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TAMARANGI

- 103 Kō te tangata te ra nana i tēnīhanga a Nīnē-mui te po.
Māi kōna te tēnīhanga tō e Māui tikitiki, kore e
te tangata, ake, ake, ake.
- 104 Kī ta te pakaha tīhanga. no te tīhakaaro kore o tīrī rā.
Kīhāi i māhara, kua hanga rana kī te te orcone a
nawā ora e te tūna na rōto atu i te putā o tōia tū
tētahi rakan i wānanga i ana rakan kātōa, k
kamanawānūtanga kī te kīno, te rekanga kī te
105 Tena i te putanga māi o Hātana i te ahua o t
ana rana kī ana kīpū. a kī noa iho rana

THE NORTHERN OUTLIERS-EAST POLYNESIAN HYPOTHESIS EXPANDED

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The Northern Outliers–East Polynesian (NO-EPn) Hypothesis proposes the Northern Polynesian Outliers, especially the Central Northern Outliers, to be the homeland from which East Polynesia was settled. A considerable body of linguistic evidence has accumulated in support of the NO-EPn Hypothesis (Wilson 1982, 1985, 2012, 2014). That evidence has been evaluated as well supported by experts in Oceanic historical linguistics (Blust 2013: 724; Geraghty 2009; Marck 2000: 1–3, 129; Pawley 1996: 406). Provided here is an overview of previous and new evidence for the Hypothesis and against the common assumption that East Polynesia was settled from the Tonga–Sāmoa area (Kirch 2017; Montenegro *et al.* 2016; West *et al.* 2017; Wilmschurst *et al.* 2011). Added to the NO-EPn linguistic tree is a new Southeast Solomons Outlier–East Polynesian subgroup encompassing all previous languages covered by the Hypothesis as well as new ones in the Southeast Solomon Islands. Supporting evidence from natural history, ethnology and biological anthropology is provided. The possibilities of extensive borrowing and bifurcated settlement explaining the data are considered and shown to be untenable.

THE LOCATION AND SUBGROUPING OF THE NORTHERN OUTLIERS¹

Among the Polynesian languages listed in Table 1, the Northern Outlier languages (NO) are quite small. Yet within the NO-EPn Hypothesis, they are important as the point of origin of the initial settlers of the huge East Polynesia region.

Figure 1 is a map of the Polynesian Outliers with geographic groups circled. The Northern Outliers (NO) are circled and contain three smaller, more tightly associated groups. At the far north are the Carolinean Outlier languages (CO): Nukuoro (Nko) and Kapingamarangi (Kap). The remaining NO languages are circled as the Solomons Northern Outlier languages (SNO), specifically Sikaiana (Sik) at the far south and then a smaller group, the Central Northern Outliers (CNO): Luangiua (Lua), Nukumanu (Nkm), Takuu (Tak) and Nuguria, or Nukeria (Ngr). To the immediate south of the NO languages are what are here called the Southeast Solomons Outliers (SSO), including Vaeakau-Taumako (Vae), Tikopian (Tik), Rennellese (Ren)

and Anutan (Anu). As will be seen in Figure 2, some of these geographic groups also reflect settlement derived genetic subgroups. The languages of the “Other Polynesian Outliers” to the south of SSO are not discussed here other than to note that Pawley (1966) classified them as NPn.

Table 1. Some Polynesian languages and their abbreviations.

A. Subgroups and Their Proposed Proto-languages

CEPn	< PCEPn	Proto-Central East Polynesian
CNO	< PCNO	Proto-Central Northern Outlier
CNO-EPn	< PCNO-EPn	Proto-Central Northern Outlier–East Polynesian
CO	< PCO	Proto-Carolinean Outlier
EC	< PEC	Proto-Ellicean
EPn	< PEPn	Proto-East Polynesian
MQ	< PMQ	Proto-Marquesic
NO	< PNO	Proto-Northern Outlier
NO-EPn	< PNO-EPn	Proto-Northern Outlier–East Polynesian
NPn	< PNPn	Proto-Nuclear Polynesian
Pn	< PPn	Proto-Polynesian
SO	< PSO	Proto-Samoic Outlier
SNO	< PSNO	Proto-Solomons Northern Outlier
SNO-EPn	< PSNO-EPn	Proto-Solomons Northern Outlier–East Polynesian
SSO	< PSSO	Proto-Southeast Solomons Outlier
SSO-EPn	< PSSO-EPn	Proto-Southeast Solomons Outlier–East Polynesian
TA	< PTA	Proto-Tahitic
TO	< PTO	Proto-Tongic

B. Tongic Languages

Niu Niuean

Ton Tongan

C. East Polynesian Languages

Haw Hawaiian Man Manihikian Mao New Zealand Māori

Mng Mangaian Mqa Marquesan Mva Mangarevan

Pen Penrhyn Rar Rarotongan Rpn Rapa Nui

Tah Tahitian Tua Tuamotuan

D. Northern Outlier Languages

Kap Kapingamarangi Lua Luangiua Ngr Nuguria (Nukeria)

Nkm Nukumanu Nko Nukuoro Sik Sikaiana

Tak Takuu

E. Southeast Solomons Outlier Languages

Anu Anutan Ren Rennellese Tik Tikopian

Vae Vaeakau-Taumako (Pileni)

F. Other Nuclear Polynesian Languages

EFu East Futunan EUv East Uvean Nfo Niufo'ou

Ntp Niuatoputapu Puk Pukapukan Sam Samoan

Tok Tokelauan Tuv Tuvaluan

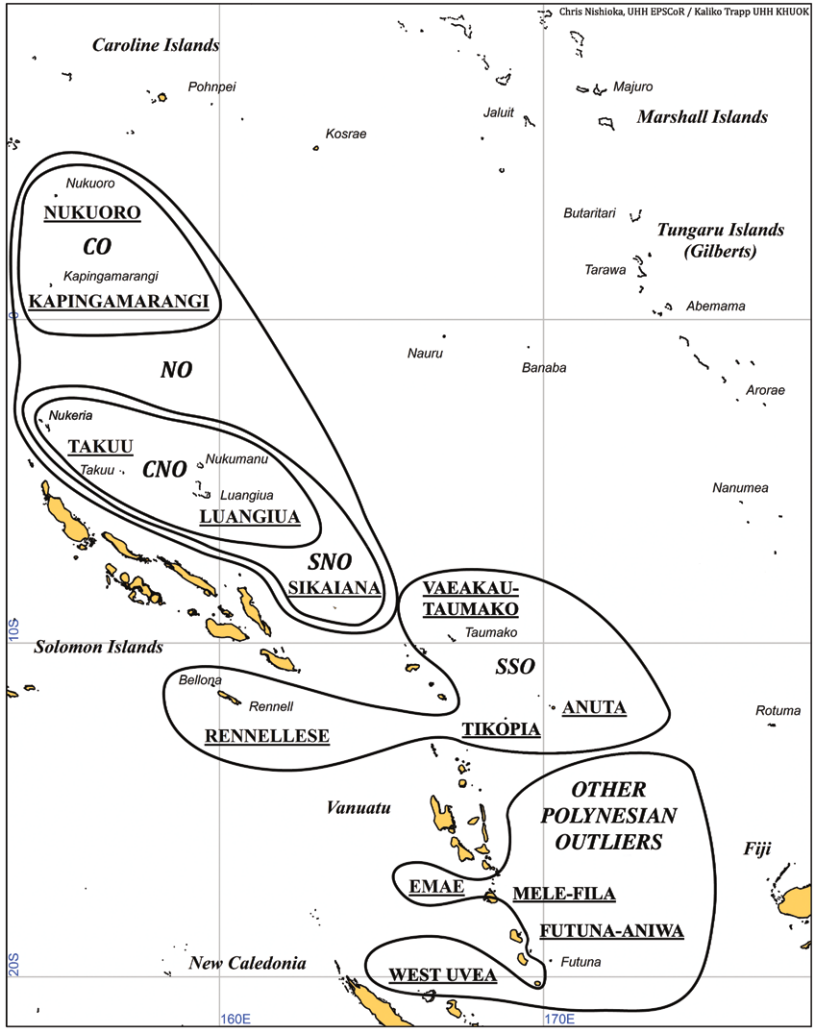


Figure 1. The Polynesian Outliers.

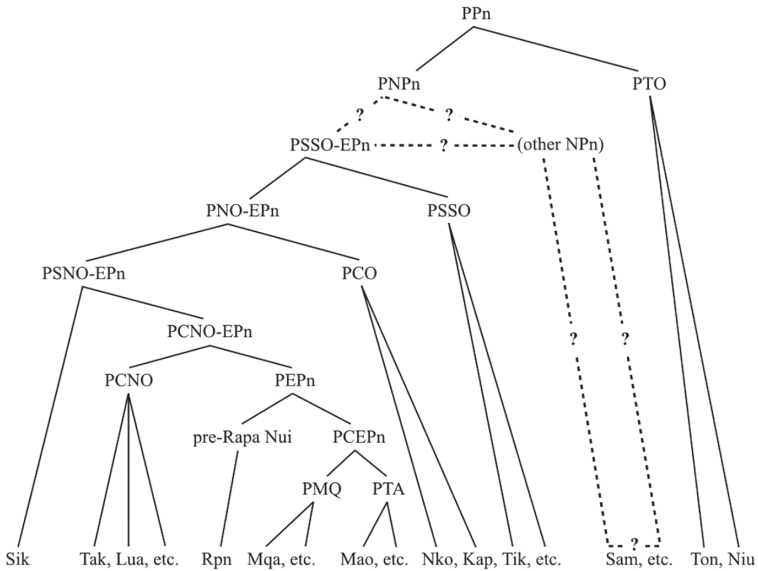


Figure 2. NO-EPn Hypothesis subgrouping of Polynesian languages.

Figure 2 shows my settlement derived genetic subgrouping of the languages of Figure 1 placed in a tree diagram that locates them within the larger Polynesian family including their relationship to East Polynesian languages (EPn) and long-accepted EPn subgroups. Note that Figure 2 also includes the new Southeast Solomons Outlier–East Polynesian (SSO-EPn) and SSO subgroups reconstructed later below. The languages of the “Other Polynesian Outliers” are unclassified in Figure 2 other than being placed with Sam under “Other NPn”.

