

NOTES ON THE R₁R₂R₂ STEMS
IN SEMITIC

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INTRODUCTION¹

The purpose of these notes is to discuss two phenomena that I believe are related: one is the problem of verbs that have the structure of the root R₁R₂R₂; the other is the problem of the intensive form of the verb (the so-called D stem) in Semitic languages. Regarding the first problem, the contribution made in this note will be a hypothesis concerning the possible function of reduplication. The discussion of the second problem was prompted by the book *The D-stem in Western Semitic* by S. A. Ryder II (1974). I suggest that the R₁R₂R₂ verbs are the earliest forms derived through gemination of the second consonant and that they represent the same process which later produced the Pi'el in Hebrew and the Form II in Arabic.²

Kuryłowicz (1972: 10) lists the following pairs of verbs which are semantically similar:

ARABIC

<i>dakka(u)</i> "grind"	<i>dāka(ū)</i> "grind"
<i>dalla(i)</i> "be poor, disdained"	<i>dāla(ī)</i> "be low, disdained"
<i>darra(u)</i> "injure, do harm"	<i>dāra(ū)</i> "injure, do harm"
<i>nahha(u)</i> "make the camel kneel down"	<i>nāha(ū)</i> "kneel down (camel)"

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² The discussion will concentrate only on these two languages, since they were the main object of Ryder's study. However, it is likely that the conclusion of the discussion will be applicable to some other Semitic languages as well, e.g. to the problem of gemination in Geez, to the frequentative form of the verb in Amharic, and to the problem of geminated and non-geminated forms of the verb in various tenses.

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HEBREW

<i>h-m-m</i> "confuse, disturb"	<i>h-y-m</i> "stir, discomfit"
<i>z-r-r</i> "squeeze out"	<i>z-y-r</i> "press, wring"
<i>t-b-b</i> "be besmeared"	<i>t-y-b</i> "plaster"
<i>m-k-k</i> "sink"	<i>m-y-k</i> "be down, grow poor"
<i>m-l-l</i> "circumcise"	<i>m-y-l</i> "circumcise"
<i>s-š-š</i> "feel, grope"	<i>m-y-š</i> "feel, touch"
<i>'-r-r</i> "strip (oneself)"	<i>'-u-r</i> (Nif'al) "be naked"
<i>p-r-r</i> "destroy"	<i>p-y-r</i> "destroy"
<i>š-r-r</i> "show hostility (to)"	<i>š-y-r</i> "show hostility (to)"
<i>r-m-m</i> "rise"	<i>r-y-m</i> "rise"
<i>š-k-k</i> "cover in order to screen"	<i>š-y-k</i> "hedge (with thorns), fence"

Another extension that Kuryłowicz considers to have an affinity to the above is the repetition of the whole stem, the formation R₁aR₂R₁aR₂ – e.g. *k-y-l* "measure, hold" → *kalkal*; *h-i-l* "quiver with fear" → *halhal*; *š-q-q* "rush upon" → *šašaq*. Regarding the explanation of these forms, Kuryłowicz (1972: 12) writes: "Whereas the phonemic opposition short vowel:long vowel is solidly anchored on an alternation . . ., no such phonemic alternation exists between simple and double consonants within inflectional paradigms." Kuryłowicz states that the forms with the geminated second consonant are enlargements of the simple forms, although he notes (p. 14) that "one must assume the existence of original triconsonantal roots of the structure R₁R₂R₂". Regarding the meaning of these forms, he says that "the semantic side remains a question for future research" (p. 12).

Ryder (1974: 165) has rejected the hypothesis that the geminated forms in Hebrew (Pi'el) and Arabic (Form II) are derived and claims, following Goetze (1942), that the function of the geminated stem is factitive and that the stem has a "denominative-factitive orientation" (Ryder, 1974: 167). In arguing against the derivational origin of the geminated stem, Ryder does not discuss the phonological form of the stems, but rather the semantic oppositions that the geminated stems might have with non-geminated stems. Not finding a clear-cut semantic opposition, he rejects the hypothesis that the geminated stems are derived and not "basic" forms.¹

¹ Even according to the criteria mentioned by Ryder, these forms could be considered as derived, since they do exhibit common characteristics, e.g. the factitive function or the less clear "denominative-factitive orientation".

