

# Why Ideology Makes Bad Science: The Case of Usarufa

M. G. Meile

contact the author: [mikemeile@gmail.com](mailto:mikemeile@gmail.com)

## Abstract

Usarufa is a dialect of the Awiyaana language, spoken in the eastern highlands of Papua New Guinea. The present paper is the only discussion of Awiyaana appearing since the grammar of Bee (1973). It is shown that Bee's work, written within the "tagmemic" tradition, is an inadequate account of the language, and that this inadequacy is a direct result of the subordination of scientific principles to an ideological agenda. It is also shown that this prioritizing of ideology at the expense of science is not confined to Bee, nor to Usarufa, nor to linguistics.

keywords: Awiyaana, Usarufa, Papua New Guinea, tagmemics, ideology

For my coronavirus lockdown project I, like many people, decided to learn a new language. Unlike those embarking on Mandarin or Italian I have a glancing familiarity with linguistics, and so chose to study something more challenging for a native speaker of Common European: Awiyaana, spoken in the eastern highlands of Papua New Guinea near the town of Kainantu. The traditional Awiyaana people had an economy based on small-game hunting and small-scale cultivation of yams, bananas, and sugar cane. Their language is nominative-accusative and head-marking, with a small phoneme inventory, a simple syllable canon, an agglutinating morphology, and an OV syntax; discourse makes copious use of switch-reference markers for topic maintenance. Traditional narratives involve ghosts, domestic problems, recent history, robustly physical humor, and the world-shaping deeds of the Ancestors.

With all these things to recommend it, learning about Awiyaana language and culture sounded ideal, even idyllic. But if I had thought to escape the cacophonous world of Covid-19 and #45 with a mental trip to the quiet green hills of New Guinea I was mistaken. For in studying Awiyaana I learned less than I wanted to know about the language and more than I wanted to know about how ideology makes for bad science. It is a lesson that bears repeating, in a time of pandemic or in any other time.

All the readily available information on Awiyaana is contained in a series of chapters in *The Languages of the Eastern Family of the East New Guinea Highland Stock* (McKaughan 1973, henceforth *L*). Four languages are treated: Awiyaana (in *L* called

“Auyana”), Awa, Gadsup, and Tairora. Included are descriptive outlines of phonology, morphology, and syntax, with discussions of interrelationships and possible prehistory. Although *L* includes a brief chapter on “Auyana” focusing on the Kosena/Arora dialect (McKaughan and Marks, 181-89), the most detailed treatment is of the Usarufa dialect written by Darlene Bee (*L* 190-323, herein *U*).<sup>1</sup> There is also a list of 500+ “Auyana” words compiled by McKaughan (*L* 721-38). This list and *U* were enough, I hoped, to get me started on reading the collection of Awiyaana texts (*L* 324-400, herein *T*).

The most easily accessible source for Usarufa other than *U* is Voegelin 1965 (*V*), containing 95 examples with morphemic glosses and translations, most (though not all) of which are also found in *U*. For those who want a “pocket” overview of the language *V* is available on the internet, whereas the main part of *U*, “Usarufa, A Descriptive Grammar” (*L* 225-323) is not. Thus another reason for this paper—to make the beauties of the Awiyaana language more widely known to linguists, and to the general public.

Opening up *U* at random I quickly found much of interest. For example:

- (1) *kuyubuikaraunataanabiyo*  
*kuyubu-i-ka-ra-unata-an-abiyo*  
 sweep-3plr-OBLIQUE-AORIST-we-?-INTERROGATIVE  
 “Were we supposed to sweep for him [sic: “them”]?” [*U* 200; my analysis]

No analysis of (1) is offered. I spent many hours constructing my own grammar from the hints dropped in *U* before I could arrive at a somewhat satisfactory parse.<sup>2</sup> Yet as the “?” indicates, some of my questions were not answered: *U* made learning Usarufa more difficult than I had expected. And in trying to understand *U*’s approach to Usarufa I discovered not only why tagmemics never caught on, but why bad science is . . . well, bad.

### A long way to *ko*

My first difficulty was with the “morpheme” *ko*. To take one example among many:

- (2) *pu-ko-n-un-e*  
 die-STATIVE-FUTURE-1sing.subject-INDICATIVE  
 “I will be dead” [*V* 95, example (17), gloss as in source]

*U* describes *-ko-* as a “stative” morpheme (*U* 241), which it certainly seems to be in (2). But *-ko-* appears on nouns as well as verbs, and is described as having four allomorphs, *ko*, *go*, *ku*, and *gu*. As a noun suffix *U* sometimes translates *-ko-* as “the” and its absence as “a”:

- |      |                         |     |                           |
|------|-------------------------|-----|---------------------------|
| (3a) | <i>waa-e</i>            | but | <i>waa-ko-e</i>           |
|      | man-INDIC               |     | man- <i>ko</i> -INDIC     |
|      | “it is <u>a</u> man”    |     | “it is <u>the</u> man”    |
| (3b) | <i>waan-e</i>           | but | <i>waa-ko-e</i>           |
|      | possum-INDIC            |     | possum- <i>ko</i> -INDIC  |
|      | “it is <u>a</u> possum” |     | “it is <u>the</u> possum” |
| (3c) | <i>waar-e</i>           | but | <i>waaʔ-ko-e</i>          |
|      | noise-INDIC             |     | noise- <i>ko</i> -INDIC   |
|      | “it is <u>a</u> noise   |     | “it is <u>the</u> noise”  |
- [*U* 220, my underlining]

As well as showing the contrast between *-ko-* and its absence, (3a-c) also display the important contrast between *-∅*, *-N* and *-ʔ* syllable codas, which will be of interest later.

*Ko ~ go* appears in verbs as *ku ~ gu*:

- (4) *ibeʔ-a iraʔo yatam-ma aka-ku-ra-iy-e*  
 now-NOM good stick-NOM break-STATIVE-PAST-3.sing-INDICATIVE  
 “Now the good stick is broken” [V 102, example (45), gloss as in source]

Here *-ku-* cannot be interpreted as anything other than a stative marker. In all the examples of nouns with an infixed *-ko-* and suffixed with *-e*, the gloss is “the one who is a \_\_\_.” Thus, *-ko- ~ -go-* clearly marks definite nouns and is equivalent, more or less, to “the.” In all verbs marked with *-ku-* and suffixed with *-e*, the meaning is “be in a state of.” That is, *-ko-* refers to an entity, but *-ku-* refers to an event. Yet *U* labels both *-ko-* and *-ku-* “stative.” In (2), where *-ko-* is attached to a verb, the meaning is potentially nominal: if it is not a mis-heard *-ku-*, then (2) could actually mean “I will be the dead one.” Indicative *-e* is indifferent as to the noun/verb status of its host so in this interpretation (2) begins as the verb *pu-*, is nominalized by *-ko-*, is verbalized by *-ra-*, takes the pronominal infix *-un-* (found only on verbs), and then takes the “indifferent” final suffix *-e*. Such switching from verb to noun to verb and so on is found in many agglutinating languages; Turkish and Inuktitut come immediately to mind.

*Ko* appears frequently in *U*, often in unexpected places:

- (5) *itaigo*  
 $itaV1a + \alpha-iV + koV$   
 hear + 3 person [singular] + st[ative]  
 “hearing” [U 241, analysis as in source]

*U* tells us that “verbs or verb phrases with the stative suffix occurring after the alpha third person suffix *iV* are transformed into abstract inanimate nouns” (U 241). But why should a third person pronominal appear in this context? It would have been more parsimonious to interpret *i + ko* as a single morpheme: *ita-iko*, hear-ABSTRACT, “(the concept of) hearing.” (For “alpha third person” see below.)

And we are not yet done with *ko*. It seems *-ko- ~ -go-* can also be used as a prosodic place-holder, inserted to make a word “sound better” (or perhaps to prevent ambiguity):

- (6) *po-go-ni*  
 pig-go-GENITIVE  
 “pig’s” [U 196, n. 3]

There is no way to fit this use of *-go-* into the procrustean bed of “stative.” Yet in every place the syllable *ko ~ go* appears in a word of any type, *U* labels it “stative” without regard to its function. Had the author of *U* written a Kiswahili textbook one might find therein:

- |                              |     |  |
|------------------------------|-----|--|
| (7a) <i>sokoni</i>           | but | (7b) <i>ninakupenda</i>                  |
| <i>soko-ni</i>               |     | <i>ni-na-ku-pend-a</i>                   |
| market-LOCATIVE              |     | *LOCATIVE-PRES.CONT-2sing.obj-love-INDIC |
| “(to/in/from/at) the market” |     | *“place where someone is loving you”     |

As a suffix on nouns *-ni* derives locative adverbs. As a prefix on verbs *ni-* is the subject “I.” All Kiswahili grammars make this distinction. The Usarufa grammar of *U* does not distinguish between *ko* definite and *ko* prosodic, *ko* within a noun or *ko* within a verb, or even between *ko* and *ku*. All single syllable sequences beginning in a velar stop and ending in a back vowel are lumped together into one polysemous “morpheme”—*koV*— and labeled “stative.”

