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# INTRODUCTION

## NAVIGATING SPATIAL RELATIONSHIPS IN OCEANIA

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Recent decades have seen a revival of interest in traditional voyaging equipment and techniques among Pacific Islanders. At key points, the Oceanic voyaging revival came together with anthropological interests in cognition. This special issue explores that intersection as it is expressed in cognitive models of space, both at sea and on land. These include techniques for “wave piloting” in the Marshall Islands, wind compasses and their utilization as part of an inclusive navigational tool kit in the Vaeakau-Taumako region of the Solomon Islands; notions of ‘front’ and ‘back’ on Taumako and in Samoa, ideas of ‘above’ and ‘below’ in the Bougainville region of Papua New Guinea, spaces associated with the living and the dead in the Trobriand Islands, and the understanding of navigation in terms of neuroscience and physics.

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**Keywords:** cognition, navigation, Oceania

Recent decades have seen a revival of interest in traditional voyaging equipment and techniques among Pacific Islanders. That resurgence was inspired largely by the exploits of the Polynesian Voyaging Society and its series of successful expeditions, beginning with the 1976 journey of *Hōkūle‘a*, a performance-accurate replica of an early Hawaiian voyaging canoe, from Hawai‘i to Tahiti (Finney 1979, 1994; Kyselka 1987). *Hōkūle‘a* (which translates as ‘Glad Star’, the Hawaiian name for Arcturus) has, over the ensuing decades, sailed throughout the Polynesian Triangle and beyond. At the time of this writing, it is circumnavigating the globe (Parker 2015; Polynesian Voyaging Society 2016). In *Hōkūle‘a*’s wake, Pacific peoples across the region, from New Zealand (Aotearoa), the Cook Islands, French Polynesia, Guam, and the Solomon Islands, have promoted their own cultural revivals by constructing voyaging canoes and reclaiming the arts of inter-island navigation (Finney 2003; Diaz 2011).

During the 1950s and 60s, shortly before the Polynesian Voyaging Society’s founding, a new anthropological movement gained momentum. Partisans of that movement called it “cognitive anthropology”; their objective was to elucidate the relationship between culture and human thought patterns through formal semantic analysis. Techniques then popular, such as “componential” and “transformational analysis” (see, e.g., Tyler 1969) are no longer used. By contrast, concern with the interface between culture and cognition remains an anthropological preoccupation (e.g., Bennardo 2002a, 2009; Hutchins 1995; Ingold 2000; Son 2012).

The Oceanic voyaging revival and anthropological interest in culture and cognition, to a degree, developed independently. However, at key points they came together in ways that were mutually reinforcing. One involves ethnographic studies of communities in which inter-island voyaging and non-instrument navigation never ceased and, therefore, did not have to be revived. This became critical when the Polynesian Voyaging Society was searching for a navigator to guide *Hōkūle‘a* on its epic voyage to Tahiti and discovered that no Native Hawaiian retained the necessary skills. Eventually, the project organizers contacted master navigator Mau Piailug, from a part of Micronesia that had come to their attention owing to the work of anthropologists William Alkire (1965) and Thomas Gladwin (1970). Piailug not only led the expedition to a successful conclusion; he taught his art to Nainoa Thompson, a Native Hawaiian who later guided *Hōkūle‘a* throughout Polynesia and beyond.

In addition to anthropological interest in non-instrument navigation (see, e.g., Gladwin 1970; Lewis 1972; Hutchins 1983; Feinberg 1988, 1995; Feinberg and Genz 2012; Genz 2008, 2011), anthropologists have repeatedly supported Islanders’ attempts to maintain or revive their elders’ knowledge and skill set. Such support is evident in Ben Finney’s involvement with the Polynesian Voyaging Society and his chronicling of the Society’s accomplishments; in Marianne George’s collaboration with Taumako’s chief Crusoe Kaveia to create and promote the efforts of the Vaka Taumako Project (<http://vaka.org/>); in Joseph Genz’s sustained collaboration with Marshallese navigators; and in Richard Feinberg’s 45-year involvement with Anutans.

Anthropological engagement with Pacific voyaging and navigation has led in several directions. One involves attempts to understand the natural cues on which way-find-

ers depend to cross the open sea in the absence of the sextant, magnetic compass, or other instruments on which Western navigators have relied for centuries. Another involves mental models or cognitive maps. Consideration of cognitive maps, in turn, leads to questions of how geographical features and their relative locations are represented. Such representations often are linguistic; in other cases, however, they may be implicit and difficult to express linguistically (Feinberg and Genz 2012). They are sometimes tangible—as are the Marshallese so-called stick charts (e.g., Genz, this issue). In other instances, they are abstract, as in the *etak* system of Micronesia’s Caroline Islands, where navigators estimate their position by picturing themselves in a stationary canoe, surrounded by moving islands (see, particularly, Gladwin 1970, Hutchins 1983; Huth 2013). Some constructs that are critical for inter-island navigation bear little or no relevance on land. Others apply equally on land and sea. One direction for thinking about spatial relationships involves frames of reference (FoRs; see Levinson 1996; Palmer 2002; Bennardo 2002b, 2009), a point discussed in this special issue by Feinberg, Schneider, and Van der Ryn.

A theme that runs throughout this special issue is how both observed and constructed features of space are part of Oceania’s cultural milieu. Clear observation of one’s natural environment is critical for long-distance voyaging. It is discussed in Pyrek and Feinberg’s analysis of Taumako’s “navigational toolkit”; but it also figures prominently in contributions by Schneider, Genz, and Van der Ryn. In contrast with the careful observation of environmental features, which may be necessary to achieve a clear instrumental objective (e.g., arriving at a desired destination), the cultural construction of space can be primarily cosmological. Such constructions make their most dramatic appearance in Montague’s article, which explores Trobriand Islanders’ conceptualization of space in terms of two contrasting types: that associated with the living and that with the dead. Perhaps somewhat less dramatically, the culture’s influence on the conceptualization of space is evident in all the works appearing here.