Additional evidence for Kuryłowicz's statement that R₁R₂R₂ forms are derived from R₁R₂ will now be provided, and at the same time evidence will be presented to suggest that the Arabic Form II and Hebrew Pi'ēl are also derived forms.

Two types of argument will be used in support of this hypothesis, which has a rather long tradition in Semitic studies.¹ One type is based on synchronic analysis and internal reconstruction of present-day Semitic languages, and the other is based on the comparative study of similar forms in other Afro-Asiatic (Hamito-Semitic) languages.

SYNCHRONIC ANALYSIS AND INTERNAL RECONSTRUCTION

The first piece of evidence that the geminated forms are derived arises from the morpheme structure constraint in Semitic languages which says that two consecutive consonants cannot be homorganic, that is, they cannot be produced in the same place of articulation.² This constraint, documented by Greenberg (1950), holds for all 1-2 positions and 2-3 positions in the Semitic root, except for identical consonants in the 2-3 position. This last exception appears to be unnatural, because it contradicts the constraint. Ullendorff (1961: 28) writes that it is "one of the most symptomatic single aspects of Semitic: thus no bbx, bmx, gkx, xgk, etc. are admissible, but geminates xyy are frequent." A possible explanation for the roots xyy is the claim that one is dealing here not with a simple form but a derived one, and that the morpheme structure constraint does not operate in the derived forms.

There is independent evidence to support this claim in any of the Semitic languages; an examination of affixes, either inflectional or derivational shows that its occurrence is not inhibited by the presence of a homorganic consonant in an adjacent position, whether separated by a vowel or not.

¹ A similar explanation was proposed by Sibawaihi and Ibn Ya'īš, and it was held to be true by a number of scholars in the nineteenth and twentieth centuries. For a history of research on this topic, see Ryder (1974: 11-20).

² This constraint has been known to Arabic and Hebrew grammarians (see Greenberg, 1950: 163). Greenberg (1950) provided excellent data based on the study of almost four thousand verb roots in Arabic. A statistical study concerning R₁ and R₂ position is to be found in Kuryłowicz (1972: 17-22).

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A random check in Arabic shows the following:

t-d in 1-2 position: no occurrences within one morpheme (Greenberg, 1950: 164), but *ta-dārabū*

m-f in 1-2 position: within one morpheme, no examples (Greenberg, 1950: 164), but *miftāḥ* "key" (prefix *mi-*)

d-t in 2-3 position: within one morpheme, no examples (Greenberg, 1950: 166), but *lidat* ← *walada* (suffix *-at*)

It is therefore possible to have two consecutive homorganic consonants when they belong to different morphemes, and so on phonological grounds it has been shown that the geminated forms are probably derived. But this argument can be rejected if one shows on independent grounds that in phonological rules two identical consonants do not behave as if they were two similar consonants. For the particular constraint in Semitic, one would have to show that for some reason two identical consonants behave as if they were not homorganic. The reason I mention independent grounds is because one can use the facts discussed in this paper as evidence for the non-operation of the constraint.

It is still possible that some of the verbs with the second geminate are the result of assimilation of an infix rather than gemination, but it appears, contrary to the quoted statement of Kuryłowicz, that there were no roots with geminates as basic forms in Proto-Semitic. The fact that for a number of geminates we do not find non-geminate counterparts in the present-day languages will be explained after the semantic function of the gemination is discussed.

The other piece of evidence for morphological complexity of roots with geminates is of the type frequently used in contemporary linguistic argumentation: if a rule can be written to derive one set of forms from another, the simplest and best grammar of the language will require that rule. Then, only one set of roots is required in the lexicon of the language, the other set being accounted for by the rule.

It is possible to formulate the rules by which one could derive the geminated form from some other form in the language. Thus, for instance, for the data quoted by Kuryłowicz from Arabic, one could postulate the following rule: $C_1 VVC_2 V \rightarrow C_1 VVC_2 C_2 V \rightarrow C_1 VC_2 C_2 V$. The last form has been obtained by an automatic rule of vowel shortening in a closed syllable.

One could conceivably claim that the geminated forms are

derived from non-geminate roots, postulating a rule of the form R₁R₂ → R₁R₂R₂, following Kuryłowicz (1972: 14). In order to account for the consonantal structure of the Arabic Form II and the Hebrew Pi'el, one could postulate the following rule: R₁R₂R₃ → R₁R₂R₂R₃. Vocalization would then be the next step in the derivation of the forms actually occurring in particular Semitic languages. One can of course claim that the same form can be derived from a different source and postulate different rules for derivation, but the basic fact that the geminated forms are derived and not "basic" or "simple" remains.