ARCHAEOLOGY, LINGUISTICS AND BIOLOGICAL ANTHROPOLOGY

There is a lack of archaeological research into the Central Northern Outliers, the departure point for the colonisation of East Polynesia proposed by the NO-EPn Hypothesis. More broadly, there are questions on how to archaeologically distinguish evidence of the earliest Polynesian settlers in the Outliers relative to non-Polynesian settlers (Davidson 2012: 1–2). While archaeological research into East Polynesia has progressed, there remain challenges relative to migration and colonisation in the region (Kahn and Sinoto 2017: 33; Kirch 2010: 140; Kirch 2017: 197–203). At this point,

therefore, excavated evidence to argue for or against the NO-EPn Hypothesis is minimal, except that proposed dates for the Polynesian settlement of some relevant Outliers are earlier than those for East Polynesia (Kirch 2017: 134, 161, 199). However, the considerable amount of linguistic data available does allow for expanded application of the comparative method of linguistics to further test the NO-EPn Hypothesis. That data provides a means to trace shared innovations through time and space to the probable location from which East Polynesia was colonised.

After attending to some basic evidence for the relationship between EPn and NO, this article will present arguments as to why here-listed shared innovations of EPn and NO are not due to borrowing or to simultaneous settlement from some third location. It will also provide evidence for a Southeast Solomons Outlier source for the settlement of the Northern Outliers and the establishment of a related new proto-language stage. That new proto-language is the basis for describing movement from the Southeast Solomons through the Northern Outliers and then from the Central Northern Outliers on to East Polynesia.

Two derivations of possessive morphology will illustrate finer steps that link the various proto-languages leading up to Proto-Central Northern Outlier–East Polynesian (PCNO-EPn), the immediate ancestor of Proto-East Polynesian (PEPn). Those derivations provide a basis for further understanding how borrowings among Outlier languages can be detected using the NO-EPn Hypothesis. Among newly identified innovations providing further support for the NO-EPn Hypothesis are some linked to distinctive East Polynesian cultural features. Combining ethnological and linguistic evidence follows the phylogenetic approach of triangulation seen as especially suited to the study of Polynesian history (Kirch 2017: 188, 191). Recent findings in the field of biological anthropology are an important addition to such triangulation. Researchers have now demonstrated distinctive genetic connections in mtDNA and Y-chromosome lineages between the contemporary peoples of the Central Northern Outlier Luangiua (Ontong Java) and the Society Islands in Central East Polynesia (Hudjashov *et al.* 2018).

HISTORY OF THE NO-EPN HYPOTHESIS

Over a half century ago, Elbert (1953: 169–70) proposed, albeit tentatively, that the NO language Kap was the closest external relative of EPn. Nearly 30 years later, in reconstructing the possessive system of Proto-Polynesian (PPn), I observed a distinctive set of shared innovations of EPn and the CNO languages located to the immediate south of Kap (Wilson 1982: 77–78). At that point, Pawley (1967: 284–86) had classified NO into three groups as circled in Figure 1 and noted that they “uniquely share certain features with each other” (Pawley 1967: 286).

Pawley (1966, 1967) and Elbert (1953) proposed an initial split in Polynesian (Pn) between the Tongic (TO) and Nuclear Polynesian (NPn) languages. That split strongly indicated the Tonga–Sāmoa region, or Central Western Polynesia, to be the Polynesian homeland. Pawley and Elbert differed, however, in their subgrouping of EPn.

Based on the many morphological features of EPn shared exclusively of the NPn languages of the Tonga–Sāmoa region, Pawley (1966: 59) established at the highest node under NPn a binary split between EPn and Samoic. Then he renamed Samoic as Samoic Outlier (SO) to subsume all languages of the Outliers, northern Central Western Polynesia and the Western Polynesian atolls (Pawley 1967). Pawley’s placing of EPn at such a high node in the subgrouping tree and as a sister to SO implied that PEPn had split off at a quite early date from Proto-Nuclear Polynesian (PNPn) before any distinctive NPn languages had developed in Central Western Polynesia. Pawley’s proposal contrasted with Elbert’s analysis, which had seen EPn developing at a later date along with Kap.

Pawley’s subgrouping implied direct colonisation of East Polynesia from the PPN homeland. Furthermore, the “striking number of innovations” of EPn languages indicated to Pawley (1967: 293–94) that “(t)he PEP[n]-speaking community was clearly isolated for several centuries before it dispersed” as a long period was required to develop those innovations. It has long been assumed that PEPn innovations developed in East Polynesia (Walworth 2014: 259).

Research into the human settlement of East Polynesia now indicates it to have been quite recent with rapid dispersal of the East Polynesian peoples throughout that huge region soon after initial settlement (Kirch 2010: 140; 2017: 199). This new chronology does not provide the amount of time in a compact PEPn homeland believed to be needed for the development of the many features of PEPn that distinguish EPn languages from the NPn languages of Central Western Polynesia (Marck 2000: 135–38; Walworth 2014: 259). An implication then of the new chronology is that a considerable amount of PEPn distinctiveness developed before East Polynesia was settled.

A proposal of the Central Northern Outliers as the homeland of the settlers of East Polynesia developed from Wilson (1982). It was formally supported with a detailed set of shared pronominal and possessive innovations of NO and EPn and reconstruction of a Proto-Northern Outlier–East Polynesian (PNO-EPn) language ancestral to PEPn (Wilson 1985).

In a move that would lead the NO-EPn Hypothesis along a diversionary trail, I (Wilson 1985: 129–30) added PNO-EPn to a tree proposed by Howard (1981) for a Proto-Ellicean language (PEC) ancestral to Tuvaluan (Tuv) and NO, and did so without investigating an implied relationship between Tuv and EPn. Marck (2000: 2–3, 7, 16) accepted my placement of PEPn under

Howard's PEC tree and, based on very limited data he had assembled, further modified the PEC tree to include Samoan (Sam) and Tokelauan (Tok). Marck's proposed PEC tree was then taken and even further modified without any linguistic data support in Kirch and Green (2001: 61). That PEC tree has since been repeated in Kirch (2017: 189).

An evaluation of Marck's expanded PEC in Geraghty's (2009: 446) otherwise positive evaluation of the NO-EPn Hypothesis showed major weaknesses in the three pieces of evidence upon which it was based. Subsequently, I (Wilson 2012: 340–46) evaluated Howard's PEC and the 39 lexical items upon which it was based, finding that Howard's unique similarities between Tuv and NO were not shared genetically by EPn. That evaluation also found evidence that borrowing, rather than a close genetic relationship, was the source of similarities between Tuv and NO languages, a proposal made earlier by Pawley (1967: 287). Also arguing against PEC, especially in its Marck (2000) and Kirch and Green (2001) versions that included Tok, is the fact that Howard (1981: 114) had himself evaluated Tok as external to his Ellicean (EC) subgroup.

In Wilson 2012, I strengthened the NO-EPn Hypothesis with a list of 73 lexical and grammatical innovations nested between PNO-EPn and PEPn in the manner illustrated in Figure 2 above. Then in Wilson 2014 I added 130 additional shared innovations in support of the NO-EPn relationships in Figure 2 while providing evidence against the possibility of a close genetic relationship of EPn and NO languages to Pukapukan (Puk), spoken on an atoll just outside the boundary of East Polynesia.

CONSIDERING DIFFERENT DEPARTURE POINTS

Eliminating Tonga and Niue

The possibility that Tonga was the departure point for the settlement of East Polynesia is implied by references to East Polynesians originating in the *Tonga–Sāmoa region*. The longstanding classification of Tongan (Ton) and Niuean (Niu) in a first-order TO subgroup of Pn in contrast to a first-order NPn subgroup (Marck 2000: 91–92, 126–28) represents the initial split of PPn and eliminates Tonga and Niue as the source of the initial settlers of East Polynesia. Innovations 1, 2 and 3 in Table 2 demonstrate how EPn languages share PNPn innovations to PPn not shared with Ton or its close relative Niu.²

The linguistic evidence therefore indicates that the settlers of East Polynesia had to have set out from an area where the language exhibited innovations 1, 2 and 3, and that that area could not have been Tonga or Niue.

With Tonga and Niue ruled out as the source of the settlers of East Polynesia, the potential sources remaining are the islands where NPn

Table 2. Tongan non-participation in Nuclear Polynesian innovations.

	PPn	PTO	Ton	PNPn	NPn
1. “a/an”	* <i>sa</i>	* <i>ha</i>	<i>ha</i>	* <i>se</i>	Sam, Tak <i>se</i> ; Rpn, Mao, Haw <i>he</i> ; Tah <i>e</i> , Mqa <i>he/e</i>
2. “bone”	* <i>hui</i>	* <i>hui</i>	<i>hui</i>	* <i>iwi</i>	Sam, Tak, Rpn, Tah, Mqa <i>ivi</i> ; Mao, Haw <i>iwi</i>
3. “one”	* <i>tasa</i>	* <i>taha</i>	<i>taha</i>	* <i>tasi</i>	Sam, Tak <i>tasi</i> ; Rpn, Tah, Mqa, Mao <i>tahi</i> ; Haw <i>kahi</i>

languages are recorded as spoken. Besides the languages of the Polynesian Outliers, those languages are in Central Western Polynesia, i.e., Sam, East Uvean (EUv), East Futunan (EFu), Niufo‘ou (Nfo) and Niuatoputapu (Ntp), and in the Western Polynesian atolls, i.e., Tok, Tuv and Puk. As can be seen in Figure 3, the NPn languages of Central Western Polynesia and of the Western Polynesian atolls are to the north of Tonga and Niue with the Tahitic (TA) languages of East Polynesia to the immediate east and the Marquesic languages yet further east.

Eliminating Northern Central Western Polynesia and Nearby Atolls as the Departure Point

Sāmoa is the most commonly assumed specific source of the settlers of East Polynesia other than a generic Tonga–Sāmoa region (Geraghty 2009: 446). Example innovations 4–15 in Table 3 demonstrate that Sam does not participate in EPn innovations shared with NO languages, nor do any of the NPn languages of Central Western Polynesia (Wilson 2012, 2014).