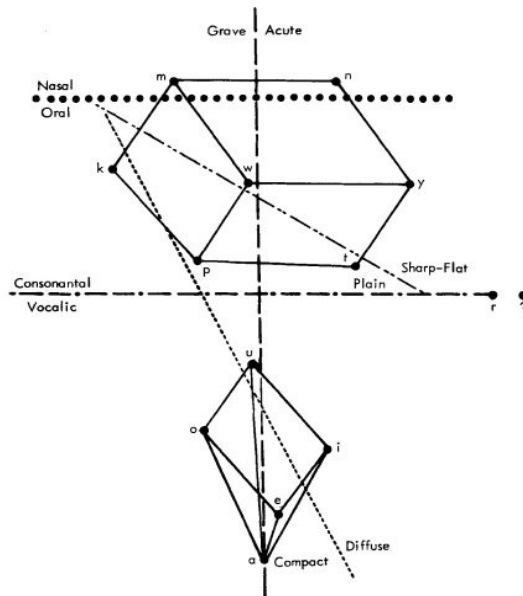
An obsession with subdividing words until every V and CV has its own semantic import (as in (5) above) is a running theme throughout *U*, and throughout *L*. One author actually refers to this practice as “submorphemic analysis” (Kerr, *L* 620.) Here is an example from *U*:

In the forms which appear in the cells of the alpha kernel matrix there are some obvious partials which can be identified with specific semantic components. For example, *u* can be identified as first person and *y* as dual. This segmentation, however, proves of little value either with reference to the other components included in the matrix or elsewhere in the grammar (*U* 256).

If this method “proves of little value” why bother mentioning it? The theoretical implications of “submorphemic” notwithstanding, this style of analysis did nothing to advance my knowledge of Awiyaana. So why does *U* underanalyze in some places (-*ko*-) and overanalyze in others (-*iko*)? The explanation came as a surprise.

### Calling Keanu Reeves

One cannot read far into *U* before encountering the Matrix. The Matrix is everywhere in *U*: the peculiar jargon of “alpha third person,” “submorphemic,” “partial,” and “*itaV1a*” is a part of this, as are the mysterious geometric forms presented at *L* 214-16, one of which is shown below.



But what *is* the Matrix?

“Matrix theory” is a specialty of the “tagmemic” school of linguistics. It is referred to repeatedly in *L*, and most especially in *U*. There are numerous descriptions in tagmemic literature of what matrix theory entails. Here is a representative sample:

By a linguistic matrix we mean a table of language elements; rows and columns represent significant properties of a structural system or subsystem; entries in the boxes of the table signal properties of the system; and—preferably—the rows and columns are ordered so as to show in the most effective way possible the relation of the semantic properties of the system to groups of entries in the table (Pike 1965, 1)

Many such tabular displays are found throughout *U*, as they are found throughout linguistic literature in general (e.g., Feist and Palancar 2021). But tagmemics makes use of such tables in a way that differs considerably from their use by most linguists. For the Matrix appears to have a *metaphysical* reality. It does not merely display data: it *creates* data, in much the same way as quantum fields create sub-atomic particles:

The extension of the matrix approach to morphological data led to the development of technological procedures for grouping together bits of material which, in a classical approach, would be seen as highly irregular. In a matrix approach some of these appeared to have other kinds of regularity. The field approach probed beneath the morphemic layer of structure, threatening the classical view of the morpheme, but re-establishing the morpheme as a special instance of a field formative. (A simple morpheme, in this view, is a vector formative, a phonological segment coming in each cell of one vector—one row or one column—of a matrix, and therefore in a one-to-one relation of phonological shape to matrix category.) Irregular morphemic systems were thereby seen in a different perspective. Irregularity, from one viewpoint, might sometimes represent regularity from another (Pike 1965, 3).

It appears the Matrix is the master pattern underlying the apparent chaos of language, the Platonic *λογος* that was in the beginning and of which speech is but a shadow cast on a cave-wall. Even native speakers cannot truly know their own tongue until a (properly-initiated) linguist has penetrated to this higher realm:

We are curious to know how many—if any—of the following sentences are possible . . . Their tentative justification or rejection can be obtained by informant elicitation. Firm judgment, however, must rest upon finding analogous sentences in running text. This checking is comparable to the standard checking, against uncontrolled text, of morphological paradigms—but is more essential for syntactic material since biased word order in sentences is more likely to be introduced by elicitation or by translation than is biased morpheme order, or occurrence, within words (Pike 1966, 46; his emphasis).

Biased word order is a common problem in elicitation: a speaker of an OV language might unconsciously switch to a VO order if the elicitation language is VO. However, Pike is not writing about translation from one language to another but about the acceptability of some linguist-created sentences in a language he is studying. Yet in his view native-speaker opinion cannot be authoritative: consultants know only the shadows, not the Matrix. In the beginning is the text, and the text is with the Matrix. It permits the “submorphemic analysis” that reveals the semantic quantum field; it permits the field to be quantized into the “vector” that is the morpheme, and the morpheme to “manifest” in speech. The Matrix is the lens through which everything in language is to be perceived.

In *U* it is a lens that brings strange visions:

- (8) *iyapoma-ima-akai-wimma*  
 [[<*iyapo*V1 + *ma*> + <*i* V1 + *ma*> + <*a-δka* + *iV*>] + <*wiN*1 + *ma*>]]  
 child + nom + neg + nom + him-put for + 3rd person + ginger + nom  
 “that which is aborted” [U 283, analysis as in source]

This is one of several “idiomatic phrases” at *U* 282-83 parsed in such a way as to foreground *U*’s tagmemic approach. The negative prefix directly followed by nominalizer *-ma* means “nothing” (*U* 307, example 5), but *akai* as a separate form makes no sense: it

is literally “his-for-he.” (*U* uses the delta sign to show that *-ka-* must be preceded by a possessive pronoun.) A translation based on the parse would be something like “a he-did-not-put-ginger-for-him child,” but *mara-*, “put,” is nowhere in evidence. A parse with a verb and without the Greek is:

- (8') *iyapoma imaakai wimma*  
*iyapo-ma i-ma-a-ka-ø-(iN)-i[?]* *wiN-ma*  
 child-NOM NEG-sit-3sing.POSS-BENEF-PRESENT-3sing-SUB ginger-NOM  
 “child [whose father] does not ‘sit(e)’ ginger for her”

The infix *-a-* represents 2/3sing before the oblique marker *-ka-* and also serves as a possessive prefix on nouns. The negative marker *i-* is distinct for tone from 3plur.object *i-* that occurs on a few transitive verbs. (*-i-* also occurs as an infix in (1), though *U* translates it “him.”) The final suffix *-i?* (“iQ” at *U* 295) is best interpreted as a switch-reference marker and not as a pronoun: (8) is a rare instance of a VO order, so perhaps *-i?* signals, e.g. that “ginger” is not the child’s name. The expression as a whole apparently refers to a ritual intended to ensure a healthy birth; the father’s failure to “sit” (set out, put out, prepare) a piece of ginger root causes the fetus to abort.

The underlying form of 3sing.subj appears to be *-iN-*, the *N* representing a morphophoneme that surfaces according to the following:

- N Allophony Rules*  
 $N \rightarrow n / \_\_ \{a\}$   
 $N \rightarrow m / \_\_ \{m\}$   
 $N \rightarrow \emptyset / \_\_ \text{elsewhere}$

So, in (8') we can postulate a derivation *-iNi?*  $\rightarrow$  *-ii?*  $\rightarrow$  *-i?*, assuming identical non-low vowels coalesce, as they appear to do throughout the examples.