COMPARATIVE EVIDENCE

Comparative evidence for the hypothesis consists of data from some languages of the Chadic group, Egyptian, Berber dialects, and some Cushitic languages of the Afro-Asiatic family. It can be shown that a derivational process very similar to the one observed in the Semitic languages exists in other branches of the Afro-Asiatic family; therefore, its existence in present-day languages must be due to a common inheritance. It can also be shown that in all the languages the process derives the intensive-frequentative-plural forms of the verb and, therefore, that those must have been the ranges of the meaning of the (hypothetical) reduplicated form of the verb in Proto-Afro-Asiatic.

Chadic

In two of the Chadic languages, the formation of the intensive-plural form of the verb requires the same rule as Arabic, see above, p. 4. The second consonant of the verb is geminated, and the long vowel in the closed syllable becomes short. The following data from Pero are from Frajzyngier (1976 and field notes). The data from Kanakuru are from Newman (1974), as reanalysed in Frajzyngier (1976).

Pero

Basic form	Plural form ¹	Gloss
<i>lookò</i>	<i>lokkò</i>	"to hang"
<i>deefò</i>	<i>deffò</i>	"to discuss"
<i>becò</i>	<i>beccò</i>	"to sting, to shoot"
<i>afù</i>	<i>affò</i>	"to open"
<i>nafù</i>	<i>naffò</i>	"to touch"

¹ In accordance with the accepted terminology in Chadic linguistics, the geminated reduplicated forms of the verb are called "plural".

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There are other ways of deriving the plural form in Pero, but in most cases they are phonologically conditioned and predictable. Thus reduplication of the first syllable rather than gemination of the second consonant will be used when the second syllable of the verb begins with a sonorant, e.g.

<i>menò</i>	<i>memminò</i>	“like”
<i>cinà</i>	<i>ciccinà</i>	“sleep”
<i>culù</i>	<i>cucculò</i>	“pull up”

A number of verbs have the plural formed through reduplication of the second syllable, e.g.

<i>buugò</i>	<i>buggugò</i>	“to beat a drum”
<i>waatò</i>	<i>wattutò</i>	“come”
<i>kabù</i>	<i>kubbubò</i>	“to taste a liquid”

The examples quoted in the two preceding groups are important, because they show that gemination and reduplication are phonologically conditioned variants of the same process. Note that a similar situation obtains in Hebrew; for a number of verbs of the form R₁R₂R₂, instead of Pi‘ēl, the form with the second geminated consonant, we have Pilpel, the form obtained through reduplication of the biconsonantal root. For example,

<i>g-l-l</i>	<i>gilgel</i>	“to roll”
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(Gesenius-Kautzsch, 1910: 179).

While I cannot prove that in every language the situation described for Pero and Hebrew is true, nevertheless, considering that this similarity is not accidental, I will be using instances of gemination and reduplication as representing the same process.

It is important to note that most of the verbs in Pero may have a plural form, which means that the rule involving the gemination of the second consonant is still alive. The main function of this form is to indicate plurality of object, since there are no other grammatical means to do it (the noun in Pero is not marked for number). Note that one of the functions of Pi‘ēl is to indicate plurality as well, e.g. Pi‘ēl of *kabar* “to bury” means “to bury many” (Gesenius-Kautzsch, 1910: 141).

Kanakuru

A small number of verbs in Kanakuru are number sensitive and agree in number with the object of a transitive verb or with the subject of an intransitive verb (Newman, 1974: 72). This is done by gemination of the second consonant, e.g.

Basic form	Plural form	Gloss
<i>dopi</i> [dowi] ¹	<i>doppe</i>	"to tie"
<i>bupi</i> [buwi]	<i>buppe</i>	"to shoot"
<i>pupi</i> [puwi]	<i>puppe</i>	"to get out"
<i>muti</i> [muri]	<i>mutte</i>	"to die"
<i>podu</i> [pori]	<i>podde</i>	"to go out"