Innovations in Table 3 are also largely missing from Western Polynesian atoll languages near Sāmoa. A classification of EPn and NO as EC was based on shared innovations of Tuv and Tok with NO and EPn languages that were later shown to be borrowings (Geraghty 2009: 446; Wilson 2012: 322–23, 341–46.) The third Western Polynesian atoll language, Puk, has borrowed heavily from EPn languages (Clark 1980) and also somewhat from NO languages (Wilson 2014). Such borrowings are demonstrated in innovations 8, 9, 11, 12, 13 and 15 (Table 3). As a regular pattern of participation in innovations with EPn languages as exemplified in Table 3 is not found in the languages of Central Western Polynesia or of the atolls of Western Polynesia, the linguistic evidence does not support the departure of the settlers of East Polynesia from those two areas. Instead it directs inquiry some 3,000 kilometers northwest of Sāmoa to the Northern Outliers, where the local languages share many innovations with EPn languages.

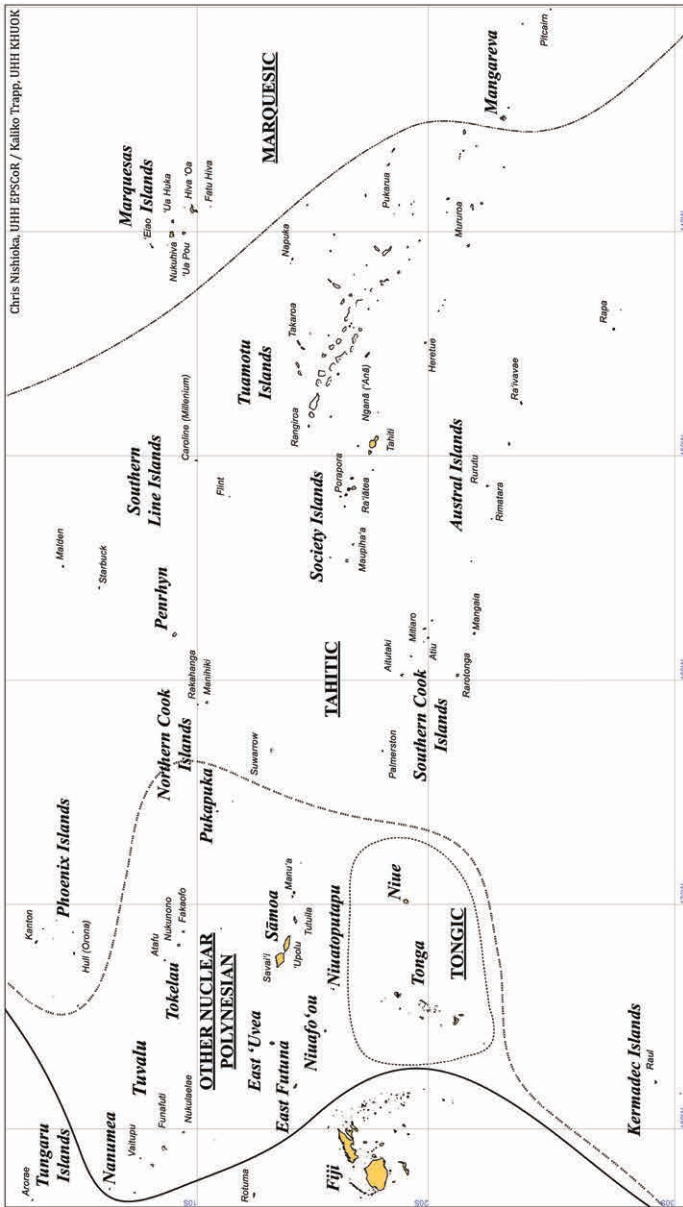


Figure 3. Language subgroups in Central Western Polynesia, Western Polynesian atolls and Central East Polynesia.

Table 3. Sāmoa-area languages' non-participation in NO-EPn innovations.

<i>A. Irregular Phonological Innovations Including Additions and Deletions</i>		
PNPn	Sāmoa Area	NO and EPn
4. * <i>kawiki</i> 'ghost crab'	Sam 'avi'i; Tuv <i>kaviki</i>	Sik <i>kaviti</i> ; Mva <i>kavitiviti</i> ; Tua <i>kohiti</i>
5. * <i>kiu</i> 'curlew'	EUv, Nfo, Puk <i>kiu</i>	Nko <i>kivikivi</i> ; Tak <i>kivi</i> ; Mao <i>kiwi</i> ; Haw 'i' <i>iwi</i>
6. * <i>taqe</i> 'faeces'	Sam, Tok, Tuv <i>tae</i>	Nko, Tak, Mao <i>tuutae</i> ; Rpn <i>tuuta</i> 'e
7. * <i>manoko</i> 'blenny'	Sam <i>mano</i> 'o; Tok <i>manoko</i>	Tak, Mao <i>panoko</i> ; Rpn <i>paaroko</i> ; Mqa <i>paoko</i>
8. * <i>faasua</i> 'tridacna'	Sam <i>faaisua</i> ; Tuv <i>faahua</i>	Nko, Pen <i>paasua</i> ; Rar <i>paa</i> 'ua (Puk <i>paayua</i>)
<i>B. Semantic Changes, Expanded Meanings and Replacements</i>		
PNPn	Sāmoa Area	NO and EPn
9. * <i>sei</i>	Sam, Tok 'flower worn on ear'	Nko, Mqa, Pen, Tah 'garland' (Puk 'garland')
10. * <i>pewa</i>	Sam, Tok 'sea cucumber'	Tak, Mqa, Pen 'tail of turtle or fish'
11. *(<i>fo</i>) <i>fonu</i>	EUv, Tuv 'full'	Tak, Ngr, Mao 'deep' (Puk 'deep')
12. * <i>neke</i>	Sam, Tok (<i>nake</i>) 'lifted by water'	Nko, Tak, Mqa 'creep, move' (Puk 'move')
13. * <i>qulupoko</i>	Sam, EUv, Tok, Tuv 'skull'	Kap, Ngr, Rpn, Mqa, Mao 'head' (Puk 'head')
<i>C. Totally New Word Creation in NO and EPn</i>		
14. * <i>luafine</i> 'old woman, often a spiritual expert'		Sik <i>Te Luahine</i> ; Rpn <i>nuahine</i> ; Rar <i>rua</i> 'ine
15. * <i>funalua</i> 'second spouse'		Sik <i>funalua</i> ; Mao <i>punarua</i> (Puk <i>punalua</i>)

DISCOUNTING BORROWING EXPLANATIONS
FOR SHARED NO-EPN FEATURES

The NO-EPn Hypothesis is that a unique shared ancestry, as diagrammed in Figure 2, is the source of the vast majority of the large number of innovations shared by NO and EPn languages. However, before exploring the NO-EPn Hypothesis further, let us consider the possibility that borrowing is the source of their shared innovations.

Borrowing results from contact. One would expect that contact resulting in the sharing of some 200 innovations would be recorded in the oral histories. However, no such oral histories, or even evidence of mutual awareness, have been collected from either language area (Wilson 2012: 296–99). Furthermore, the great distances between individual NO and EPn languages—several thousand kilometres between even the closest of them—make extensive borrowing between them unlikely. Nevertheless, we will explore borrowings in NO languages in considerable detail below.

In his study of borrowing into Rotuman, Biggs (1965) coined the terms *indirect inheritance* for features borrowing from a related language that ultimately derive from a common ancestor and *direct inheritance* for those features inherited without borrowing from that common ancestor. Relative to indirect inheritance, Biggs's study of Rotuman drew attention to *doublets*—pairs of terms with similar but slightly different forms and meanings. Such doublets indicate borrowing when they can be arranged into different groupings with contrasting development of features such as phonology from the earlier common ancestor. Those different groupings also exhibit different geographical relationships with other languages. For Rotuman one set of terms grouped with Tongan-like Polynesian, another with Samoan-like Polynesian and still another with non-Polynesian Oceanic languages.

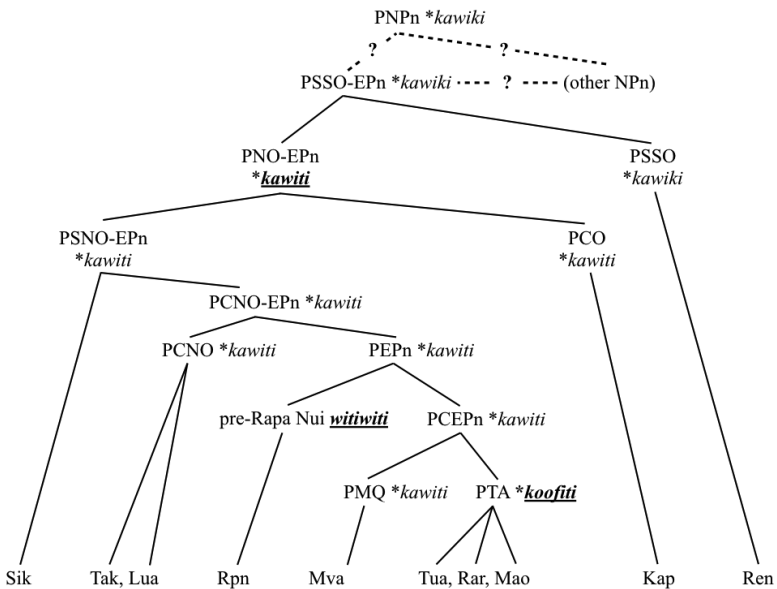
Relative to *direct inheritance*, Biggs's study drew attention to the fact that pronouns and grammatical function words tend not to be borrowed, although he did provide a few exceptions in the case of Rotuman (1965: 7, 29). Arguing against borrowing between EPn and NO languages is the large number of pronominal and grammatical innovations that they share (Wilson 1985, 2012, 2014). In Figures 6 and 8 we will examine the derivation of certain pronominal innovations marking the NO-EPn relationship.

Biggs's study of Rotuman was based in the fact that innovations can be traced through historical splits producing lower-order sister proto-languages, e.g., Proto-Austronesian to Proto-Malayo-Polynesia. Such splits are followed by still-later splits, e.g., Proto-Oceanic to Proto-Central Pacific, nested under immediately preceding proto-languages, in the manner illustrated in Figure 2.

