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CONCEPTUALIZING 'FRONT' AND 'BACK'

FRAMES OF REFERENCE AND TAUMAKO REPRESENTATIONS OF SPACE

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The study of navigation involves questions about the conceptualization of space and ways in which people share their spatial understandings with others. This article focuses on one aspect of spatial cognition, a phenomenon commonly known as "frames of reference" (FoRs). It explores the myriad ways in which Taumako islanders in the southeastern Solomons talk about spatial relations that English speakers term 'front' and 'back.' I examine how Taumako notions of 'front' and 'back' articulate with FoRs that are well established in the anthropological literature, and I explore the challenge of applying commonly-accepted FoR typologies to actual Taumako usage. In some contexts, there was little disagreement among my interlocutors as to proper use of the salient terms. In others, there was considerable divergence; and in certain instances even the same person appeared to be inconsistent from one occasion to the next. I will attempt to identify those areas in which I found widespread consensus as well as those in which disagreements were pervasive, and I will consider possible reasons for that difference.

Key words: Polynesia, spatial cognition, frames of reference

Introduction

The present article, like others in this special issue, emerges from an interest in Pacific Island way-finding. In 2007-08, I spent nine months working with people from the Vaeakau-Taumako region of the southeastern Solomon Islands, studying canoe construction, navigational techniques, and voyaging. Inter-island navigation, my initial focus, is an art that requires specialized skills shared only by a small proportion of the population (cf. Genz, this issue). Way-finding, however, is equally pertinent to ordinary people going about their daily business, whether walking to their gardens, visiting relatives, or locating productive fishing grounds (cf. Schneider and Van der Ryn, both this issue). In the end, such mundane activities loomed every bit as large in my investigation as did long distance voyaging.

The study of navigation involves questions about the conceptualization of space and ways in which people share their spatial understandings with others. This article focuses on one aspect of spatial cognition, a phenomenon known in cognitive and linguistic anthropology as "frames of reference" (FoRs).[1] More specifically, it explores the myriad

ways in which Taumako islanders speak of spatial relations termed 'front' and 'back' in English.[2] It examines how Taumako notions of 'front' and 'back' articulate with FoRs that have been widely recognized (e.g., Báez 2011; O'Meara and Báez 2011; Bennardo 2002, 2009; Feinberg 2014; Levinson 1996; Palmer 2002). And it explores the challenge of applying commonly-accepted FoR typologies to actual Taumako usage. Like the Tongans studied by Bennardo, people on Taumako rely on at least two subtypes of the absolute FoR, described in the following section. Unlike Bennardo's Tongans, however, intrinsic and relative FoRs are also central. Moreover, it was sometimes difficult to ascertain which FoR was being invoked. In some contexts, there was little disagreement among my interlocutors as to the proper use of 'front' and 'back.' In others, there was considerable divergence; and in certain instances even the same person appeared to be inconsistent from one occasion to the next. I will attempt to identify those areas in which I found widespread consensus as well as those in which disagreements were pervasive, and I will consider possible reasons for that difference.

Frames oF Reference: Types and Subtypes

When conceptualizing an object's location, one may pinpoint its position in relation to the speaker/cognizer (ego), a second object, or some fixed external axis. These types of FoR have been dubbed "relative," "intrinsic," and "absolute," respectively. Following Palmer (2002:109-110), an intrinsic FoR is dyadic, as illustrated by the statement, "John is in front of the car," where John is located in relation to an object that has a clearly-defined front and back. A relative FoR is triadic, as exemplified by the statement, "John is in front of the post." A post does not have a front and back; rather, the statement means that John is between the post and the speaker. Absolute FoRs resemble the intrinsic type in that both are dyadic, but an absolute FoR locates objects in relation to "pre-established arbitrary fixed bearings." This would be illustrated by the statement, "John is north of the house," indicating that he is located on an axis running between the North and South Poles, and that he is positioned along that axis between the house and the North Pole. Bennardo (2002; 2009) describes these concepts in somewhat different terms but in a manner that is generally consistent with Palmer. For Bennardo (2002:161), a relative frame of reference is "a system of coordinates centred on the speaker/viewer/cogniser"; an intrinsic frame involves coordinates centered on an object other than the speaker; and an absolute FoR is centered neither on the object nor the speaker.

Scholars have divided relative and absolute FoRs into a number of subtypes. Subtypes of the relative FoR that appear in Bennardo's discussion (2009) include "basic," "translation," and "reflection." Subtypes of the absolute FoR include what he calls "cardinal point," "single-axis," "radial," and "ad hoc/landmark."

The basic subtype of the relative FoR involves three axes—vertical (up/down), transverse (left/right), and sagittal (front/back)—which intersect at the speaker, and objects are located with reference to these three axes. If the speaker moves, the axes also move, and the point of origin remains the speaker. The translation subtype of the relative FoR involves a second object, the "ground," conceived as facing in the same direction as the speaker. The ground becomes the intersection point of the three axes. Thus, an object

on the opposite side of the ground from ego is described as being "in front" of that object. In the reflection subtype, the ground is conceived as facing toward the speaker, and an object located between ego and the ground is described as "in front of" it.

The cardinal point subtype of the absolute FoR is typified by the Western division of geographical space in terms of points labeled (in English), north, east, south, and west. Other languages may use different cardinal points, and the numbers of such points may vary. In Vaeakau-Taumako, the 'wind compass' (Figure 1; cf. Pyrek and Feinberg, this issue) is conceived as a system of eight cardinal points.