Discussion of conceptual models and their construction leads to the question of how widely those models are shared. At one time, anthropologists assumed that culture was a more-or-less bounded and integrated whole (e.g., Benedict 1934; Schneider 1968; Geertz 1973). Undoubtedly, collective efforts require participants to communicate well enough to accomplish their task, and such communication entails a degree of sharing. Still, as time has passed, anthropologists have increasingly embraced what Wallace (1970:23-24) termed “the organization of diversity.” In the context of Pacific navigation, specialized knowledge may be carefully guarded and under the control of a small number of experts. Moreover, divergent models or contrasting FoRs may be invoked under different circumstances or for different purposes. Actors often disagree about how to characterize certain relationships, and even the same actor may be inconsistent from one occasion to the next. The existence of alternate constructs among which an actor may choose has been termed “multiple models,” and it is an issue that has been discussed particularly by Shore (1996, 2014; see also Feinberg and Mawyer 2014). These points are examined, in one way or another, in all the contributions to this special issue.

Those contributions begin with Joseph Genz, who draws upon extensive fieldwork with Marshall Island navigators, including an inter-island voyage captained by one

of his hosts. Genz discusses Marshallese efforts to revive traditional way-finding and the differences between two leading experts in their understanding of hydrodynamics. He examines the famous “stick charts,” how they represent wave patterns, and their use for teaching purposes. And he considers how his primary informant, who had been exposed to both of the Marshall Islands’ main navigational schools, drew on elements of each in the course of their inter-island voyage.

Cathleen Pyrek and Richard Feinberg discuss the elements that make up what they call the “navigational toolkit” that is employed for inter-island voyaging by people from the Vaeakau-Taumako region of the Solomon Islands. They begin with a brief survey of the literature on wind compasses in the Austronesian-speaking world, then explore the Vaeakau-Taumako wind compass and how it articulates with local understandings of swells, stars, birds, and other navigational cues. They emphasize the value of possessing multiple tools to overcome the frequently encountered vagueness of nature’s navigational “signposts.” They compare three types of compass—wind, star, and magnetic—and highlight the contrast between Western and non-Western navigational models.

Katharina Schneider examines ideas of “above” and “below” in the Buka region of Papua New Guinea. Although superficially similar, “mainlanders” from the large, high island of Buka have very different ontologies from the “saltwater people” of Pororan, a small island off Buka’s western coast. Both groups agree that “mainlanders” and “saltwater people” are “all one,” and the use of spatial referents to denote social rank in such domains as kinship, age, and gender, in fact, are broadly shared. Yet, how these domains are conceived, organized, and responded to can play out rather differently in those communities. They may be “all one” in their desire both to compete with one another and to provide mutual support, but their divergent approaches to daily living demonstrate contrasts in how they jockey for rank and respect. Tensions arise because, perhaps reflecting their respective environments, one group is rigid and fixed while the other is fluid and mobile. Further, one group enjoys the tension far more than the other.

Richard Feinberg considers recent work by Levinson (1996), Bennardo (2002b, 2009), and others on spatial cognition and so-called FoRs. He focuses on how people of Taumako conceptualize “front” and “back” and how their system of spatial orientation fits with previous analyses of FoRs. Determining which FoR is at work in a given situation, he finds, can be a challenge. The absolute, intrinsic, and relative frames overlap, and it is sometimes unclear which is operative. He concludes that while the idea of FoRs is often useful, more attention needs to be paid to their subtypes and the contexts that determine which subtype is used.

Fepulea’i Micah Van der Ryn explains a similar complexity for Samoans regarding ‘front’ and ‘rear’, as road construction provides villages with new potential fronts that may compete with older markers of “frontness,” such as the beach or ‘ceremonial green’ (*malae*). In Samoa, contrasting spatial referents have taken on new and complex meanings as attempts to maintain tradition are interrupted by what passes for modernity. Van der Ryn proposes an alternative to Shore’s (1996, 2014) “multiple models” interpretation of Samoan spatial structures, suggesting instead that variation in village layout may

be understood as expressions of a single, underlying radial/concentric spatial model (cf. Bennardo 2009).

Susan Montague discusses her extraordinarily fraught path to understanding the terms *o* and *wa* on Kaduwaga in the Trobriand Islands. Prior published reports glossed these expressions simply as ‘in’ and ‘out’. Those translations, however, failed to predict how Trobrianders actually used the words, and Montague’s hosts insisted that she learn to apply them correctly. In the end, the meanings proved complex, as Trobrianders use *o* and *wa* to associate material spaces with cosmological understandings, including understandings of the relationship between the living and the dead.

In the concluding essay, John Huth explores the fit between indigenous navigational constructs, particularly those related to wave piloting, and what scientists have learned about the physical phenomena on which such constructs are based. Huth is a physicist with broad interests; here he considers environmental dimensions of way-finding and calls attention to the neurological mechanisms that underlie a navigator’s knowledge and ability. Gathering the different strands in this special issue, he examines what each contribution has to say about language, cognition, and cultural practices as they relate to the human capacity to orient oneself in the world.

These ethnographically rich articles explore the variation among models for resolving navigational and other spatial problems and the manner in which people may exploit the multiplicity of available options. They explore the role of multiple models in spatial cultures and the complex frames of reference those models call into play as Pacific Islanders negotiate their complex physical and social environments.

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