Moving from one proto-language to another can include *step innovations* where a new innovation involving slight changes to an earlier innovation

allows close identification of historical movement through language stages. Step innovations identified as moving through nested proto-languages indicate direct inheritance and have played a major role in identifying the NO-EPn relationship.

Step innovations can be seen in the derivation of Proto-Tahitic (PTA) *koofiti* < PPn **kawiki* ‘ghost crab’ (innovation 4), diagrammed in Figure 4 below. As in other chronological tree representations later in this article, solid lines indicate direct relationships involving movement downward through time, with a broken unfinished line indicating other NPn languages not being considered here. Example contemporary languages are also included at the bottom of trees. Descendant terms in the example languages are given below the trees in the left-to-right order that they appear in such trees. Innovations are underlined and made bold at their first occurrence in a derivation but no longer so marked in later stages of derivation.



Sik *kaviti*; Tak (same as Sik); Lua *aviki*; Rpn *vitiviti*; Mva *kavitiviti*; Tua *kohiti*; Rar *koo'iti*; Mao *koowhitiwhiti-moana*; Kap *kawiti*; Ren *kabiki*

Figure 4. Derivations from PNPn **kawiki* ‘ghost crab’ (innovation 4) in SSO-EPn.

Note that in Figure 4 the irregular phonological innovation **-k-* to **-t-* to produce PNO-EPn **kawiti* occurs at a very early stage in the derivation. The innovated form **kawiti* then serves as input into a much later irregular phonological change step innovation **-aw-* to **-oof-* to produce PTA **koofiti*. Huge geographic distances make it highly unlikely that contemporary NO terms of the form */kaviti/* were borrowed from the sole EPn language that demonstrates a contemporary form close to */kaviti/*, i.e., Mangarevan (Mva *kavitiviti*). For the same reason, it is highly improbable that EPn terms Mva *kavitiviti* and Rpn *vitiviti* resulted from borrowing from an NO language.

Note also that if an EPn term for ghost crab was borrowed into NO languages it would likely be a descendant term of widely reflected PTA **koofiti* rather than much rarer Mva *kavitiviti*. Conversely, if there was a borrowing into one or more EPn languages from NO it would likely be into the closest EPn languages geographically, i.e., Penhryn (Pen) and Manihikian (Man). However, Pen *koohtihiti* and Man *kohiti* reflect PTA **koofiti*, not a borrowing of NO */kaviti/*.

A Rare Case of a Possible Borrowing between NO and EPn

Close examination of Outlier and EPn languages indicates that there has possibly been borrowing of a very limited extent between individual EPn languages and individual Outlier languages (Wilson 2012: 319–21). Phonological and semantic features as well as geographical patterning provide the means for identifying such borrowings, much as they did in the study of borrowings in Rotuman by Biggs.

Some EPn terms appear to have been spread into NO languages after European contact, e.g., Sik *hula* ‘to dance in European style’ (said to be borrowed from Lua) likely ultimately from Hawaiian (Haw) *hula* ‘dance’, which has also been borrowed into English.

An example of possible pre-European contact borrowing between NO and EPn involves terms for the slate pencil urchin, the colour of which ranges from reddish brown to red and purplish red. Note the following cognate set: Kap *matuke* ‘slate pencil urchin’; Mqa *matuke*, *matu’e* ‘sea urchin’, also Mqa *matuke* ‘brown, as brown skin’; Haw *maaku’e* ‘brown, purplish red, associated with skin’. Furthermore note that */matuke/* appears to be an irregular development from PSNO-EPn **fatuke* ‘slate pencil urchin’ for which there are regular EPn reflexes in Mqa *hatuke* ‘sea urchin with big spines’ and Haw *haaku’eku’e* ‘slate pencil urchin’ as well as in CNO languages spoken near Kapingamarangi, e.g., Ngr *hatuke* ‘slate pencil urchin’.

The replacement of reflexes of **f* with reflexes of **m* is unusual and not likely due to parallel innovation. The distribution of */matuke/* in place of **fatuke* is geographic and not genetic. There is no reflex in Marquesic Mva with an initial */m/*. Mva *etuke* ‘sea porcupine, spines of the sea porcupine’

reflects PEPn **fatuke*, as do terms in both Mqa and Haw. There is also no form */matuke/* or */fatuke/* recorded from Nko, the language most closely related to Kap.

Doublets and geographic-based distribution that does not follow genetic subgrouping is indicative of borrowing. While the direction of borrowing is not absolutely clear, Kap lacks a doublet with the earlier form. Furthermore, the lack of the colour meaning in Kap and the lack of the colour meaning for the Mqa and Haw regular reflexes of **fatuke*, e.g., Haw *haa'uke'uke*, suggests that the colour meaning is a secondary development involving only Mqa and Haw that occurred after the initial borrowing.

EVIDENCE AGAINST BIFURCATED SETTLEMENT FROM A MYSTERY ISLAND

In describing the archaeology of Tikopia, Kirch and Swift (2017: 333) referenced Wilson (2012) as possibly supportive evidence for their suggestion that both East Polynesia and Outliers such as Tikopia may have been settled at the same late date from Central Western Polynesia. As shown below the linguistic evidence does not support a bifurcated settlement scenario.

Referred to here as *the Mystery Island*, a source location for simultaneous, or near simultaneous, settlement of the Outliers and East Polynesia would likely have had its own distinctive language developed over the “long pause” of at least 1,000 years from the original settlement of Central Western Polynesia to when East Polynesia was settled (Kirch 2010: 140; 2017: 194–99; Marck 1986). Within Marck’s (1986) Overnight Voyage Hypothesis the distances of the five northern Central Western Polynesian island areas from each other predict that each would have developed its own separate language by the end of the long pause.

A very basic bifurcated settlement scenario could have the Mystery Island serving as the homeland from which early Polynesians set out for two areas: one the first settlement site/homeland of the Outlier languages (which we shall assume to be Tikopia based on Kirch and Swift 2017) and the other the first settlement site/homeland of PEPn (which we will assume to be the Society Islands based on Kahn and Sinoto 2017: 33; Kirch 2017: 199; Wilmshurst *et al.* 2011). Those settlers would all speak the same language as the people they left behind on the Mystery Island when they set out for Tikopia and for the Society Islands. Over time three new languages would develop in the three areas separated from each other by space and time.

The Mystery Island scenario faces the same problem as borrowing proposals in explaining the step innovations connecting EPn with the SSO and NO languages. Recall that EPn innovations are at the bottom of a series of nested innovation steps while SSO languages reflect the very beginning steps and NO languages reflect intermediate steps. Regardless of whether

settlers from the Mystery Island arrived in Tikopia and the Society Islands at the same time or at different times, all post-settlement innovations in the Outlier languages descended from that initial settlement in Tikopia (e.g., Tik and at least the NO languages) should move from the same linguistic base but in their own direction distinct from that of innovations of the EPn languages postdating the initial settlement in the Society Islands. That predicted outcome is contrary to the actual linguistic evidence, as illustrated in the derivation in Figure 4 and other figures and tables below. Those derivations indicate that innovations originating in the Northern Outliers feed by chronologically ordered steps into innovations found in languages in East Polynesia.

There is a further problem with a bifurcated-settlement hypothesis. A bifurcated settlement would result in a *three-way division* from an original Proto-Mystery Island Outlier–East Polynesian. The immediate three descendants would be PEPn, a *Proto-Outlier* and a *Pre-Mystery Island*. Later descendants from those initial three would be the contemporary EPn languages, the contemporary NO and SSO languages and the contemporary language of the Mystery Island. The contemporary language of the Mystery Island should therefore share distinctive innovations from the initial Proto-Mystery Island Outlier–East Polynesian stage with contemporary EPn and all descendant Outlier languages.

Sāmoa is the standard candidate as the point from which settlers departed for East Polynesia (Allen 2010: 152; Geraghty 2009: 446), yet Sam has not participated in innovations 4–15, nor in any others of the some 200 such innovations identified in Wilson (2012, 2014). Sāmoa therefore could not be the Mystery Island. Similarly none of the three other contemporary NPn languages of northern Central Western Polynesia, EUv, EFu and Nfo, have participated in those distinctive innovations, thus eliminating their homelands as the Mystery Island.

We might consider the possibility that Niuatoputapu was the Mystery Island. It is known that Ntp, a NPn language now extinct and poorly recorded, was once spoken there (Biggs 1971). A proposal that Ntp closely resembled PEPn would have to explain how Ntp could come to be so different from languages of nearby islands, especially that of its closest neighbour, Nfo (Dye 1980).

No matter what island is proposed as the Mystery Island, the same major challenges from the linguistic data remain. At present there is no body of linguistic evidence for any other hypothesis regarding the immediate origins of the EPn-speaking peoples anywhere as extensive as that supporting the NO-EPn Hypothesis.³

THE SOURCE OF PNO-EPN: PSSO-EPN SPOKEN
IN THE SOUTHEAST SOLOMONS

Accepting that East Polynesia was settled from the Northern Outliers raises the question as to the source of the Northern Outlier languages themselves. A relationship to nearby Polynesian Outliers in the Southeast Solomons has been suggested (Wilson 2012: 346) and is now formally proposed with the first cognate sets of PSSO-EPn.

PSSO-EPn is seen as having split into PNO-EPn and Proto-Southeast Solomons Outlier (PSSO), the ancestor of Tik, Ren, Vae and Anu. As shown in Figure 2 by dashes between PSSO-EPn and PNPn, the question of a distinctive history between PSSO-EPn and any NPn language outside the NO-EPn subgroup is left open.

Table 4 below is a sample list of PSSO-EPn innovations and derivations, numbered 16–24. Those innovations include totally new words (17, 18), semantic extensions (16, 19, 20), phonological changes including additions and deletions (19, 20), and compounding or the addition of affixes (16, 20–24). Symbols in derivations include “>”, indicating descent through time; “[[]]”, enclosing a side branch away from the derivation directly to EPn languages as illustrated in Figure 2, and “()”, enclosing additional information.

Table 4. Some initially identified innovations of PSSO-EPn.

