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Answering the Critics in 44 Rebuttal Points

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1. Kenneth C. Hill, review of *Uto-Aztecan: A Comparative Vocabulary*, by Brian Stubbs, *International Journal of American Linguistics* 78, no. 4 (2012): 591–93.

2. Dirk Elzinga, review of *Exploring the Explanatory Power of Semitic and Egyptian in Uto-Aztecan*, by Brian D. Stubbs, *BYU Studies Quarterly* 55, no. 4 (2016): 172–76; and John S. Robertson, "Exploring Semitic and Egyptian in Uto-Aztecan Languages," *Interpreter: A Journal of Mormon Scripture* 25 (2017): 103–16.

3. Chris Rogers, "A Review of the Afro-Asiatic–Uto-Aztecan Proposal," *Journal of Book of Mormon Studies* 28 (2019): 258–67.

4. John S. Robertson, "An American Indian Language Family with Middle-Eastern Loanwords: Responding to a Recent Critique," *Interpreter: A Journal of Latter-Day Saint and Scholarship* 34 (2019): 1–16.

5. Magnus Pharao Hansen, "An Evaluation of the Nahuatl Data in Brian Stubbs' Work on Afro-Asiatic/Uto-Aztecan," *Nahuatl Studies* (blog), September 12, 2019, http://nahuatlstudies.blogspot.com/2019/09/an-evaluation-of-nahuatl-data-in-brian.html.

review, responds to Hansen's Nahuatl issues, and answers some reasonable questions raised by others.

Editor's Note

Critics of the Book of Mormon often argue that no evidence exists for contact between the ancient Near East and the Americas. Accordingly, proof of such contact would demolish a principal objection to Joseph Smith's prophetic claims. If the thesis of Brian Stubbs's works is correct, he has furnished precisely that proof.

As might be expected, Stubbs's efforts have drawn criticism from some, but not all, of his linguistic peers. This article represents a response by Stubbs to those criticisms. Stubbs's works are admittedly complex and highly technical. They are, therefore, difficult, and it can take quite a bit of work for a reader to assimilate and understand the implications of his arguments. That very complexity and difficulty, though, precludes dismissal of Stubbs's works out of hand.

Has Stubbs proved the Book of Mormon true? No, but his data suggest that speakers of both Egyptian and a Semitic language came into contact with Uto-Aztecan speakers at roughly the same time as Book of Mormon events purportedly occurred and that a distinct Semitic infusion occurred at a different point.

Stubbs's work is important and it deserves careful, reasoned consideration by scholars and lay readers alike.

—Editor

Uto-Aztecan (UA) is a family of some 30 related languages in the U.S. Southwest, western Mexico, and numerous Nahuatl dialects from Mexico to El Salvador (see the appendix for abbreviations). In 2011, I published a book identifying 2,703 cognate sets and substantial treatments of comparative UA phonology.[6] Four years later, in *Exploring the Explanatory Power of Semitic and Egyptian in Uto-Aztecan*, I linguistically established a Northwest Semitic and Egyptian infusion, language mix, or massive borrowing found in UA.[7] While skepticism has always been the initial reaction, the 40 Uto-Aztecan specialists,

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6. Brian D. Stubbs, *Uto-Aztecan: A Comparative Vocabulary* (Flower Mound, TX: Shumway Family History Services and Rocky Mountain Books, 2011).

7. Brian D. Stubbs, *Exploring the Explanatory Power of Semitic and Egyptian in Uto-Aztecan* (Provo, UT: Jerry D. Grover Publications, 2015), hereafter referred to

linguists, and Semitists who received preliminary editions to preview it offered favorable assessments, silence, skepticism, or contempt, but none refuted it with specifics.

Responses to Rogers's 2019 Review

Recently Chris Rogers reviewed both *Exploring the Explanatory Power* and *Changes in Languages from Nephi to Now*.[8] The latter is intended for Latter-day Saint lay readers and addresses the relevance of the research to the Book of Mormon.

1. Assumption of a long-distance relationship between Afro-Asiatic and Uto-Aztecan

Rogers's first incorrect assumption is evident in his review's title and in several pages throughout — he claims that I propose a long-distance relationship between Afro-Asiatic and Uto-Aztecan (UA). Such a relationship would involve a time-depth of more than 10,000 years. Rather, UA contains several hundreds of coherent sound correspondences from a hybrid Northwest Semitic language, with early forms specific to both Hebrew and Aramaic, along with Late Egyptian of the same era (not Middle Egyptian, Old Egyptian, or Proto-Afro-Asiatic). The data point to a shorter time-depth of perhaps 2,500–3,000 years. The mixing/borrowing/infusion aspect of the Near-East elements in UA is mentioned at least 21 times in the two books Rogers reviewed.[9]

I cannot understand what Rogers read or saw to make him assume the books deal with common genetic descent from something pre-Afro-Asiatic. In *Exploring the Explanatory Power* there are 4,502 mentions of Hebrew and Aramaic and 2,136 of Late Egyptian but only sporadic reference to Akkadian, Ethiopic, and Afro-Asiatic (only four) for discussions of phonological matters. My findings have always centered on two Semitic languages (out of many) and contemporaneous Egyptian, but I have never made comparisons with any other branches of Afro-Asiatic or with ancient Afro-Asiatic. Even Hansen recognizes

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as *Exploring the Explanatory Power*. The lexical data (vocabulary) in this article are from *Exploring the Explanatory Power* unless otherwise specified.

   8.   Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal."

   9.   Stubbs, *Exploring the Explanatory Power*, 26, 35, 80, 158, 237, 320, 354, 356, 360–62; and Brian D. Stubbs, *Changes in Languages from Nephi to Now* (Blanding, UT: Four Corners Digital Design, 2016), 64, 86, 89, 96, 104, 112, 114, 154, 161, 170. *Changes in Languages from Nephi to Now* is hereafter referred to as *Changes in Languages*.

the fallacy of Rogers's claim: "I wish Rogers had realized that Stubbs' claim was in fact a proposal of language contact."[10]

2. Misrepresentations

Rogers frequently misrepresents my work. An example is his claim that the Nahuan or Aztecan languages "are systematically ignored in the comparisons."[11] I'm not sure how systematic the ignorance could be when a search of *Exploring the Explanatory Power* reveals over 800 references to the Nahuan or Aztecan languages. He may well have missed such details as CN being an abbreviation for Classical Nahuatl, for which there are over 400 occurrences of that alone.

3. Misquotations

Rogers, by misquoting others, says the opposite of what the authors originally stated. For example, John Robertson, in reviewing *Exploring the Explanatory Power*, stated, "I cannot find an easy way to challenge the breadth and depth of the data."[12] Yet Rogers misrepresented that quote to say, "There is ample reason to 'challenge the breadth and depth of the data,'" as if Robertson had actually said that. In the next clause, he similarly misquoted Dirk Elzinga.[13] He also turned my quote into something I did not say. My text said, "Yet gullible may better describe those accepting the **fictions about** the book [the Book of Mormon] than those digging in to find the facts."[14] He enclosed this statement in quote marks but changed the boldfaced words: "Yet gullible may better describe those accepting the **[assumptions] in** the book than those digging in to find the facts."[15]

4. Validity of assumptions

It is ironic that Rogers accuses me of "numerous assumptions"[16] in the face of his own several mistaken assumptions, such as asserting that the "only motivation for comparing Semitic languages and Egyptian to the Uto-Aztecan languages seems to be Stubbs' personal investment in Uto-Aztecan languages and linguistics."[17] Nothing could be further from

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10. Hansen, "An Evaluation."
11. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 266.
12. Robertson, "Exploring Semitic and Egyptian in Uto-Aztecan Languages," 114.
13. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 259.
14. Stubbs, *Changes in Languages*, 1.
15. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 261.
16. Ibid., 260.
17. Ibid., 262.

the truth. Navajo and its Athapaskan affiliation were my first exposure to foreign languages, but my own three-day investigation into Athapaskan and various East Asian languages convinced me that Athapaskan came from East Asia. Other linguists later provided evidence for this claim, which received considerable, but not universal, acceptance.[18] After examining Athapaskan, I looked into Yuman, Pomoan, Wintuan, Maiduan, Shastan, Yana, Kiowa-Tanoan, Keresan, Zuni, Salishan, Karuk, Algic, Siouan, Caddoan, Iroquoian, Muskogean, and Uto-Aztecan in North America; and Mayan, Totonacan, Mixe-Zoquean, Otomanguean, and a few isolates in Central America; and Chibchan, Cariban, Tupian, Paez, Arawakan, Aymaran, Witotoan, Quechuan, Matacoan, Pano-Tacanan, Guahiboan, Barbacoan, Macro-Je, Jivaroan, Movima, Zaparoan, and others in South America. An MA in linguistics and studies in Semitic (PhD/ABD in Semitic, Hebrew, Arabic, Aramaic) enabled me to see a substantial infusion of Northwest Semitic and Late Egyptian in UA. So Rogers's assumption has the reality backwards: it was years of investigating dozens of language families throughout the Americas that motivated my 40-year investment in UA.

5. Linguistic comparisons

Rogers insists that "linguistic comparisons require like systems" and that "the similarities identified must come from like systems, such as families, languages, or dialects."[19] Apparently Rogers and Hansen both think that comparisons of only proto-language to proto-language or language to language are permissible. However, discoveries often call for a language or two to be compared with a language family, as when Tocharian A and B were discovered and then proven to belong to the Indo-European (IE) language family,[20] or when Hittite was discovered

18. Edward J. Vajda, "A Siberian Link with Na-Dene Languages," in *The Dene-Yeniseian Connection*, ed. James Kari and Ben A. Potter (Fairbanks: University of Alaska Fairbanks, Dept of Anthropology, 2010), 33–99; Keren Rice, review of *The Dene-Yeniseian Connection*, ed. James Kari and Ben A. Potter, Diachronica 28, no. 2 (2011): 255–71; Lyle Campbell, review of *The Dene-Yeniseian Connection*, ed. James Kari and Ben A. Potter, *International Journal of American Linguistics* 77, no. 3 (2011): 445–51; Paul Kiparsky, "New Perspectives in Historical Linguistics," in *The Routledge Handbook of Historical Linguistics*, ed. C. Bowern and B. Evans (London: Routledge, 2015): 64–102.

19. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 262.

20. Emil Sieg and Wilhelm Siegling, "Tocharisch, die Sprache der Indoskythen, Vorläufige Bemerkungen über eine bisher unbekannte indogermanische

and was shown to belong to IE,[21] or when Catawba was attached to Siouan,[22] or when Cochimi was united to the Yuman language family by my former professor Mauricio Mixco.[23]

Let us pause a moment to consider the methodology of comparison in Semitic languages. First of all, both Semitic and UA are largely reconstructed,[24] though details of each are still being debated. The discovery of new IE languages changed IE reconstructions over the decades, and that new information had to be accounted for. Similarly, Semitic and UA each provide new and valuable information for the other. For example, Semitic clarifies many UA issues, and UA preserves evidence relevant to one Semitic question: whether the so-called Semitic velar fricative x was velar or uvular. The UA evidence suggests uvular.[25]

Second, much remains unknown regarding ancient Semitic languages. For example, ancient written Hebrew contains only a fraction of what was in the spoken language. It is therefore important to understand why Semitists find it necessary to include related forms from other Semitic languages for comparison — as I did also on occasion. As an example, Rogers (262–63) includes set 13 as a flawed set. Here is how I show set 13 in *Exploring the Explanatory Power*:

> Arabic **snw**; Ethiopic **snw**; Hebrew šaani; Akkadian sinitu; and Hopi **soniwa** 'beautiful, bright' share the meanings 'bright/shine' and 'beautiful'

As an example, Rogers (262–63) includes set 13 as a flawed set and in table 2 (263) shows the set this way:

Literatursprache," *Sitzungsberichte der Königlichen Preussischen Akademie der Wissenschaft* (Berlin, 1908), 915–32.

21. Bedřich Hrozný, *Die Sprache der Hethiter: Ihr Bau und ihre Zugehörigkeit zum indogermanischen Sprachstamm* (Leipzig: Hinrichs, 1917).

22. Alexander Francis Chamberlain, *The Catawba Language* (Toronto: Imrie and Graham, 1888). Frank Siebert, "Linguistic Classification of Catawba," *International Journal of American Linguistics* 11 (1945): 100–104, 211–18.

23. Mauricio J. Mixco, *Cochimi and Proto-Yuman: Lexical and Syntactic Evidence for a New Language Family in Lower California* (University of Utah Anthropological Papers, No. 101, 1978).

24. From the various actual attested forms in the descendant languages, linguists reconstruct a form as the probable or most likely, but unattested, original form from which those various forms descended.

25. Stubbs, *Exploring the Explanatory Power*, 313–16; Stubbs, *Changes in Languages*, 33–37.

Arabic	Ethiopic	Hebrew	Akkadian	> Hopi
snw	snw	šãni	sinitu	> soniwa

This makes it appear as if Hopi *soniwa* descends from all of them. For a larger semantic picture, I include several Semitic forms: Arabic snw 'shine'; Ethiopic sny 'be beautiful'; Hebrew šaani 'scarlet, crimson' (as something bright and beautiful), so that one can see that Hopi soniwa shares the same two basic meanings (beautiful, bright) as Semitic.

In *Exploring the Explanatory Power* the key forms to consider are in bold. The original Semitic root consonants are snw (clearly apparent in Arabic), which are also the three consonants in the Hopi form, regardless of how the others lost the third consonant.

Third, Semitic forms are typically built on three consonantal roots, although two or four or five are also possible. Therefore, Semitists do not see vowel variations as invalidating forms that share the same consonantal skeleton. For example, the root ḥrm 'to be sacred, forbidden' is foundation to many vowelings of words for 'woman, wives' — Arabic *ḥuram, ḥurm, ḥurma, ḥaram, ḥarama, ḥariim, ḥirma;* plurals: *ḥaraamaa, ḥuraamaa, ḥiraamaa*, and *ma-* prefixes: *maḥrama, maḥruma* — but despite the several vowelings of (ma)ḥVr(V)mV, all mean 'woman, female(s)'. For this reason, consonantal roots, not vowel variation, anchor cognate relationships in comparative historical work in Semitic, especially since only fractions of the ancient languages are attested. To suppose, for example, that the UA (Guarijio) forms, *oerume/oorume* 'woman' do not reflect Semitic ḥrm 'woman' for lack of an attested voweling would be a mistake, especially as pharyngeal ḥ always shows rounding (w/o/u) in UA. Leonid Kogan, a prominent Semitist, justifiably notes a "wide variety of unpredictable deviations in the vocalic domain in glaring contrast to the full regularity of the consonantal skeleton."[26] Thus I follow the Semitists' tradition in referring to a fuller array of Semitic forms and semantic ranges for a better sense of the larger Semitic picture.

6. Long-distance relationships

According to Rogers, "long-distance relationships are less likely to include a large number of similarities. The sheer number of similarities in Stubbs' proposal is not likely for the type of linguistic scenario presented."[27] For non-linguists, I might clarify that a long-distance linguistic relationship

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26. Leonid Kogan, "Proto-Semitic Phonetics and Phonology," in *The Semitic Languages: An International Handbook*, ed. Stefan Weninger et al. (Berlin: De Gruyter Mouton, 2011), 119–23.

27. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 263.

means a deep time-depth, usually connecting language families. Comparing UA with a Hebrew-Aramaic infusion in America represents a long distance geographically, but not a long-distance linguistic relationship.