The single-axis subtype of the absolute FoR creates an axis between two points of special significance. A common version of this subtype in Oceania involves an imaginary line that runs from the center of an island seaward toward the horizon. Others may involve an axis characterized as running upward and downward (which may or may not be a matter of literal altitude), or between two culturally-salient landmarks, such as a town and a village. The radial subtype of the absolute FoR involves a fixed point of reference, and movement is either centripetal (toward) or centrifugal (away) with respect to that central point (Bennardo 2009:61).
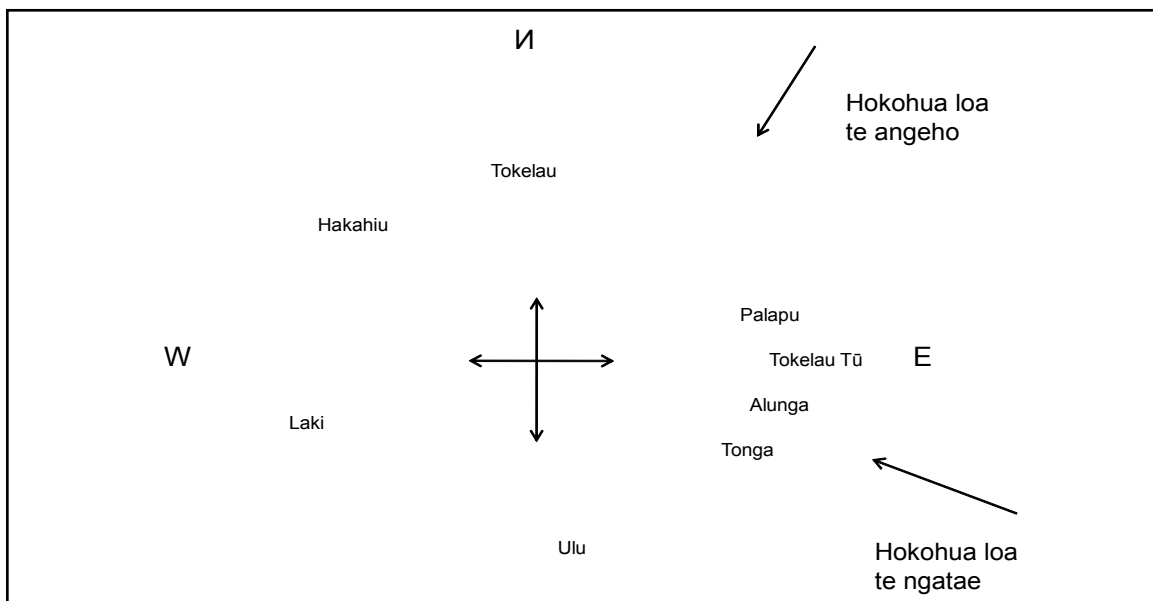
Figure 1. Vaeakau-Taumako 'wind compass' and dominant swells as represented by Clement Teniau, November 2007; courtesy of Ghassan Rafeedie.

Several authors (e.g., Bennardo 2002, 2009; Levinson 1996; Palmer 2002) suggest that Austronesian speakers privilege absolute frames of reference.[3] Bennardo adds that in Tonga the predominant FoR is "the radial subtype of the absolute FoR." Elsewhere (Feinberg 2014), I have described in some detail the conceptualization of space on Taumako and the variety of models that the islanders employ. Like Bennardo's Tongans—and, perhaps, most Polynesians—the Taumako rely heavily on several subtypes of the
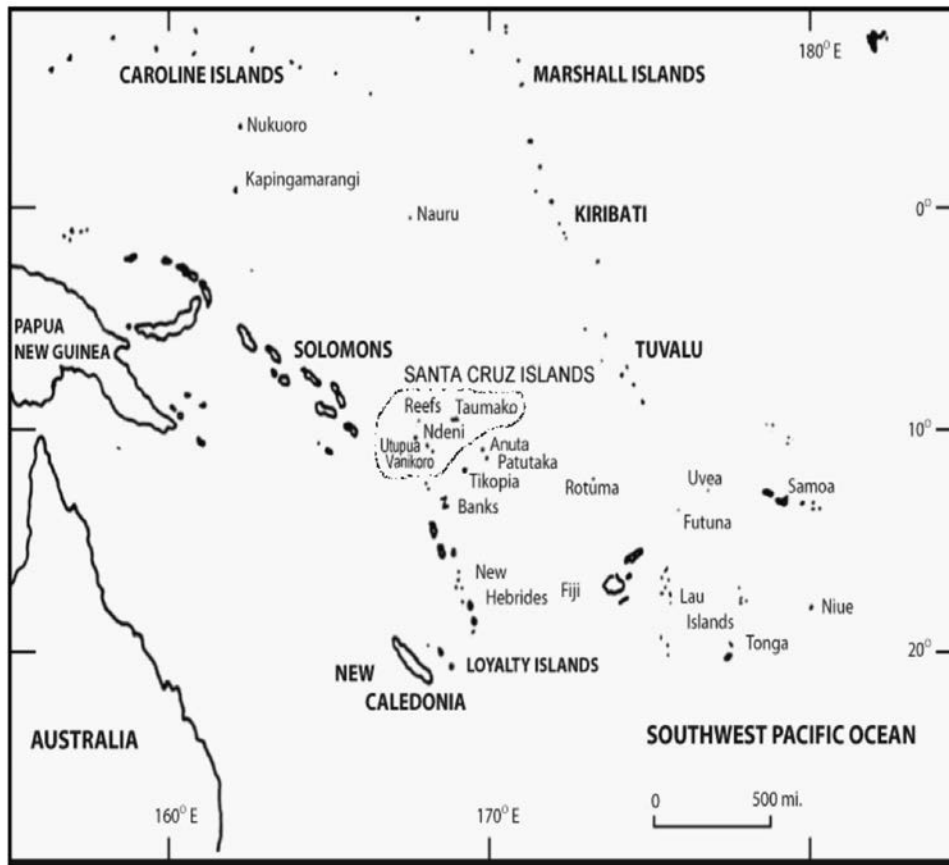
Figure 2. Map showing Santa Cruz Group in relation to other islands of the central and western Pacific. (Adapted from Yen and Gordon 1973:3.)

absolute FoR, but relative and intrinsic FoRs are also important—and sometimes decisive.

Taumako: The Island and Its People

Taumako, also known as the Duff Islands, is a Polynesian outlier in the Solomon Islands' Temotu Province (see Figures 2 and 3). It has gained prominence among students of Pacific navigation thanks to the writings of Davenport (1962, 1964, 1968), Koch (1971), Lewis (1972), and the Vaka Taumako Project (n.d.). It was once part of an elaborate trade network that Davenport (1962) described in his well-known article on "red feather money." Until a few decades ago, the system involved production of elaborate voyaging canoes (known as *puke* and *alo lili*) on Taumako, a high island with dense vegetation and large *Callophyllum* trees. The Taumako then sold the canoes to voyagers from the Polynesian Outer Reef Islands (known locally as Vaeakau), who would sail to the main Reefs and the large Melanesian islands of Vanikoro, Utupua, and Ndeni. They would take pigs, and often women, to exchange for nuts and feather money. Those were then used to pay Taumako craftsmen for additional canoes. The Taumako, in turn, used the feather money as a central element in bridewealth payments.