However, (8') is not how the Matrix would have it. *U* describes an “alpha matrix” that accounts for all forms of subject pronominal infixes appearing in verbs. What in other descriptions would be called “allomorphs” are here assigned to “subseries.” There are no fewer than seven alpha subseries: 3sing is variously *-iN-*, *-iV-*, *-inaN-*, *-ita-*, *-ina-*, *-i-*, and *-imma*, which are labeled “ $\alpha_1$ ,  $\alpha_2$ ,” and so on. Verbal paradigms differ according to which alpha pronoun type they take, so that present tense indicative verbs take the  $\alpha_1$  series, but present tense prohibitive mood verbs take  $\alpha_3$ , and so on. The subseries are “generated” from the “alpha kernel matrix” by a set of convoluted rules (*U* 256-59).

Almost as ubiquitous as the Matrix are “classes.” These are not the overt noun classes of, e.g. Kiswahili, nor the covert animate/inanimate categories found crosslinguistically. *U* says of these “classes”:

All morphemes of the [Usarufa] language are classified as belonging to one of three morphophonemic classes (N, Q, or V). The criteria for determination of the morphophonemic class of any morpheme are types of morphophonemic phenomena which occur contiguously following that morpheme within the same word or descriptive phrase [*U* 319].

The “phenomena” defining the classes can be seen in the following examples:

- |  |   |  |
|--|---|--|
| (9a) <i>ayaatiire</i><br><i>[ayaatiiQ-e]</i><br>long-PREDICATE<br>“it is long” | (b) <i>anone</i><br><i>[anoN-e]<sup>3</sup></i><br>big-PREDICATE<br>“it is big” | (c) <i>poe</i><br><i>[poV-e]</i><br>pig-PREDICATE<br>“it is a pig” |
|--|---|--|

(9d) <i>taiʔ keiye</i> [taiQ ke-u-iN-y-e] bad CONT-do-he-GLIDE <sup>3</sup> -IND “he does badly”	(e) <i>naamma anone</i> [naaN-ma anoN-e] house-NOM big-PRED “the house is big”	(f) <i>pogoma</i> [poV-go-ma] pig-ko-NOM “it is a pig”
---	---	---

[V 91-92]

According to *U*, all rules for making words in Usarufa must refer to these three classes, and to the processes of change, assimilation and deletion exemplified in (9a-f).

The terms “assimilation” and “deletion” do not occur in *U*, however. Tagmemic methodology does not provide for rules of the form  $\varnothing \rightarrow r / V\_ V$  or  $N \rightarrow \emptyset / \_ [+stop]$ ; no such are on offer in Pike (1965), a foundational text in tagmemics. Though *U* describes the phonemes of Usarufa in feature terms (*U* 211), no use of features is made when describing the morphology. It is as if the rules for making regular plurals in English—

the regular plural morpheme is -*S*

-*S* is preceded by an epenthetic *ə* after a strident,

-*S* assimilates for voice to the preceeding segment, and

apply the above rules in the order given

—were replaced with:

English has four classes of nouns

class 1 nouns take plurals in -*s*

class 2 nouns take plurals in -*z*

class 3 nouns take plurals in -*əz* and

class 4 nouns take irregularsuppletive plurals

memorize which class a given noun belongs to and apply accordingly.

I can imagine trying to teach *mein Großvater* how to pronounce English -*z* plurals by means of “classes.” After 50 years in the US he was still devoicing word-final stops (e.g., “dock” for “dog”), though he hadn’t spoken German in decades. Teaching him tagmemics would likely not have corrected this.

The “classes” of *U* imply a syllable canon in which all syllables have an optional consonantal onset, an obligatory vocalic nucleus, and an optional coda consisting of a nasal or the glottal stop. For Usarufa *words* this is certainly correct: many end in vowels, many others in *n* or *ʔ*, none in any other consonants. But *U* then extends this observation to *morphemes*, and here we have difficulties. All morphemes in *U*’s discription, free or bound, must conform to the (C)V(N,ʔ) syllable canon. Yet such straightjacketing makes *U*’s morphological descriptions cumbersome and confusing. The parsing given in line 2 of (8) is an example of this theory-derived restriction in action; the need for seven sub-categories of pronominal infixes is another example, and the mare’s nest of rewrite rules (*U* 315-321) provides still others.

Then there is the matter of how morphemes are listed. At *U* 276 we find a verb paradigm in which the root for “go/come down” is given as “*kumoN2Ra*.” All morphemes in *U* (with a few exceptions) are listed with one or more such letter/number combinations appended; “N2Ra” is an abbreviation for “nasal class, tone group 2, reducing type a.” This is intended to show how the root interacts with other morphemes, and is similar to what can be found in discriptions of other languages. In a typical Kiswahili dictionary, for example, the entry for “a stump,” *gutu* (*ma*), indicates that *gutu* belongs to the JI-MA class and so is *gutu* in the singular but *magutu* in the plural. It also shows that *gutu*

*li-me-potea*, “the stump it<sup>JL-CLASS</sup>-has-disappeared” becomes *magutu ya-me-potea* in the plural. Without the (*ma*), *gutu* could be mistaken for an N class word such as *taa* (-), “lamp,” which takes no number marking at all on nouns and *i-/zi-* on verbs. So it seems that “N2Ra” does for the Usarufa dictionary what (*ma*) and (-) do for Kiswahili’s.

In a mainstream, non-tagmemic analysis, however, the Urarufa root for “go/come down” is simply *kum-*’. The *-o-* listed for the root is spurious: the imperative mode (and possibly others) triggers the insertion of an echo-vowel immediately after the root. (Or, to put it another way, it triggers a stem alternation.) The *-o-* seen in the paradigm results from reduction of the VV cluster formed by the echo-vowel and following *a*:

(10a) <i>kumiye</i>	but	(10b) <i>kumokao</i>
<i>kum-iN-y-e</i> <sup>5</sup>		<i>kum-u-aka-o</i> <sup>5</sup>
go.down-3sing-GLIDE-INDICATIVE		go.down-ECHO-2dual-IMPERATIVE
“s/he goes down”		“you two go down!” [U 276]

Without echo-vowel insertion *U*’s “reducing” rules for determining the presence vs absence of *-o-* are needlessly complicated and phonetically unmotivated. In a similar vein it makes more sense to see *kukaiye*, “s/he went down” as resulting from deletion of the root’s *-m-* before *k* rather than to erect an R-rule for deleting *-mo-*.<sup>6</sup> As for the *N* of “*kumoN*,” its only function is to ensure that the aorist infix with this root is *-ka-* and not *-ra-*; this is easily dealt with by having the *-m-* of *kum-* select the allomorph before the *-m-* is deleted, just what *N* does in example (15) below. The only necessary part of “N2Ra” is the numeral indicating the tone class, which can be indicated by an accent above a blank space. Rewriting “*kumoN2Ra*” as “*kum-’*” makes this verb easier to learn and use without sacrificing information. All that is sacrificed is theory.

From *V* it is apparent that the future tense marker is *-n-*. *U* lists this as *-no-* despite the final *o* making no appearance in any example: it seems the Matrix mandates that all morphemes contain at least one vowel. The allomorphy of aorist *-ka-* ~ *-ra-* is phonetically far-fetched unless *-ra-* is underlying *-ʔa-*; the rule  $ʔ \rightarrow r / V\_V$  applies in many contexts throughout the language.<sup>7</sup> Why does *U* choose *-ra-* over *-ʔa-* despite *ʔ* being a better candidate for allophony with *k*? *U* certainly recognizes the distinction between word and morpheme: in most Kainantu languages *r* and *ʔ* do not begin words (*U* 198, 222; Bee, Luff, and Goddard, p. 418), yet in Usarufa *r* and *ʔ* can begin morphemes, as *-ra-*, *-rero-*, and *-ʔo-* attest (*U* 253). Multiple layers of derivation are apparently not allowed in tagmemic theory, so surface *r* must reflect an underlying *r* unless, as in (9a) the Matrix finds it more convenient to assume surface *r* is an underlying *ʔ*.

As *ʔ* is sometimes inserted into words by rule (*U* 320), and as *ʔ* can become *r* between vowels (above, (9a)), one wonders about the status of *ʔ* as a phoneme. *U* describes clusters of *ʔ* + C (*U* 222) but does not represent them consistently; it is sometimes hard to tell if a glottal does or does not appear in a given environment. There are words that contrast for presence or absence of *ʔ*, but these could perhaps be explained, as could *ʔC*, by a [±laryngeal] prosodic feature. The unusual distribution of *ʔ* in the Amazonian language Wanano has been explained in just this fashion (Stenzel 2004: 61-63).