Rogers again assumes that I am lumping Afro-Asiatic and UA in a long-distance relationship. Indeed, a time-depth of 10,000 years *would* yield few similarities. However, the bulk of *Exploring the Explanatory Power* identifies a large number of vocabulary words, fitting a system of sound correspondences, that accords with languages of Northwest Semitic of a time period of around 2,500–3,000 years ago. The examples include Aramaic-Hebrew (700 sets) mixed with a substantial number of Late Egyptian (400 sets) — not Middle Egyptian, Old Egyptian, or Afro-Asiatic — exhibiting the Late Egyptian definite article prefixes, which had not yet developed in Middle Egyptian.[28]

7. Lexical similarities

Rogers says "lexical similarities are often used as evidence for genetic relationships between languages,"[29] then he adds, "but these are far from convincing; see Campbell and Poser, *Language Classification*, 165–72."[30] Lexical similarities are an important part of every demonstration of language relatedness, though morphology and other factors are also important. On the pages Rogers cites, Lyle Campbell and William Poser refer to lexical similarities (1) of limited number (as any two languages can have accidental sound-alikes), (2) without additional supporting evidence like sound correspondences, and (3) as referring to long-range comparative linguistics,[31] citing the discredited Greenberg 1987, who uses similarities void of sound correspondences to organize language families. The problem with Rogers's citation of Campbell and Poser is that none of these characteristics apply to my work. My lexical similarities (1) are based on a system of sound correspondences, (2) are numerous, and (3) do not involve a temporally long-distance (deep time-depth) relationship. They do, however, show one language family

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28. Stubbs, *Exploring the Explanatory Power*, 137–38.
29. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 263.
30. Ibid., 263n17.
31. The primary example cited by Lyle Campbell and William John Poser, *Language Classification: History and Method* (Cambridge: Cambridge University Press, 2008), is Greenberg, who lumps language families on lexical similarities without sound correspondences. See Joseph H. Greenberg, *Language in the Americas* (Stanford: Stanford University Press, 1987).

with considerable language contribution from specific languages at a fairly shallow time-depth.

8. Focus on certain UA languages

Rogers objects to my straying from the usual focus on Proto-Uto-Aztecan to an intermittent focus on certain UA languages, which he claims results in "cherry-picking the data to fit the proposal."[32] This is not cherry-picking, however, and this is why: what happens in comparative linguistics in every language family is that some ancient words provide related cognates in many of the descendant languages, while other ancient words survive in only a few languages or one. I list all cognate/descendant forms available for each established UA cognate set in *Exploring the Explanatory Power* (as in *Uto-Aztecan: A Comparative Vocabulary*); sometimes there are many cognates in various languages and other times few. For example,

> Hopi soniwa 'beautiful, bright' < Semitic snw 'gleam, be beautiful', and
> Hopi hoonaqa 'drunkard' < Egyptian ḥnqt 'beer'; n'-ḥnqt 'the-drinkers' (no vowels are provided in Egyptian, but note that the round vowel in Hopi for the initial pharyngeal in Egyptian is exactly as predicted for UA).

The above two parallels exist only in Hopi, but such impressive matches of expected sounds and meanings deserve to be listed. Only 11 of the 2,700 UA cognate sets yield forms in all 30 UA languages, yet all 11 of those 11 (100%) belong to the Near-East contribution. That suggests that the Near-East component was part of Proto-UA. Some might contend that such could not be the case, given UA's supposed glottochronological time-depth of 4,000 to 5,000 years,[33] but as Campbell and Poser say, "It [glottochronology] has been rejected by most linguists, since all its basic assumptions have been challenged."[34] It is doubtful that it is possible to establish any time-depth for any reconstructed language. James Clackson, after delineating several problems in estimating time-depths, concludes the matter thusly: "In summary the Indo-Europeanist's data and method

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32. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 262.

33. The lexicostatistical time-depth of UA is estimated at about 5,000 years ago by Wick R. Miller, "The Classification of the Uto-Aztecan Languages Based on Lexical Evidence," *International Journal of American Linguistics* 50, no. 1 (1984):1–24; and at 4,018 years ago by Eric W. Holman et al., "Automated Dating of the World's Language Families Based on Lexical Similarity," *Current Anthropology* 52, no. 6 (2011): 841–75.

34. Campbell and Poser, *Language Classification*, 167.

do not allow the question 'When was Proto-Indo-European spoken?' to be answered in any really meaningful or helpful way."[35]

9. Definitions and characterizations of linguistic concepts

Rogers claims to see "mistaken definitions or incorrect characterizations of linguistic concepts" in my work.[36] That is odd because the best Uto-Aztecanists in the world, most holding PhDs in linguistics, have all received my work by now. These men and women have known me for decades, and none of them has spoken to me of incorrect characterizations of linguistic concepts. Throughout my 40 years of presenting at professional linguistic conferences and publishing in several journals, this is the first time I have been accused of mischaracterizing linguistic concepts.[37] When MIT decided to publish a volume on UA, the other Uto-Aztecanists voted me to write the first article to introduce the language family with a comparative overview.[38] When the *Society for the Study of Indigenous Languages of the Americas* decided to do a special session on UA to celebrate the centennial since Sapir's establishment of

35. James Clackson, "Time Depth in Indo-European," in *Time Depth in Historical Linguistics*, ed. Colin Renfrew, April McMahon, and Larry Trask (Cambridge: McDonald Institute for Archaeological Research, 2000), 451.

36. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 260.

37. Two different editors of the *International Journal of American Linguistics* (the most prestigious journal for publishing comparative Native American work, in which I have published four articles) both said (20 years apart) that I do good work. The late Jane Hill, Regents' Professor Emerita of Anthropology at the University of Arizona, at an annual UA conference said, "Brian is the only one of us who does a comparative paper every year" (because a grammatical aspect of one language is easier than dealing with 30). I was invited to give a lecture at UCLA on comparative Uto-Aztecan, and Calvert Watkins, Harvard's internationally renowned Indo-European scholar, happened to attend. Afterwards he told Dr. Munro (a prominent UCLA linguist, accomplished in Uto-Aztecan, Yuman, Muskogean, and Zapotecan) that "we need more lectures like that one" (Brian Stubbs, "Comparative Uto-Aztecan" [lecture, University of California, Los Angeles, 2008]).

38. Brian Stubbs, "New Sets Yield New Perspectives for Uto-Aztecan Reconstructions," in *Studies in Uto-Aztecan*, ed. Luis M. Barragan and Jason D. Haugen (MIT Working Papers on Endangered and Less Familiar Languages, no. 5, 2003), 1–20.

UA in 1915,[39] the other Uto-Aztecan specialists selected me to present the lead paper to begin the session.[40]

10. Disorganization

Rogers calls my work "replete with disorganization."[41] Organization, many times, is in the eye of the beholder. The organization of *Exploring the Explanatory Power* begins with an introduction, then systematically addresses the sound correspondences. It next shows how Semitic or Egyptian provides the underlying forms that explain seven of nine phonological puzzles that Uto-Aztecanists have not been able to solve since Sapir's establishment of the language family in 1913/1915. Finally, it addresses the vowel correspondences, the medial consonant clusters, the grammatical and morphological parallels, and ends with unusual semantic combinations preserved in UA. Rogers may prefer a different organization, but I see nothing radically awry in the organization I chose.

11. Differences between *Exploring the Explanatory Power* and *Changes in Languages*

Rogers says that my two books under review are not substantially different.[42] Most who examine the two would disagree. The larger work (*Exploring the Explanatory Power*), with twenty times greater detail than the smaller, is for linguists, Semitists, and other scholars and establishes the linguistic tie. The smaller work (*Changes in Languages*) is greatly simplified for lay readers, is one-fifth the size, and addresses the data's potential relevance to the Book of Mormon.

12. Tone

Rogers's condescending attitude and derogatory language are apparent throughout. For example, he writes, "it is so replete with disorganization, numerous assumptions, mistaken definitions or

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39. Edward Sapir, "Southern Paiute and Nahuatl: A Study in Uto-Aztecan," in *The Collected Works of Edward Sapir*, ed. William Bright (Berlin: de Gruyter, 1990), 5: 351–444.

40. Brian Stubbs, "The Proto-Uto-Aztecan Lexicon: Distribution of Cognate Sets and Language Family Prehistory" (Paper, Annual Meeting of the Society for the Study of Indigenous Languages of the Americas, Portland, Oregon, January 6–11, 2015). I don't mention these honors to "toot my own horn," so to speak. It does strike me, however, as an unusual list of honors for one supposedly guilty of mischaracterizing linguistic concepts.

41. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 260.

42. Ibid.

incorrect characterizations of linguistic concepts, inexact methods, pedantry, and apologetic rhetoric that the idea [of the language tie] seems dubious, even without careful scrutiny."[43] This dismissive attitude is ironic given that what he missed confirms that his approach was "without careful scrutiny." In contrast, the best UA specialists in the world and Semitic scholars said no such thing but responded either with favorable comments (25%) or no comment (75%).

13. Value of appendices

Rogers even hints at disdain for the appendices: "Other information of varying usefulness to the proposal itself, but which seems personally significant to Stubbs, is presented in the remainder of both books through a number of appendices."[44] In *Exploring the Explanatory Power* the appendices include useful detailed listings of: (A) sound correspondences, (B) an English index to the sets, (C) a Semitic index to the sets, and (D) an Egyptian index to the sets. It should be obvious that the appendices are helpful in locating forms in the massive 435-page, 365,000-word work. Likewise, each appendix to *Changes in Languages* is also relevant to a particular chapter, to a group of chapters, or to the whole book.

14. Evidence for a genetic relationship

Rogers asserts, "A proposal for a genetic relationship … must be supported by two types of evidence."[45] The first type of evidence Rogers proposes is that the languages must be genetically related. That is exactly what *Exploring the Explanatory Power* does: it establishes that a significant amount of early UA derives from the Near East loanwords, with sound correspondences, morphological parallels, unusual semantic combinations, and other parallel patterns. The Near East vocabulary does not genetically descend from anything at a bi-family level but matches a sizable Near-East infusion of loanwords. Rogers continues with his second essential type of evidence: "evidence for the reconstruction of the common linguistic ancestor."[46] Again, Rogers insists on the reconstruction of a non-existent ancestor of Proto-Afro-Asiatic and UA, something I do not propose. Rather, I propose that the reconstructed Proto-Uto-Aztecan (PUA) form often matches the Near-East loanword

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43. Ibid.
44. Ibid.
45. Ibid., 261.
46. Ibid.

(all forms are from *Exploring the Explanatory Power* and the dictionaries listed therein). For example:

> Loanword: Aramaic kookb-aa(') 'star-the'
>
> Rules: b > p, d > t, g > k; and consonant clusters lose first consonant
>
> Derived form: UA *kuppaa' > Serrano kupaa' 'shine (as of the stars)'
>
> To add underlying grammar: a fossilized 'the'-suffix typical of Aramaic citation forms

Thus, the Aramaic loanwords, subject to the rules in *Exploring the Explanatory Power,* typically provide a parallel to the original or reconstructed PUA forms:

> (1274) Aramaic kookb-aa(') 'star-the' > UA *kuppaa': Sr kupaa'
> 'to shine (as of the stars)'
> (a denominalized verb, all vowels as expected; Sr v < *-p-, so Sr p < *-pp- or cluster; the Aramaic 'the'-suffix actually has a written glottal stop, though whether pronounced or not is debated, so the Sr glottal stop is interesting)

> (889) Aramaic rikb-aa 'upper millstone-the' > UA *tïppa 'mortar, pestle'
>
> (initial r- > UA t- is well demonstrated in 2015, 100–101, 173–74, 221)
>
> (note that both of the above show the same cluster -kb- > *-pp- in UA)

> (618) Aramaic di'b-aa 'wolf-the' > UA *tï'pa/*to'apa 'wolf
>
> (UA 'wolf' is not from Hebrew haz-zə'eb 'the-wolf' but from Aramaic)

> (617) Aramaic diqn-aa 'beard-the, chin-the' > UA *tï'na/*tï'ni 'mouth'
>
> (consonants and vowels align with Aramaic, not from Hebrew zaaqaan 'beard, chin'; also note in the three items above (889, 618, 617), the vowel assimilation *-i-a > UA -ï-a is natural and common)

> (616) Aramaic dakar 'male' > UA *taka 'man, male, person, self, body' (aligns with initial d of Aramaic; the last three

items (616–618) and several others all suggest Aramaic d> UA t, not from Hebrew z)

(1130) Aramaic pagr-aa 'corpse-the' > Hp pïïkya 'skin, fur'

(not from Hebrew hap-pɛgɛr 'the-corpse')

(1403) Aramaic šigr-aa 'drain, ditch, gutter-the' > Hp sikya 'ravine, canyon of sloped sides'

(743) Aramaic tuumr-aa(') 'palm-the/date-palm-the' > UA *tu'ya 'type of palm tree':

(aligns with Aramaic, but not Hebrew taamaar) (note in the three items above (1130, 1403, 743) that -r- as 2nd consonant in a cluster > -y-: *-Craa > -Cyaa)

(967) Aramaic qušṭ-aa(') 'bow-the' > UA *kuCta-pi 'bow' (usual loss of s in a cluster, again from Aramaic, not from Hebrew qešet/qašt- 'bow')

(1409) Aramaic kuuky-aa(') 'spiderweb' > UA kukyaC: Hopi kookyaŋw 'spider'; Cp kúka-t 'blackwidow spider' (note nine of the ten nouns above show Aramaic suffix: -aa 'the')

(559) Hebrew bky/baakaa 'cry, weep' (perf stem); Aramaic bakaa/baka' > Hopi pak- 'cry'; Tb pahaa'at/'apahaa' 'cry, bawl, howl' (Tb h < *k); Ktn paka' 'ceremonial yeller, clown who shouts all day to announce a fiesta'. (Northern UA (Tb, Ktn, Sr, Hp) sometimes shows the glottal stop of written Aramaic -aa', which suffix Hebrew does not have. The Aramaic article suffix -aa(') 'the' has a written glottal stop, but debates continue whether it was pronounced or simply signifies the long vowel of the suffix. Northern UA languages often show that glottal stop, whereas Southern UA languages do not.)

The number of matches with specific Aramaic forms means that the infusion in UA occurred after Aramaic and Hebrew were clearly defined as separate Northwest Semitic languages. Yet Hebrew did not exist as a language until after Jacob's reentrance or Moses's entrance into Canaan, when the Israelites begin adopting the Canaanite language. (Hebrew is the Israelites' dialect of Canaanite.) Furthermore, several UA terms specific to Israeli culture (e.g., *ephod*, *Yahwe*, etc.) suggest that the infusion included Israelite Hebrew or Aramaic.

Regarding the many Aramaic forms that appear in UA, note that Abraham, Jacob, and Laban the Aramean (Genesis 25:20) and his daughters Leah and Rachel (the mothers of future Israel) came from Aramaic-speaking areas. In addition, Northern Israel bordered Aramaic regions, and Semitists like Ian Young[47] and Gary Rendsburg[48] believe that many Northern Israelites may have been bilingual, never losing their Aramaic, even if they did add Hebrew/Canaanite to their repertoire. Even if they lost Aramaic at some point, reacquiring the international lingua franca in their proximity to neighboring Arameans is probable for a percentage of the population. Yet UA's preservation of some archaic phonology and old Hebrew and Aramaic forms points to at least the pre-exilic period. All factors taken together suggest an infusion of language forms like the Hebrew or Aramaic of 1,200–600 BCE, which also approximates the Late Egyptian period. Thus, nothing as far back as Proto-Afro-Asiatic is suggested or possible, which should be apparent from a close reading of either book.[49]

15. Similarities as evidence of related languages

Rogers says, "One of the main methodological issues of Stubbs's proposal is the omission of an explanation for why the UA and Afro-Asiatic languages are being compared in the first place."[50] Again, I am not lumping UA and Afro-Asiatic as related language families but instead am dealing with an infusion or substantial borrowing from Northwest Semitic (Hebrew/Aramaic) and Late Egyptian into UA.