There are in Kanakuru some fifty geminated verbs without a non-geminated counterpart; these verbs have no special semantic connotation within the language. There are several points that suggest that Kanakuru used to have gemination as the main device to derive the plural-intensive form. Kanakuru has developed a new intensive marker *-mu*, which is not known in other Chadic languages. Kanakuru, unlike Pero, has a number of suffixes to indicate plural in nouns. When other means to indicate intensity and plurality of object became available, gemination lost its function, and this is why only traces of it can be seen in the language now spoken, and this is also why research into the meaning of gemination will not turn up any clear results. If we did not have the pairs listed above and a few others not included in this paper, it would be impossible to conclude from the fifty or so geminated verbs that their function was to indicate plurality. This evidence can be obtained, however, from comparative data, which show that gemination of the second consonant is a device used for the formation of intensive forms of the verb in most of the subgroups of the Chadic branch of the Afro-Asiatic family, and that it is a retention from the proto-Chadic period. For more details on the formation of plurals in Chadic, see Frajzyngier (1977). The existence of geminated verbs in Kanakuru may be compared to the existence of R₁R₂R₂ stems in Hebrew and Arabic, for which we cannot find common semantic characteristics on the basis of their present meaning.

An interesting piece of evidence which suggests that the above

¹ For the rules regarding the phonetic realization of these forms, see Newman (1974) and Frajzyngier (1976).

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forms in Chadic are related to the Semitic forms is the sporadic use of gemination as a device to derive transitive-factitive forms of the verb from stems that are inherently intransitive, e.g.

Pero *cétò* "to stand" *céttò* "raise something"
 Ngizim *tlá* "get up" *tlátlá* "raise" (Schuh, 1972: 28).

This function of gemination is of course the one that is most frequently mentioned in the description of Hebrew Pi'el and Arabic Form II. In view of all other facts mentioned so far, this similarity is not accidental.

Berber

Saib (1974: 2) provides the following examples of the formation of the "intensive form" in the Tamaziyt and Tachelhiyt dialects of Berber.

Tamaziyt

Basic form	Intensive form	Gloss
<i>eçmez</i>	<i>çemmez</i>	"to scratch"
<i>eçmes</i>	<i>çemmes</i>	"to cover"
<i>ejnu</i>	<i>jennu</i>	"to sew"
<i>eβnu</i>	<i>βennu</i>	"to build"
<i>efley</i>	<i>felley</i>	"to tear"
<i>emrey</i>	<i>merrey</i>	"to rub"
<i>erzem</i>	<i>rezzem</i>	"to open"

Tachelhiyt

<i>bez</i>	<i>ebbez</i>	"to peel"
<i>eftel</i>	<i>fettel</i>	"to roll couscous"
<i>ebdu</i>	<i>beddu</i>	"to start"

As can be seen from these examples and other examples analysed by Saib, the means of deriving the intensive form is by gemination of the second consonant of the stem. This device is also used in other dialects of Berber.

Although the present-day meaning of the "intensive" form does not imply intensity or plurality, there seems to be agreement among scholars (see Basset, 1952: 14) that it is a derived form and that historically it had an intensive function (Cohen, 1945). For a different view, however, see Greenberg (1952), who claims that this form did not have an intensive meaning but rather that it indicated present, as it does now.

Cushitic

Somali

The intensive form in the Benadir dialect is derived by reduplication of the first CVC group of the stem. According to Moreno (1955: 265), the meaning of this form is that of a repetitive or intensified action, e.g. *ḡab* "to break" → *ḡabḡab* "to break into small pieces". The same devices are used in the Darod and Digil dialects.

Galla

Moreno (1939: 86) states that by reduplication of the first syllable of the verb, one derives a form that indicates intensive or frequentative action, e.g.

<i>bēku</i>	"to know"	<i>bebbēku</i>	"to know well"
<i>ḡūbu</i>	"to burn"	<i>ḡūḡūbu</i>	"to keep on burning"
<i>rūkatu</i>	"to beat"	<i>rurūkatu</i>	"to beat repeatedly"

It appears that more than just reduplication of the first syllable is involved in the formation of the iterative form of the Galla verb. That reduplication is not sufficient to account for the form is indicated by the gemination of the first consonant of the root in the middle of the iterative form. Perhaps the reduplication of the first three phonemes is involved (as it is in Hausa; see Frajzyngier, 1965), and an assimilation process would then account for the geminated consonants. Thus, the derivation of the intensive form of the verb "to know" might look something like this: *beku* → **bekbeku* → *bebbeku*. The other possibility is, of course, that there is reduplication of the first syllable and gemination of the first consonant at the same time.