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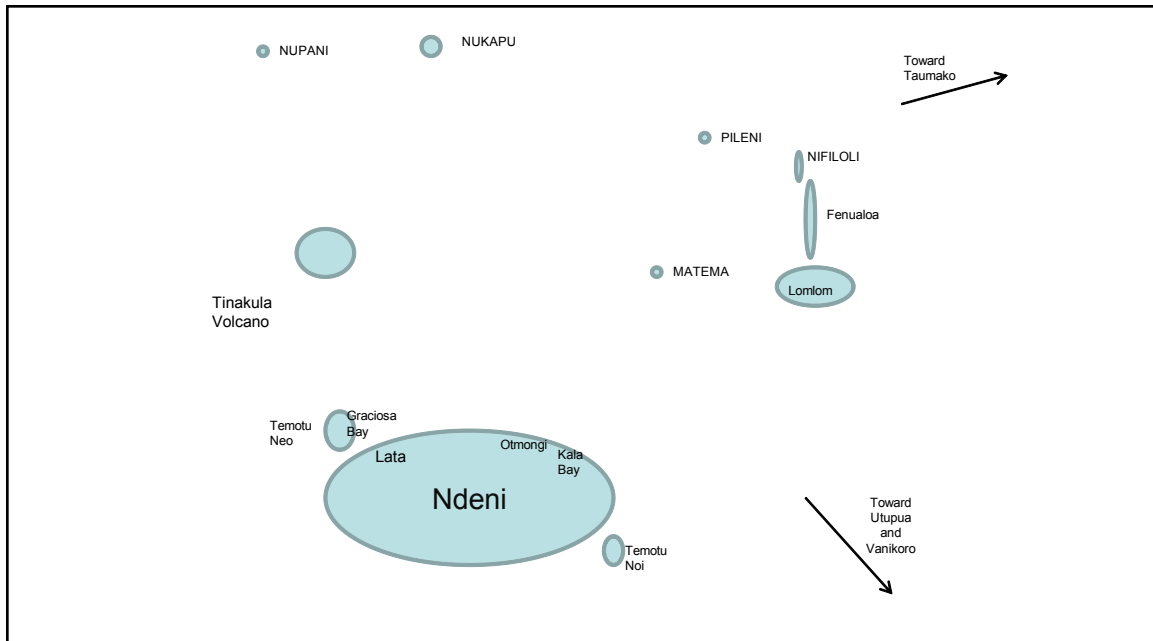
Figure 3: Schematic map of Santa Cruz Islands (Vaeakau islands in caps). (Figures 3 - 7 reprinted from Feniberg 2014 with permission.)

Taumako Locational Terms

Bennardo (2002; 2009) cites several lines of evidence in his exploration of Tongan frames of reference. These include linguistic representations, ethnographic data, and a number of psychological experiments. For purposes of this article, I will focus on Taumako vocabulary. Decades ago, Whorf (1941) called attention to the relationship between language and thought and, in doing so, initiated an extended debate over so-called linguistic determinism (e.g., see Leaf 1979). My intention here is not to address questions of causality. Any discussion of culture or cognition, however, involves some attempt to understand another person's mental state. Since one cannot directly access the workings of another's mind, one depends on some external evidence. For that purpose, I will emphasize the ways in which Taumako speak of space and spatial relationships. Among the linguistic devices through which Taumako represent space are the following:

1. The directional terms *mai* (indicating movement toward the speaker), *atu* (indicating movement toward a second person), and *ange* (indicating movement toward a third person).

2. The directionals *ake* and *iho*, indicating movement in an upward or downward direction respectively. *Ake* and *iho* are associated with the nouns *lunga* and *lalo*, referring to locations at or near the top or bottom of some object. These terms may refer literally to vertical relationships and metaphorically to the organization of space along a more-or-less east/west (or, more accurately, sunrise/sunset) axis.

3. Right (*hai toilo*) vs. left (*hai tovale*).

4. Front or forward (*mua*) and rear or behind (*muli*).

5. *Mata* or *alohi* and *tua*, referring to the front and back of an object, such as a house or an island.

6. Windward and leeward, concepts that are important for people who depend on sailing, but for which I could find no mono-lexemic labels.

7. *Te nohoanga te matangi* 'the wind compass.'

8. A concentric model in which one moves through a number of discrete zones while proceeding outward from the center of the island (cf. Feinberg et al. 2003; Feinberg 2008, 2014).[4]

In this article, I concentrate on points #4 and 5: *mua* vs. *muli* and *mata* (or *alohi*) vs. *tua*. These terms may be glossed roughly as 'front' and 'back,' but they are used in a variety of senses.

Mua and *Muli*

As in other Polynesian languages, *mua* and *muli* mean 'front' and 'back' in relational terms, but the use of these terms is complex. This section explores that complexity.

While 'front' and 'back' are the most common glosses, 'ahead' and 'behind' might be more appropriate. The Taumako might say, for example, "*Hano i mua; Aiau ka hano i muli*" 'Go on ahead; I will follow behind.' Sometimes, *mua* and *muli* merge notions of space and time. Thus, the first-born of a sibling set *ne hanau i mua* 'was born in front,' while a later sibling *ne muli* 'came behind.' One could also say, "*Ne hanau i muli*" '[He/She] was born later' or "*Aia te muli*" '[He/She] is later'; '[He/She] is the last.' When traveling either on foot or at sea, *mua* is the direction of movement toward one's destination, and *muli* is back toward the starting point. On a voyage from Taumako to one of the Vaeakau islands, Vaeakau *e tū i mua* 'stands up in front,' while Taumako *e tū i muli* 'stands behind.' When returning, this is reversed. If one is walking from Kahula village to Takulu, Takulu is *i mua* while Kahula is *i muli.* However, according to one informant, Geoffrey Niumama, when one turns around to go home, one is going back *ki muli.* On the other hand, if one starts in Takulu and walks to Kahula, Kahula *e tū i mua*, while Takulu *e tū i muli*.

Mua and *muli* may also be used in a variety of related senses. For example, in discussing the relationship between a canoe's movement and the wind, Allen Ioki suggested *muli* as the word for 'leeward' and *mua* as 'windward.' On further questioning, it turned out that Allen's primary referent for 'front' and 'back' was the movement of the sun and moon, making 'east' *mua* and 'west' *muli*.   By Allen's reckoning in this context, then, 'front' and 'back' are calculated in terms pre-established arbitrary fixed bearings, centered neither on the object nor the speaker. Thus, he was invoking an absolute FoR. Since the wind, at the time of our conversation, was coming roughly from the east, downwind was to the west and, therefore, *i muli* 'in back.' During the monsoon season, when the prevailing winds are more or less westerly, the wind blows from *muli* to *mua* (i.e., from 'back' to 'front'). Although *mua* and *muli* do not denote 'windward' and 'leeward' per se, they may be used to indicate wind direction in the expressions *te matangi e tai muli* 'the wind is coming from behind,' and *lele mua* indicating wind or waves hitting a canoe from

dead ahead. *E lau mua,* Allen indicated, means that they are hitting the bow but slightly from one side or the other.