In the next paragraph Rogers repeats his concern, "Stubbs' proposal sidesteps this issue and suggests that the putative similarities are the evidence that these are related languages, but then fails to explain why specific languages are named and used in the comparison."[51] It should go without saying that the languages themselves are the best source for determining whether languages are related or not. Sir William Jones

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47. Ian Young, *Diversity in Pre-Exilic Hebrew* (Tübingen, DEU: J. C. B. Mohr, 1993), 54–62, 85–86.

48. Gary A. Rendsburg, "Ancient Hebrew Phonology," in *Phonologies of Asia and Africa*, ed. Alan S. Kaye (Winona Lake, IN: Eisenbrauns, 1997); Gary A. Rendsburg, "A Comprehensive Guide to Israelian Hebrew: Grammar and Lexicon," *Orient* 38 (2003): 5–35; and Gary A. Rendsburg, "Aramaic-like Features in the Pentateuch," *Hebrew Studies* 47 (2006): 163–76.

49. Stubbs, *Exploring the Explanatory Power*, 11–12, 34–35, 66, 320–22, 343–44, 357–59; Stubbs, *Changes in Languages*, 64, 71–73, 125–27.

50. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 261.

51. Ibid., 262.

noticed the similarities among key Indo-European languages (Sanskrit, Greek, Latin, Germanic, Celtic) simply because he was familiar with the languages,[52] not because something else (or someone else) told him that "those are the languages you need to look at."

16. Influence of Semitic speakers in the Americas

Rogers contends that the idea of Semitic speakers coming to the Americas "does not limit their contact to the UA languages, perhaps they intermingled with speakers of the Chibchan languages in South America (among other possibilities)."[53] This is an interesting objection, as I never suggested that the UA case means that the Semitic speakers did not also intermingle with other language families. In fact, in *Changes in Languages* I say the opposite several times, that they probably *did* mix with many language families, and appendices D, E, and F (of varying usefulness) are included for the very purpose of showing how easily an ethnic infusion can mix far and wide.

17. Valid and reliable similarities

Rogers continues, "each similarity must be rigorously proven to be both valid and reliable. Many, if not most, similarities in the proposal are not accompanied by the necessary explanations to make them either valid or reliable."[54] The truth is, explanations *are* provided. See under point 14 above. In fact, it was my explanations in *Uto-Aztecan: A Comparative Vocabulary* that pleased the UA specialists. As Ken Hill said, "Each set is discussed in some detail and the serious comparativist will delight in the discussions."[55] Another UA specialist reported "enjoying reading the analyses for pleasurable evening reading."[56]

After explaining that Semitic b > UA *p, how much explanation is needed to show that

> Hebrew boo' 'way to' parallels UA *pooC 'road' (C means unknown consonant)

> Semitic baraq 'lightning' parallels UA berok/*pïrok 'lightning' (vowel changes are explained in the book)

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52. Campbell and Poser, *Language Classification*, 5–6.

53. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 262.

54. Ibid., 263. Can similarities be valid but unreliable or reliable and not valid? Rogers never explains, but the fact is that if a similarity is either, it's both.

55. Hill, review of *Uto-Aztecan: A Comparative Vocabulary*.

56. Karen Dakin, a Nahuatl and Uto-Aztecan specialist and professor of linguistics at Universidad Nacional Autonoma de Mexico.

Semitic baka' 'cry, he cried' parallels UA *paka' 'cry'

Hebrew batt 'daughter' parallels UA *pattï 'daughter'

Aramaic bəquuraa 'herd of cattle/livestock' parallels UA *pukuC 'domestic animal' (vowel changes are explained in the book)?

This continues for more than 1,000 parallels. Regarding the last item, Semitic baqar/baaqaar is the usual voweling in Hebrew and in most Aramaic dialects. However, this one vowel-pattern (Aramaic bqwrh/bəquuraa) is found in Galilean Aramaic, Christian Palestinian Aramaic, Jewish Palestinian Aramaic, Palestinian Talmud Aramaic, but not in Jewish Babylonian Aramaic or the Aramaic dialects of Iraq, Iran, Egypt, and Turkey.[57] Notice that the dialects in which this item appears are geographically located in the same area as ancient Northern Israel.

18. Data rearrangement

Rogers arranges my data to suggest things I never said. In addition to set 13 addressed above, he also misrepresents how I presented the plural suffix. He portrays it as Semitic *-iima > Hebrew -iim > UA *-ima, and then says that an explanation is needed for why the final -a disappeared in Hebrew but was reinserted in UA.[58] Both books he reviewed explain that the Hebrew Bible was voweled by the Masoretes ca. 700 CE, nearly a millennium and a half after contact.[59] So UA did not reinsert -a, but the two independent changes, Northwest Semitic *-iima > UA *-ima and independently *-iima > Hebrew -iim, both derive from the older Northwest Semitic *-iima, not one from the other. In fact, items like this point only to Canaanite/Hebrew *-iima, because Arabic –uuna/-iina, Akkadian -uu/-ii, Aramaic -iin, etc., exclude other Semitic languages, removing it far from Proto-Afro-Asiatic.[60] The esteemed Uto-Aztecanist Wick Miller agreed with my reconstruction of PUA *-ima. Most scholars before me had reconstructed UA *-mï, but they all neglected to consider that five UA languages have a high-front vowel (i or e) preceding -m, as well as other pertinent matters. Though Miller refused to consider my proposed Near East tie, he could not refute it, and he agreed with various

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57. *Comprehensive Aramaic Lexicon Project* (Cincinnati: Hebrew Union College; Jewish Institute of Religion), http://cal.huc.edu.
58. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 264.
59. Stubbs, *Exploring the Explanatory Power,* 32; Stubbs, *Changes in Languages*, 69.
60. Stubbs, *Exploring the Explanatory Power,* 66.

points that I brought to his attention, as long as I did not mention the Semitic source of my insights.[61]

19. Three kinds of Semitic s

In table 4, set 3, Rogers calls for explanations of why š > s.[62] Perhaps Rogers missed my explanations elsewhere that all three kinds of Semitic s (š, ś, s) merged to PUA *s. When a speech sound of the lending language does not exist in the borrowing language, the nearest speech sound of the borrowing language replaces the unknown speech sound. The merger of those three is also apparent in appendix A that lists the sound correspondences. The most interesting aspect of this set is that Masoretic Hebrew *yaašab* has been determined to be from an earlier pre-Masoretic Hebrew **yašiba*, another older voweling found in UA. In addition, *yašiba* 'he sat, dwelt' is third-person singular perfect, while *yašibuu* 'they sat, dwelt' is plural. In the Piman branch of UA we also see the plural voweling and the plural meaning **yasipu* 'they sit/dwell', which is another instance of a grammatical fact preserved in UA.

In his criticism that usually p > b between vowels,[63] Rogers must have missed that the Proto-Uto-Aztecan phoneme *p does indeed change to -b- or -v- between vowels in many UA languages, but remains p- in most positions. Therefore, Uto-Aztecanists must rightly reconstruct *p, which then behaves variously in different environments. Rogers also says that changes in vowel length need explanation (shortening of ii > i) (264). That would be nice, but vowel length has not yet been figured out for PUA, as various layers of changes in stress patterns in the different branches and languages caused the lengthening of stressed vowels and the shortening or loss of unstressed vowels. The sorting through those multiple and changing layers has not been accomplished, so only vowel quality is reconstructed for UA, a fact explained twice in *Exploring the Explanatory Power*.[64]

20. Previous scholarship on Uto-Aztecan

Rogers asserts, "while the Uto-Aztecan language family is one of the most studied language families in the Americas, as is the Mesoamerican cultural area, the fact that very little is done to connect the proposal back to this

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61. Miller was kind to me, valued my abilities, and was pleased with and encouraged my comparative work in UA.

62. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 264.

63. Ibid.

64. Stubbs, *Exploring the Explanatory Power,* 12, 37.

previous scholarship is thus odd."[65] It is difficult to understand how Rogers arrived at this misstatement. The latest and largest book on comparative UA (*Uto-Aztecan: A Comparative Vocabulary*) includes and builds on the viable previous linguistic scholarship. If he has in mind cultural, archaeological, and other such factors, the other major linguistic works on UA did not include those either. Or if he thinks UA is a Mesoamerican language family, he needs to realize that Nahuatl (in Mesoamerica) is one of 30 UA languages and the other 29 are not situated in Mesoamerica. Wick Miller wrote *Uto-Aztecan Cognate Sets* with 514 sets.[66] Miller later collected others, and Kenneth Hill added another 400 sets to total some 1,200 sets on a UA computer file.[67] The next publication was *Uto-Aztecan: A Comparative Vocabulary*, which features 2,700 cognate sets.[68] I cite the literature of the "previous scholarship" but present much more data, thus enabling me to further verify some previous views and improve others. *Exploring the Explanatory Power* does not include all of the comparative detail of *Uto-Aztecan: A Comparative Vocabulary*, except when helpful.

21. Math and statistics

His math and statistics on page 265 are creatively wrong. The forms in each UA cognate set are descended from one ancient form, as accepted by Uto-Aztecanists; thus, they are a unity, from one word. So multiplying each set by 30 is a false step. Even if a set's match were wrong, it does not matter whether the UA cognates in that set number 30, 15, or 2 — the one set might be subtracted from 1528 (i.e., 1528–1=1527), but not 30 subtracted for each set. Even if the whole book were wrong, the total number of valid sets would be 0, not -2,598. Furthermore, when the vocabulary is consistent within an established system of sound correspondences, none within that framework is counted as an accidental match. His math pretends to apply as if a system of sound correspondences were lacking, but that is not the case.

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65. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 266.
66. Wick R. Miller, *Uto-Aztecan Cognate Sets*, UCPL 48 (Berkeley: University of California Press, 1967).
67. Kenneth Hill, *Wick Miller's Uto-Aztecan Cognate Sets*: *revised and expanded by Kenneth C. Hill* (2006), unpublished manuscript.
68. Hill wrote a positive review (review of *Uto-Aztecan: A Comparative Vocabulary*) and Uto-Aztecanists have spoken highly of the work since its first preliminary edition in 2006.

22. Lengthy matches

Moving ever further from probabilities of coincidence are lengthy matches: the longer a match within a word, the less likely the correspondences could be by chance, and this case exhibits many lengthy matches. For example, an eight-segment match is

> (567) Hebrew ya'amiin-o 'he believes him/it' > UA *yawamin-(o) 'believe (him/it)'

The sound change ' > w is established; given 13 consonants and 5 vowels in UA, probabilities of such a match by chance are fewer than one in 17 million (1/13 x 1/5 x 1/13 x 1/5 x 1/13 x 1/5 x 1/13 x 1/5). A few other lengthy matches of six and seven segments include the following:

> (853) Aramaic ħippušit 'beetle' > UA *wippusi 'stink beetle' (both have geminated -pp-; and both pharyngeals (ħ and ʕ below) result in UA rounding (w/o/u).

> (87) Arabic ʕgz/ʕagaza 'to age, grow old (of women)' > Tr wegaca- 'grow old (of women)'

> (57) Semitic singaab 'squirrel' = Hebrew *siggoob 'squirrel' > UA *sikkuC 'squirrel' (vowel changes are explained in the book and devoicing of g > k)

> (88) ʕalaqat 'leech' > UA *walaka 'snail'

> (892) ṣanawbar 'stone pine' (type of pine) > UA *sanawap 'pine tree'

> (832) *sarṭoon 'scratcher, crab' > *saCtun > siCtun/*suCtun 'claw, nail, crab'

> (1274) kookb-aa(') 'star-the' > UA *kuppaa' 'to shine (as of the stars)' (-kb- > -pp-)

> (614) makteš 'mortar' > UA *maCta 'mortar'; Ca *mattaš 'crush, squash, vt' (with *-tt- and -š)

23. Sound imitation

Rogers proposes that onomatopoeia (sound imitation) explains items in his table 5 (264–65).

Arabic ṣurṣur/ṣurṣuur 'cricket'; Aramaic ṣarṣuur 'cricket'; Akkadian ṣarṣaar 'cricket';

Syriac ṣiṣr-aa/ṣiiṣr-aa 'cricket'; and UA *corcor (tsortsor) 'cricket'

Onomatopoeia is remotely possible, I suppose, but six segments presents less than a one in 200,000 probability by chance — an impressive match with Arabic or Aramaic (after vowel-leveling) or an unattested ancient Hebrew form (cannot always specify a single language): it is six segments long, and I explain the change of ṣ > ts (in fact, the same change as from ancient Hebrew ṣ to Modern Hebrew c/ts). He might even disqualify the Semitic terms as a Semitic cognate set — the vowels do not match; there is no standard correspondence of u:a:i for these Semitic languages — but with the consonants corresponding, no Semitist doubts their relatedness.

At one point Rogers said, "Stubbs purports to provide some insight into the unknowns of Uto-Aztecan grammar."[69] My work not only purports to provide but indeed *does* provide profound insights into UA. In fact, perhaps the most impressive contribution to comparative UA linguistics is the reality that this proposed language tie is able to explain seven of nine puzzles that Uto-Aztecanists have not been able to solve over the last century.

For example, Uto-Aztecanists suppose that PUA initial *t- remained t- in all UA languages, except in Tarahumara (Tr), where some Tr *r- correspond to the *t- of the other UA languages. However, there are as many instances of initial Tr t- also corresponding to PUA *t- of the other languages. Through four generations of linguists, no one could explain the split or discrepancy until now. Semitic and Egyptian provide the solution. In the other UA languages, initial r- in Semitic or Egyptian became PUA *t-. However, Tr kept initial r- along with t-. So Tr's showing both r-/t- corresponding to PUA *t is explained by the fact that Semitic and Egyptian t, t, d > Tr t-, while Semitic r- and Egyptian r- > Tr r-. The probability of chance aligning some 40 Tr terms with Semitic and Egyptian in that way is less than one in a trillion $(1/2)^{40}$.

Another matter is PUA *w > Hopi L before low vowels a, e, ö much of the time, but not always. In many instances PUA *w remains Hopi w. Again, no one has been able to explain the dichotomy, but Semitic and Egyptian provide the solution. Many PUA *w are from Semitic/Egyptian pharyngeals/laryngeals ʕ, ħ, ʾ. Those PUA *w from the Semitic/Egyptian pharyngeals/laryngeals became L before low vowels, while PUA *w from Semitic/Egyptian w, remain w in Hopi before those same vowels, as in Hopi soniwa < Semitic snw, mentioned above. Pharyngeals becoming liquids (r, L) happens in some Arabic dialects also, as I've heard a native Syrian Arabic speaker say sabriina < sabʕiina 'seventy'.

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69. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 260.

The underlying Semitic and Egyptian clarify not only those two issues, but five other previously unresolved matters as well. Having Semitic and Egyptian explain seven of the nine phonological puzzles of UA can hardly be chalked up to happenstance.