Agau

There are two means for deriving the Agau extended form. Roots with two consonants (according to Reinisch, 1882: 601) make the extended form by reduplication of the whole root, e.g. *bir* "to be hot", *birbir* "to burn". Roots with three consonants, and those that have more than three consonants, form the extended form either by reduplication of the last two consonants or, more often, by repetition of the medial consonant, e.g.

<i>baran</i>	"to be clear"	<i>baraurau</i>	"to be completely clear"
<i>akib</i>	"to gather"	<i>akibkib</i>	"to gather carefully"

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For another Agaw language, Kemant, Appleyard (1975: 330) gives only examples of the total reduplication of the verb, e.g.

<i>mal</i>	“throw”	<i>mals</i> (passive)	<i>malsāmals</i>	“be utterly destroyed”
<i>käl</i>	“break”		<i>käläkäl</i>	“shatter”

Sidamo

Ceruli (1938: 95) provides some forms that involve reduplication of an element of the root. These forms have, among other meanings, the meaning of intensity, e.g.

<i>gal</i>	“to spend a night”	<i>galagal</i>	“to spend the complete night”
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The data from the Cushitic languages thus show that by various devices, all involving reduplication of one or another element of the root, the iterative-intensive forms are derived. The range of meaning of these forms is rather large, but it always involves repetition, completeness, or intensity of an action.

Egyptian

Gardiner (1927: 210) says that “verbs signifying continuous or repeated human actions, habitual occupations, sound, colours, and violent movements are apt to be created from biliteral or trilateral stems by the repetition of two of the radical consonants”. Some of the examples he quotes are as follows:

<i>nd</i>	“ask”	<i>ndnd</i>	“take counsel”
?		<i>ptpt</i>	“crush”
<i>h₃g</i>	“be pleasant, glad”	<i>h₃g₃g</i>	“exult”
<i>rš(n)</i>	“rejoice”	<i>ršrš</i>	“rejoice”

In these examples, verbs in the right column have clearly been derived from the verbs in the left column.

There is another class of verbs in Egyptian, the so-called geminating verbs, whose members are characterized by identity of the second and third consonants. I could not find evidence that these verbs are actually derived forms, although Gardiner (1927: 207) considers such an explanation as very plausible. Even if one does not consider the geminating verbs, there is clear evidence that in Egyptian there existed a derivational rule by which the intensive form of the verb was obtained by reduplication of part of a stem. Since this device exists in all of the

groups constituting the Afro-Asiatic family, one has to assume that it is a common inheritance from a very distant Proto-Afro-Asiatic. When the function and meaning of the geminated stems in Afro-Asiatic are analysed, one will be able to determine what part of the function of this form in the Semitic languages is due to common inheritance and what is due to innovation within each group.

FUNCTION AND SEMANTICS OF THE
GEMINATED VERBS IN SEMITIC

Moscatti (1964: 124) states that the geminated stem "seems to have a primarily 'factitive' significance, i.e. as a causative in relation to a state or condition". In this he follows Goetze (1942), who posited just this meaning for the Akkadian geminated stems. Moscati adds the denominative and intensive as additional meanings. Ryder (1974) follows the same line in his analysis of West Semitic data.¹

From the comparative data and from some data from the Semitic languages, it is evident that the function of reduplication of the verb in Afro-Asiatic was to form the intensive-plural-frequentative and factitive form. In each branch of the Afro-Asiatic family some functions became more prominent than others. In the Chadic branch, indication of plurality of object and the frequentative function became more prominent, while the transitivising function became sporadic. In the Semitic languages, the transitivising function became the most prominent, while indication of the plurality of object, frequentative action, and intensity are only sporadically indicated by the geminated forms. It appears that in Berber, none of these functions was retained, and that gemination came to indicate an unrelated grammatical category.² Because of the limited data, I am not in a position to draw conclusions concerning the function of reduplication in all Cushitic languages.

¹ Ryder (1974: 26) presents a strange interpretation of Kuryłowicz's statement. Where Kuryłowicz (1961: 119) says "la gémation est un procédé d'origine déverbative", Ryder interprets this as "i.e. is denominative in origin", thus attributing to Kuryłowicz something that was not said in the quoted paragraph.

² However, see Wolff (1977) on the relationship between the intensive-plural-frequentative markers and some aspect markers in various Afro-Asiatic languages.

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