Later, I was sailing around the island with Basil Mekau, an active sailor and fisherman in his mid-30s. Basil told me that windward was *muli* 'back' and leeward was *mua* 'front.' Indeed, when I asked the question the wind was coming from astern, so windward was in that sense 'in back.' But if we turned around, he said, this would be reversed: windward would be *i mua* 'in front' and leeward *i muli* 'in back.' For him, then, *mua* and *muli* in relation to the wind involved a relative rather than an absolute FoR, since front and back depend on the relationship between wind direction and the way the speaker happens to be facing.

Murray Leaf (personal communication) suggests that the salient issue may be the relationship between wind direction and the position of the mast or sail rather than the speaker/sailor. In fact, the mast in Taumako non-outrigger dugout sailing canoes is always near the bow, and the sailors usually face toward the bow. Thus, downwind, the position of the mast in relation to the canoe, the direction in which the bow is pointed, and the way the sailors are most likely to be facing coincide. However, if the canoe's occupants took down the sail and chose to rely exclusively on paddles or poles—as they often do—front and back would remain the same. Thus, I argue, the critical element is the direction in which the canoe or the sailors are facing rather than the sail.

An additional complication in use of *mua* and *muli* comes from the presence of other islands in Taumako's navigational universe. Like many Polynesians, the Taumako often speak of spatial relations in terms of an axis running from the center of the island out to sea. While at sea, movement toward the island is *ki ngauta* (toward *ngauta*), and movement away from the island is *ki haupē*. However, as one sails away from Taumako and approaches another island, one changes one's movement from *haupē* to *ngauta* (i.e., toward the center of that island). The reversal comes about without the sailor changing course. Then, after leaving one's destination to return home, one again is moving toward *haupē* until arriving within Taumako's sphere of influence, at which point movement in the same direction becomes *ki ngauta*. It is perhaps in part for this reason that some accomplished navigators, like the late chief Crusoe Kaveia, prefer to avoid such terms as *ngauta* and *haupē* when speaking of directions at sea, but rather speak of going *ki mua* 'forward' or *ki muli* 'back.' Forward and back, however, are no less relative than *ngauta* and *haupē*. When leaving Taumako and sailing toward another island—say Nifiloli, the closest of the Polynesian Outer Reef Islands—one is going 'forward,' and the open sea is 'in front' *(i mua)*, while Taumako is in back *(i muli)*. Conversely, when leaving Nifiloli to return home, the open sea and Taumako are in front, and Nifiloli is in back. As one approaches Taumako, but before one has arrived back home, the island is still 'in front,' but now the open sea is *i muli* 'in back.' Yet, as indicated above, *mua* and *muli* may also be used to indicate the path of the sun through the sky, making *mua* approximately east and *muli* approximately west. In that sense, a voyage from Taumako to Nifiloli goes from 'front' to 'back' despite the fact that in relation to the canoe the movement is from 'back' to 'front'; i.e., one is moving forward.

The complexity of *mua* and *muli* was reinforced in a rather different context after I left Taumako in 2008. I was traveling by motor canoe with Clement Teniau, a respected navigator from Nukapu, one of the Vaeakau islands (see Feinberg and Genz 2012). As we approached Pileni from Nukapu, Teniau said that Nifiloli is *i mua* Pileni 'in front of Pileni'; that Tikopia is 'in front' of Vanikoro; Vanuatu is 'in front of' Tikopia; Espirito Santo is 'in front of' what he identified as Vanuatu; Malakula is 'in front of' Santo; and Anuta is 'in front of' Tikopia. In each case, Teniau perceived the island "in front" as being to the east.[5] Since we were approaching from the west, this is the opposite of what English speakers would be inclined to say: if Nifiloli is on the opposite side of Pileni from one's current location, English speakers are likely to say that it is "behind" Pileni. Yet, Teniau's system made good sense in that our canoe was facing and moving 'forward' (*ki mua*), so from our perspective, Nifiloli was even farther "forward" than Pileni.

This would seem to suggest that Teniau was using what Bennardo (2009) terms the "translation subtype" of the relative FoR, whereas English speakers tend to use Bennardo's "reflection subtype." If this were the case, it would be noteworthy. Aside from Bennardo's (2009:67-70) findings in Tonga, this FoR subtype has been well described for only two communities: the Hausa (Hill 1982) and the Marquesas (Cablitz 2006). It turned out, however, that if we were going in the opposite direction—approaching the Reef Islands, for example, from Taumako—Nifiloli, in his system, would still be 'in front of' Pileni. In other words, according to Teniau, locations to the east are 'in front of' those to the west. They are also *i alunga* 'above' locations to the west, so 'forward' and 'upward' are in the same direction—as are 'back' and 'down' (see model #2, above). Teniau made essentially the same point on other occasions and in different contexts. For example, he said that Anuta is *i mua* Tikopia regardless of which way one is traveling; Guadalcanal is *i muli* (west of) Makira; and Santa Ana *e tū i mua* (stands east of) Makira. To the extent that he thinks in these terms, he uses either a cardinal-point or single-axis subtype of the absolute FoR.

Mata, Alohi, and *Tua*

Like *mua* and *muli*, the words *mata* and *tua* are familiar to speakers of Polynesian languages, and they can often be glossed as 'front' and 'back.' Their referents, however, are perhaps more complex and varied. They relate to particular objects and to spatial relationships, with only limited temporal signification. Unlike *mua* and *muli*, which are generally preceded by the prepositions *i* 'in' or *ki* 'toward,' *mata* and *tua* are normally preceded by the definite article, *te*. Thus, one may be *i mua* 'in front' of something or may be moving *ki mua* 'forward.' By contrast, an object has a *mata* (i.e., a front part). This section explores the uses of *tua*, *mata*, and the related term, *alohi*.