24. Connections between Mesoamerican languages and South American languages

Rogers claims that "any connections between Mesoamerican languages and South American languages have been definitively disproved,"[70] referring us to Lyle Campbell's *American Indian Languages*.[71] I will overlook the fact (as Rogers seems to have done) that both the Chibchan and the Arawakan language families are spread into both Central America and South America, though not all definitions of Mesoamerica include all of Central America. Disregarding those two language families, one *can* say that no such connections have yet been demonstrated to the satisfaction of a majority of linguists, but one *cannot* say that a viable proposal will never emerge from such a huge arena of far-from-fully-explored potential (150-plus language families) or that all pertaining to futurity must be automatically rejected out-of-hand as "definitively disproved." While Rogers cites Campbell's book for his authority, Campbell actually seems to leave open a few possibilities. Campbell provides his own assessments of several such proposals, giving a number within a 200-point range from +100 (definitely proven) to -100 (definitely not). Campbell gives the possibility of a connection of Misumalpan (in Nicaragua, Honduras, El Salvador) with Chibchan (South and Central America) a +20, meaning a 60% chance (120/200).[72] He gives much lower probabilities to Tarascan-Quechua (5%)[73] and Maya-Chipaya (10%),[74] the latter of which Campbell was the main critic after others had viewed the proposal favorably.[75] I do not support any of the above. Yet to none of the above does Campbell give 0% chance, as he does to some other proposals; and thus his assessments, though not

70. Ibid., 266.

71. Lyle Campbell, *American Indian Languages: The Historical Linguistics of Native America.* (Oxford: Oxford University Press, 1997).

72. Campbell, *American Indian Languages*, 326.

73. Ibid., 325.

74. Ibid., 324.

75. Lyle Campbell, "Distant Genetic Relationships and the Maya-Chipaya Hypothesis," *Anthropological Linguistics* 15, no. 3 (1973):113–35.

supportive, are far from saying, as does Rogers, that all such possibilities are "definitively disproved."

In fact, at times I am a stricter judge than Campbell, who gives the UA-Tanoan tie a 50% possibility.[76] In addition to my 40 years in UA, I spent some years investigating the Kiowa-Tanoan (KT) language family and had compiled the largest Tewa dictionary in existence. The tribe asked that I not publish it, so I discontinued working on it. Twenty years later another larger work appeared, whether with permission or not, I do not know. Nevertheless, I am quite familiar with UA and KT and with the UA-KT debate. Their grammars are very different, and the limited lexical similarities look much more like areal loans (loanwords spread through an area, in this case among the Ancient Puebloans) than genetic affinity. I would give a possible UA-KT genetic tie 10%, much less than Campbell's 50%.[77]

I was surprised by Rogers's use of Edward Sapir's article tying Subtiaba to the Hokan hypothesis[78] to exemplify that "long-distance relationships are convincingly determined through submerged features."[79] Campbell cites Rensch, Suarez, and Kaufman as superseding Sapir and says that "it is now clear that Tlapanec-Subtiaba is just one more branch of Otomanguean" and thus is not tied to Hokan, as Campbell, Rensch, Suarez, and Kaufman establish. Therefore, Campbell puts Subtiaba with Otomanguean and gives that tie a 95% probability.[80] So not only is Rogers's and Sapir's Hokan-Subtiaba tie discounted by Campbell, but Hokan itself is a hypothesis "still undemonstrated and controversial," says Campbell.[81] Furthermore, Hokan's hypothetical status is fairly common knowledge among linguists researching in Native American languages.

One takeaway from Rogers's article is the realization that his comment about "disorganization" may have been partly due to a general sense of *Exploring the Explanatory Power* seeming unfinished. Quite honestly, that's because it *is* unfinished. As I say in *Changes in Languages*, "Only

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76. Campbell, *American Indian Languages*, 269–73.

77. I respect Campbell as a foremost authority in Native American historical linguistics, as his publications demonstrate, and I agree with him most of the time. So this slight difference of opinion in areas in which I may be the more familiar is hardly a criticism of him, but I simply give a possible UA-KT genetic tie much less promise than he does.

78. Edward Sapir, "The Hokan Affinity of Subtiaba in Nicaragua," *American Anthropologist* 27, no. 4 (1925): 402–35, 491–527.

79. Rogers, "Review of the Afro-Asiatic–Uto-Aztecan Proposal," 263.

80. Campbell, *American Indian Languages*, 208, 324–25.

81. Ibid., 68.

when I die do all drafts become final drafts."[82] Such massive reference works as *Uto-Aztecan: A Comparative Vocabulary* and *Exploring the Explanatory Power* are usually compiled by research teams or multiple authors; one lifetime is hardly enough for one individual to bring such works to perfection. Though working on both for 30 years, I can look at any page of either and see wordings that could be improved, a typo, or matters inviting further investigation. The Uto-Aztecanists at each annual conference from 2000 to 2011 heard me say that I hoped to finish the comparative vocabulary "by next year." After three preliminary editions in 2006, 2007, and 2008, the hardbound, published edition finally appeared in *Uto-Aztecan: A Comparative Vocabulary*. Likewise, many wondered for decades when I would have the full measure of the Semitic and Egyptian in UA available. Massive reference works always take years longer than expected, and I finally realized that it may take more years to complete than I have left. There is no end to unfinished trails and questions that many data lead to, but after 30 years of assembling data, I decided I simply had to impose an arbitrary breaking point and call it a decent plateau. Yet even rounding off to finish the content of that arbitrary cut-off took five more years. If I were to attempt to finish the book to perfection, I'd expire first, and then nothing would be available. So I am glad to have made available much data that others can build on.

Answering Magnus Pharao Hansen's Blog Review

After reading Rogers's article, Magnus Pharao Hansen wrote a blog post, taking issue with the Nahuatl reflex in 14 items of the 1528 sets in *Exploring the Explanatory Power*. Dr. Hansen specializes in the Aztecan/Nahuan branch of UA and was more civil and specific in dealing with the data.[83] Our subsequent discussions on the items have been cordial. I communicated to Hansen that I am always willing to adjust or eliminate an item if it is shown to be incorrect. I am not interested in "fabricating" anything but only in establishing the truth. In that vein, the data in *Exploring the Explanatory Power* were thoughtfully compiled and have held up well, with periodic adjustments. Regarding my subsequent conversations with Hansen, my edited responses follow.

25. Length of UA stems

Hansen says that UA stems are mostly of CV or CVC length. A few, perhaps, but not many are that short. All I ever heard (from Miller,

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82. Stubbs, *Changes in Languages*, 188.
83. Hansen, "An Evaluation."

Freeze, Langacker, Iannucci, Mixco, and all Uto-Aztecanists) is that CVCV is the typical UA stem shape, and perusal of any sizable cognate collection will show the great majority to be CVCV stems. However, in *Uto-Aztecan: A Comparative Vocabulary* at *2.3 Cluster Clutter in Uto-Aztecan*, and other places throughout, I explain considerable evidence for CVCVCV > CVCCV > CVCV, wherein stress patterns and vowel loss create clusters that sometimes reduce, but other times leave evidence, of the former cluster, e.g., the geminated (doubled) consonants in five of the nine items under point 22 above show gemination, which matches the suggested cluster, the first consonant usually being absorbed to double the second.[84] Point 37 treats many other clusters.

26. Multiplicity of languages

Hansen mentions my multiplying languages. Admittedly, three languages (Hebrew/Aramaic, Late Egyptian) is inconvenient; I wish it were fewer in order to be more palatable, but we must follow the evidence. However, Syriac and Coptic should not be added to the count, because Syriac is simply Aramaic. Early/Old written Aramaic is limited, whereas a great deal of Syriac literature exists, and Syriac is not removed from its ancestor Aramaic like Spanish is from Latin but is a dialect very similar to Aramaic. Syriac should be counted as Aramaic; most of what we know of Aramaic is in the descendant dialects. Coptic is occasionally mentioned only as a poor preserver of Egyptian phonology, not as forms that UA descends from, because UA usually preserves Egyptian phonology better than Coptic does.[85] And as I say in point 42 below, mentions of Arabic, Ethiopic, or any other Semitic language cannot be counted as multiplying languages either because they are used when a probable cognate existed in Hebrew or Aramaic, which matches the Hebrew or Aramaic sound correspondences.

27. Nonlinguistic evidence of Semitic infusion in ancient America

According to Hansen there is zero independent (other, nonlinguistic) evidence of Semitic infusion in ancient America. This is in line with the accepted paradigm because the DNA evidence of Semitic infusion does not receive much press, so most people are oblivious. However, the DNA parallels between Arabs and Uto-Aztecan peoples have been published

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84. Stubbs, *Uto-Aztecan*, 14–15.
85. Stubbs, *Exploring the Explanatory Power*, 343–44.

in at least four different publications by Cavalli et al., Guthrie, Jett, and Leonard.[86] They note various Human Lymphocyte Antigens (HLAs) that Guthrie calls "Afro-Asiatic" because of their prominence in northern Africa and southwestern Asia but also among certain Native American populations — the antigens of significant percentage in Semitic areas and in some Native American groups are A1, A29, A30, A32, B14, B17, B18, B21, and B37. For example, B21 was not found in most of indigenous America, was negligibly found near one percent in India, Japan, China, Mongolia, Malaysia, Cambodia, and the Philippines, and was not found in Australia, Micronesia, nor in most of the rest of Asia. However, the high-occurrence areas have the following percentages of HLA B21:

22.2	Saudi Arabia
21.3	Tigre (Ethiopia)
16.0	Jordan-Palestine
12.5	Papago (Uto-Aztecan)
12.1	Tuareg
12.0	Berber
10.7	Pygmies of Zaire
9.5	Iraq
9.4	Pima (Uto-Aztecan)
8.9	Turks
7.5	Central American composite, mainly Uto-Aztecan
6.8	Lebanon
6.7	Sardinia
6.0	Spain
5.6	Italy

86.   L. Luca Cavalli, Paolo Menozzi, and Alerto Piazza, *History and Geography of Human Genes* (Princeton, NJ: Princeton University Press, 1994); James L. Guthrie, "Human Lymphocyte Antigens: Apparent Afro-Asiatic, Southern Asian, and European HLAs in Indigenous American Populations," *Pre-Columbiana: A Journal of Long-Distance Contacts* 2 and 3 (2000, 2001): 90–163; Stephen Jett, Ancient Ocean Crossings (Tuscaloosa: University of Alabama Press, 2017), 345–46; Phillip Leonard and Ali Ahmad Al-Shahri, "Undeciphered Script-like Signs Shared by Oman and Colorado," Pr*e-Columbiana: A Journal of Long-Distance Contacts* 5, no. 2–4 & vol. 6, no. 1 (2011–2014): 184–88.

4.7	Belgium
4.3	Mande (West Africa)
4.0	Ibo (West Africa)
3.8	Iran
3.8	Uzbek
3.7	Jugoslavia
3.6	Austria
3.5	Nahua (Uto-Aztecan)
3.5	Greece

The three highest percentages are in the heart of the Arab world, and the fourth highest appears in Papago, a Uto-Aztecan people. Looking at the top twelve areas (above the line), eight are Arab areas and three are Uto-Aztecan people. (We must keep in mind that North African areas became destinations of Arab genes since the eighth-century Islamic expansion.) So eleven of the top twelve populations are Arab or Uto-Aztecan peoples/areas, while most of the world displays little to nothing of HLA B21, including most of indigenous America.[87] Hansen responded that only ancient DNA should be considered. However, the 6% in Spain and even lower percentages in the rest of Europe would not raise indigenous levels to 9% and 12% after post-Columbian European admixture. Not only is B21 highest among Arabs and Uto-Aztecans, but both also share B17 and B37. Of course, the great variety of peoples arriving in ancient America means that populations have greatly mixed over time. So even if ancient Near East ships did shove ashore, they naturally would have mixed with other kinds of DNA over the centuries, such as Bering Strait DNA and likely others, just as most of us have several different ethnic groups in our ancestry.

28. Cognates of Classical Nahuatl (CN) koosamaaloo-ti

CN koosamaaloo-tl 'rainbow' (< koo + Egyptian šmrwt 'long bows') is not only in Aztecan, but cognates are in almost every SUA language, though not in NUA. Hansen suggests that the term incorporates CN kosa- 'yellow', yet the combining form CN koo- 'snake' and all the compounds that koo- is in have a long -oo-, but CN kosa 'yellow' and all the compounds that kosa- is in have short -o-. Also I checked number

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87. Leonard and Al-Shahri "Undeciphered Script-like Signs," 184–88.

264 in 2015, and I do have the suffix -t or -tl separated, whether the final -t of šmrwt was absorbed or lost. I have not seen Hansen's suggested morphological division of kosa-ma-l-o in the literature, and it is likely his guess, but not substantiated by Nahua specialists generally. In contrast to that morphological analysis, most other SUA languages have cognates too, some of them loans, and the kosa-ma-l-o morphological division is hardly PUA or even SUA. Relevant to whether that morphology is strictly Aztecan or PUA, we need to look at the related forms in the other SUA languages, as all of the following also mean 'rainbow':

> NT kiihónali (Piman h < *s); TO gihonaḷi (*s > h expected, but also m > n); m > n is common enough in these SUA languages, but not understood; the stress shift to the 2nd syllable seems to have caused oo > ii in the 1st, the UA unstressed schwa equivalent)

> Tr ginorá; Wr kenolá (perhaps a loan from Piman with loss of hV syllable; notably, the vowel line (i-o-a) is preserved though shifted from the consonant line, which happens frequently enough in Tr/Wr)

> Eu bainóra/vainóra (these prefix *pa- 'water' and are otherwise identical to Tr/Wr *kinor/la with loss of -k- at the morpheme boundary)

> TO kiohod (h < *s); LP(B) kiuhur; LP(EF) kiáhur; Nv kiorha; ST ki'oor (*s > h/'); these Piman forms lose -m-, but not -h-, and anticipate the 2nd V (as upper Piman often does)

> Yq kurúes; AYq kurues; My kurués (these Cahitan forms appear to derive from a Piman form like the above but have lost -h-)

> Cr kú'usa'a; CN koosamaaloo-tl; Pl kusamaalu-(t)

Related forms appear in all SUA branches, as seen above, and while some are loans from other UA languages, the widespread prevalence of the forms suggests a deep enough time-depth that the morphology suggested by Hansen seems improbable. I might add that, while in English we must add 'rain-' to 'rainbow', in Hebrew and Aramaic and other Near East languages, the words for 'bow' are also used for 'rainbow' without adding anything: Hebrew qešet 'bow, rainbow' and Aramaic qušt-aa 'bow, rainbow-the' (note expected UA *kuCta-/*kutta-pi 'bow' aligns with Aramaic). So for 'bow' to also mean 'rainbow' is expected if from Semitic. In addition, because snakes are colorful, UA *koo- is a prefix used for color terms in a number of SUA languages, though there is no

proof yet of the same in CN. However, of additional interest is Hansen's saying that Nawa myth has the Nahuatl 'rainbow' word more closely aligned with 'snake' than 'rainbow' — I was not aware of that before — and 'snake' (koo-) is my suggestion for the first part of the word. The snake cognate in other UA languages also means 'color(ful)'. In fact, in *Uto-Aztecan: A Comparative Vocabulary*, set number 1771, are listed three Southern Numic languages in which the word for 'rainbow' is the very word for snake, either 'water-snake' or 'rattlesnake' or a derivative of 'snake' with a prefix; so words for 'snake' also mean 'rainbow' far away in the extremities of NUA as well. That weighs well for Nahuatl koo- in the rainbow term being from koo- 'snake'.