-
16. PNPn **kakai* ‘sharp’, **faka-kai* ‘to sharpen’ > PSSO-EPn **fakakai* ‘bore a hole in the ear’ [[> PSSO **fakakai* > Ren *hakakai* ‘bore a hole in the ear’]] > PNO-EPn **fakakai* ‘ear ornament’ [[> PCO **hakkai* > Nko *hakkai* ‘earring’]] > PSNO-EPn, PCNO-EPn, PEPn **fakakai* > Mao *whakakai*; Tua *fakakai*; Mqa *hakakai*, *ha’akai* ‘ear ornament’.
17. PSSO-EPn **taatai* ‘sling for water bottle’ [[> PSSO **taatai* > Ren *taatai* ‘sling as for a coconut water bottle’]] > PNO-EPn, PSNO-EPn **taatai* [[> Sik *taatai* ‘string used to hang bottles’]] > PCNO-EPn, PEPn **taatai* ‘suspensions for various containers’ > Rar *taatai* ‘handle of a bucket, basket or cup’; Mqa *tatai* ‘a belt from which to hang an item’; Haw *kaakai* ‘strings by which a netted calabash is hung, bucket handle’.
18. PSSO-EPn **qaapulu* ‘sink, drown’ [[> PSSO **qaapulu* > Ren *aapugu* ‘sink, drown’]] > PNO-EPn, PSNO-EPn, PCNO-EPn **qaapulu* ‘sink, especially of an overloaded canoe’ [[> PCNO **qaapulu* > Tak *apuru* ‘for a canoe to be full, have little freeboard, sink’]] > PEPn **(q)aapuru* ‘suffer from being crowded together, partially under water’ > Mva *apuru* ‘suffocated or smothered by pressure of a crowd’; Mao *aapuru* ‘crowd together, overwhelm’, Mao *kau aapuru* ‘swim with the breaststroke’ (Mao *kau* ‘swim’).

19. PNPn **lotu* ‘beat with a stick or hand on the surface of the sea’ > PSSO-EPn **lotu*, **lolotu* ‘downpour of heavy rain’ [[> PSSO **lolotu* > Ren *gogotu* ‘fall as a sudden straight rain’; Tik *rrotuu* ‘heavy, of rain’]] > PNO-EPn, PSNO-EPn **lotu*, **lolotu* [[> Sik *llotu (te ua e llotu)* ‘to rain hard’]] > PCNO-EPn **lotu*, **lolotu* [[> PCO **lotu* > Lua *lo‘u* ‘pour with rain’ (*t > Lua /:/ is irregular)]] > PEPn **rotu*, **rorotu* > Mqa *‘otu* ‘heavy rain’; Tah *rotu* ‘heavy rain of one day’s continuance’; Haw *loku*, *loloku*, *lokuloku* ‘downpour of rain’.
20. PPn, PNPn **laqofie* ‘good weather’ > PSSO-EPn **laqoi* ‘good’ [[> PSSO **laqoi* > Tik *laui*; Vae *lavoi*; Ren *gaboi* ⁴]] > PNO-EPn **faka-laqoi* ‘cause goodness, improve’ > PSNO-EPn **faka-laqoi* ‘bring together people on bad terms to make their relationship better’ [[> Sik *haka-laoi* ‘bring together people to make their relationship better’]] > PCNO-EPn **kalaqoi* ‘make love magic, love magic’ (via back formation of **faka-laqoi* to **fa-kalaqoi*) [[> PCNO **kalaqoi* > Tak *karaoi* ‘love magic’]] > PEPn **kariqoi* ‘live a life of free sexual intercourse’ > Tua *karioi* ‘young person at period of free sexual intercourse’; Mqa *ka ‘ioi* ‘lustful, sensual’.
21. PNPn **qafa* ‘tree species, *Neonauclea forsteri*’ (PPn **tea* ‘white’) > PSSO-EPn **qafa-tea* ‘type of high island tree’ [[> PSSO **qafatea* > Tik *afatea* ‘tree in hillside forests, *Nauclea orientalis*, *Neonauclea forsteri*’]] > PNO-EPn **qafatea* [[> PCO **qahatea* > Nko *ahatea* ‘driftwood species’]] > PCNO-EPn **qafatea* [[> PCNO **qafatea* > Tak *afatea* ‘a tree that drifts to Takuu’]] > PEPn **qafatea* > Tah *ahatea* ‘name of a tree used for keels of boats, *Nauclea* species’; Haw *‘ahakea* ‘inland tree, *Bobea* species’.
22. PSSO-EPn **k/qolo-pua* ‘tree species’ (PPn **pua* ‘tree with showy flowers’) [[> PSSO **kolopua* > Ren *kogopua* ‘a *Ficus* tree with heavy wood used for axe handles’]] > PNO-EPn, PSNO-EPn, PCNO-EPn **k/qolopua* > PEPn **k/qoropua* > Haw *olopua* ‘a large native tree, *Osmanthus sandwicensis*’; Mao *koropuka* ‘a shrub, *Gaultheria antipoda*’ (epenthetic /k/ before final vowel).
23. PSSO-EPn **k/qolo-mea* (PPn **mea* ‘red’) ‘shrub species’ [[> PSSO **kolomea* > Ren *kogomea* ‘coral hibiscus’]] > PNO-EPn, PSNO-EPn, PCNO-EPn **k/qolomea* > PEPn **qoromea* > Haw *olomea* ‘an inland shrub, *Perrottetia sandwicensis*’; Tah *oroa* ‘the name of a tree’ (irregular loss of /m/); Mao *horoeka* ‘lancewood, *Pseudopanax crassifolius*’ (irregular loss of /m/; epenthesis of /k/ before final vowel; irregular replacement of PPn **q* > reflex of *s).⁵
24. PSSO-EPn **pae* ‘species of freshwater shrimp’ [[> PSSO > Ren *pae* ‘kind of freshwater shrimp, *Macrobrachium* species’]] > PNO-EPn, PSNO-EPn, PCNO-EPn **pae* > PEPn **koo-pae* (PEPn **koo-* prefix added in creating species names) > Haw *‘oopae* ‘shrimp, especially freshwater species’.

Of unique interest among terms in Table 4 are 21–24, which involve high-island natural history. Geraghty (2009) investigated continuation of PPn terms for high-island flora relative to the NO-EPn Hypothesis, as one might not expect those living on atolls to know the names of high-island flora. However, regular voyaging to Tikopia was part of the traditional culture of NO-speaking peoples. Furthermore high-island tree logs that drifted to their home islands were known by species name and highly valued as material for canoe making (Moyle 2018). These NO cultural connections to high islands explain the continuation of PPn terms for high-island natural history into East Polynesia (Wilson 2012: 335–37). Uniquely shared terms for flora such as 21–23 and for freshwater fauna such as 24, not found in TO and Central Western NPN languages, are distinctive natural-history evidence of the source of the EPn-speaking peoples in the Southeast Solomons Outliers and their culturally associated neighbours in the Northern Outliers.

Moving from the Southeast Solomons through Atolls and on to East Polynesia
 Innovations shared by the SSO, NO and EPn languages are not all reconstructed as initiated at a single time period or proto-language. Instead, they are ordered in Wilson (2012, 2014) under the series of named proto-languages given in Figure 2 as both evidence for and a model of important historically ordered points in the early settlement history of the Northern Outliers and then, at a later point, movement on to East Polynesia. Before examining examples of such proto-steps, provided below are implications of the NO-EPn Hypothesis regarding how the Northern Outliers were themselves settled and then served as the point from which settlement of East Polynesia occurred.

The evidence for PSSO-EPn indicates that the settlers of the Northern Outliers derived from a population speaking a distinct NPN language that had developed over a period of time somewhere in the Southeast Solomons. Initially a single early NO language derived from PSSO-EPn moved into the Northern Outliers and spread all the way through to Nukuoro. Its first linguistic split, marked by the immediately preceding PNO-EPn, occurred when the ancestor of the northernmost languages differentiated from the rest. That ancestor itself later split at the Proto-Carolinean Outlier (PCO) stage into Nko and Kap. The remaining early NO language split at a Proto-Solomons Northern Outlier–East Polynesian (PSNO-EPn) stage between what was to become Sik and a unified language ancestral to the CNO and EPn languages.

The PCNO-EPn stage marks the point when the early East Polynesians separated themselves from their relatives in the Central Northern Outliers by settling new lands to the east. A PCNO stage represents shared innovative developments of the CNO languages that occurred after the departure of the settlers of East Polynesia.

PEPn represents the shared innovative developments that occurred in East Polynesia before the breakup of that unity somewhere in East Polynesia. Green (1966) proposed that PEPn split between pre-Rpn (which developed into contemporary Rpn) and Proto-Central East Polynesian (PCEPn). Green then split PCEPn between Proto-Marquesic (PMQ) and Proto-Tahitic (PTA). Green proposed Mqa, Mva and Haw as the descendants of PMQ. His descendants of PTA are the remaining EPn languages, e.g., New Zealand Māori (Mao) and Tahitian (Tah). Features of Haw shared with TA languages were seen by Green as due to borrowing, although others have seen a likely Haw membership in TA (Elbert 1953: 169; Wilson 2014: 405, 408).⁶

We will now proceed to aspects of the derivations of grammatical constructions of NO and EPn and how they provide evidence for the above settlement history.

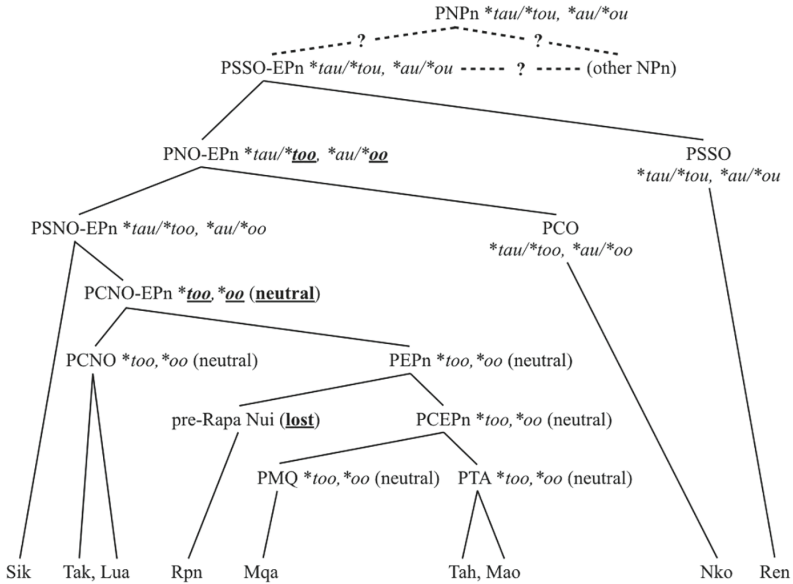
DERIVATIONS WITH STEP INNOVATIONS ILLUSTRATING CHRONOLOGY

Proto-Nuclear Polynesian A/O Possessive Contrast Neutralised over Time
Figure 5 and especially Figure 6 illustrate detailed stages in the development of some of the possessive pronouns of NO and EPn (Wilson 1985; 2012: 303, 324–25). Figures 5 and 6 begin by illustrating how PNPn proposed definite pronouns marked the A/O contrast, e.g., **tau waka* ‘your canoe (you built)’ versus **tou waka* ‘your canoe (you ride)’ and also a contrast between singular and plural in possessed items, e.g., **tou waka* ‘your canoe’ versus **ou waka* ‘your canoes’. Derivations then move downward through ordered innovations. The result is neutralisation of the A/O contrast reducing the number of possessive words in NO and EPn languages.