Mata's primary referent in Polynesian languages is 'eye' or 'face,' but it can also be a point of land jutting into the sea (see, e.g., Lehman and Herdrich 2002), and it can be the 'front' of an island (e.g., Feinberg 1980; Shore 1996). *Tua* literally refers to the rear part of one's anatomy, but it can also apply to anything located behind one's back. Since *mata* and *tua* generally refer to parts of a person or object, they would seem to lend themselves to an "intrinsic" frame of reference, but their use, in practice, is more varied.

In the Taumako language, *tua* is used in the common Polynesian sense. Thus, "*Te hatu e takoto i te tua ou*" means 'The stone is lying behind you' or 'at your back.' In temporal terms, *tua* is used to refer to the order of events, particularly birth order. Consequently, one might ask, "*Ko ai te tai ne hanau i te tua ona*?" 'Who was the next to be born?' or, more literally, 'Who is the one born at his/her back?' The sense is similar to the English idiom of younger siblings being born "behind" the older ones.
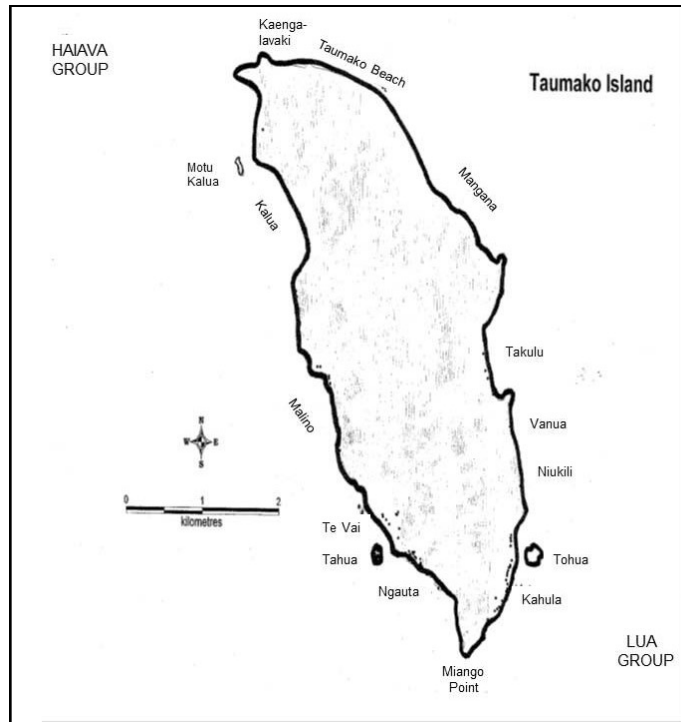

Figure 4. Map of Taumako.

Although the Taumako employ *tua* in the common Polynesian sense, and, as in other Polynesian languages, *mata* normally means 'eye' or 'face,' many Duff Islanders are uncomfortable with use of *mata* to mean 'front.' A few, like Geoffrey Niumama, suggested that the *mata* of an island is the side on which its population is concentrated. Thus, *te mata o* Taumako is essentially the southern half, running from Takulu in the east, through Kahula and Ngauta villages in the southeast and southwest, respectively, to Malino in the west (see Figure 4). *Te tua o* Taumako is the northern half, running from Kalua through Kaengalavaki, Taumako Beach, and Kongo, to Mangana. In none of these northerly locales does anyone maintain a permanent residence.[6] Not coincidentally, when one looks for a secluded spot to take care of private biological needs, one says, "*Aiau ka hano ki tua*" 'I'm going to *tua*.'

Lastly, *tua* may refer to the far side of a person, object, or place relative to the speaker. Thus, according to Geoffrey while the two of us were sitting in Nutō, Ngauta's northernmost 'neighborhood,' "*Makoe (ne) tū i te tua o Laloteova*" 'Makoe (was) located behind Laloteova.' Yet, he also used the word *mua* 'front' to characterize Makoe's loca-

tion in relation to the two of us (see Figure 5). In other words, Makoe was in front of us but behind Laloteova. Arguably, both statements invoke relative FoRs, but different subtypes. In saying that Makoe was in front of us because of the way we were facing, Geoffrey was invoking the basic subtype; in saying that it was behind Laloteova, he was invoking the reflection subtype.
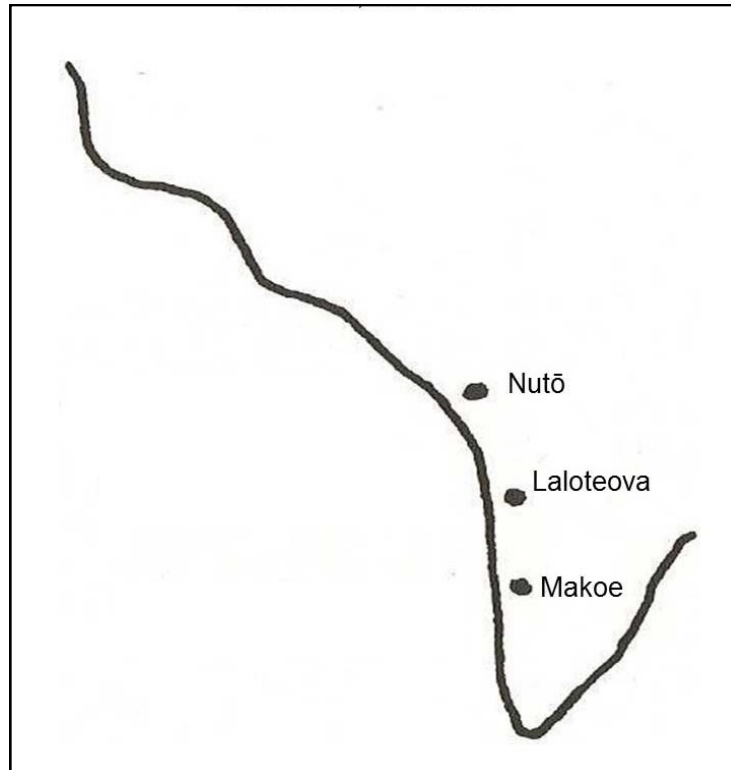
Figure 5. Map showing relative locations of Nutō, Laloteova, and Makoe.