29. Matching segments of Nahuatl tool-in

Hansen mentions Nahuatl tool-in 'reeds' (< Egyptian twr 'reed') as matching only three of five segments, yet the suffix -in is separated by Kartunnen[88] as well. So we really have three of three matching segments, not three of five. True, it is short, but is a 100% match. The suffix -in appears in a number of words: CN ocuil-in 'worm'; CN ocoxaal-in 'pine needles carpeting forest floor'; CN sool-in 'quail', etc. Further evidence of that morpheme division is the place-name toollaan < tool-tlaan 'reed-place', which also divides the morphemes to isolate tool- (< twr) 'reed'.

30. Translation of CN iskali

For CN iskali, Hansen claims that I did "a massaged translation of the Nahuatl term that makes a large semantic stretch seem less problematic." I looked more closely into the semantics and find no semantic gap: though the two packages of dimensions are not entirely concentric, they do have a 3/4 overlap, and hardly ever do semantic modulations enjoy 100% overlap. The full definitions of a word often necessitate eight or ten or more words. In case I streamlined the definitions too narrowly, let's now list the fuller definitions of both, quoting exactly from the standard dictionaries: Hebrew[89] hiśkiil/hiśkal- 'understand, comprehend, have insight, act prudently, make wise, instruct, teach, make insightful, achieve success, prosper, attend closely to, show good understanding, show good skill, do (e.g., sing or play) artfully' > CN iskali-(aa) 'hatch, sprout, bud,

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88.   Francis Karttunen, *An Analytical Dictionary of Nahuatl* (Austin: University of Texas Press, 1983), 244.

89.   Ludwig Koehler and Walter Baumgartner, *The Hebrew and Aramaic Lexicon of the Old Testament*, rev. Walter Baumgartner and Johann Jakob Stamm; trans. and ed. M. E. J. Richardson (Leiden, NDL: Brill, 1994).

grow, mature (to adulthood, wisdom), come to one's senses, revive, resuscitate, nourish, train, instruct, teach, taught, educate(d), rear/raise (children), correct (by word or punishment), discipline, be able, intelligent, prudent, discreet'. Hansen deems the Simeon dictionary as less desirable, though other Nahua specialists use it and see it as sound. So for CN in this exercise, I use Kartunnen[90] and R. Joe Campbell's[91] 4,000-page vocabulary of the multivolume Florentine Codex. (I do not have Molina.) No doubt, a primary meaning is to 'grow, revive (as a plant), i.e., sprout', but the claim is that word relates to "reviving and coming back to life, and not to understanding or knowing." However, 'teach, correct, nurture' are in Kartunnen, and occurrences of 'teach, correct, nurture, be able, prudent, discreet, educated, taught, train(ed)' are abundant in R. Joe Campbell. Above and below I do not take time to distinguish intransitive and transitive (be prudent vs. make prudent/teach, etc.). Campbell seems to list all occurrences of word usage in the Florentine works, so I counted the number of times the various groups of definitions occur:

Grow, mature:	9
Come to life, revive:	15
Raise/rear (children):	6
Correct, teach, train:	16
Be wise, prudent, discreet, able:	24

The "understanding and knowing" dimensions (last two) constitute the majority of the uses (40 of the 70). Let's also compare the two columns of meanings:

Hebrew	Classical Nahuatl
—	grow, come to life, revive
understand, comprehend, act prudently,	be intelligent, prudent, discreet
instruct, teach, make wise,	instruct, teach, train, correct
achieve success, prosper, do s.th. well	be able

Hebrew and CN share three of the four groups of meanings. I am not sure how Hansen interprets that as "really bad." These are not massaged translations; they are exact words from the respective dictionaries. The assertion that Simeon made up 'prudent, discreet' is countered by Campbell,

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90. Karttunen, *An Analytical Dictionary of Nahuatl.*

91. R. Joe Campbell, *Draft Lexicon of Molina and the Florentine Codex Vocabulary* (computer files, 2006), 123.

who lists the same (prudent, discreet) in several occurrences in the Florentine Codex — it seems that Simeon is also correct. In short, the semantic parallel and majority overlap certainly seem viable and worth considering.

31. Cognates of CN sipak-tli

Although CN sipak-tli 'crocodile' (< Egyptian sbk 'crocodile', sobek 'crocodile god') as yet lacks other UA cognates and so is not part of a PUA cognate set, that hardly excludes its possible survival in the Nawan branch. Cyrus Gordon, the internationally renowned Semitic and Ugaritic scholar, was the first to publish the similar Aztec and Egyptian terms for crocodile.[92] I merely added another 400 Egyptian parallels to his. The similarity of the two crocodile terms is impressive enough; however, what Gordon did not know is that because UA *u > CN i, the first vowel (CN i) could be from either UA *supak or *sipak, the first of which is identical to the probable original Egyptian voweling *subak. Hansen's association of CN sipak- with Cora haaši 'caiman' (< *paasi) requires (1) dividing it paa-si 'water-something' (a possible division, but is it compelling?) and (2) then reversing the order of morphemes (si-paa). Still, we would have to (3) wonder where the -k- came from, (4) explain why not PUA *p > ø in Nahuatl as its regular sound change, since that regular sound change did happen in Cora (*p > h), and (5) explain what -si-k- might mean. Altogether, those five unknowns seem a much more complex proposal than simply Egyptian *subak > UA *supak > Nawan *sipak, both meaning 'crocodile'.

32. Cognates of CN sool-in

We can examine CN sool-in 'quail' relative to Hebrew śəlaaw 'quail'; Aramaic/Syriac salway 'quail'; Arabic salwaa 'quail'; Samaritan šalwi; Hebrew plural: śalwiim (I list several Semitic forms to give a better sense). I am grateful to Hansen for making me aware of Cora sa'u and Huichol ši'au 'cordoniz [quail]'. I had missed those Corachol terms, but now we can add the Corachol branch to the cognates in the other four UA branches. My *Uto-Aztecan: A Comparative Vocabulary* has a section showing the UA liquid(s) (L) going to glottal stop in Cora: 2.9.5 Medial *-L- > -'- in Cora (L = liquid).[93] The data are listed below. Thus, Cora sa'u 'quail' < Semitic *salw- 'quail' is a perfect match; four of the five Semitic forms above show *salw-. The first -a- was the unstressed vowel (in Semitic), making it more likely to assimilate, in this case toward -w-:

92. Cyrus H. Gordon, *Before Columbus: Links between the Old World and Ancient America* (New York: Crown, 1971), 135.

93. Stubbs, *Uto-Aztecan*, 29.

salw(i) > solwi. The -lw- cluster in CN lost -w- (sool-in) and Mn lost -l- (sowi), but Cora (sa'u) lost neither, only changed the first (-L- > -'-), kept the original vowel, and reflected the order of consonants: -lw- > -'u-. Thus metathesis is not involved. Perhaps there was an objection to the semantic change of 'quail' to 'wild pigeon' (Mn), but it is not a significant deviation. Some even greater variations in bird-type occur in UA, for example, UA *wiLhukuN 'turkey buzzard' > CN wiiloo- 'dove'. PYp tesoli/te'soli/tesori 'quail' is likely a loan from Aztecan with some sort of te- prefix, since we should see *s > h in the Piman branch; and Tr ŕe'čorí 'cordoniz [quail]' may also be a loan. TO hohhi 'mourning dove' and Tr soho 'paloma torcaz' both show the expected initial syllable *so . . . (*s > TO h), and TO -hh- usually means a far-from-obvious cluster of some sort. We will only count those as possibilities, not yet secure.

> ### 2.9.5 Medial *-L- > -'- in Cora (L = liquid) [94]
>
> UA *taLu 'egg [huevo]': Tbr ne-telu-r 'huevo'; Cr ta'u 'blanquillo, huevo'.
>
> UA *mïLa/*mïLi 'run, flow, go, want': aligning with the many *mïLa/*mïLi forms, found in nearly all UA languages, is Cr me / me'i 'go, sg subj'.
>
> UA *mo'o-kaLi 'hat, head-house' (Tr mo'ó head'): Tbr mo-kalí-t; Wr mo'kóri; Tr mokoyo-/mokoho-/mokoo- 'put on hat'; Tr mokoyóra/mokohóra/mokoora 'hat, head-wear';
>
> Cr muúku'u-ci 'hat.' Note Cr's glottal stop at the place of the liquid.
>
> UA *taLowi 'edible root sp': Tr ŕerowi 'potato'; Wr teloé 'potato'; Tbr teró-t; Ca tályki 'Indian potato'; Cr tá'upu'u 'potato.' Because *L > -'- in Cr and *o > u in Cr, then *taLo > Cr ta'u fits perfectly.
>
> UA *pa-suL 'sweat': TO wahuD/wahul- 'sweat, vi'; TO wahulð̣ag 'sweat, n.; sweaty, adj';
>
> Nv vahurhu 'sweat, v'; Nv sivahurhudaga 'sweat, n'; PYp vahar 'sweat, v'; PYp vahagdar 'sweat, n'; NT vaahúraryi 'sweat, vi'; the latter two syllables of Cr táisï'e 'sweat, vi',
>
> note Cr -sï'e < *suLV, as Cr ï < *u.

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94. Ibid.

UA *kwaL 'soft [blando, suave]': Eu barínari 'blando, lo que fue ablandado por otro'; My bwalko 'blando'; first two syllables of Cr kwa'ačíra'a 'está suave, blando, tierno, débil', note *-L- > Cr -'-.

UA *kaLi(sV) 'squash [calabaza] species': Tr arisí/garisí/ karisí 'calabacilla, calabaza de coyote'; Wc káisa 'sonaja'; Nv sarkarhkaari 'calabaza'. The close sister-language to Cr in Corachol is Huichol, and Huichol káisa also shows loss of the intervocalic liquid, which is retained in the other languages.

Besides the seven examples listed above of PUA *-L- > Cr -'-, other instances can be found in *Uto-Aztecan: A Comparative Vocabulary*.

33. Cognates of CN tamal-li

As for CN tamal-li 'tamale, bread made of steamed cornmeal' (< UA *tïmaL 'bury, bake under ashes' < Semitic ṭmr 'hide, bury, bake under earth or ashes'/ Aramaic ṭəmar), Kartunnen does not separate -l- from the stem as a separate morpheme[95] like Hansen proposes for this CN tamal-. Furthermore, the UA forms in the other six branches of UA that show cognate forms also suggest a final third consonant as part of the stem, which suggest that the final -l- of tamal- is part of the stem. The semantic correlation is good: Semitic 'bury, cook under earth or ashes' and UA 'bury, cook under ashes'. The original UA form also reflects the Aramaic second-syllable stress pattern: Aramaic təmar > UA *tïmaC. Thus, the vowels match as well. Returning to evidence of a third consonant in the other branches, SP tocci-rï'ma-ppi 'roasted bread' shows geminated -pp-, which means an underlying final consonant in the preceding morpheme. In the following NUA languages (and others), a final liquid is often anticipated as a glottal stop (CVCVL > CV'CV): WMU tïm'má- 'bake (usually underground)'; Ch tïm'á 'bake, v'; SP tï'ma- 'roast under ashes, bury'; CU tu'má- 'bake, roast' and Tb tï'ma'at 'gasp for breath, for instance, while drowning, choking, or suffocating' (as if, while covered or buried in water) all show such an extra consonant. Because the standard UA reflex of Semitic ə (schwa) is UA ï or i, and as UA *ï > Aztecan e, then Aramaic təmar > UA *tïmaC > Azt temaC is a match of five of five segments, not two of five segments.

34. Match of CN no'pal-li

Hansen accepts the phonological match of CN no'pal-li < Aramaic/Syriac n'bl except for saying that I ignored the Nahuatl glottal stop. Actually,

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95. Kartunnen, *Analytical Dictionary of Nahuatl*, 214.

I highlighted the Aztecan glottal stop, as it matches exactly the Aramaic/Syriac glottal stop; in fact, all four consonants are exactly in the same order in both, and the terms I bolded for primary comparison were CN no'pal-li and Syriac n'bl. For a fuller semantic picture, I mentioned Hebrew nebel 'skin-bottle, skin' (most frequent use is nebel yayin 'skin-bottle of wine'). His main objection is with the semantic shift, though the shift is not that great: 'skin, flask, bottle (of wine, most often)' > 'prickly pear cactus plant (whose fruit is used to make alcohol)'. Nahuatl does indeed distinguish some details of the cactus plant vs. its fruit. However, I was following Voegelin, Voegelin, and Hale[96] and Miller and Kenneth C. Hill[97] in their terminology for that set, 'prickly pear cactus/fruit' and 'cactus fruit', respectively. I was defining the set for the score of languages having cognates, in many of which the meaning extends to its fruit also. While it is true that Nahuatl has separate cactus vs. fruit terms, I listed no Nahua definition, only its cognate form. While the Semitic term nebel/n'bl does mean 'bottle' (made of skin/leather), its most frequent language use was as a container of wine, and containers are often semantically extended to their contents: he's on the bottle (drinking binge), let's bring a keg (i.e., alcoholic beverage), he has a pint in his pocket, what dish would you like? (food on the dish, not choosing the ceramic creation). And semantic extensions from the plant to the alcohol made from its fruit are also frequent: vine and wine are related terms. So while it is indeed a semantic shift from 'bottle' > 'alcohol' < 'plant from which alcohol is made', it seems well within the bounds of plausibility. Each investigator is free to discard whatever semantic shifts she or he deems not plausible enough, but the data of the remaining 1500 correspondence sets must still be dealt with in an honest fashion.

35. Singular pronouns in Nahuatl

Nahuatl's singular pronoun series resembles Aramaic's conjugated 'be' verb. Hansen's consideration that the Nahua series may be an innovation because of its existence only in the Aztecan branch and not elsewhere is reasonable. However, its being a surviving retention is possible as well. Favoring the latter is evidence elsewhere in UA of t- for 2nd person pronouns and y- for 3rd person. Below are the Semitic singular pronoun verb prefixes

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96. C. F. Voegelin, F. M. Voegelin, and Kenneth L. Hale, *Typological and Comparative Grammar of Uto-Aztecan*, Indiana University Publications in Anthropology and Linguistics: Memoir 17, supplement to the *International Journal of American Linguistics* 28, no. 1 (1962).

97. Hill, *Miller's Uto-Aztecan Cognate Sets*.

and Classical Nahuatl singular pronoun series, aligning with the Aramaic verb 'be': hawaa (perfective stem), and -hwV (imperfective stem):

	Semitic sg	Hebrew/Semitic pl	Maghrib Arabic	Nahuatl
1st	'e-/'a- 'I (verb)'	ni-/na- 'we (verb)'	n- 'I verb'	ne'wa/nehwa 'I'
2nd	ti-/ta- 'you sg (verb)'	ti-/ta- 'you pl (verb)'	t- 'you verb'	te'wa/tehwa'you, sg'
3rd	yi-/ya- 'he (verbs)'	yi-/ya- 'they (verb)'	y- he verbs'	ye'wa/yehwa'he'

The CN singular pronoun series — nehwa (I), tehwa (you), yehwa (he) — parallels the imperfective of the Aramaic 'be' verb — 'ehwe, tehwe, yehwe. Though the Nahuatl 1st person (nehwa 'I') differs from Semitic 'e-, the n- of the CN form is analogically like the fundamental n- of both the UA 1st person pronouns (I/me) and the n- of most Semitic 'I/me' forms. In fact, the Maghrib Arabic dialect did the same analogy, analogizing the verb prefixes to be n-, t-, y-,[98] as the Classical Nahuatl singular series did — nehwa, tehwa, yehwa. The comparison, however, is not with Maghrib Arabic, but only with Hebrew, Aramaic, and Egyptian.