The innovations illustrated above include first an irregular phonological change of **-ou-* to **-oo-* at the PNO-EPn stage to produce the O-forms **too*, **oo* ‘your’. Later at the PCNO-EPn stage, a second step results in the former O-forms, **too*, **oo* ‘your’, being chosen as new forms neutral for the A/O contrast, thus eliminating A-forms **tau*, **au*.

Related innovations not illustrated in Figure 5 eliminated the A/O contrast in the words for “my” and “his/her”. However, in those cases the former A-forms **taku*, **aku* ‘my’ and **tana*, **ana* ‘his/her’ are chosen to be the new neutral forms, e.g., **taku waka* ‘my canoe (which I built or ride)’, **aku waka* ‘my canoes (which I built or ride)’.

The arbitrary derivation of neutralised forms from former O-marking in one case and former A-marking in the other two cases was what first drew my attention to the Central Northern Outlier–East Polynesian (CNO-EPn) relationship (Wilson 1982). As illustrated in Table 5, out of eight choices for the set of three neutralised possessives, the same set (Set v below) is found in both CNO and EPn languages in innovations 25–27, e.g., Tak, Mao *taku*, *aku* ‘my’, *too*, *oo* ‘your’, *tana*, *ana* ‘his, hers’ (Wilson 2012: 318).



Sik *tau/too, au/oo*; Tak *too, oo*; Lua *koo, oo*; Rpn (lost); Mqa (same as Tak); Tah *too, too*; Mao (same as Tak); Nko (same as Sik); Ren *tau, teau/tou, teou, au/ou*.

Figure 5. Derivations from PNPn **tau/*tou, *au/*ou* ‘your’ (you singular) in SSO-EPn.

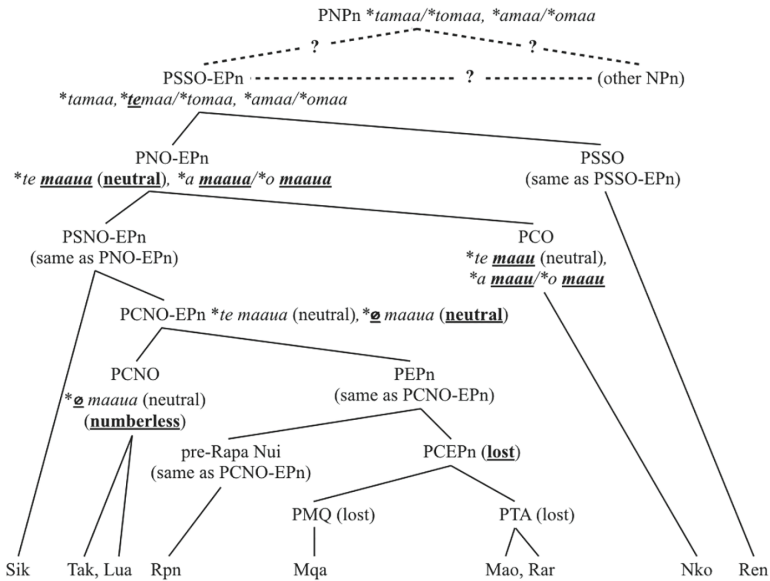
Table 5. PCNO-EPn singular pronoun neutralised possessives.

PSNO-EPn	PCNO-EPn	Possible Versus Actual Outcomes							
		i	ii	iii	iv	v	vi	vii	viii
25. <i>*taku/*toku, *aku/*oku</i>	> <i>*taku, *aku</i> ‘my’	A	O	O	A	[A]	O	A	O
26. <i>*tau/*too, *au/*oo</i>	> <i>*too, *oo</i> ‘your’	A	O	A	O	[O]	A	A	O
27. <i>*tana/*tana, *ana/*ona</i>	> <i>*tana, *ana</i> ‘his/her’	A	O	A	O	[A]	O	O	A

A More Complicated Neutralisation of the A/O Contrast

Four additional pronominal innovations among several more shared between the CNO and EPn languages (Wilson 1985) are illustrated in the derivations in Figure 6 resulting in PCNO-EPn innovations 28 **te maaua* ‘our’ (singular possessum) and 29 **θ maaua* ‘our’ (plural possessum). The derivation of innovations 28 **te maaua* and 29 **θ maaua* began in PSSO-EPn where the **-a-* possessive marker of **t-a-* came to have a phonological alternate **-e-*, producing **t-e-* before certain pronominal morphemes (e.g., **-maa* ‘we exclusive dual’).

The next two innovations are found at the PNO-EPn stage. First the short dual pronominal morpheme PSSO-EPn **-maa* is replaced with a longer form PNO-EPn **-maaua* ‘we exclusive dual’ (Wilson 1985: 116.) As a step innovation from PSSO-EPn, the earlier phonological alternative **t-e-* to PSSO-EPn **t-a-* comes to be identified with the singular definite determiner PNO-EPn **te* ‘the’. It then replaces both **ta-* and **to-*, thus resulting in A/O neutralisation. The A/O contrast is still made in the plural, i.e., PNO-EPn **a maaua waka* ‘our canoes (we built)’ versus **o maaua waka* ‘our canoes (we ride)’ with A/O neutralisation solely in the singular, i.e., **te maaua waka* ‘our canoe (which we built or ride)’.



Sik *te maaua, a maaua/o maaua*; Tak *maaua* (marks singular and plural possessums); Lua (same as Tak); Rpn *te maaua, maaua*; Mqa (lost); Mao, Rar (same as Mqa); Nko *te maau, amaau/omaau*; Ren *tamaa, temaa/toma, amaa/oma*

Figure 6. Derivations from PNPn **tamaa/*toma, *amaa/*oma* ‘our’ (we exclusive dual) in SSO-EPn.

Table 6. Innovative PCNO-EPn first person dual exclusive pronominal possessives

-
28. PNPn **tamaa/*toma*a (thru PSSO-EPn) > PNO-EPn **te maaua* ‘our’ (single possessum)
29. PNPn **amaa/*oma*a (thru PSSO-EPn) > PNO-EPn **θ maaua* ‘our’ (plural possessum)
-

At the PCNO-EPn stage, two new step innovations occur. First, for forms with **te* when used with a singular possessum there is now an extension of neutralisation to their equivalent with a plural possessum. This is accomplished by dropping the A/O morphemes **a*, **o* before the pronominal element **-maaua* ‘we exclusive dual’ (That deletion is indicated by a *θ* in Figure 6.) The result is PCNO-EPn **θ maaua waka* ‘our canoes’ versus PCNO-EPn **te maaua waka* ‘our canoe’, neither of which makes an A/O distinction.

More Innovations Occur after the PCNO-EPn Stage

The PCNO-EPn innovations illustrated in Figures and Tables 5 and 6 are taken as is into East Polynesia. Later pre-Rpn loses the neutral preposed possessives incorporating the singular pronominal morphemes, e.g., **too*, **oo* ‘your’ of Figure 5 and Table 5, while PCEPn loses the neutral preposed possessives incorporating the non-singular pronominal morphemes, e.g., **te maaua*, **θ maaua* ‘our’ of Figure 6 and Table 6.⁷

In the Central Northern Outliers after the break-up of PCNO-EPn, a further innovation occurs at the PCNO level. For those preposed possessives incorporating non-singular pronominal elements, PCNO-EPn **te* is dropped. This results in some, but not all, A/O neutral possessives collapsing the distinction between singular and plural possessed nouns, e.g., PCNO **θ maaua waka* ‘our canoes (also our single canoe)’ versus PCNO **taku waka/*aku waka* ‘my canoe’/‘my canoes’ (Wilson 1985: 112–14).

Each and every one of over 200 innovations shared by EPn and NO languages can be plotted similarly to what is done in Figures 4, 5 and 6. The resulting dominant pattern produced is as in Figure 2, the genetic tree proposed as mapping over relative time and space the developments that lead to the distinctive pre-EPn language that the settlers of East Polynesia took with them from a departure point in the Central Northern Outliers. At each proto-language point innovations flow downward to the next descendant proto-language and eventually to a contemporary language.

Note that languages outside the direct line of descent to PEPn have their own distinctive step innovations outside of PEPn. For example, PSSO, the ancestor of Ren, diverges from the direct line of descent to PEPn right after the PSSO-EPn level. In Figure 5, the innovation Ren *teau* ‘your’ as a variant

of Ren *tau* ‘your’ < PNPn **tau* is highly distinctive and likely resulted from a local expansion of the PSSO-EPn **temaa*, **tamaa* alternation to use **t-e*- as a unit A-form possessive marking. However, the PNO-EPn innovation **t-e* > **te* as an A/O neutralising marker is at a lower level and flows into PEPn by way of PSNO-EPn and then PCNO-EPn, affecting such PCNO-EPn descendants as Nko, Sik and Rpn. The variant Ren *teou* for Ren *tou* < PNPn **tou* was likely later innovated based on innovative Ren *teau*.