While use of *tua* to refer to a place for toilet functions is part of everyday Taumako discourse, many islanders objected to Geoffrey's use of *mata* to refer to parts of a house or an island. Morris Likiopu, for example, called both the inland and seaward sides of a house its *tua*. The first is *te tua i mouku*; the second, *te tua i haupē*—'the back toward the bush' and 'the back toward the fringing reef.' Perhaps a better gloss for *tua* in this context would be 'end' rather than 'back.' In much the manner that English speakers might refer to "the front end" and "the back end," a house in Morris's view has a seaward end and an inland end. The long sides of the house, he said, are called by the general term for 'sides': *nga kaokao*. The north side of a house in Ngauta Village is *te kaokao e anga ki* Tahua 'the side facing Tahua'; the south side is *te kaokao e anga ki* Miango 'the side toward Miango.' The geographical relationship between Tahua, Ngauta, and Miango is indicated in Figure 6. According to this rendition, a house has two 'ends,' two 'sides,' and no 'front.' By Morris's account, the ends are clearly conceptualized in terms of the single-axis subtype of the absolute FoR, as they are arranged along a fixed axis running from the

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sea (*haupē*) toward the island's interior (*mouku*). Arguably, the designations for the sides facing Tahua and Miango also utilize an absolute FoR, but probably of the ad hoc/landmark subtype.
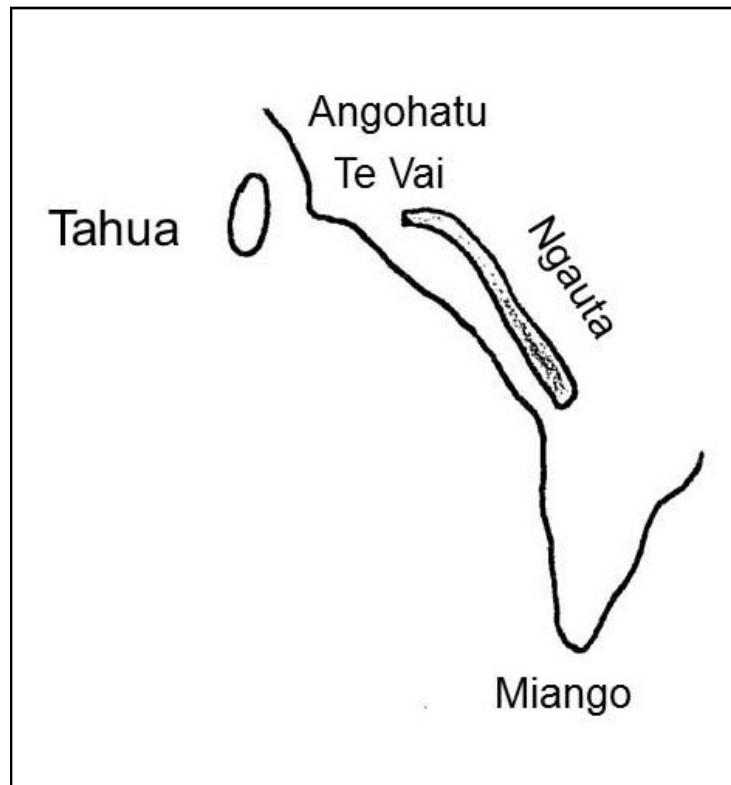
**Figure 6.** Map showing relative locations of Angohatu, Tahua, Ngauta, and Miango.

Geoffrey, in a later conversation, insisted that a house as well as an island has a *mata* and a *tua*. He offered *taha* as a synonym for *kaokao*, meaning 'side.' At Te Vai, a house's four *taha* are: 1) *te taha ki mouku* 'the side facing inland,' which is also *te tua o te hale* 'the back of the house'; 2) *te taha ki* Ngauta 'the side pointing toward Ngauta Village'; 3) *te taha ki* Angohatu 'the side toward Angohatu' (a small settlement just north of Te Vai); and 4) *te taha ki haupē,* the side facing the fringing reef. He declared that *te taha ki haupē* is, in addition, called *te mata o te hale,* and he said it can also be called *te alohi* or *te halohi*, both of which are acceptable pronunciations. So for Geoffrey (in contrast with Morris), a house has four sides, one of which is the 'front' or 'face,' and one of which is 'the back.' For Tahua, Geoffrey identified the side of the island facing the reef flat and the main island as *te mata*, while the side facing the open sea is *te tua*. Like Morris, Geoffrey seemed to be employing an "absolute" FoR based on a landward/seaward axis, but Geoffrey, unlike Morris, insisted that one of the ends was the 'front.' He agreed with Morris that one end is a back, but on Tahua the back faces the open sea—the opposite of the main island.

Kaveia II, a classificatory grandson of former paramount chief Crusoe Kaveia, agreed with Geoffrey in identifying the back of a house on the main island as *tuahale* and the front as *matahale*. And Cecelia Vakataumako, daughter of the elder Kaveia, also reported that the seaward side of a house is *matahale* or *muahale*—the house's 'front.' Before answering, however, she had to stop and think about my question, making it clear that this is not something she considers in her daily interactions.

A quite different understanding of *mata* and *tua* was provided by Taumako's priest, Father Johnson Vaike. Like Geoffrey, Father Johnson said that the side of Tahua facing the open sea is the *tua* (or *te tua o te henua*). The side facing the main island is *alohi* or *talohi* (which I take to be a contraction of *te alohi*). He stated that one can speak of Tahua's south side—the side closest to windward—as *te mata*, but he seemed more comfortable talking about it as *te ngatae*. The north side, he reported, had no designation other than *te angeho* rather than 'back,' 'front,' or 'side.' *Te ngatae* is the Taumako term for the trade-wind season, from about March through November, when the prevailing winds blow roughly from the southeast; *te angeho* refers to the monsoon season, a time of unstable winds that often blow from the west or north. These terms also designate the directions from which the prevailing winds blow during those respective seasons. Arguably this could reflect the "cardinal direction subtype" of the absolute FoR, in which the terms *ngatae* and *angeho* relate to points of the more elaborate *nohoanga te matangi* 'wind compass' (see Figure 1; Feinberg 2014; Vaka Taumako Project 2016).

On the main island, this changes. *Te tua o te henua,* Father Johnson said, is essentially the northern half, starting around Kalua and going clockwise as far as Mangana. This agrees with Geoffrey's description. Johnson differed from Geoffrey, however, in saying that the southern half is *alohi* and not *te mata*. He agreed that the island has a *mata*; however, for Johnson, *te mata* is restricted to the southeastern section of the island, from Kahula northward to Takulu. This makes it—as on Tahua—the side facing the prevailing wind. But on the main island, the prevailing wind comes from the southeast rather than the south—from *te tonga* rather than *te ulu*. 'Front' and 'back,' on both islands, are identified in terms of axes that are, in a certain sense, fixed. However, the direction of the axis varies somewhat, depending on one's location. On both Tahua and the main island, it is determined by the *ngatae* trade wind, but that wind's direction changes depending on one's vantage point.