Regarding the suggestion that the ti- of CN ti- 'you, sg' was adopted from the ti- of CN ti- 'we', I am not familiar with any other instances of a 2nd person singular (you, sg) adopting a 1st person plural form (we). In fact, besides CN ti-/te- 'you sg', we have additional instances in UA of 2nd person t-, like Semitic 2nd person t-: Serrano t 'you sg'[99] and the Tarahumara 2nd person plural subject pronoun tumu, not only shows t-, but is rather identical to pre-Aramaic *-tum/attum (later to Aramaic -tuun/-attuun):

	subject pronouns 'you, plural'	object pronouns 'you, plural'
Semitic/Arabic	'antum (independent pronoun)	-kum (obj/suffix pronoun)
Hebrew	'attem (independent pronoun)	-kem (obj/suffix pronoun)
Aramaic	'attuun < *'**attum** (indep. pronoun)	-kum (obj/suffix pronoun)
Arabic	-tum (subject pronoun on a perfect verb)	
Hebrew	-tem (subject pronoun on a perfect verb)	
Aramaic	-tuun (< *-**tum**, subject pronoun on a perfect verb)	
Tr	**tumu / tumuhe** (you, pl subj)	**emi** (you, pl dative/object pronoun)
SP		ŋumi 'you, your, pl obj pronoun'[100]

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98. Gideon Goldenberg, *Semitic Languages: Features, Structures, Relations, Processes* (Oxford, United Kingdom: Oxford University Press, 2013), 86.

99. Kenneth C. Hill, *A Grammatical Sketch of Serrano* (2001), unpublished manuscript on Serrano grammar.

100. Stubbs, *Exploring the Explanatory Power*, 85.

Tarahumara has both the 2nd person plural *subject* pronoun matching the Semitic 2nd person plural *subject* pronoun, and the 2nd person plural *object* pronoun matching Semitic's 2nd person plural *object* pronoun.

I also might slightly adjust another of Hansen's statements: I do not reconstruct pu- as "the" 3rd person singular pronoun in PUA, but as "a" or "one of" the 3rd person pronouns. UA pronouns show considerable variety in the 3rd person, some of them being innovations indeed, though variants of the following 1st and 2nd person forms appear in most UA languages:[101]

	sg	pl
1	nï'	tammu
2	'ï	'ïm

Like Semitic hu/huwa, UA yields 3rd person singular *hu/*huwa (SP, NP, Cm, CU, My, Yq, Ca, Tr, thus in both NUA and SUA). Hebrew 3rd plural hum, hem 'they, subj' resembles NP ïmï; Kw imï; CU umïs; and Hebrew -am 'them, their' (obj or poss 3rd pl suffix). Hopi has -'am 'their'; My -am 'them'; Yq 'am- 'direct obj, them'; Yq -'ame-u 'to them'; Yq -'ame-mak 'with them' (also in both NUA and SUA). UA *pu 'he, it' (< Egyptian pw) in Ls -pu-; Huichol pï- (< *pu); My -po, Wr puu, Tr -pu, Kw pu/pï, SP pï (in both NUA and SUA).[102] Now these seven languages belong to five different branches, so *-pu is reconstructable to PUA but persists in only one-fourth of the UA languages, others showing other forms. So where it does show up, it is a rather rare continuance or retention of the *pu in those seven languages and five branches, scattered throughout both NUA and SUA.

To consider Nahuatl ye- to be from PUA *pu > *hï > ye might be imaginable if it were not for Huichol pï, Cora's sister language. The standard correspondence for both Cora and Huichol is ï < *u, and Nahuatl takes that vowel change one step further: *u > ï (Corachol) > i (Nahuatl). A bigger obstacle is *pu > hï for Cora or as an intermediate step for Nahuatl, when we see *pu > pï in Huichol. Nahuatl shows both p < *p, as well as the loss of p, or ø < *p. Again Cora and Huichol reflect half of what Nahuatl usually does: some *p > p, and others *p > h. However, to say Cora and Huichol do differently (pï) than Nahuatl (ye) is not consistent with how the Nawa-Corachol branch usually behaves.

The Egyptian demonstratives *p'y/pay/pa'i 'this, that' resemble UA pa/pe '3rd sg' in Sr pat, Tb paaim, Hp pam, Ca pe' 'he/she/it'; Cp

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101. The origins of all of those main UA pronouns are explained in Stubbs, *Exploring the Explanatory Power*, 84–86, 302.

102. Ibid., 89–90.

pə/pə'/pə'ə 'he/she/it'. So none of these four 3rd person forms dominates, but each appears three to seven times, their sporadic retentions scattered throughout UA in various branches. Hansen suggests that the final -wa of the Nawa pronoun series is an added affix. That's certainly possible but not a significant detraction from the Semitic parallel. For even Nahuatl nV, tV, yV is impressive, yet being attached to -hwa, which aligns with the conjugation of the 'be' verb, makes it even more noteworthy. Besides Huichol pï, an additional obstacle to that 3rd singular yehwa being from *pu > hï > ye, and in Semitic's favor is that Semitic's 3rd person singular verb forms beginning with y- show up in fossilized verb forms throughout UA. Some examples follow:

> **UA *yawamino** 'believe him/it' < Hebrew ya-'amiin-o 'he believes him/it' (in 4 UA languages)

> Interestingly Ca hée'an 'believe s.o., agree on s.th.' lost -m-, but shows the vowels and the initial h- of the Hebrew 3rd sg masculine perfective of the same verb: hɛ'ɛman (> UA hee'an).

> UA *yaka 'cry', yet both m. and f. in NP yaka/taka 'cry'

> from Semitic ya-bka/ta-bka 'he/she cries' (the masculine is in many UA languages, but both masculine and feminine are in NP, and there are some 20 examples of bilabial stops absorbed/lost as 1st C in a cluster; see under point 37)

> UA *yu'pa/*cu'pa 'fire go out, become dark, end' < Hebrew m. y-u'pal/f. t-u'pal 'become dark' (with palatalization of t- > c- before the high vowel u)[103]

> UA *kwasïC 'cook, boil, ripen' < Hebrew baašel/baašal 'cook, boil, ripen' (b > kw covered later); UA *kwasïC 'cook, boil, ripen' provides a cognate literally in every UA language while CN yoksi 'cook, ripen' has the y- prefixed to the -kw-s consonant sequence.

Further examples exist.

Even the Semitic is divisible into two separate morphemes: ne-hwa, te-hwa, ye-hwa. So for them to separate, or only the first to remain in instances or dialects, is not surprising. To list a few:

> Classical Nahuatl: nehwa, tehwa, yehwa

> Tetelcingo Nahua: naha, taha, yaha   (loss of -w-?)

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103. Palatalization of t- > c- before the high vowel u; see forms in Stubbs, *Exploring the Explanatory Power*, 218.

North Pueblo Nawatl: ne'wa, te'wa, ye'wa (h > ' in a cluster?)

Huasteca Nahuatl: na, ta, ya   (only   the   1st morpheme)

36. Wa- perfective prefix

Regarding the wa- perfective prefix, the Corachol perfective prefix wa- also exists in addition to Nawa oo-; and Corachol wa- is identical to the Hebrew wa- and also changes imperfective verbs to perfective verbs (as in Hebrew), as does CN oo- in western Nawa. A similar prefix *wV- exists in NUA branches in addition to the two SUA branches. Furthermore, truncation (chopping off the end) of the stem for perfective happens in all languages of the Piman branch, in Tubatulabal, Corachol, and Aztecan, that is, in at least four branches that I know of, and in both NUA and SUA. So stem truncation is not only reconstructable for Aztecan-Corachol, but for PUA. The perfective -kV suffix is also found in most of UA's 11 branches. So stem truncation for perfective and -kV both appear in both NUA and SUA and thus are from PUA, such that the Aztecan branch kept both to varying degrees in varying dialects. So the bigger picture of UA may suggest that Eastern Nawa innovated to *lose* what was in both Western Nawa and Corachol and other branches rather than Western Nawa's borrowing from Cora. For Cora to affect that many dialects of western Nawa would be impressive, if not surprising.

On tlakpak, I was wrong, and Hansen is right. I had it right in *Uto-Aztecan: A Comparative Vocabulary*, but in 2015, a forgetful moment produced an error. The Nawa morphemes are *ta-kupa-ko. The -kupa- does indeed tie to iikpa-tl 'thread' < UA *kupa 'hair, head'. I shall delete that example.

On CN seewal-li 'shade, shadow' (< Egyptian šwt 'shade, shadow'; and other examples of -t- > -l- exist), I will look into some relevant matters and discard this example as well if further investigation recommends such.

37. 'Snake, twin' meaning of CN kooaa-tl

CN kooaa-tl 'snake, twin' (< *koNwa < Egyptian qarħat 'serpent, partner') preserves an unusual semantic combination — 'serpent, partner' > 'snake, twin'. I have not yet found the 'partner/twin' dimension in another UA language. *koNwa 'snake' is reconstructable to PUA, found in nine of eleven branches, though the meaning 'twin' is only in the Aztecan branch as far as I've noticed so far. If 'twin' is a semantic innovation, it is an unusual one. What is the probability of UA innovating such an unusual pair of meanings to be identical to the Egyptian very unusual

pair of meanings? Furthermore, its cluster is replicated in other terms too, addressed below. R. Joe Campbell in his article[104] does not specifically mention kooaa-tl 'serpent, twin'; I discussed it with him and erred in not distinguishing between our discussion and his article. However, he does mention several Hueyapan Nahuatl verbs ending in -VwV whose past tense ends as -Vŋ, dropping the final vowel and w > ŋ. This is one of his reasons for suggesting underlying *-ŋw- in some places where CN and other Nawa dialects show -w-. Furthermore, Kaufman does reconstruct *konwa 'serpent, twin' with a nasal dimension to -w- in that term as well.[105] In addition, Ls and other NUA languages reflect *-ŋ- in their 'snake' cognates, and certain other items show PUA *-w- > -ŋ- in Ls (but not all -w- > ŋ):

> (332) Cp qeqiŋi-ly 'king snake' and Ls qiqeŋ-la 'ring snake' < Takic *koŋo reveal Takic -ŋ- as expected of the cluster -rɦ- (a liquid-pharyngeal cluster), given the similar behavior of similar clusters. The cluster of -r- plus the other pharyngeal (-ʕ-) behaves the same way: *-rʕ- > -ŋ-:

> (737) *-rʕ- > -ŋ-: ṣirʕaa 'hornets' > UA *saŋa 'yellowjacket, stinging one' (Sr, Ls, Ktn)

> (1066) *-rʕ- > -ŋ-: ṣrʕ/ḍrʕ 'weak, lean, emaciated' > UA *corowa/*corwa 'be hungry' (Wr/Tfr) > coŋo 'hunger' (Hopi). Wr and Tr show the consonants separated (-r- < -r- and -w- < -ʕ-), but when clustered (Hopi), *-rʕ- > -ŋ- again.

Another -r- + uvular cluster (*-rq-) behaves similarly:

> (957) *-rq- > UA/Tak -ŋ-: qarqaḍ-aan 'squirrel' > UA *koŋi 'squirrel'

Nasals in clusters with those laryngeal/pharyngeal consonants also yield velar nasal *ŋ (*-m'- > -ŋ-, or *-Nʕ- > -ŋ-):

> (280) *-m'- > -ŋ-: Egyptian ɦm't 'salt' > UA *omwa > *oŋwa/*oŋa 'salt' (initial ɦ > o)

> (281) *-m'- > -ŋ-: Egyptian sm' 'lung' > UA *somwo > *soŋo 'lung'

104. R. Joe Campbell, "Underlying /ŋw/ in Hueyapan Nahuatl," *International Journal of American Linguistics* 42 (1976): 46–50.

105. Terrence Kaufman, "Comparative Uto-Aztecan Phonology" (manuscript, 1981).

(284) *-m'- > -ŋ-: Egyptian qm' 'create, beget' > UA *kumCa/*kumwa > *kuŋa 'husband'

In all three examples above, some Numic languages show m/mw, while the rest of NUA shows ŋ; this suggests an original cluster involving -m- that became -ŋ-; the m and ŋ reflexes would be mysterious, if not for the underlying cluster *-m'- that clarifies them, as *-m'- > -mw- is expected. Otherwise, why would ŋ blossom into various reflexes with m? These are also among the most pervasive lexical items in UA, appearing in 29, 14, and 27 of the 30 UA languages, respectively. Other Semitic terms below, having the same cluster, show the same result:

(1246) *-m'- > -ŋ-: Old Canaanite hassim'al 'the-left' > UA/Tb aašiŋan 'left side' (l > NUA n)

(940) *-mʕ- > -ŋ-: -mʕak 'squeeze, crush, rub' > UA *ŋaka/i 'grind, scrape, rub against'

In 2015 I outlined some 200 examples of cluster behavior.[106] To exemplify, I will highlight only one pattern for stops: the first consonant is lost or absorbed to double the second.

(1274) *-kb- > -pp-: kookb-aa' 'star-the' > UA *kuppaa': Sr kupaa' 'to shine (as of the stars)' (a denominalized verb, all vowels as expected; Sr v < *-p-, so Sr p < *-pp- or cluster)

(889) *-kb- > -pp-: Aramaic rikb-aa 'upper millstone-the' > UA *tïppa 'mortar, pestle' (initial r- > UA t- is well demonstrated in 2015, 100–101, 173–174, 221)

(99) *-kb- > -pp-: Hebrew rakb-uu 'they mounted, climbed'; Aramaic rakb-uu-hi 'they climbed it' > UA *tï'pu 'climb up': NP tïbbu'ya 'climb up'; Wr mo'tepú-na 'climb up s.th.'

Note the three instances above of *-kb- > -pp-. When the first vowel is *i*, palatalization changes *t-* > *c-*, and the Western Numic forms below even show an object suffix: Aramaic rakb-uu-hi 'they climbed it'.

UACV-461b *ciCpuhi 'climb': Mn cibuhi 'climb with arms and legs'; NP cibui 'climb up on s.th.'

In contrast, the Southern Numic forms reflect a plural participle raakbiin > tVppin > cippin.

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106. Stubbs, *Exploring the Explanatory Power*, 324–31.

UACV-461c *ciCpiN/*cippiN 'climb or come out/onto': Kw čipii-'climb'; Ch cipí- 'come out'; SP cippiN 'come out, appear, ride'; WMU čihppí-y 'come out, bubble out (like a spring), climb into (car), onto (horse)'; CU čipí 'mount, climb on, get on top'. Also related are Ca čípi 'get covered (hole), vi' and Ca čípi-n 'cover, vt (causative)' all the above showing geminated *-pp-, and covering (a hole) is causing s.th. to get on top of it, and a hole getting covered is as a spring bubbling out, its hole being covered by water' or 'surfacing to the top'.