LaSor (1978: 97) writes: “This exercise loses its point if you fail to study the words in their contexts, their meanings, the syntax, etc. Do *not* start exegesis with a commentary.



Commentaries are thought-stoppers. Get all *you* can from the text, start your own thinking, and *then* turn to the commentaries.” LaSor is writing about interpreting the Hebrew Bible, but his advice also applies to Usarufa, if by “exegesis” we mean “parsing,” and by “commentary” we mean *U*:

- (11) *kari k-á-ka-i-na[N]-ko-ma*  
 sickness pres.cont-3sing.obj.-like-3sing.subj-one-stative-nom  
 “the one who was sick” [V 103 (48), gloss as in source]

Though *-iN-* is a valid morpheme under the (C)V(N,?) scheme, and is indeed listed as the “ $\alpha_1$ ” variant of the 3sing infix, the Matrix demands the “ $\alpha_2$ ” variant *-iV-* be used here. What triggers the allomorphy is not mentioned. At *U* 240 the morpheme *-naN* is listed as a “nominal formative” and translated “[a] being” or per (11) “one.” Another morpheme listed at *U* 240, *-na?*, is translated “person,” and makes an appearance in (19) below. Has the Matrix “manifested” these forms to create a series *naV/naN/na?* to parallel the series  $\emptyset V/\emptyset N/\emptyset ?$  in table 16 (*U* 231)? This would be consistent with the tagmemic principle of “(structural) proportion” or “pattern pressure” (*U* 205, 227, 228n3, 235). But why then would Usarufa’s grammar mark the nominal status of *kakainakoma* three times in a row? Why the present continuous prefix (normally *ke-*), or the marker of 3sing object? Why is *-ka-* glossed “like”? I could not make sense out of (11) until I had started my own thinking and worked out my own “exegesis”:

- (11') *kari ká[N]-ka-iN-a-ko-ma*  
 sickness burn-AORIST-3sing-EPENTHETIC-DEFINITE-NOMINAL  
 “the one who burns with sickness”

where *kari* without the nominalizing suffix *-ma* is functioning as an adverb: “in a sick way.”

A simple rule of epenthesis that inserts the least-marked vowel *a* (=  $\emptyset$ ) into forbidden CC sequences can account for the presence of *n* in a context where it might otherwise be absent. Retaining the *N* of 3sing in (11) would violate the prohibition on *N* + stop clusters<sup>8</sup>; deleting this *N* would result in a string *\*iko*, which could be mistaken for the ABSTRACT suffix. A parse without epenthesis is also possible using *U*’s “ $\alpha_5$ ” variant of 3sing (namely *-ina-*), the allomorphy presumably triggered by the same conditions as epenthesis. Either solution would be motivated by the tendency of words in Usarufa to be made up of CVCV strings (“pattern pressure”). But a rule of *a* insertion, along with the *N* Allophony Rules, allows reduction of 3sing allomorphs from the seven of *U* (*-iN-*, *-iV-*, *-inaN-*, *-ita-*, *-ina-*, *-i-*, and *-imma*) to two (*-iN-* and *-it-*), and so is more parsimonious.

Epenthesis can also apply to the “R-class” stems. Reinterpreting “*agayaQ2Ra*” (*U* 277) as *agay-* allows us to see (12a) as involving an epenthetic *-a-* breaking up a *\*y + n* string. But in (12b) the *\*y + t* cluster can be resolved by deleting *y* without epenthesis:

- (12a) *anon oni-?a agay-a-n-unata-e*  
 big feast-NOM cook-EPEN-FUTURE-we-INDIC  
 “We’ll cook a big feast” [V 106 (59), my analysis]  
 (12b) *aga[y]-ta-im-ma na-ra-un-e*  
 cook-PAST-she-NOM eat-AOR-I-INDIC  
 “When she cooked it I ate” [V 109 (73), my analysis]

It appears that only CC which differ in value for  $[\pm\text{resonant}]$  allow  $C_1$  to delete as in

(12b) (note *-iN-ma* → *-imma*, *U*'s 3sing of the  $\alpha_7$  series). If the CC are identical for [ $\pm$ resonant], *a* epenthesis is triggered.

In my initial quasi-grammar of Usarufa I interpreted (12a) as *aga-ya-* and viewed *-ya-* as a morpheme. Postulating a rule of *a* epenthesis made *-ya-* unnecessary in my analysis, and it is unnecessary in *U*'s. So why does epenthesis make no appearance in *U*? Because—if I understand correctly—epenthesis allows sounds to relate to one another without the mediation of the Matrix. And to the Matrix, all sounds must have meaning. Epenthetic *a* has no meaning, therefore it is forbidden by the Matrix. But not, it seems, by Usarufa.

### A Lost Tribe?

Authors throughout *L* make reference to “closely related” or “close-knit” NPs: noun + noun phrases in which the first noun modifies the second, and in which there are phonological differences between a noun inside such phrases and the same noun outside of them (Loving, 15; Bee, Luff, and Goddard, 415, 425). *U* speaks of such NPs as “descriptive noun phrases,” and defines these by their propensity to “tone perturbation”:

Within noun phrases there are two types of perturbation which occur; the perturbation of descriptive noun phrases and the perturbation of possessive noun phrases. In descriptive noun phrases all the tones of the [head] noun perturb to agree with the tone of the nominal suffix [*-ma*] dropped from the modifier, binding modifier and noun together in a phonological phrase [*U* 196].

An example of the “close” relation is seen in (4), where “good stick” is *iraʔo[N] yataN-ma*, “good stick-NOM.” Both words are nouns, yet *N*<sub>1</sub> has lost its underlying *-N* and only the second noun takes the nominalizing suffix, marking it as the head of a “descriptive” phrase. As there do not seem to be any true adjectives in Usarufa (or in Awiyaana in general) this is the only attested way to derive nominal modifiers in this language, and examples of it are numerous.

In many languages a close semantic connection between two nouns is signalled by placing the modifier noun into what traditional grammars of Hebrew call *status constructus*:

(13a) <i>bayiθ</i>	but	<i>beyθ leḥem</i>
house		house.CONSTRUCT bread
“a house”		“house of bread” (= Bethlehem)
(13b) <i>ben</i>	but	<i>ben-ey Yisraʔel</i>
son, offspring		son-CONSTRUCT.PLURAL <sup>♂</sup> Israel
“a child”		“the children of Israel”
(13c) <i>ha-sus</i>	but	<i>sus ha-yeled</i>
the-horse		horse the-boy
“the horse”		“the horse of the boy”

The construct state is also used to derive adjectives:

(13d) <i>ʔašr-ey ʔadam maʕaʔ ḥokmah</i>	
happy-CONSTRUCT man finding wisdom	
“a happy man [is he when] finding wisdom”	[Proverbs 3:13]

As these examples show, Biblical Hebrew has three methods for putting a noun into the construct state: (a), changing the root by deleting and/or changing vowels, (b) suffixation,

or (c) suppression of the definite article. The definiteness of a NP is established by the head noun; if the construct noun is indefinite and the head noun definite, the head noun takes the dative prefix *lə-* (Seow 1995, 116-17).

*Status constructus* is not confined to Afro-Asiatic. It can also be found in Austronesian languages such as Lotora, spoken on the island of Maéwo in Vanuatu:

(14a) <i>ndai</i> blood	but	<i>ndei-ŋa</i> blood.CONSTRUCT-2sing.poss. “your blood”
(14b) <i>lolo</i> middle	but	<i>lol-e imwa</i> middle-CONSTRUCT house “the middle of the house”
(14c) <i>natu</i> offspring	but	<i>ra natu-ø mwaraya</i> PLURAL offspring-CONSTRUCT snake “children of vipers”

[Ivens 1940, 681-83]

Lotora’s construct suffix is *-e* following a non-high vowel, which it deletes; high vowels take a zero allomorph. Unlike Hebrew the Lotora construct noun may take the article. The parallel of Lotora *-e* with Hebrew *-ey* is rather uncanny, though it says nothing about the Lost Tribes.