Paramount Chief Michael Tauopi had yet another perspective on spatial designations. He gave the term, *dahale*, for the 'ends' of a house—what English speakers might think of as the 'front' and 'back'—and *tulaua* for the long 'sides.' On Tahua, however, he said that a house does not have a 'front' and 'back'; just two ends (*dahale*) and two sides (*tulaua*). But while the house itself does not have a 'front' and 'back,' the area outside the end with the door can be described as *i mua te hale* 'in front of the house,' and the area outside the end without a door is *i tua te hale* or *i muli te hale* 'behind the house' (see Figure 7). This appears to invoke what Levinson (1996) and others (e.g., Bennardo 2002; Palmer 2002) call an "intrinsic" FoR, since 'in front' and 'behind' do not vary depending on the speaker's location but depend on how the house is situated and the location of its door.
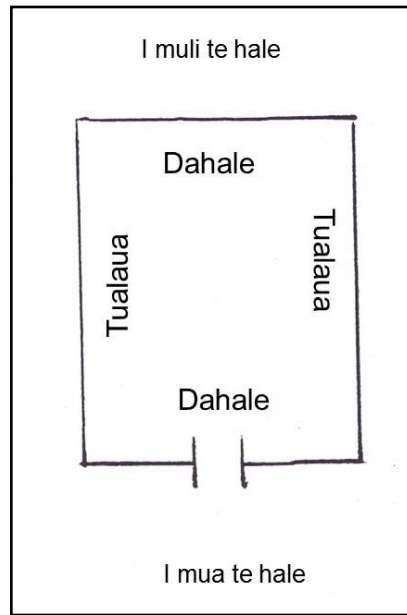
Figure 7. Illustration of Michael Tauopi's designations for parts of a house.

On the main island, Michael said, this is different. The side of the house facing inland is *te tua o te hale*, and the side facing the sea is *alohi* (not *te alohi*). This is very much like Morris's system and apparently reflects an absolute FoR of the "single-axis" subtype. On either island, according to Michael (and in contrast with Geoffrey), a house does **not** have a *mata*.

In contrast with what Geoffrey told me, Michael denied that an island, any more than a house, has a *mata*. On Tahua, *tua*, which he translated in this instance as 'outside' rather than 'back,' is the side facing the open sea; and it is where women go to take care of their toilet needs. Again, this is different on the main island, where *hai ki tua* is everything from Kalua through Kahula, and it contrasts with *ngauta*, which consists of Ngauta Village and possibly Malino. This would appear to suggest an intrinsic frame of reference, since the island has a 'back' (even if it does not exactly have a 'front'). However, Michael never made explicit the grounds for designating Taumako's northern section as its *tua*, thereby raising the question of whether it is related to some external feature, which would make his frame of reference "absolute."

On another occasion, Michael told me that if one should be going toward **any** of Tahua's three sides that do not face toward the main island, one says, "*Aiau ka hano ki tua*" 'I'm going to *tua*.' Of the remaining side, one says, "*Aiau ka hano ki alohi*" 'I'm going to *alohi*.' He added that in olden days, and to a certain extent today, *tua* was the place for women and married couples; boys and young men had to stay at *alohi*. Family houses were *i tua*. 'Bachelor houses' (*holau*) were all located at *alohi*. Although on Tahua, the north, south, and west sides of the island are *i tua*, when men cross the reef to the east and go to the mangroves on the main island for toilet facilities (i.e., to the west side of Tau-

mako Island), they go *ki tua*. Thus, 'front' and 'back' may be thought of roughly in terms of an inland-seaward axis, but *tua* in some cases is toward the open sea and in others is in the opposite direction. In a way, this is reminiscent of the designations for the ends of a canoe, where the bow and stern are both called *mōmoa*. One, however, is *te mōmoa i mua* 'the front end,' and the other is *te mōmoa i muli* 'the back end.' Yet, Taumako canoes tack by moving the sail to the opposite end of the vessel so that the old bow becomes the new stern. What used to be *te mōmoa i mua* 'the front end' becomes *te mōmoa i muli* 'the back end' and vice versa.

Discussion

English speakers might imagine that concepts labeled "front" and "back" are simple and straightforward. Careful reflection, of course, reveals considerable complexity in the use of these and related terms, even in English.[7] Yet, even with such understanding, the plethora of ways in which Taumako employ words glossed as 'front' and 'back' is striking. That diversity reflects what Shore (1996; 2014) has termed "multiple models" of spatial orientation.

In common, everyday practice, Taumako speakers evince a good deal of agreement in their use of spatial terminology. *Mua*, for example, points toward the front part of the body, space and objects located in the direction that one is facing, and, under normal conditions, the direction in which one is moving. *Muli* points toward the rear portion of a person's body as well as objects or space located in the opposite direction from that in which one is moving or toward which one is facing. *Mua* and *muli* can also refer to the temporal order, with events *i mua* coming earlier and those *i muli* coming 'behind.' In more esoteric contexts, one finds greater disagreement.

One example of such disagreement involves objects such as houses, and the island itself. It appears from comments by Vakataumako and others that islanders do not often think about issues of front and back in relation to these entities and, when asked, people have to ponder whether they have a *mata* 'front.' In a conversation detailed elsewhere (Feinberg 2014:312-313), two middle-aged women declared that my questions about the orientation of houses were rather technical and beyond the grasp of most Taumako. Still, even those who deny that houses and islands have 'fronts' generally acknowledge that they have *tua* 'backs.' 'Fronts' and 'backs' of houses, when they exist, are typically conceptualized in terms of a single inland/seaward axis, suggesting an "absolute" FoR. By contrast, 'fronts' and 'backs' of islands, insofar as they are recognized, are defined either in relation to the 'wind compass' (suggesting the cardinal point subtype of the absolute FoR; see Figure 1), or in relation to internal demographic patterns (perhaps suggesting an intrinsic FoR).[8]

'Windward' and 'leeward' are particularly problematic, as there appears to be no indigenous word that corresponds precisely with either of these concepts. When interlocutors are asked to describe their position in relation to the wind, some refer to 'front' and 'back' in terms of the sun's trajectory, invoking the single-axis subtype of the absolute FoR. Others situate the wind direction in relation either to themselves (invoking the basic subtype of the relative FoR) or their canoe (invoking an intrinsic FoR).