All of the above reflect *-kb- > -pp-. Consider some *-Cp- > -pp-:

(1264) *-pp- > -pp-: Semitic *tappir 'sew together' > UA *tappiCta 'tie'

(1265) *-pp- > -pp-: Semitic tpr/tuppar 'sown' > UA tuppa 'tie(d)'

(1151) *-tp- > -pp-: Aramaic etpakkan 'speak much, chatter' > NUA/Num *appaka/*aNpaka- 'talk'

(182) *-tp- > -pp-: Egyptian ḫtp/hotpe 'be gracious, peaceable, set (sun)' > NUA *huppi 'peaceable, behave, sink, go down' > Hp hopi; otherwise, *hopi > hovi

(398) *-'p- > -pp-: Egyptian k'p 'close (eyes), cover' > UA *kuppa / *kuCpa 'close (eyes)'

(434) *-'p- > -pp-: Egyptian g'p 'cut' > UA *kappi 'break, cut'

*-'p- > -pp-: Semitic 'pl 'be dark, go down, set, be hidden/absent'; unattested y/tuCCaC 3rd m/f

(872) *yu'pal > UA *yuppa and (871) *tu'pal > *cuppa, t- > c-palatalized before -u:

Tb cuppat 'fire be out' (dark); Mn cuppa 'disappear' (hidden/absent); NP coppa 's.th. sinking' (go down, set); My cúppa 'finish'; AYq čupa 'finish, complete, fulfill (vow)'; Wr cu'píba-ni 'finish' (still shows -'-). 'Finish the day (sun) > finish (task)' is the one semantic shift of the four

(872) *yu'pal > *yuppa 'go out (of fire), (get) dark, black': Ktn yo'vï-k 'be dark/black' (Ktn still has glottal stop of the original cluster *-'p-, which becomes geminated -pp- in languages with -p- (< *-pp-), while forms with -v- lost gemination: e.g., Ls yúúpa 'go out (fire), not burn' vs. Ls yúúva 'be dark'.): Ca yúpi 'be overcast (of sky), cloudy'; Gb yupíxa' 'black'; and Wc yïvi/yïïvi 'black' (because Wc ï < *ü)

Below are three among dozens of nonlabials wherein first C is absorbed to double the second:

> (57) Semitic singaab 'squirrel' = Hebrew *siggoob 'squirrel' > UA *sikkuC 'squirrel'

> (832) Semitic sarṭoon 'scratcher, crab' > UA *saCtun > sittun/*suttun 'claw, nail, crab'

> (614) Hebrew makteš 'mortar' > UA *maCta 'mortar'; Ca *mattaš 'crush, squash, vt' (with *-tt- and -š)

Also per that pattern, bilabial stops (b, p) are lost when they are the first consonant in the cluster, while the second consonant goes to its usual reflex: d > t, x > k, ḥ > w, ʕ > w, ' > w.

> (294) *-pš- > -s-: Egyptian xpš 'foreleg, thigh' > UA *kapsi 'thigh' (Tb)/*kasi (in 11 others)

> (295) *-pd- > -t-, Egyptian xpd 'buttocks' > UA *kupta 'buttocks' (Ls); the others *kutta

> (486) *-ft- > -t-: Egyptian xfty(w) 'enemies' > UA *qaytu 'enemy, opponent'

> (298) *-bx- > -k-: Egyptian ʕbxn 'frog' (> *wapkan) > UA *wakaN-ta > *waqatta 'frog'

> (1218) *-px- > -k-: npx 'blow, breathe'; *napxat 'puff, breath, gust' > UA *nïka 'be windy, blow'

> (757) *-pḥ- > -w-/Tak -ŋ-: šipḥaa 'maid' > *siwa 'female, girl, sister, daughter'

> (747) *-bʕ- > -w-: ṣibʕ- 'finger' > UA *sïwa /WMU *sipwa 'finger'

> (299) *-pʕ- > -w-: Eg ẖpʕ 'chew' > UA *hiwa 'taste'

> (297) *-p'- > -w-: Eg sp' 'centipede' > UA *ma-siwa 'centipede' (*sipwa > siwa)

> (296) *-b'- > -w-: Eg ib' 'dance, run' > *yab'a/i > UA *yawa / *yawi 'dance'

38. The Phoenician-like Semitic-kw Corpus

The last two items that Hansen raises belong to the Phoenician-like Semitic-kw body of data, which corpus is introduced here. Their treatment requires some background, and then those two (26 and 20) are

treated later below, only mentioned here: (26) Hebrew bənee(y) 'children' > (UA *kwnee >) CN konee- 'child, offspring'; and (20) Semitic brr/barra 'select, choose' > UA *kwi 'take'.

Rogers claims that I am choosing from any of the three Near Eastern languages, thus inflating the number of possibilities. He and others seem to overlook these two paragraphs in *Exploring the Explanatory Power*:

> Such a tripartite combination might be labeled suspect, except that the quantity for each is more than sufficient for each corpus or section to stand on its own merit, as each has 400–700 sets … . If one simply cannot bear the thought of the three, then pick only one of the three groups, any one of which yields 400 to 700 items. Ought a correlation of 400 sets be ignored? Even 400 sets is two or three or four times what many Native American language families were founded on.[107]

The explanation above follows and refers to the first page in *Exploring the Explanatory Power*, which provides comparisons relevant to the strength of the case:

> After Sapir established Uto-Aztecan as a viable language family,[108] Voegelin, Voegelin, and Hale produced the first numbered list of 171 cognate sets.[109] Klar brought the Chumash languages to clarity with 168 sets.[110] Taylor established Caddoan, assembling 107 cognate sets.[111] Hale did the definitive study for Kiowa-Tanoan with 99 sets.[112] … Chamberlain began the union of Catawba with Siouan via 17 comparisons,[113] and Siebert secured it with mostly

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107. Stubbs, *Exploring the Explanatory Power*, 9.
108. Sapir, "Southern Paiute and Nahuatl."
109. Voegelin, Voegelin, and Hale, *Typological and Comparative Grammar of Uto-Aztecan*.
110. Kathryn Ann Klar, "Topics in Historical Chumash Grammar" (PhD diss., University of California, Berkeley, 1977).
111. Allan R. Taylor, "Comparative Caddoan," *International Journal of American Linguistics* 29 (1963): 113–31.
112. Kenneth Hale, "Toward a Reconstruction of Kiowa-Tanoan Phonology," *International Journal of American Linguistics* 33 (1967): 112–20.
113. Chamberlain, *Catawba Language*.

morphological correlations,[114] as not enough clear cognate sets were known at the time to establish correspondences.[115]

So between 50 and 171 sets have been sufficient to establish many, if not most, Native American language families, though more sets are invariably added later. Ought not this case of 1,528 sets merit proportionate consideration? Or any one of the single groups of data: the 400 sets of the Phoenician Semitic-kw, or the 400 sets of Egyptian, or the 700 sets of the Hebrew-Aramaic Semitic-p? Even 400 sets is nearly two-and-a-half times 171, or four times 99! Semitic-kw and Semitic-p are defined by what Semitic b changed to in that dialect: Semitic b > p in Semitic-p, and Semitic b > kw in Semitic-kw. Each has its own set of sound correspondences: b > p vs kw, non-initial r > r vs. y, ṣ > s vs. c, etc.

Below are examples of data and sound correspondences from the Phoenician-like Semitic-kw wherein Semitic b > UA *kw (set numbers are from *Exploring the Explanatory Power*):

> (4) Hebrew baašel 'boiled, cook, ripen' > UA *kwasïC 'cook, ripen'
>
> (5) Hebrew bááśaar 'flesh, penis' > UA *kwasi 'tail, penis, flesh' (r > y/i)
>
> (6) Hebrew baalaʕ 'swallow' > UA *kwïluC 'swallow'
>
> (7) Semitic bahamat 'back' > UA *kwahami 'back'
>
> (8) Semitic ḍabba 'hold, grasp, lock, guard' > UA *cakwa 'catch, grasp, lock'
>
> (9) from ḍabba 'grasp' is a term for 'lizard' > UA *cakwa 'lizard'
>
> (10) Semitic šabber 'break, break in pieces' > UA *sakwi 'break, ruin' (r > y/i)
>
> (11) Semitic dabber 'speak' > UA *tïkwi 'say, talk, speak' (r > y/i)
>
> (15) Semitic baaz(aa) 'falcon, hawk' > UA *kwasa/*kwisa 'eagle, bird of prey'

114. Frank Siebert "Linguistic Classification of Catawba," *International Journal of American Linguistics* 11 (1945): 100–104, 211–18; and Campbell, *American Indian Languages*, 140.

115. Stubbs, *Exploring the Explanatory Power*, 1.

(16) blm 'muzzle, wrap, curb, restrain' > UA *kwalma 'put arm around, carry under arm'

(23) bilṭii 'worm' > UA *kwici 'worm'

(24) bky/bakaaʸ 'cry' > UA *kwïkï 'cry'

(27) brm 'worn out, weary, bored with' > UA *kwiyam 'be lazy, do lackadaisically' (r > y)

(1457) Arabic ṣabba 'pour, drip, overflow' > UA *cikwa 'rain'

(26) Hebrew bɛn 'son'; pl: bəneeʸ 'children (of)' > kʷnee > Nahuatl *konee 'child, offspring'

In regard to the above set (26), I appreciate Hansen's acceptance of and citing my reconstruction *kumCa 'husband, male' (284 above), though considering it the source of CN konee 'child, offspring' faces some phonological challenges: 27 of the 30 UA languages have a reflex of *kumCa 'husband': Numic *kuCma/*kumCa/*kumma; the rest of NUA *kuŋa; SUA *kuna. Cora and Huichol both have their expected vowel (kïna) for the SUA reflex *kuna; in fact, all 27 languages possessing a reflex have their expected vowel except for Tbr kona. So the first vowel of CN konee may be possible in UA *CuCa > CoCa, as such assimilations are possible if they happen before *u > CN i, but it does vary from the usual and expected UA *u > CN i; and the second vowel does not match either in quality (e vs. a) nor in length. None of the other UA languages show a long final vowel, and many lose that vowel completely (Ls, Cp, Cr, and most of Piman). If they do have a long vowel, it is the first vowel (Hp kooŋya, Tb kuuŋa, Ls kúúŋ, and Yq and My kuuna). However, the very short schwa-vowel of Hebrew/Phoenician after b > kw would have the rounding of kw easily become a short round vowel in a nearly vowel-less syllable: bənee > kwnee > konee. And the semantics match well: 'children' > 'child, offspring'.

> (20) Hebrew brr 'to select, choose' > CN kwi 'take something/someone';[116] actually, 'select, choose' > 'take' is a lesser/small/negligible semantic shift, and CN kwii-liaa 'to take something for self/others'.[117]

116. Kartunnen, *Analytical Dictionary of Nahuatl*, 71; and Michel Launey, *An Introduction to Classical Nahuatl*, trans. and adapted by Christopher Mackay (Cambridge: University of Cambridge Press, 2011), 432.

117. Kartunnen, *Analytical Dictionary of Nahuatl*, 71.

Also of interest is Ls čikwáyi- 'to choose, select' aligning with the imperfective voweling and with *ti- prefix: *ti-barr > čikwáyi-. And of the same root is 19 below with similar reflexes in Semitic and UA: Semitic barr > UA kwiya even has an -r- instead of -y- in one UA language, Tbr kwira, but *kwiya in the other six branches of UA:

> (19) barr- 'land (as opposed to sea)' > UA *kwiya/*kwira 'earth' (r > y/i)

> (35) birkaa 'blessing' > UA *kwika 'sing, song'

Hebrew brk 'to bless, praise'; praises are often sung; and Syriac Semitic zmr also means both 'sing' and 'praise', so the denominalized verb's change from 'bless' to 'sing/song' is reasonable:

> (36) Semitic bġy > bʕy/baʕaa[1] 'enquire, search' > UA *kwawa 'invite, call'

> (37) Semitic bġw > bʕy/baʕaa[2] 'swell, bring to a boil > UA *kwawa 'boil' (36 and 37 above are separate Semitic verbs but merged to the same root in Hebrew-Phoenician)

> (38) bahiya 'become empty, compete with' > Hp kwahi/kwaha 'suffer loss, deprive, take'

> (39) bhl/bahal 'cease, be tranquil, calm, gentle' > UA *kwaha 'tamed, tranquil, gentle'

We might note that items 36 and 37 exemplify the Phoenician sound changes (Semitic ġ > Phoenician ʕ > UA *w), because Semitic-p has Semitic ġ > UA *k (would have yielded UA *paka), that is, Israeli Semitic and UA's Semitic-p distinguish Proto-Semitic ġ and ʕ, while Phoenician and UA's Semitic-kw do not, but merged both ġ and ʕ to ʕ about 1,000 years before Israeli Semitic did.

39. Long-distance relationships (again)

Hansen is generally civil, but other times he suggests that I'm excusing myself from "the strict methods for demonstrating long distance relationships." Did he miss that it is *not* a long-distance relationship? (See point 1.) Furthermore, both books (2011 and 2015) adhere to the comparative method, establishing an extensive network of lexica abiding sound correspondences, noting morphological parallels, and several other systems of parallels. Hansen continues: "He [Stubbs] claims that it is only natural that some forms borrowed into the proto-language survive only in some of the daughter languages." Of the 2,703 UA

cognate sets, only 11 survive in all daughter languages; nearly all — 2,692 — survive in only some of the daughter languages. How many Indo-European cognate sets appear in all daughter languages? Very few, I'm sure. Hansen writes further: "This is perhaps true, … but he [Stubbs] apparently does not recognize, or address, the fact that this practice leads to a much higher risk of chance resemblance being mistaken for cognates, that is, random noise being mistaken for a signal." Apparently Hansen did not read the book and seems to be taking Rogers's word for it, but it appears that Rogers also did not read the book. (See points 1, 6, 7, 21, 22, and 41.) Nonetheless, I express appreciation to Hansen for bringing to my attention one erroneous set and possibly a second, and for causing me to examine the other 12 items in greater depth, a process which served to strengthen the viability of those 12.

Answering Others' Questions

40. Peer reviews

Online inquirers ask why my 365,000-word work was not peer reviewed. A single peer review may be reasonable and fair, or it may be biased and unfair, the latter being more probable for a potentially career-damaging topic and for a large book that few feel inclined to digest very thoroughly. Unless all the data are carefully considered, a rejection is meaningless. Thus, better than a single review preceding the publication are multiple reviews, both official and unofficial, following the book's appearance, letting the eventual collective comprehension and opinion among specialists run its typically lengthy course for proposals outside the accepted dogma of the day. First came the unofficial responses to the data from Uto-Aztecan specialists: One reluctantly conceded, "Well, the sound correspondences are in order, and the amount of data seem convincing." Another well-versed Uto-Aztecanist, while looking through the data, periodically said, "You're kidding! I can't believe it. O ___! O my ___!" and other colorful expletives, as he conceded that the data were unexpectedly persuasive. Another well-versed Uto-Aztecanist emailed back: "I have looked over the work and find it convincing."[118]

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118. Anonymous, email message to author, January 25, 2016. These four responses were spoken in my presence or emailed to me from four non-Latter-day Saint PhDs in linguistics, who are all well-versed publishers in comparative UA as well; however, they probably prefer to remain anonymous.

Another prominent Uto-Aztecanist emailed back, "I was impressed with what I saw, of how much you have and the obvious similarities there."[119]

Other responses came from competent linguists who are not Uto-Aztecan specialists: Roger William Wescott — Rhodes Scholar at Oxford, president of the Linguistic Association of Canada and the United States, and author of 500 articles and 40 books — spoke positively of the work.[120] David H. Kelley, a Harvard PhD who has published in anthropology and linguistics and contributed to the decipherment of the Mayan glyphs, said upon receiving a draft: "The thick thing came in the mail and I did not want to tackle it, but dutifully opened it, intending to look at a page or two. However, I started to read and ended up reading the whole book. It is the most interesting and significant piece of research I have seen in years."[121] Besides the foregoing positive responses, most were silent, and a few expressed dislike — "it couldn't be!" — but none refuted it with specifics.