The “close” or “descriptive” N + N phrases that appear so often in *U* are construct phrases. They perform the same function—to use a noun as a modifier—and have the same effect: to bind modifier + head into a single phonological unit. Although Usarufa lacks a construct morpheme it shows alternations similar to those of Hebrew, namely, changing vowels (i.e., changing their tones), and/or shortening the construct noun’s root. The latter is sometimes done by dropping final *N* or *ʔ* after they have altered a following *C* across a word boundary just as they would across a morpheme boundary. Also, Usarufa nouns in *status constructus* do not take the ubiquitous *-ma* nominalizing suffix. Instead, the head noun changes its tones to signal the deletion of *-ma*. This parallels (13c), in which the absence of *ha-* signals the presence of a construct relation. Finally, the scope of a construct noun in both languages is phrasal: “Perturbation between phrases has not been observed” (*U* 194).

Table 1. Tone perturbation in Usarufa construct phrases

	<i>nammá</i> , “house”	<i>póma</i> , “pig”	<i>wayúkama</i> , “person”
<i>wayáN-ma</i> , “white thing”	<i>wayán nammá</i>	<i>wayá póma</i>	<i>wayá káyúkámá</i>
<i>netuʔ-a</i> , “many things”	<i>netuʔ namma</i>	<i>netuʔ póma</i>	<i>netuʔ wáyúkámá</i>
<i>taí-ma</i> , “bad thing”	<i>taí namma</i>	<i>taí poma</i>	<i>taí wayukama</i>

[*U* 196, with *ʔ* for *q*]

*Status constructus* is best known from Afro-Asiatic, whence it appears to have spread to neighboring but unrelated Nilotic languages such as Gumuz (Ahland 2012, esp. chap. 6). One might speculate that a *Sprachbund* like that of the northern Great Rift Valley once existed in New Guinea. Speakers of Austronesian and New Guinean languages have intermingled for millenia, and the construct phrases seen in Lotora and Awiyaana may have descended from a common source, though not a common ancestor.

A counterexample to the construct hypothesis for Usarufa is

- (15) *naamma ano keiye*  
*naaN-ma anoN ke-[u]-i[N]-y-e*  
house-NOM big CONTINUOUS-do-3sing-GLIDE-INDICATIVE  
“The house is big” [V 98, (31)]

Here *anon* has lost its final consonant though it is not a part of a N + N phrase. Yet the connection between *ano* and *keiye* could still be called “close,” as *ano* is functioning as an adverb (as *kari* does in (11)) and so is a “closer” part of the VP than is *naamma*.

Why does the grammar of *U* fail to recognize the existence of *status constructus* in Usarufa? Granted, the parallel is not exact. Still, it seems to me the tagmemic description not only fails to detect this parallel between Usarufa and Hebrew but actually *hides* it. Is *U* hiding it on purpose? This is almost certainly not the case. Rather, *U*’s author, Darlene Bee, is in a hurry. Writing a grammar of Usarufa is not the real reason she is in New Guinea, and the real reason leaves her no leisure to compare a language of Kainantu and a language of Canaan. What her real work was we will learn shortly. Let the reader prepare for tragedy.

### Objection

Here (if not earlier) the reader may object: *U* was written a half-century ago. The language it describes has played no role in the great debates about, e.g., canonical ergativity or syntactic recursion played by, e.g. Dyirbal or Pirahã. The differences the present author has with *U*’s analysis are very much water under the bridge, if not mere nit-picking. Why then was the present work written?

If my only problems with *U* were that it is composed in a cumbersome, unfamiliar style or from an out-dated perspective, these objections would be quite valid and this paper would not be worth the reader’s time. A publication from 1973 can hardly be expected to follow the Leipzig glossing rules, or to be a part of the Minimalist project. But I have a more serious nit to pick with *U* than quibbles over style or perspective. Rather, the problem is that *U* contains “foots”—and “foots,” in this context, are . . . well, *bad*.

### War in Heaven

In linguistics as in relationships, sometimes a single word can call everything into question. In *U* that word is *wiyopa*. In the “Auyana” word list at *L* 735 (taken from the Kosena/Arora dialect) this word appears in its nominalized form *wiyompaʔ-a* and is glossed “sky” (*-ma* → *-a / ʔ\_\_*). The root is clearly *wiyoN*, but what does this root mean? *V* glosses *wiyoN* as “moon”:

- (16) *wiyomma ano kiyomma*  
*wiyoN-ma anoN wiyoN-ma* (w → k / N\_\_)  
moon-NOM big moon-NOM  
“The moon is [a] big [one]” [V 94, (14), my reading in brackets]

In a text in Kosena/Arora, “Victory over a spirit,” we find *wiyomba* (= Usarufa *wiyomma*) in a description of a moon-lit landscape, an appropriately spooky setting for a ghost story:

- (17) *paʔa wiyomba kowana mena*  
*paʔ-a wiyoN-ma ko-wa-na ma-iN-na*  
place-NOM moon-NOM go-PAST-SUB sit-3sing-SUBORDINATE

[“it was a place where the moon went sitting”]  
“at this place it was light from the moon”

[T 381, 384, my reading in brackets]

It seems safe to say that the root *wiyoN* means “moon,” and the meaning “sky” is a semantic extension (though one new to a language might easily mistake “moon” for “sky,” or vice versa). Voegelin’s gloss “the moon is big” in (16) is elliptical: both phrases end in nominalizer *-ma*, making this an equative sentence composed of two noun phrases linked by a  $\emptyset$  copula.

The question now arises: is *wiyopa* a word? At first glance the answer is “yes”: *wiyopa* is a compound of *wiyoN* and the suffix *-pa(?)*, “place.” Under the rules described in *U*, *wiyopa* is perfectly “legal.” But that doesn’t make *wiyopa* a word of Usarufa.

The question gains significance in light of the most important discovery of the Chomskyan revolution: those who would know the kingdom of speech must let little children lead them. For example: at some point before her third birthday a child may learn that the thing on the end of her leg is called a “foot.” She also discovers that it doesn’t matter how many of them there are, because those annoying big people will tickle them anyway. Eventually she learns that if you own more than one foot the collectivity will be called “feet,” and that using this word brings smiles to the elders.

But not for long. For after hearing the names of many objects with “-s” attached our child concludes that the correct term for a plurality of feet is “foots.” And this is the word she will employ despite the big people irrationally persisting in their use of “feet.” No amount of role-modeling, operant conditioning, or smash-cakes will dislodge “foots” from her vocabulary until —after a brief fling with “feets”—she deigns to humor her elders by using “feet.”

“Foots” is a classic argument for making a distinction between words that *can* exist and those that actually do. “Foots” is perfectly regular, perfectly understandable, yet is not found in the lexicon; no competent speaker will accept “foots” as a valid word of English. So: is *wiyopa* a “feet” or is it a “foots”? More *wiyoN* words may help us decide:

- (18) *wiyokaka*  
*wiyoN-ra?-waN*  
heaven-LOCATIVE-creature  
“caterpillar”

- (19) *wiyopakenna*  
*wiyo[N]-pa?-keN-na[?]*  
heaven-place-from-person  
“angel or spirit being”

[U 241, glossed as in source]

From these examples one might conclude that in Awiyaana thought “moon,” “sky,” and “heaven” are interchangeable. And if we take “caterpillar” to be a misunderstanding for “butterfly,” (18) would represent a remarkable convergence of thought: butterflies were regarded among the ancient Greeks as spirits of the dead. But the land of the dead for the traditional Awiyaana (as for the ancient Greeks) was *underground*. This belief makes the status of (19) highly suspect.

Throughout *T* the spirit word of PNG’s eastern highlands is depicted as lying down rather than up. Spirits emerge from water, from valleys, from caves, and even out of rocks, but they never descend from the sky. There is one tale in which a character goes

upward to meet the spirits (*T*, 385-89), one of two tales in which *wiyon* appears in an indigenous Awiyaana text ([17] appears in the other). The word describing the protagonist's destination is first *wiyom̐ba*, then *wiyom̐pa*, and finally *kwiyoomp̐a?* (*T* 386, lines 8, 9).<sup>9</sup> McKaughan, the collector and transcriber of the story, renders all three words as “heaven,” though the region depicted makes it plain that “sky” is a better gloss. The protagonist follows a possum up a tree and finds a hole in “heaven.” Crawling through it he meets a mysterious old woman and her husband—his dead grandfather. He then accidentally kills his own brother, over whom he delivers a noble lament. A third of the tale is taken up with describing the feast the man throws in honor of the slain, so perhaps what we have here is a myth concerning the origin of funeral rites. Nowhere are the elderly sky-couple identified as *wiyopakenna*.

The only spirit beings mentioned in *T* are called *mani*[?]-*ko*. Like figures in similar tales from around the world *maniko* are shape-shifters, by turns spirit, human, and animal, and like the Dreamings of Australia they are responsible for the way the world is now. Unlike the *αγγελοι* of the New Testament they are morally ambiguous, like to eat pork, and do not bear messages.