MORE ON BORROWING:

CONTACT SPHERES AND THE NORTHERN OUTLIERS

As reflected in their oral traditions, the Northern Outliers have clearly been part of a contact sphere with each other and with other Outlier and Western Polynesian atoll islands. Contact extended on to Central Western Polynesia (Bayliss-Smith 2012; Moyle 2007, 2018). Post-settlement borrowing across low-level genetically inherited subgroup lines clearly occurred within this contact sphere. One result when there is extensive borrowing over time is geographical groupings such as NO and SNO illustrated in Figure 1. These geographical groupings are akin to the development of a distinctive Eastern Fijian group of languages resulting from the split of Proto-Tokalau Fiji Polynesian after the settlement of Central Western Polynesia from Eastern Fiji (Geraghty 1983: 382–86; Wilson 2012: 324–325). Post-settlement borrowing can often be detected, however, by following innovations that cross over what are otherwise marked as lower-level settlement derived genetic subgroups and by noticing irregular groupings, which often form a variety of geographical patterns.

A Borrowing Involving Tuvaluan

An example of post–East Polynesian settlement borrowing among NO languages and a Western Polynesian atoll language is PPn **paqikea* ‘type of crab’ > /*kaipea*/. This innovative metathesis is reflected in the doublet Tuv *kaipea*, *paikea* and in the CNO languages Tak, Nkm *kaipea* and Lua *aapea* but not in Ngr *paekea* (Howard 1981: 112). Thus Ngr, the CNO language furthest to the west, retains the older form /*paikea*/, while an irregular group of languages located in the southeast reflect the more recently created and borrowed metathesis /*kaipea*/. Following PPn **paqikea* through the descent lines into EPn reveals solely cognates parallel to Ngr *paekea*, that is, without the metathesis, e.g., Tuamotuan (Tua) *paikea*, Rpn *pikea*. This distribution indicates that PCNO-EPn, the immediate ancestor of PCNO, retained **paikea* parallel to Ngr *paekea*.

A Borrowing Involving Kapingamarangi

An example of *grammatical* borrowing in Kap further illustrates how following dominant patterns indicating lines of descent are useful in determining borrowing. As a descendant of PCO with Nko, Kap is expected to share forms with Nko. However, Kap *ti mau*, *θ mau* ‘our (we exclusive dual)’ contrasts with Nko *te maau*, *a maau/o maau* ‘our’ < PCO **te maau*, **a maau/*o maau* < PNO-EPn **te maaua*, **a maaua/*o maaua*. Comparison with other NO-EPn languages shows pre-Kap *ti mau*, *θ mau* to be a borrowing of a pre-CNO continuation of PCNO-EPn **te maaua*, **θ maaua*. As seen in Figure 1, Kap is spoken on an island near the CNO languages, providing Kap access to borrowing from those languages.

Note, however, that the borrowing was not from contemporary CNO languages but from a pre-CNO language with the same possessives as PCNO-EPn. Figure 6 illustrates that PCNO collapsed PCNO-EPn **te maaua*, **θ maaua* as PCNO **θ maaua*, the direct ancestor of contemporary CNO possessives. Because the borrowing Kap *ti mau*, *θ mau* occurred at an earlier time, it is the only contemporary witness among NO languages of the stage PCNO-EPn **te maaua*, **θ maaua* and its continuation for a period in pre-CNO. Due to other developments in the core proto-language line, the only other contemporary witness is Rpn *te maaua*, **θ maaua*, found thousands of kilometres to the southeast of Kap.

A Borrowing Involving Tokelauan

Yet another example of borrowing within the contact sphere in which NO languages participated involves Tok and the name of a fish. The origin of that name is a semantic expansion from the newly reconstructed PSSO-EPn innovation below, 30 PSSO-EPn **ngangafu* ‘bite’.

30. PPN **ngafua* ‘free from taboo’ [[> PTO **ngafua* > Ton *ngofua*] > PNPn **ngafua* [[> Sam *ngafua*] > PSSO-EPn **ngafua* ‘free from taboo with reference to food’ and its derivatives **ngafu*, **ngangafu* ‘bite’ [[> PSSO **ngafua* ‘free from a food taboo’; **ngafu*, **ngangafu* ‘bite’ > Ren *ngangahu* ‘bite’; Tik *ngafua* ‘licit, appropriate, usually of food, opposite of *tapu*, hence edible’, Tik *ngafungafu* ‘food in famine, though not good, kept for children to chew on as snacks, and revive them’]] > PNO-EPn **ngafu*, **ngangafu* ‘bite’ [[> PCO *reflex uncertain* > Nko *ngngahu* ‘damselish’ (possible borrowing from Tak)]] > PSNO-EPn, PCNO-EPn **ngafu*, *ngangafu* ‘bite’ [[> PCNO *reflex uncertain* > Tak *nahu* ‘damselish, not eaten or used as bait’ (possible borrowing from Nko)]] > PEPn **ngafu*, **ngangafu* ‘bite’ > Haw *nahu*, *nanahu*, *nahunahu*; Mqa *kakahu*; Tah ‘*aa’ahu*’.

The semantic expansion of a reflex of PNO-EPn **ngangafu* ‘bite’ to mean ‘damsel fish’ can be related to damselfish being considered worthless fish which *bite off* bait. The distribution of this semantic expansion is geographic, not genetic, and also involves doublets with reflexes of PPn **tukuku* ‘small reef fish’ in both Tak and Nko. Because **ngangafu* ‘damsel fish’ is not found in EPn, Sik or SSO languages, this innovative semantic expansion must have surfaced in Nko or Tak after the settlement of East Polynesia. Although derived from PNO-EPn **ngangafu* ‘bite’ it is not clear whether **ngangafu* ‘damsel fish’ was innovated within the CO subgroup {Nko} or in the CNO subgroup {Tak}, but it was borrowed between these nearby languages from different subgroups. It was then borrowed beyond NO into Tok as Tok *ngangafu* ‘damsel fish’.⁸

Tracing Borrowing Through Both Meaning And Form

Another example of borrowing involves a late change in meaning from ‘wrist’ to ‘elbow’ in reconstruction 31 PNO-EPn **puku-lima* below. This new meaning spread among SNO languages Ngr, Tak, Lua and Sik and from them to Vac. An older term for ‘elbow’, PPn **tuke-qi-lima*, is reconstructed as continuing through PSSO-EPn, PCNO-EPn and PEPn based on Tik *tukerima*, Nko *tukilima* and Mqa *tuke’ima*.

31. PNO-EPn **puku-lima* ‘wrist’ (PPn **puku* ‘protuberance, lump, swelling’; PPn **lima* ‘hand, arm’) > [[PCO **pukulima* > Kap *pukulima*; Nko *kupulima* ‘wrist’ > PSNO-EPn **pukulima* [[> Sik *pukulima* ‘elbow’ (possibly a borrowing from a CNO language)]] > PCNO-EPn **pukulima* [[PCNO **pukulima* (meaning uncertain) > Tak *pukurima* ‘elbow’ (possibly a borrowing from Sik)]] > PEPn **pukurima* ‘wrist’ > Rpn *pukupuku rima*; Haw *puulima*.

ETHNOGRAPHIC EVIDENCE FOR AN OUTLIER SOURCE FOR EPN SPEAKERS

Shared innovations in language, while very significant,⁹ are not the sole distinctive features linking the Central Northern Outliers to East Polynesia. Kirch and Green (2001: 72) provide a list of cultural traits distinguishing East Polynesia from (Central) Western Polynesia. Several of the traits listed as East Polynesian are also characteristic of the Central Northern Outliers. Among those traits are stone or wooden food pounders, large anthropomorphic carved god figures, *Ruvettus* hooks and upturned canoe ends (Parkinson [1907] 1999: 229, 234–37). There are other shared distinctive cultural traits, some marked by linguistic innovations. For example, Parkinson ([1907] 1999: 229) lists among the gods of Nuguria (Nukeria) one named *Atea*, who “has his position

in the morning star and makes sunshine and good weather”. This term has East Polynesian cognates allowing for PCNO-EPn reconstruction 32 below:

32. PCNO-EPn **Qaatea* ‘male spiritual being associated with the sky’ [[> PCNO **Qaatea* > Ngr *Atea* ‘god associated with the sky’]] > PEPn **Qaatea* ‘male ancestor and creator often associated with the sky’ > EPn: Mqa *Atea*; Tah, Pen *Aatea*; Rar, Tua *Vaatea* (Marck 1996, 2000).

There is the possibility that the Nukeria god’s name *Atea* was borrowed from an EPn source. However, another shared spiritual belief found in both areas, listed as reconstruction 33 below, is highly unlikely to have been borrowed. Parkinson ([1907] 1999: 229) describes this belief relating to Nkm *vaelani* as follows: “On Nukumanu they know higher spirits that live in Ba e lagi. Ba e lagi is an indefinite concept; it signifies both the residence of the spirit and the spirit itself ... the souls of the dead strive to reach [Ba e lagi].”

33. PSSO-EPn **waqe-langi* ‘horizon’ (PPn **waqe* ‘leg’; PPn **langi* ‘sky’) [[> PSSO **waqelangi* > Ren *ba’egangi* ‘horizon’; Tik *vaerangi* ‘sky; weather; foreign parts’]] > PNO-EPn, PSNO-EPn, PCNO-EPn **waqelangi* ‘horizon, spiritual place’ [[> PCNO **waqelangi* > Tak *vaelani* ‘horizon’; Nkm *vaelani* ‘heaven’]] > PEPn **feqerangi* ‘horizon, spiritual homeland’ > Haw *Hoolani* ‘mythological land of gods’; also Haw *Kuaihelani* (*kua-i-helani*, lit. ‘beyond-at-helani’) ‘mythological land of gods’; Mva *Erangi* ‘Pitcairn Island’; Puk *welangi* ‘horizon’ (archaic form marked phonologically as a borrowing from EPn).

The derivation PCNO-EPn **waqelangi* > PEPn **feqerangi* involves irregular phonological changes in PEPn attested in the history of other PEPn terms.¹⁰ The difference in phonological form and the geographic spread of this term in EPn, CNO and SSO makes it an unlikely borrowing in either direction.

A distinctive Central Northern Outlier artefact that links closely with East Polynesia is a type of whalebone hand club from Nukumanu and Takuu called Nkm, Tak *paraa-moa* (lit. ‘chicken feather/wing’) (Moyle 2011; Parkinson [1907] 1999: 237). This club has a form similar to a weapon diagnostic of early East Polynesian cultural sites (Allen 2010: 152; Kirch 1986). The term for this weapon in Mao is *patu* or *mere*, but when made of whalebone, it is also called a *paraaoa*, the same term as Nkm, Tak *paraamo*a minus its /m/. As shown in reconstruction 34 below, Mao *paraaoa* has widespread EPn cognates.