Table 1 Use of FoR Types and Subtypes for Mua and Muli

	FoR Type & Subtype	Absolute: Cardinal Point	Absolute: Single-Axis	Absolute: Radial	Absolute: Ad hoc Landmark	Intrinsic	Relative Basic	Relative Reflection	Relative Translation
INFORMANT									
Allen									
	wind direction		√				√		
Basil									
	wind direction						√		
Kaveia									
	sailing directions		√			√	√		
Teniau									
	rel. position of islands from perspective of canoe at sea	√(?)	√						√(?)

Table 2 Use of FoR Types and Subtypes for Mata/Alohi and Tua

FoR Type & Subtype	Absolute: Cardinal Point	Absolute: Single-Axis	Absolute: Radial	Absolute: Ad hoc Landmark	Intrinsic	Relative Basic	Relative Reflection	Relative Translation
INFORMANT								
Geoffrey								
parts of island					√			
location of neighborhoods						√	√	
parts of a house		√		√				
Morris								
sides of house		√		√				
Fr. Johnson								
parts of island	√	√						
Chief Michael								
area outside of house (on Tahua)					√			
area outside of house (on main island)		√						
parts of island (on Tahua)		√			√			
parts of island (on main island)		√(?)			√(?)			

Informants occasionally appeared to contradict themselves, as when Teniau referenced the positions of Pileni and Nifiloli by invoking first the translation subtype of the relative FoR and then the single-axis subtype of the absolute FoR. In that case, two models were available. Initially, he drew on one that seemed particularly apt while we were traveling eastward from Nukapu toward Pileni. But when I asked about the relative positioning several pairs of islands that were not in our immediate travel plans, he reverted to a model that seemed better suited for abstract conversation.

A similar observation could be made about the ways that people speak of travel between two locations and whether one is moving 'forward' (*ki mua*) or 'back' (*ki muli*). Thus, Geoffrey indicated that when walking from Kahula to Takulu, one is moving 'forward,' and in returning from Takulu to Kahula on is moving 'back.' By contrast, Chief Kaveia opined that in sailing from Taumako to Nifiloli one is moving 'forward,' and when returning to Taumako, one continues to move 'forward' but toward a different destination. The apparent discrepancy between these interlocutors makes sense in terms of one's point of orientation. Geoffrey, I suggest, conceptualized his movement in relation to Kahula village. From that perspective, as we might say in English, one goes forth and then comes back. Kaveia, as an inter-island navigator, was focused on the position and movement of his vessel. The canoe, regardless of its destination, is always moving 'forward.'

Social activity can be as important as purely geographical features in determining an island's 'front' and 'back.' On Tahua, women use the west side, which faces the open sea, to attend to their bodily functions; meanwhile, men residing on Tahua use the mangrove swamp on the main island, to the east. Yet, *alohi* 'front' can also be the side facing toward the reef flat, which is in the same direction as the main island. Thus, *tua* and *alohi*, if described in terms of cardinal points or a single axis, can be in the same direction. In this context, 'front' and 'back' may simultaneously involve at least three FoRs: the single-axis subtype of the absolute FoR (which may be based either on the sun's trajectory or on a seaward/landward axis in which 'front' is seaward); the cardinal point subtype of the absolute FoR (in which 'front' is the direction of the prevailing trade wind); and perhaps an intrinsic FoR (in which 'front' is the place for unmarried men and their 'bachelor houses' [*holau*], while 'back' is either the place for women and children or for private toilet activity). Use of words for 'front' and 'back,' therefore, depend in part on the activity one has in mind.

The variation described above is summarized in Tables 1 and 2. I must caution, however, that the tables are, at best, suggestive. They are based on comments explicitly noted in this article, but they lack the complexity and subtlety conveyed in the verbal description. Interestingly, the one FoR subtype that fails to appear on the chart at all is the radial subtype of the absolute FoR—precisely the one Bennardo describes as a foundational cultural model in Polynesia. Arguably, Bennardo overstates his case. An alternate explanation is that the radial subtype of the absolute FoR is most prevalent in spatial dimensions other than 'front' and 'back.' Indeed, in my more comprehensive overview of Taumako spatial cognition (Feinberg 2014), radiality appears in a variety of contexts.

My explanations for Taumako disagreements over the description and conceptualization of spatial relationships, for the moment, must remain hypotheses, as I did not pose questions to my interlocutors that would have permitted conclusive verification. They do, however, seem consistent with responses to the many queries I did pose while in the field. What one may say with confidence is that space is always viewed from some perspective; therefore, spatial orientation inevitably involves some frame (or frames) of reference. However, FoRs may overlap; thus, it is sometimes difficult to specify which FoR is being invoked. And often, even when discussing seemingly straightforward concepts such as 'front' and 'back,' rather than attempt to pinpoint the particular FoR being applied, our objective should be to elucidate the variety of types and subtypes that might be involved as well as reasons why an actor may prefer a particular one on a given occasion. This is what I've attempted here with respect to one Polynesian community in the southeastern Solomon Islands.

[1] The expression, "frames of reference," appears in many contexts, ranging from physics to religion and moral philosophy. The FoRs with which this article engages are those involving representations of space.

[2] In this article I use single quotes to denote English glosses of Taumako terms. Double quotes indicate a direct quotation.

[3] The widely-dispersed Austronesian family includes languages spoken on most Pacific islands as well as parts of Southeast Asia, and westward as far as Madagascar.

[4] See Feinberg 2014 for a more detailed review of all these models and their interrelations.

[5] In fact, Espirito Santo and Malakula are both parts of the nation state of Vanuatu. In the case of Santo, one of Vanuatu's most westerly islands, Teniau appears to have been mistaken. Moreover, Tikopia is pretty much due north of Vanuatu. With respect to the other islands, his descriptions correspond with Western cartographic understandings. Also, note that Teniau's description of Vanuatu as "in front of" Tikopia would be accurate if, in that case, he were using the translation subtype of the relative FoR.

[6] I found few Taumako who agreed with Geoffrey's understanding of *mata*, and many denied that an island has a *mata* at all. Many, however, supported his use of *tua*; thus, the eastern or northeastern sections of Taumako were commonly described as *hai ki tua* '[the] side toward the rear' or the 'back side.'

[7] Related terms in English might include "forward," "before," "ahead," "backward" "rear," "behind," and many others.

[8] The Vaeakau-Taumako 'wind compass' (*te nohoanga te matangi*) is alluded to above as model #7. It is discussed at length in Feinberg and Genz (2012), Feinberg (2014) and Pyrek and Feinberg (this issue).

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