- (20) *manikaiko iyaankaafaya koi kamban ...*  
*mani-kai-ko iyaankaapaya koi kamban ...*  
*mani-DUAL-DEFINITE snake with bat ...*  
 “Two Ancestors, a python and a bat ...” [ *T* 325, line 4]
- (21) *manikoma kurai aempa mifanko aawiya wena ifako*  
*mani-ko-ma ku-ra-i a-em-pa miN-pan-ko Auyana wa-iN-na i-pa*[?]-*ko*  
*mani-DEFINITE-NOM go-AOR-SUB its-down.there-place this-PLACE-DEFINITE*  
*NAME be.at-3sing-SUB their-place-DEFINITE*  
 ‘Ancestor he-go along-here this-place it-is this-place’ [ *T* 331, line 82]  
 “The Ancestor went along at this very place, the place of the Auyana people”
- (22) *mi sewa?o isaraundani mani?a*  
*miN sewa?-o isa-ra-un-na-ni mani?-a*  
*this story-FOCUS hear-AOR-I-SUB-? mani-NOM*  
 ‘this story I-heard old-folks’  
 “this is a story I heard about the Ancestors” [ *T* 380, line 47]

Occasionally McKaughan translates *mani-* as “old folks,” as in (22). Perhaps “Old Ones” is a better rendering, capturing both the ancestral quality and the venerability that is proper to such beings, even when doing things worthy of North America’s most prominent *mani?a*, Coyote.

Places of are extreme importance in all the traditional tales in *L*. The frequently-occurring suffix *-pa*(?) marks this in Awiyaana:

- (23) *awiyaana maniko awiyampa? mena*  
*awiyaana mani-ko awiyan[a]-pa? ma-iN-na*  
*Auyana ancestor-DEF Auyana-place sit-he-SUBORDINATOR*  
 “The Auyana Ancestor was [sitting] at the Auyana [origin] place”  
 [ *L*, 352; my analysis and translation]

The frequent use of deictic markers in narrative is something Awiyaana speakers have in common with Indigenous peoples elsewhere, even in English translation (see, e.g. the Dyirbal-influenced English of Walter Cannendo in Meile [in progress]). It would not be

surprising if, when looking for a way to translate “heaven” as opposed to “sky,” the translator would have recourse to *-pa(?)* to represent the home of the *wiyopakenna*. But how do we know if *-pa(?)* in *wiyopa* is or is not of the same status as the “-s” in “foots”?

We don’t. There is good reason to believe that *wiyopa* and *wiyopakenna* are words of the “foots”-type: constructable given the rules (or at least, *U*’s rules) but nonexistent in the lexicon. This despite the wish expressed in *U*’s intro: “It is hoped that the central core of patterns and rules given here will enable the non-Usarufa speaker to generate an infinite number of grammatically correct Usarufa utterances” (*U*, 226). “Grammatically correct” they may be, but if they are not in the lexicon they are not words of Usarufa, anymore than “foots” is a word of English. But other than express suspicion, and frustration<sup>10</sup> with promises unkept, I can’t judge the status of *wiyopa*, or other suspect constructions such as *tirumma keitaiye*, “I believe,” *tiyamma tagaguraiye*, “I am enlightened” (*U* 289), or *anoniboa?na*, “giant” (literally “big-initiated-being” = the *nāphīlīm* of Genesis 6:4?) (*U* 240). I have no Usarufa speakers on hand to provide me with a final judgement, and the grammar of *U* won’t let me make any judgement, final or otherwise.

Linguists have been known to make up words to make a point. Take the famous

- (24) *mamilhapinatapai*  
*mam-ilhapi-na-ta-pai*  
RECIPROCAL-awkward-STATIVE-CAUSITIVE-DUAL  
“the two of them make each other feel awkward.”

[Bridges 1987, p. xix, my parse]

The *Guinness Book of Records* used to list this as “the most succinct word” in the world, on the basis of the translation “looking at each other hoping that either will offer to do something which both parties desire but are unwilling to do” (Matthews and McWhirter, 1993, p. 392). (24) is found in Thomas Bridges’ introduction to his *Yamana-English Dictionary*, but not in the dictionary itself. When Doña Cristina Calderón, the last native speaker of what is now called Yagán, was presented with (24) she did not recognize it as a Yagán word (Bitong 2018). Thus it is likely that Bridges did not obtain *mamilhapinatapai* from a consultant but made it up on his own.

Why? It seems that Bridges wanted a word that would impress his intended audience with the intelligence of the Yagán, a people whom Darwin had famously slandered. Bridges wanted to demonstrate that the Yagán language was as complex and sophisticated as Latin or Greek and so, by implication, that Yagán culture was worthy of (White peoples’) respect. Although he had gone to Tierra del Fuego to convert the “heathen,” Bridges saw the Yagán language not only as a tool for Bible translation but as a something worthy of preservation in its own right. He spent decades compiling his *Dictionary*—which he wrote out with a quill pen—and which in print runs to 664 double-column pages and 30,000+ entries—and that’s just the Yagán-to-English half. (The pdf, fortunately, is searchable.)

Who among the Usarufa needed a word for “angel”? Perhaps someone had heard rumors of the White peoples’ spirit-messengers and so coined a word for sky-dwelling *mani?a*. But perhaps it was someone else: a White outsider who found Usarufa’s vocabulary insufficient for their purposes, someone whose reason for studying a little-

known and fascinating language was not unlike that of the Rev. Bridges: to whip a little Gospel on the “heathen.” And in the case of Usarufa it is not hard to guess who that word-maker was.

On 7 April 1972 Dr. Darlene Bee was killed in a plane crash while returning to PNG to continue her work with the Usarufa. May she rest in peace. But in the wreckage of the plane searchers found her last work: a manuscript translation of the Gospel of John. There is now a full Usarufa translation of the New Testament (Wycliffe Bible Translators 2015). It is obviously a labor of love and a labor of years. But is it a labor of science? Is the translation based on the Koine Greek original? Neither English nor Usarufa possesses an equivalent to the neo-Platonic technical term *λογος*, which is rendered in Usarufa as in King James by *aagoma*, “word.” There is also a partial translation of Genesis in Kosena/Arora (Marks 1979). This too is unlikely to involve any knowledge of the original. If the translator had been familiar with Hebrew would she not have noticed *status constructus* in Awiyaana? Such a parallel could not fail to stir the heart of a linguist, though a missionary might lack the leisure, or the motivation, to be so moved.

To their credit the missionaries who assembled *The Languages of the Eastern Family* made no secret of their motives. In his preface to *L* the volume’s editor writes:

The assistance of the New Guinea Branch of the Summer Institute of Linguistics is gratefully acknowledged. The objectives of this organization include research of the lesser-known languages of the world in order to prepare literary materials, translated documents of educational and cultural interest, technical linguistic descriptions of all kinds, and translations of the Scriptures (*L*, xiii).

That the last shall be first is revealed by the biographies of the contributors: of the 18 authors included in *L*, seven (C. Frantz, Glasgow, Hotz, Marks, both Oatridges, and Stringer) were educated at religious institutions and studied linguistics only at SIL. Another six (Goddard, both Lovings, Luff, both Vincents) had secular educations and came to linguistics only through SIL. Only three authors (Bee, Healey, and McKaughan) came to SIL after studying linguistics elsewhere. Kerr took a doctorate in agriculture before joining SIL. The educational background of Marjorie Franz is not mentioned.

The Summer Institute of Linguistics has produced many fine linguists (e.g., Barnes 1984), who are often the major sources for endangered languages (e.g., Jacobsen 1962). But setting *L* against, say, *The Dyirbal Language of North Queensland* (Dixon 1972) makes for an unflattering comparison. RMW Dixon went to the field to describe a language; the authors of *L* went to prescribe an ideology. Dixon learned from multiple consultants whose personalities he vividly evokes; *L*’s authors mention theirs only in passing (Loving and Loving, p. 19 n. 1; Franz and Franz, p. 406 n.1; Vincent, p. 530; Vincent, p. 625). Bee does not name her consultants nor tell us anything about them other than that “five adult males” participated in a pilot literacy class (*U* 208). Why “adult males” and not “men”?