34. PCNO-EPn **palaamo*a ‘whalebone club’ [[> PCNO **palaamo*a > Tak, Nkm *paraamo*a ‘fighting club often made of whalebone’]] > PEPn **paraao*a ‘whalebone club; whalebone; whale’ (irregular loss of /m/) > Mao *paraaoa* ‘whalebone club, whalebone, whale’; Mqa *pa’ao*a ‘porpoise, whale’; Tua *paraaoa* ‘whale’.

The correspondence between Nkm *paraamo*a and PEPn **paraao*a is highly unlikely to represent some chance parallel word compounding. PCNO-EPn **paraa* has been replaced as the word for “wing” throughout EPn, and PEPn **-oa* < **moa* ‘chicken’ is meaningless without the /m/.

In discussing East Polynesian archaeology, Allen (2010: 152, 159–61) and Sinoto (1983) have noted that the earliest material culture assemblages from the area include features such as the short hand club of the sort described above and highly developed fishing technology. Kirch 2017 (202–3) has reiterated that the fishing technology of early East Polynesian peoples as revealed in archaeological research includes “a wider range of fishing gear than had been present in immediately preceding Ancestral Polynesian communities in Samoa or Tonga”.

Atolls like the Northern Outliers which depend more upon the ocean for their sustenance than do high island areas such as Sāmoa can be expected to have a more developed level of fishing technology than Sāmoa (Wilson 2012: 354). The NO-EPn Hypothesis predicts that if excavations are carried out in the Central Northern Outliers, they should produce material culture, including fishing technology, similar to the earliest material culture excavated in East Polynesia. A PNO-EPn lexical innovation relating to fishing is given below as reconstruction 35.

35. PNO-EPn **kawiti* ‘barb lashed onto a bonito lure and its distinctive lashing typically involving two holes’ > [[PCO **kawiti* > Nko *kaviti* ‘barb on a pearl-shell hook’]] > PSNO-EPn, PCNO-EPn **kawiti* [[> PCNO **kawiti* > Tak *kaaviti* ‘pattern of alternating holes and crossbars carved on the end of a traditional canoe and under the seats of some wooden stools’]] > PEPn **kawiti* > Tua *kaviti* ‘the complete pearl-shell bonito lure’; Rar *kaviti* ‘barb of the pearl-shell hook, also cord used to tie bait on a hook’; Mqa *keviti* ‘human bone hook for bonito’.

Besides distinctive expertise in fishing, the early peoples of the Central Northern Outliers appear to have been expert navigators. Mastery of long-distance voyaging to Tikopia was evident among their descendants living in the Central Northern Outliers at initial European contact (Bayliss-Smith 2012). There are also Takuu traditions of travel to Fiji and Sāmoa (Moyle 2007: 22–30; 2011; 2018). While other Polynesian peoples have traditions of long-distance navigation and might have been able to travel to East Polynesia and settle that huge area (Montenegro *et al.* 2016), the peoples of the Central Northern Outliers stand out from all others in the distinctive connection between their languages and the languages of East Polynesia.

Figure 7 illustrates the locations of Central Western Polynesia, the Western Polynesian atolls and the Outliers along with the huge East Polynesia area.

The NO-EPn Hypothesis that East Polynesia was settled from the Central Northern Outliers has been strengthened here with several newly identified shared CNO-EPn linguistic innovations, some of which can be related to distinctive shared cultural features. Besides linguistic, natural-history and ethnological evidence in support for the NO-EPn Hypothesis, there is also recent support from biological anthropology in the form of shared distribution of mtDNA and Y-chromosome lineages between the current populations of Luangia and the Society Islands.

Expansion of the NO-EPn Hypothesis is linguistically supported to include a new higher-order subgroup and proto-language: Proto-Southeast Solomons Outlier–East Polynesian with eleven initial PSSO-EPn reconstructions (16-24, 30, 33). Besides the Northern Outlier and East Polynesian languages, descendants include Tikopian, Anutan, Vaeakau-Taumako and Rennellese.



Figure 7. Triangle Polynesia and the Outliers.

Neither borrowing nor bifurcated settlement from some location in Central West Polynesia provides an adequate alternative to the NO-EPn Hypothesis to explain the over 200 distinctive innovations shared by NO and EPn languages. The distribution of those innovations in nested subgroups indicates linguistic and cultural development over a considerable period of time in a region far to the northwest of Tonga and Sāmoa followed by movement out to settle East Polynesia.

The NO-EPn Hypothesis aligns with the recent consensus among archaeologists that East Polynesia was settled quite late in history relative to the settlement of Central Western Polynesia. Furthermore, it provides a means for the many innovations distinguishing East Polynesian languages from those of Central Western Polynesia to develop before a rapid dispersal of East Polynesian languages not long after initial colonisation of East Polynesia.

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NOTES

1. All Polynesian language data used is taken from Wilson (2012, 2014) and POLLEX (Greenhill and Clark 2011, accessed 26 June 2018), and supplemented by sources listed in Appendix 1. The unified spelling system used here for that cited data indicates long vowels and consonants through letter doubling, the velar nasal with an [ŋg] digraph, and the glottal stop with a single open quotation mark [‘] for modern languages and a [q] for proto-languages. Other than the above and using [p], [t] and [k] for short consonants in CO languages, spelling follows the orthographies of individual languages. Abbreviations used for proto-languages, language families and languages are taken from Wilson (2014) with the addition of PSSO-EPn and PSSO. Readers unfamiliar with contemporary reflexes of PPn phonemes in various Polynesian proto- and contemporary languages are directed to Marck (2000: 23–24).
2. Reconstructions central to the core arguments of this article are numbered as part of a single series to provide ease of cross-reference.
3. Other explanations for the shared innovations of EPn and NO languages, such as settlement of the Northern Outliers from East Polynesia, also face major challenges from the nested nature of the data (Wilson 2012).
4. There is an irregular change $*q > *w$ in Ren *gabo* < PSSO-EPn $*laqoi$ ‘good’ (innovation 20). That same change also occurs in PPn $*quti$ ‘bite’ > Ren *buti* ‘nibble’ and in PPn $*laqu$ ‘get by hooking’ > Ren *gabu* ‘catch, also entwine as a vine’.

5. A number of irregular phonological changes are found in innovations 21–23 and discussed here. Irregular loss of /m/ is not uncommon in EPn languages, e.g., PPn **kumete* ‘wooden bowl’ > Mangaian (Mng) *kuete* and innovation 34 PCNO-EPn **palaamoa* ‘fighting club often made of whalebone’ > PEPn **paraaoa* ‘whalebone club, whalebone, whale’. Similarly not uncommon in EPn is the empenhthosis of a reflex of PPn **k* before a final vowel, e.g., PEPn **teeraa* ‘that’ > Mao *teeraka*; Haw *pololei*, *polole* ‘i’ ‘correct’. Less common but still irregular changes in EPn languages are PPn **q* > reflexes of **k*, and PPn **q* > reflexes of **s*, e.g., PNPn **mata-qara* ‘alert’ > Haw *maka’ala*; PPn **qatule* ‘a mackerel-like fish’ > Mao *hauture* ‘jack mackerel’; PPn **qafa* ‘net spacer’ > Haw *haha*.
6. While I have some of my own ideas on the subject of EPn subgrouping, I follow Green (1966) here rather than Walworth (2014). EPn evidence provided in innovations 4 and 7 argues against Walworth’s complete elimination of Green’s TA and Marquesic (MQ) subgroups.
7. A PEPn innovation allowed the optional substitution of elliptical possessives (e.g., PNPn, PEPn **taqau*/**toqou* ‘yours’ > Mao *taau/toou* for the A/O neutralising preposed possessives (e.g., PEPn **too* ‘your’ > Mao *too*). Elliptical possessives then completely replaced different preposed possessives in different EPn languages (Wilson 1985; 2012: 315).
8. Doublets in the Tok possessive system also suggest NO influence. Some Tok possessives look like reconstructed PNPn forms and others like NO forms.
9. Space limitations preclude including all newly identified innovations shared by EPn with NO and SSO languages. Within this article innovations 16–24 and 30–35 are either newly discovered or newly integrated into the NO-EPn Hypothesis. Innovations 16, 17, 18 and 20 have been moved up to PSSO-EPn from lower-level proto-languages identified in Wilson (2012, 2014).
10. The irregular changes found in innovation 33 PSSO-EPn **waqe-langi* ‘horizon’ > PEPn **feqerangi* > Haw *hoolani* occur in other EPn terms. For **-aqe-* > **-eqe-*, note PPn **tage* ‘not’ > Mao *tee*; PPn **sagele* ‘walk’ > Haw *hele*. For **w* > **f*, recall innovation 4 PNO-EPn **kawiti* ‘ghost crab’ > PTA **koofiti*. The change **-fē-* > Haw *ho-* is also found in PNO-EPn **fenua* ‘land’ > Haw *honua*.

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APPENDIX 1: DICTIONARIES AND GRAMMARS CONSULTED

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ABSTRACT

The linguistics-based Northern Outliers–East Polynesian (NO-EPn) Hypothesis contrasts with the commonly held view that East Polynesia was settled from the Tonga-Sāmoa region. It proposes the Northern Outliers, especially the Central Northern Outliers, to be the homeland from which East Polynesia was settled. Added here to the three nested subgroups of the NO-EPn linguistic tree is a new Southeast Solomons Outlier–East Polynesian subgroup encompassing all previous languages

covered by the Hypothesis as well as certain other Outliers to the south. Recent evidence from ethnology, natural history and biological anthropology is provided in further support of the NO-EPn Hypothesis. The possibility of borrowing between East Polynesian and Northern Outlier languages explaining the over 200 linguistic innovations uniquely shared by them is shown to be untenable. Also shown to be untenable is the possibility of simultaneous bifurcated settlement of East Polynesia and the Outliers from a source in the Tonga-Sāmoa area.

Keywords: Polynesian origins, East Polynesia, Polynesian Outliers, Oceanic migrations, historical linguistics

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