Then came the published reviews. The first two were positive[122]: one by Dirk Elzinga, a specialist in the Numic branch of UA, and one by John S. Robertson, a Harvard-trained historical linguist and prominent Mayanist. Two years later, the negative review by Rogers and the post by Hansen appeared. This is a detailed response to their reviews, from which a few illuminating insights were offered by Hansen, though the data show that both Rogers's and Hansen's efforts combined did more to clarify and strengthen than to overturn. Rogers's and Hansen's investigations together eliminated one item, maybe two, leaving 1,526 matches (1,528–2), but that does not include the additional parallels found since publishing those works. Those will be added into future editions.

41. Sound correspondences applied to loanwords

Some have questioned sound correspondences applying to loanwords. Borrowings and sound correspondences are not mutually exclusive. Early borrowings also obey laws of sound change subsequent to their entrance into the data. The problem with Rogers's criticism is that he assumes

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119. Anonymous, email message to author, February 9, 2015.

120. Roger William Wescott, "Early Eurasian Linguistic Links with North America," in *Across before Columbus*, ed. Donald V. Gilmore and Linda S. McElroy (Laconia, NH: New England Antiquities Research Association [NEARA], 1998), 193–97.

121. John Sorenson sent David H. Kelley a copy of an early draft of my work, which Kelley read, then asked Sorenson for my phone number. Dr. Kelley called me and over the phone spoke these words to me along with other complimentary details.

122. Elzinga, review of *Exploring the Explanatory Power of Semitic and Egyptian in Uto-Aztecan*; and Robertson, "Exploring Semitic and Egyptian in Uto-Aztecan Languages."

common descent from Afro-Asiatic. In contrast, descent from a first millennium BCE Hebrew-Aramaic offshoot that joined with a language family in ancient America may be an easier way for some to visualize it. Indeed, borrowed vocabulary is often identified by its departure from the sound correspondences of the larger backdrop of a deeper time-depth; however, if the borrowing or the infusion occurred near the origins of the language family, then its vocabulary would adhere to a system of sound changes from that point on. As Robertson comments, there is an initial compulsory transformation of some sounds to accommodate the phonological inventory of the speakers of the receiving language,[123] and he gives examples of consistencies in sound change among borrowed lexica. He also adds, "There are many studies that deal with rules of borrowing. Changes are not random, as Hansen claims, but largely rule-governed."[124] Some initial changes relative to that initial contact seem apparent: for example, initial r- > t- probably occurred because those with whom they mixed did not have initial r- in their phonological inventory, though intervocalic -r- occurs as an allophone. Similarly, other Near East fricatives became stops: x > k and ġ > k and f > p. So there is a larger pattern of Near East fricatives becoming stops in the initial position. After the initial reception, normal sound changes would be expected from that point on. The data suggest that that process happened early in UA because most of the few cognate sets that are found in all or nearly all UA branches belong to the Near East infusion.

The 2011 work has 2,700 sets and 2015 has 1,500, some of which are not in 2011. So roughly half of the 2,700 sets (in *Uto-Aztecan: A Comparative Vocabulary*) may be of non-Near East contact group(s) and half from the Near East immigrants, perhaps subject to a series of contact situations. If the Near East group(s) arrived and mixed with other group(s), it might be thought of as a genetic descent from the Northwest Semitic offshoot that was later subject to contact scenarios. That is, the Near East data genetically descended from the language stage they brought with them — thus yielding a consistent set of sound correspondences — and later received outside admixture, borrowing more outside data through time for an increasingly complex picture. However, the Near East offshoot

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123. John S. Robertson, November 4, 2019, reply to Gordon P. Richards, https://journal.interpreterfoundation.org/an-american-indian-language-family-with-middle-eastern-loanwords-responding-to-a-recent-critique/.

124. John S. Robertson, October 31, 2019, reply to Gordon P. Richards, https://journal.interpreterfoundation.org/an-american-indian-language-family-with-middle-eastern-loanwords-responding-to-a-recent-critique/.

did not extend as far back as Proto-Semitic, let alone Afro-Asiatic. In fact, the details in the language data point to the Near East components aligning with the late second millennium or early first millennium BCE — after a clear distinction materialized between Hebrew and Aramaic forms in Northwest Semitic but before the phonological mergers of *x and *ħ > ħ, and *ġ and *ʕ > ʕ.[125] This generally reflects pre-exilic Israeli Semitic (1200–600 BCE) and parallels the Late Egyptian period (1300–700 BCE), and the UA data also reflect Late Egyptian morphology.

42. Use of Syriac or Arabic

Some critics complain of my using languages such as Syriac or Arabic, which are attested after the presumed Old World departure. Of course, all such dialects and languages existed long before their attestation. Every lexicon of Hebrew cites Arabic, Syriac, Talmudic Aramaic forms, and semantics, and so forth, as related to the Old Testament (OT) language, because those forms and meanings have a history going back much further than their first attestations, even though they became attested after the OT was written. In fact, relative to reconstructed proto-Semitic, Arabic often exhibits better-preserved phonology that is closer to Proto-Semitic than Hebrew/Phoenician, Akkadian, and other Semitic languages written long before Arabic became written or attested. And as I said under point 26, Syriac is simply Aramaic. Little exists of early/old written Aramaic compared to a great deal of Syriac literature, and Syriac is basically the same as older Aramaic. Most of what we know of Aramaic lexicon is in the descendant dialects.

Similarly, no one should object to my using Arabic items when UA exhibits a form reflecting the sound correspondences of a Hebrew cognate to that Arabic term. The Hebrew OT accounts for the great majority of what we know of ancient Hebrew, but the OT contains only a small fraction of the spoken language of the time. For example, there is no word for 'squirrel' in the OT. Yet in UA we have two words for squirrel that match unattested Hebrew cognates for two Arabic words for squirrel. So (57) cannot be misconstrued as drawing from Arabic (yet another language), because UA *sikkuC matches an unattested Hebrew cognate, not the Arabic form:

> (57) Semitic/Arabic singaab 'squirrel' > Hebrew *siggoob 'squirrel' > UA *sikkuC 'squirrel'

(Proto-Semitic and Arabic -ng- yields a doubled second consonant

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125. Stubbs, *Exploring the Explanatory Power*, 178–90.

in Hebrew -gg-; also Proto-Semitic and Arabic long -aa- > -oo- in Hebrew; all sound changes are thus explained in the book.)

(957) Arabic qarqaḏ-aan 'squirrel' > UA *koŋi 'squirrel'; Arabic -aan is a suffix, not part of the noun stem. So Semitic *qarqaḏ 'squirrel' > UA *qoŋi 'squirrel', explained under point 37, is a second interesting case. When 1,500 such matches emerge, do we ascribe it to coincidence?

Relevant to the above and to point 43 below and to the criticism that using multiple Near Eastern languages inflates possibilities, let it be clear that three separate bodies of data align with one language each. Regarding the Phoenician corpus (Semitic-kw), Phoenician and Hebrew are basically the same language. Hebrew is the Israeli dialect of Phoenician/Canaanite, yet the ancient Hebrew database (the OT) is much larger than is available in Phoenician inscriptions. So it is perfectly valid to list Hebrew forms for comparison. However, Phoenician merged/combined some sounds that Hebrew kept separate through OT times, and the Semitic-kw data align with the Phoenician sound changes, not Israeli Semitic. In contrast, Semitic-p does retain the separate sounds (not yet merged) in Israeli Hebrew or Aramaic. So Semitic-p is, admittedly, a language that drew from both Hebrew and Aramaic. The Egyptian corpus is Late Egyptian data whose sound correspondences are the same as the Semitic-p data.

43. Semitic-p and Semitic-kw

Another complaint was 'why intervocalic -r- > -r- in Semitic-p, but -r- > -y- in Semitic-kw?' with the suggestion that I created another dialect to accommodate more data. No, the two sets of data are quite consistently cohesive within themselves: Semitic-p has *b > p, and *-r- > -r-, and *ṣ > s, while Semitic-kw has *b > kw, and *-r- > -y-, and *ṣ > c. Final -r behaves quite differently in the two sets as well. In Semitic-kw, where y/i is the usual reflex, it tends to assimilate vowels toward the high-front y/i:

> (5) bááśaar 'flesh, penis' > UA *kwasi 'tail, penis, flesh'
>
> (10) šabber 'break, break in pieces' > UA *sakwi 'break, ruin'
>
> (11) dabber 'speak' > UA *tïkwi 'say, talk, speak'
>
> (27) brm 'worn out, weary, bored with' > UA *kwiyam 'be lazy, do lackadaisically'
>
> (19) barr 'land' > kwiya 'earth' though one language actually has kwira
>
> (20) brr 'choose' > kwi 'take'

(65) mrr 'pass, go, walk'   > UA *miya 'go'

(64) krr/krkr 'go in circles, dance' > SP kiya 'have a round dance'

(62) srq/saraq 'to comb' > UA *siyuk/*ciyuk 'to comb'

In contrast, the Semitic-p data show it to have retained intervocalic -r- (baraq > berok 'lightning'; ḫaram > oerume 'woman') and final -r had no raising effect on the preceding vowel:

(616) dakar 'male' > UA *taka 'man, male, person, self, body'

(1279) yagar 'hill, heap of stones' > UA *yaka/*yakaR (AMR) 'nose, point, ridge'

(565) makar 'sell, give' > UA *maka 'give, sell' (all branches)

(664) ḫtr 'dig' > UA *hotaC 'dig'

(1331) 'ikkaar 'plowman, tiller of ground' > UA *wika 'digging stick'

(566) 'ariy 'lion' > UA *wari 'mountain lion'

(550) Aramaic bəsár 'flesh, penis' > UA *pisa 'penis'

(533) baṣṣara/*buṣṣar 'open eyes' > UA *pusa/*pusaC 'open eyes, wake up'

To those criticizing me for not having the UA liquids (r, L) all figured out, I say, no one has ever had the UA liquids figured out. In UA, the liquids and nasals are an as-yet-unresolved puzzle. Some think PUA had no liquids (that PUA *n and *t are the source of later liquids); others think PUA had one liquid (that surfaces as r or L, or both in a few languages); yet some evidence may suggest UA had both r and L. In *Uto-Aztecan: A Comparative Vocabulary* are eleven pages that address the nasal-liquid spectrum more thoroughly than anywhere else in the literature[126] and bring to bear data that either no one has noticed before or prefers not to talk about. The data show evidence of the UA liquid(s) going to -y-, within UA itself, independent of any Near East issues.

44. "Flea" vs. "jackrabbit"

Some object to the 'flea' vs. 'jackrabbit' inclusion. It is one of those on the list of semantic shifts, so one can discard it, if so inclined. I personally think there is much to place it as more probable than not. The

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126. Stubbs, *Uto-Aztecan*, 20–30.

four-consonant Semitic verb prʕš 'to jump' yields Hebrew parʕoš 'flea' signifying a 'jumper'; then in UA we have *par'osi/*paro'osi 'jackrabbit', which is also a fantastic jumper. A six-segment match (all four consonants and two vowels) between Semitic parʕoš and UA *par'osi/*paro'osi is well worth considering when parʕoš basically means 'jumper'. Regarding other semantic shifts, like 'chin' > 'mouth', Robertson comments that there are frequent associations among terms for mouth, lip, chin, jaw, cheek, and throat.[127] And yes, a 'ditch' and 'ravine/canyon' are the same thing, only differing in size.

In conclusion, many of the criticisms seem more attitudinal than substantive. It is tempting to suppose that lacking a few answers invalidates all answers, when in reality solid answers exist for over 90 percent of the questions. The 2015 work provides many answers to comparative UA matters that all previous linguists over the last century had not yet solved. Whether in comparative Indo-European or Uto-Aztecan, each specialist in his/her turn contributes a handful of insights but leaves many unanswered questions. Nevertheless, it should be apparent from the above response that the data in the book contain many more answers than Rogers, Hansen, and others became aware of. This suggests that a thorough, careful approach to *Exploring the Explanatory Power* should be fruitful in more accurately evaluating the claims.

Brian Stubbs *is retired from teaching English and linguistics for the College of Eastern Utah and Utah State University at the San Juan Campus. He earned an MA in linguistics from the University of Utah and completed coursework and comprehensive exams toward a PhD(ABD) in Near Eastern languages and linguistics. Coursework in Hebrew, Arabic, Aramaic, and Egyptian was followed by years of personal study in those languages and several dozen Native American languages. He has presented many papers at professional conferences and published numerous articles on the Uto-Aztecan language family in linguistic journals. Notable among his publications is* Uto-Aztecan: A Comparative Vocabulary *(2011), the new standard reference work in comparative Uto-Aztecan linguistics. Brian and his wife, Silvia, are the parents of five children.*

127. John S. Robertson, November 4, 2019, reply to Brad Anderson, https://journal.interpreterfoundation.org/an-american-indian-language-family-with-middle-eastern-loanwords-responding-to-a-recent-critique.

Appendix:
Abbreviations of Languages, Branches, and Other Terms

Northern Uto-Aztecan Languages (NUA)

Language	Branch
Mn Mono	Western Numic (WNum)
NP Northern Paiute	WNum
TSh Tumpisa Shoshoni	Central Numic (CNum)
Sh Shoshoni	CNum
WSh West Shoshoni	CNum
Cm Comanche	CNum
Kw Kawaiisu	Southern Numic (SNum)
Ch Chemehuevi	SNum
SP Southern Paiute	SNum
WMU White Mesa Ute	SNum
NU Northern/Uintah Ute	SNum
CU Colorado Ute	Num
Hp Hopi	its own branch
Tb Tübatülabal	its own branch
Ls Luiseño	Takic
Ca Cahuilla	Takic
Cp Cupeño	Takic
Sr Serrano	Takic
GB Gabrielino	Takic
Ktn Kitanemuk	Takic

Southern Uto-Aztecan Languages (SUA)

Language	Branch
TO Tohono O'odham	Piman
UP Upper Pima	Piman
NV Nevome	Piman

Language	**Branch**
LP Lower Pima	Piman
NT Northern Tepehuan	Piman
ST Southern Tepehuan	Piman
Ed Eudeve	Opatan
Op Opata	Opatan
Tbr Tubar	its own branch
Yq Yaqui	Cahitan
AYq Arizona Yaqui	Cahitan
My Mayo	Cahitan
Wr Guarijo	Tarahumaran (Trn)
Tr Tarahumara	Trn
Cr Cora	Corachol
Wc Huichol	Chorchol
CN Classical Nahuatl	Aztecan
Pl Pipil	Aztecan

Other Abbreviations

Abbrev.	**Meaning**
adj	adjective
C	any/unknown consonant
f	feminine, a grammatical gender in Semitic and Egyptian, whose fossilized morphology remains in UA, though no longer identified as feminine
IE	Indo-European, a large language family of Europe and western Asia, including Greek, Latin, Sanskrit (in India), Celtic, Germanic, Slavic, Hittite, and others
KT	Kiowa-Tanoan, a language family mainly of the Tewa, Tiwa, Towa pueblos in New Mexico, and Kiowa on the plains

Abbrev.	**Meaning**
m	masculine, a grammatical gender in Semitic and Egyptian, whose fossilized morphology remains in UA, though no longer identified as masculine
n	noun
NUA	Northern Uto-Aztecan, which includes the Numic, Hopi, Tübatülabal, and Takic branches
obj	object
OT	Old Testament
pl	plural
poss	possessive
PUA	Proto-Uto-Aztecan, the theoretical ancestor of the UA language family
sg	singular
s.th.	something
SUA	Southern Uto-Aztecan, includes Piman, Opatan, Cahitan, Tbr, Trn, Corachol, and Aztecan branches
subj	subject
UA	Uto-Aztecan, a Native American language family of the languages and branches listed above
V	any/unknown vowel
v	verb
vt	verb transitive
vi	verb intransitive