Dixon used the best practices of his day: *The Dyirbal Language* was one of the first works to apply transformational grammar to an understudied language. The scholars of *L* use techniques unique to their clique. Like Bridges, Dixon saw his object of study as a thing worthy in itself; Bee and McKaughan, the lead contributors of *L*, evince little concern for the beauties of Awiyaana and its congeners and even less for the cultures that speak them. Indeed, McKaughan on more than one occasion presents us with traditional



stories while remarking, e.g., “the compiler believes the texts will prove of content interest as well as linguistic” (*T* 325) or “I leave further comment on [Awa] customs to the ethnographers” (*T* 89). It is as if he had never heard of Hockett’s Dictum—and Hockett is cited in *L*’s bibliography!<sup>12</sup> Dixon’s work gives us carefully parsed texts that open a window on a fascinating language and culture. The texts in *L* have been compiled in haste, contain many inconsistencies, and are hardly parsed at all. Still, they do open a window on a fascinating culture—if the reader can endure the disorganized, confusing, and occasionally misleading translations.

I am making here a very unfair comparison. Dixon is a world-class linguist, whereas Bee had the commitment to become one had she escaped the hand of fate—and the Matrix. Comparing her with the other contributors of *L* is difficult: her contributions are the most wide-ranging, but also the most committed to tagmemic theory. All the chapters in *L* must be “translated” from tagmemics to more mainstream models to be useful to a linguist of today. It is impossible to say how many “foots”s are lurking there.

And the Matrix may yet be with us. Recommendations in *L* that field linguists make judgements based on their own “intuition” (*U* 208; *L* 589) find an uncomfortable parallel in Daniel Everett’s work on Pirahã (Everett 1986, p. 227, 274, 280, 300). The one published text in that language (?Ahóápati 1980) is parsed by Everett in a manner strongly reminiscent of “submorphemic analysis.” He began his fieldwork as an SIL missionary; “tagmeme” does not occur in Everett 1986, but “syntagmeme” occurs 12 times in its 125 pages. Though Everett eventually rejected Christianity (Colapinto 2007), a certain disdain for the Pirahã people, a feeling that they are “primitive” does not seem to have left him, as his “Immediacy of Experience Principle” attests (Everett 2007; see also Nevins et al, 2007; Rodriques 2019; Meile in progress). Everett comes to his data with assumptions similar to those of Bee et al.: to wit, that there is some metaphysical marvel hiding in Pirahã that only the elect can perceive. Are there “foots” in his work as well?

How many minority languages are concealed behind researchers’ personal agendas? What might this concealment mean for people who, like Israelis, are trying to connect to an ancestral culture through an ancestral tongue? Although Awiyaana does not appear to be endangered (according to SIL: see Eberhard, Simons, and Fennig 2020), the inroads made by Tok Pisin are apparent throughout the texts.<sup>11</sup> How long will it be before the Awiyaana people are manipulated (or compelled) into abandoning their native language as it appears they have already abandoned their religion? And what happens if, at some point in the future, they want their language (or religion) back? As Israeli Hebrew proves, a desire to return to roots can smolder in the hearts of a people for centuries. *U* is most of what the world is likely to ever know about Awiyaana. By presenting a theory-driven rather than a data-driven grammar Bee may well have doomed the language—and the culture it encapsulates—to irretrievable extinction. And that is *bad*.

Of course scholars cannot eliminate all “subjective” biases from their work. But it is reasonable to expect them to hold personal agendas in abeyance until the data (and the consultants!) have had a fair chance to express themselves. Darlene Bee did not do this. And because she did not, it is likely I will never learn as much of Awiyaana language and culture as I would like. But my disappointment is nothing compared to the potential loss suffered by the Awiyaana, and by the rest of the world.

## Coda

We have all learned to our cost the dangers of “ignoring the science” during a pandemic. We have seen ideologues claim that a few hours on a fringe website count for more than years of study and sacrifice in the groves of academe. But those spreading rumors about ivermectin, 5G, or demon sperm are clearly not scientists—though they may don lab coats for the camera. These keyboard warriors can seem more menacingly influential than they really are: it takes little expertise to debunk claims about injecting one’s veins with bleach. And as for claims that demons spread disease, what is false as science can be true as metaphor.

But we have also seen actual experts in their respective fields producing works that do not meet scientific standards. It is distressing to see someone spend years of real study and sacrifice only to claim that a certain language of Amazonia has no syntactic embedding, or that a certain language of Papua New Guinea is a product of the Matrix. And as the lamentable “Pirahã controversy” has repeatedly demonstrated, ideology masquerading as expertise can circulate for decades in the general community despite repeated debunkings by scholars who happen to have no YouTube presence (Nevins et al., 2009; Rodrigues 2019). Perhaps I will have the good fortune to meet some speakers of Usarufa some day, and to learn from them things Darlene Bee’s work on their language cannot tell me—because it really isn’t about Usarufa at all.

## Takeaways

1. Linguistics should be conducted in a way that allows anyone willing to make the effort the ability to pick up a grammar and read/speak.
2. “Science” is not an ideology but a toolkit for investigating the world, its ultimate goal the achievement of dispassionate knowledge. Human beings may never attain such a goal, but it is nonetheless worth pursuing.
3. Philosophical debates about the nature of language and how it is acquired should be conducted with great care, as such debates may have real-world significance.

## Notes

<sup>1</sup>*U* refers to Usarufa as a “language,” but it shares 82%+ of its basic vocabulary with Arora/Kosena, and with another dialect, Asempa (*L* 709). It seems best therefore to call Usarufa a dialect and Awiyaana a language.

<sup>2</sup>Although Awiyaana has contrastive tone I mark it here only when necessary for the argument, as in the discussion of *status constructus* below.

<sup>3</sup>*L* uses “Q” as a class label and “q” to represent the glottal stop. Use of “q” or “x” for “?” was common practice in the days of manual typewriters, especially within the school of linguistics in which the author of *U* was trained (more discussion below).

<sup>4</sup>Note *anoN-e* → *anone* in (9b) but *-iN-e* → *-iye* in (9d). Contrary to the labeling in *U*, indicative *-e* and predicative *-e* are discrete morphemes, the indicative deleting a preceding *N* and the predicative retaining it. Another morpheme that deletes a preceding *N* is *-o- ~ -u-*, “inside a bounded location,” seen in *naa[N]-u-paʔ-a*, “[the] inside [of the] the house” (*U* 269; *V* 101, example [39]). For *-iN-e* → *-iye* see note 5 below.

*N* and *n* appear to be distinct. *N* of 3sing is deleted before indicative *-e* (as in example (9d)), but 1sing *-un-* does not lose its final nasal before this suffix (example (2)).

<sup>5</sup>“All vowel sequences occur except *ie*, *iu*, *uo*, and *uu*” (U 202). Two of these VV always appear as *iye* and *uwo* in the examples (there is one instance of *owo* at U 276). We may postulate a rule that inserts an underspecified semivowel (“GLIDE”), feature-spreading then producing *\*ie* → *iye* and *\*uo* → *uwo*. Optimality Theory could perhaps explain GLIDE and *a* epenthesis as a single process similar to *y* and *ʔ* epenthesis in Washoe (Staroverov 2016). In the frequently-occurring examples of *-iN-e* → *-iye*, the *N* has been deleted by the indicative marker *-e* (see note 4).

The rule reducing VV containing a high vowel is commutating: *u + a* and *a + u* both → *o*; *i + a* and *a + i* both → *e*. See Parks (2008) pp. 21-22 for similar rules in Pawnee.

<sup>6</sup>Class R verbs are those which, “in a number of verbal constructions . . . are reduced by the loss of their final syllable.” All stems of this group, which crosscuts the N, Q, and V “classes,” have C<sub>2</sub> or C<sub>3</sub> that are neither *n* nor *ʔ*, and end in (random?) vowels: other examples are *akate*, “break”; *agaya*, “cook”; *ikamo*, “hit,” and *puyo*, “die” (U 249-250).

<sup>7</sup>The status of *r* throughout the languages described in *L* is complex. U 211 defines *r* and *ʔ* as [+vowel] ; *r* is [+consonant] but *ʔ* is, oddly enough, [−consonant]. Perhaps this is *U*’s way of representing the [laryngeal] prosodic feature that Stenzel (2007) suggests for Wanano.

<sup>8</sup>This is true of the Usarufa dialect but not of Kosena/Arora, in which nasal + voiceless stops are common (Marks and McKaughan 1973; T 325ff.). Kosena/Arora *mb* and *nd* are unitary phonemes, having arisen recently from the clusters *-mm-* and *-nn-*, which are preserved in Usarufa.

