

# Review of: "The normalization of biradical roots: the origin of triradicals and the proto-semitic language"

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The article discusses the relationship between Semitic languages, focusing on Hebrew and Aramaic, and their roots. The author uses examples from different scholars to argue for the existence of biradical roots and their relationship to triradical roots. However, the author points out some issues with this theory and offers counterarguments to the scholars who support it. The author argues that the original forms of roots was biradical, meaning two lexical consonants. He uses a binning and exponential decay formula to show that triradicals represent a newer form of lexemes. He calls this process normalization and argues that biradicals have been normalized to triradicals at the very early stage of Semitic.

I think this is a fascinating research and it definitely benefits the understanding of the development of non-concatenative morphology. However, I have some concerns regarding the lack of examples in the argumentation for normalization.

The most critical question is how this normalization would look like. I don't understand how a biradical root would normalize to a triradical root. Usually, normalization involves analogy to existing forms, and one would expect that this means that elements get added because they already fulfill a specific function, such as derivational prefixes or suffixes. It is also not plausible that the weaker forms with their glides (w, j) and glottals (aleph, he) are insertions rather than reductions of triradical forms. Usually, these consonants are products of reduction processes. The author will have to argue why these weaker forms are not reduced but added insertions. Reduplication, on the other hand, is a good argument for extension of consonants. In any case, the author should give a definition of what normalization looks like.

Secondly, the author should mention more Semitic languages than just the Northwestern Aramaic and Hebrew. If the author's claim is that tri-radicalism is a Semitic innovation, then just looking at the decay in Aramaic and Hebrew is only a small window. The author should mention that the generalization for Semitic is only based on the Northwestern branch.

Third, I would like to point out a misguided conclusion. The author states that "[i]f each triradical root has a historical biradical form, then at some point the entire lexicon would have consisted of biradical roots before a gradual shift into triradical roots." The author should at least consider the possibility of the proto-language having mono- and biradical forms, since it is not clear how the third radical would be added in a consistent manner. The author gives good evidence that the added third radical is not a consistent suffix, which suggests the possibility of compounding (the adding of another root). Also, the origin of each triradical root as a biradical root in the past does not necessarily imply that the entire lexicon consisted of biradical roots; there might have been triradical roots that could have been retained or lost.

When discussing the letters, please give phonetic symbols so that one can understand the consonantal and vocalic manifestations of the letters constituting the weak roots.

In conclusion, this is a promising and interesting paper, but it should be complemented with more examples. I have written suggestions in the specific comments' section.

### Specific comments

Introduction: repeating of "unique" across three sentences. Changing up some of this words would make it more concise.

"All the possible morphs that they put each lexeme through"

I do not understand this sentence. What is the author's definition of a morph? How is it put "through" a lexeme?

"So, for example, in Biblical Hebrew the perfect suffixes primarily have *taw* in them (2ms, 2fs, 1cs, 2mp, 2fp)."

This is an example against the argument that there is no discernable value for the letters. What does "primarily" mean? I would phrase it as "primarily, but not always" and give example where it is not the case that the last radical is associated with perfect suffixes.

"It would be easy to trace back the ancient suffixes if, for example, 80% of Semitic roots had *taw*, or any other letter, as the third radical or if every verb with a *he* in the third radical had a causal meaning"

You would need to give the assumed meaning of *Taw*. Is it the perfective? What other letter is also associated with perfective? Just to make the comparison with *He* consistent.

"However, this is not the case"

Insert a period at the end of the sentence.

"The example by Zabroski has words with three, six, and nine letters that do not follow a standard CvCvC or CvC pattern at all but instead a random assortment of CvV, CvVCCv, CvC, CvCCvCCCv."

Please give a reference here. I don't know how the syllable structure relates to the numbers. Write the numbers for English and maybe also give some Semitic example that fit the syllable structure.

Please also explain how having a radicalism of roots makes the consonants more meaningful and morpheme-like. This is left out of the discussion in the argument against Zabrowski. Phonotactic consistency does not always mean form-meaning mapping consistency.

"Whether someone can decipher or reconstruct a class of nouns based upon the initial or final letter is not an indicator that there is no class element in nouns, but instead shows a lack of evidence or understanding on the part of researchers."

Explain here why the researchers need more investigating.

"This is a fairly strong argument because there are concrete examples of this happening and, unlike the one posited by Zabroski, these have occurred within Semitic and specifically Aramaic. The example given is: *dahabu* 'go, pass' > *madhabu* 'religious sect' > *tamadhaba* 'adhere to a sect'."

Add here that this is a recent development and does not involve the addition of radicals but of affixes.

"This was shown by Kuryłowicz who does not dismiss biconsonantal roots completely like Zabroski or Goldenberg but examines prefixes rather than suffixes because he believes suffixal elements are more difficult to discern than prefixal elements."

A page number would be great to add here.

"For example,  $\sqrt{lb}$  is proposed to be the root behind a prefixed form  $h\sqrt{lb}$  "milk" and a suffixed form  $lbn$  "white" but even with the shared spelling, the claim of a shared meaning seems strained."

Why strained? Milk is white; this could be an argument. Explain why this argument does not hold.

"However, these are then set against other terms that have not been reconstructed and so are classified as triradicals." Could you give an example here?

"The methodology was to divide out strong from weak roots and then apply an exponential decay formula."

Give a definition of strong vs. weak forms since not every reader might be acquainted with this idea.

"So, the most frequent verbs normalize more slowly than the less frequently used words."

Change "the most" to "more" and "more slowly" then to "at a slower rate" to avoid repetition.

"The in this formula is a ratio for Hebrew and Aramaic."

A noun after "The" is missing.