmad-ACC next.to Khalid-GEN

'Muhammad caused Ahmad to sit next to Khalid.'

Semantic Restrictions

As discussed in the previous section, the semantics are of central importance to the Arabic causative, because they are the sole means of distinguishing the causee from the theme or patient. Much of the semantics has already been introduced above, and this section will merely summarize that discussion.

The causer, as the subject, is naturally an agent, an animate entity. The causee must likewise be an animate entity, but as indicated by limitations on volitional verbs such as *hit*, does not seem to typically accept an agentive role on transitive inputs. This is supported by Fischer (1999), who briefly notes that "the causative is usually not used if an action is carried out by an agent," and cites qatala *'to kill'* as an example of another transitive verb that does not allow for a causative interpretation.

Comparison of Meaning

The multiple ways of creating a causative construction in Arabic raises the question of whether there is some predictable difference in meaning between the various causatives, if the lexicon allows for multiple Forms to be derived from the same root. The answer is, not necessarily. Sometimes there is a difference in meaning, usually minor and related to precise connotations. In other cases, there is no apparent difference in meaning at all. Perhaps in certain cases, there are minute differences that cannot be succinctly expressed in English dictionary translation. Wright (2005) and Haywood/Nahmad (1965) both cite some basic examples comparing Forms II and IV to illustrate this:

23) xabbara	'to inform s.o./give news'	vs.	ʔaxbara	'to inform s.o./give news'
ʕallama	'to teach s.o. s.t.'	vs.	ʔaʕlama	'to inform s.o. s.t.'
sˤallaħa	'to repair s.t.'	vs.	ʔasˤlaħa	'to rectify/reform s.t.'

In personal correspondence on the topic, F. P. Ford (p.c.) mentioned a classic illustration of meaning contrast from Qur'anic Arabic. The basic verb nazala means 'to fall; to descend', and may be used in reference to revelation from God. Qur'anic literature reveals a consistent difference of meaning between the Form II and Form IV causatives. Form II, nazzala, has the sense of revelation being sent down gradually, such as the entire Qur'an over the course of 23 years of ministry by the prophet Muhammad. ʔanzala, the corresponding Form IV, has a much more immediate connotation, of being sent down all at once, and would be used to refer to one specific revelation from one occasion.

The Form I causative displays identical meaning patterns, or rather lack of any specific pattern. We demonstrated in 10) that it can sometimes have identical meaning to the other causatives. Minor differences in meaning certainly exist, but it is difficult to determine clear indications of different meaning from a dictionary alone.

Conclusion: Lexical Rules and Summary of Findings

To summarize the findings of this paper, we now propose complete lexical rules, adding to the Word Formation Rules proposed at the beginning that integrate issues of case, transitivity, semantics and derivational restrictions. Because the causative is a meaning-changing process, we will use the argument-structure format proposed in Kroeger 2004. The three lexical rules are given below, followed by a brief summary of the features of the Arabic causative.

These lexical rules illustrate the following properties of the Arabic causative:

♦ All causative Forms must be derived from the same input, a basic Form I; thus, they cannot apply to any verb that has already undergone one of these derivations.

♦ There is no overt difference in meaning between any one of the Forms; the output will mean roughly 'to cause to X,' though precise differences in meaning between different causative Forms may occur. For Forms II and IV, the meaning will not necessarily be causative; the Form may be intensive or estimative.

♦ The parentheses for the Form II and IV rules indicate that they may take either an intransitive or transitive verb as their input; the Ablaut may only take intransitive input.

♦ The output, allowing for only one subject, is monoclausal, as is typical of most causative constructions.

♦ The derivations follow the Swahili pattern of causative case marking, consistently making the causee as an object. The input object will occur farther from the verb than the causee, and it thus gets demoted to secondary object due to its distance from that verb.

♦ Not able to be illustrated in a lexical rule is the semantic restrictions, which in general deny causative constructions to be derived from a transitive verb that assumes an agentive subject.

24)

$$[C_1 \, a \, C_2 \, V \, C_3 \, a]_{VFORM\,I} \quad \leftrightarrow \quad [C_1 \, a \, C_2 \, a \, C_3 \, a]_{VFORM\,I\,ABLAUT}$$

to X → to cause to X

pred $<\theta_1>$ ↔   cause   < agent,   Event >

                                          pred $<\theta_1>$

SUBJ   SUBJ_CAUSER   OBJ_CAUSEE

25)

$$[C_1 \, a \, C_2 \, V \, C_3 \, a]_{VFORM\,I} \quad \leftrightarrow \quad [C_1 \, a \, C_2 \, C_2 \, a \, C_3 \, a]_{VFORM\,II}$$

to X → to cause to X (or non - causative meaning)

pred $<\theta_1, \quad (\theta_2)>$ ↔   cause < agent,   Event >

                                             pred $<\theta_1, \quad$ (patient/theme)>

SUBJ (OBJ)   SUBJ_CAUSER   OBJ_CAUSEE   (OBJ_2/OBL)

26)

$$[C_1 \, a \, C_2 \, V \, C_3 \, a]_{VFORM\,I} \quad \leftrightarrow \quad [a \, C_1 \, C_2 \, a \, C_3 \, a]_{VFORM\,IV}$$

to X → to cause to X (or non - causative meaning)

pred $<\theta_1, \quad (\theta_2)>$ ↔   cause < agent,   Event >

                                             pred $<\theta_1, \quad$ (patient/theme)>

SUBJ (OBJ)   SUBJ_CAUSER   OBJ_CAUSEE   (OBJ_2/OBL)

Appendix: Transliteration chart of Arabic characters used in this paper

Arabic letter	IPA transliteration	Arabic letter	IPA transliteration
أ	ʔa	ع	ʕa
ة	f (vowel unassigned)	ع	ʕʕa
ة	f (vowelless)	ل	l (vowel unassigned)
ة	fa	ل	la
ع	ʕ (vowel unassigned)		

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