<sup>9</sup>The digraph *kw* represents a unitary phoneme in Kosena/Arora, and is usually found as *w* in Usarufa. In the Awiyaana Genesis (Marks 1979) the King James Version’s “heaven” is glossed “*kwiyomba*,” underlying *kwiyoN + ma*.

<sup>10</sup>I am not alone in expressing frustration. The only comment I could find on social media regarding tagmemics was this post on Reddit from OGodILoveLinguistics:

What exactly is tagmemics? Why does it seem like a dead fad? I’m reading a grammar of a Central American language written via tagmemic theory, and I just have *no* idea what I’m looking at. I’m trying to learn it, but it seems like such an obscure framework that I don’t know whether I should bother.

<sup>11</sup>Examples include *tokparesi* for TP *tokples*, “language,” (T 359) and *pinis(i)/finis(i)* “finished” (T 331, 336, 356, 366, 372). Strangely, the Tok Pisin word translating Usarufa *amara*, “his/her relative,” is in the parsings rendered “one talk” (T 382, 383, 384, 388). This is plainly TP *wantok*, “someone who speaks the same language, is of the same nationality, is a neighbour, has something in common with you, or is a friend” (Hunter 1986). It is odd that a researcher could spend a year or more in PNG (L vii-viii) and not recognize the word *wantok*.

<sup>12</sup>And the content can be quite marvelous. In one tale (T 374-77) an Ancestor (spelled *mbani?a*) loses his testicles, which an old woman accidentally eats, leading (somehow) to the creation of bananas. In the ghost story alluded to above (T 381-85) we are treated to a horde of zombies, a grisly though helpful snake, and the PNG equivalent of an Ent.

## Works Cited

- Ahland, C. A. (2012). *A Grammar Of Northern And Southern Gumuz*.  
[https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/12559/Ahland\\_oregon\\_0171A\\_10546.pdf](https://scholarsbank.uoregon.edu/xmlui/bitstream/handle/1794/12559/Ahland_oregon_0171A_10546.pdf), retrieved 27 Sept 2021.
- ?Ahóápati (1980). "Killing the Panther." Translation by D. Everett. <http://www.wjh.harvard.edu/~pal/pdfs/Projeto-Tycho/panther.pdf>, retrieved 20 October 2019.
- Barnes, J. (1984). "Evidentials in the Tuyuca Verb." *International Journal of American Linguistics* 50 (3), 255-271.
- Bee, D. (1973) "Usarufa Tone and Segmental Phonemes," "Usarufa Distinctive Features and Phonemes," and "Usarufa: A Descriptive Grammar." In McKaughan 1973, 190-323.
- Bee, D., Luff, L., and Goddard, J. (1973). "Notes on Agarabi Phonology." In McKaughan 1973, 414-423.
- Bitong, A. (2018). "Mamihlapinatapai: A lost language's untranslatable legacy." *UUC News*, 3 April.
- Bridges, T. (1987 [1933]). *Yamana-English Dictionary*.  
<https://ensayostierradelfuego.net/wp-content/uploads/2016/04/YAMANA-ENGLISH-A-DICTIONARY-OF-THE-SPEECH-OF-TIERRA-DEL-FUEGO-Rev.-Thomas-Bridges.pdf>, retrieved 14 September 2020.
- Colapinto, J. (2007). "The Interpreter." *The New Yorker*, April 16, 119-137.
- Eberhard, D.M., Simons, G.F., and Fennig, C.D (2020). *Ethnologue: Languages of the World*. Dallas: SIL International.
- Everett, D. (1986). "Pirahã." In Derbyshire, D. C., and Pullum, G. K., eds. (1986). *Handbook of Amazonian Languages, Vol. 1*. Berlin: Walter de Gruyter.
- Everett, D. (2007). "Cultural Constraints on Grammar in PIRAHÃ: A Reply to Nevins, Pesetsky, and Rodrigues (2007)." <https://ling.auf.net/lingbuzz/000427>, retrieved 27 September 2020.
- Feist, T., and Palancar, E. L. (2021). "Paradigmatic restructuring and the diachrony of stem alternations in Chichimec." *Language* 97 (1), pp. 1-41.
- Franz, C., and Franz, M. (1973). "Gadup Phoneme and Toneme Units." In McKaughan 1973, 406-13.
- Hunter, J. (1986). *Papua New Guinea Pidgin phrasebook*. South Yarra, Victoria, Australia: Lonely Planet.
- Ivans, W.B. (1940). "A Grammar of the Language of Lotoria, Maewo, New Hebrides, Melanesia" *Bulletin of the School of Oriental and Africa Studies* 10: 3, 679-98.
- Jacobsen, W. H. (1964). *A Grammar of the Washo Language*.  
<https://escholarship.org/uc/item/52c6q7hg>, retrieved 9 October 2020.
- Kerr, H. (1973). "Subject Morphemes in the Tairora Verb Complex: Obura Dialect." In McKaughan 1973, 598-624.
- LaSor, W.S. (1978). *Handbook of Biblical Hebrew*. Grand Rapids, MI: Eerdmans.
- Loving, R. (1973). "Awa Phonemes, Tonemes, and Tonally Differentiated Allomorphs." In McKaughan 1973, 10-18.
- Loving, R., and Loving, A. (1973). "A Preliminary Survey of Awa Noun Suffixes." In McKaughan 1973, 19-30.

- Marks, D. (1979). *Písóigoni kísau-waasiti waasái: Selected scripture verses: Awiyaana language*. [https://archive.org/details/rosettaproject\\_auy\\_gen-1](https://archive.org/details/rosettaproject_auy_gen-1), retrieved 26 September 2020.
- Matthews P. and McWhirter, N. *Guinness Book of Records 1994*. Retrieved 05/20/2011.
- McKaughan, H., and Marks, D. (1973). “Notes on Auyana Phonology and Morphology.” In McKaughan 1973, 181-189.
- McKaughan, H. (1973). *The Languages of the Eastern Family of the East New Guinea Highland Stock*. Seattle: University of Washington Press.
- Meile, M.G. (in progress). *The Cunning Linguist: Linguistics for Mature Audiences Only*.
- Nevins, A.; Pesetsky, D.; and Rodrigues, C. (2009). “Pirahã Exceptionality: A Reassessment.” *Language* 85 (2), 335-404.
- OGodILoveLinguistics (2018). “What exactly is tagmemics? Why does it seem like a dead fad?” [https://www.reddit.com/r/linguistics/comments/9d9f2q/what\\_exactly\\_is\\_tagmemics\\_why\\_does\\_it\\_seem\\_like\\_a/](https://www.reddit.com/r/linguistics/comments/9d9f2q/what_exactly_is_tagmemics_why_does_it_seem_like_a/), retrieved 20 September 2020.
- Parks, D. (2008) *A Dictionary of Skiri Pawnee*. Lincoln: University of Nebraska Press.
- Pike, K. (1965). *Tagmemic And Matrix Linguistics Applied To Selected African Languages*. Ann Arbor, MI: Center for Research on Language and Language Behavior.
- Rodrigues, C. (2019). “ ‘High scientific standards,’ control, and Everett and Gibson’s review of *Recursion Across Domains*.” <https://ling.auf.net/lingbuzz/004928>, retrieved 27 Sept. 2020.
- Seow, C.L. (1995). *A Grammar for Biblical Hebrew*. Nashville, TN: Abington.
- Staroverov, P. (2016). “Washo Onsets and the Revised Sonority Theory,” *Open Linguistics* 2: 471–499. DOI 10.1515/opli-2016-0025.
- Stenzel, S. (2004). *A Reference Grammar Of Wanano*. [http://www.etnolinguistica.org/tese:stenzel\\_2004](http://www.etnolinguistica.org/tese:stenzel_2004), retrieved 25 November 2019.
- Vincent, A. (1973). “Notes on Tairora Noun Morphology.” In McKaughan 1973, 530-46.
- Voegelin, F.M. (1965). “Languages of the World, Indo-Pacific Fascicle Five,” *Anthropological Linguistics* 7: 9, 90-114. <https://files.eric.ed.gov/fulltext/ED010365.pdf>, retrieved 5 October 2020.
- Wycliffe Bible Translators (2015). *aúgen-anona-anon-aimma: Genesis 12-22 and the New Testament in the Usarufa language of Papua New Guinea*. <https://ebible.org/pdf/usa/>, retrieved 5 October 2020.

#