

8 *On the relevance of point field for spatiality in Oceania*

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1 Introduction

We shall begin by drawing an analytical distinction between two fundamental and, we imagine, mutually exhaustive alternative conceptions of spatiality that one of us has written about at length elsewhere (Lehman 1980). Lehman was first driven to apply these constructions, which have independent mathematical motivation, to the analysis of culturally specific representations of (more accurately, ways of constructing) space in the context of ethnographic, historical and linguistic work in Southeast Asia, more particularly Burma and Thailand. However, there are two good reasons for reprising this material, and adding to it in a collection of papers on Oceanic representations of space.

In the first place, it is relatively uncontroversial, at least among comparative linguists, that Austronesian languages are descended ultimately from a proto-language originally found in Southeast Asia.¹ In the present context of discussion I need not recapitulate the argument. So, if, on independent evidence, one finds Oceanic (specifically Polynesian) ways of conceptualising space to require the sort of point-field analysis that holds for Burma and Thailand, it just might be due in some measure to a common, though very distant, historical basis. In itself this is unimportant, both because of remoteness in time and space and, more significantly, because in Southeast Asia the point-field representation, or at least the context in

¹ Some Oceanic linguists and certainly some archaeologists may dispute this claim still, as Jeffrey Clark reminds us. In the first place some of them continue to follow an older view, due originally to I. Dyen, that places the original home of the Austronesian ancestors somewhere in Melanesia, and others, modifying this idea on the basis of prehistoric evidence in part prefer either Taiwan, the Philippines or somewhere else in Insular Southeast Asia. However, these are increasingly minority views, and it seems to many that these views are really about the centre of *dispersion* from which Proto Austronesian may have broken up into its immediate daughter subfamilies. It is simply beyond the scope of the present paper to go into these questions. In addition, it is to be understood that (mainland) Southeast Asia includes much or all of what, in more historic times has been South China (see, e.g. Belwood 1992). This region certainly was the home of Proto Tai and, both on the grounds of the Austro-Tai hypothesis and on independent archaeological grounds, is a much-preferred region for the placement of Proto Austronesian. Thus, on the view taken here and by many comparativists, the question is, or ought to be, what route led from somewhere in South China to which part of the Islands, and from the latter to the dispersion of the subgroups of the family.

which it surfaces most particularly, seems to be restricted to societies practising Theravāda Buddhism. And, it is argued in the paper cited above, that part of the reason for its choice as the default, but never sole, representational form has to do with some very particular cosmological conceptual assumptions within Buddhism as against Brahmanism, both having a common source in Indian civilisation. Still, whilst it may well be that Buddhism motivates the preference for point-field representations of space in Burma and Thailand, it has a deeper source, arguably at least, independent of Indic cultural influences that has not previously been made clear.

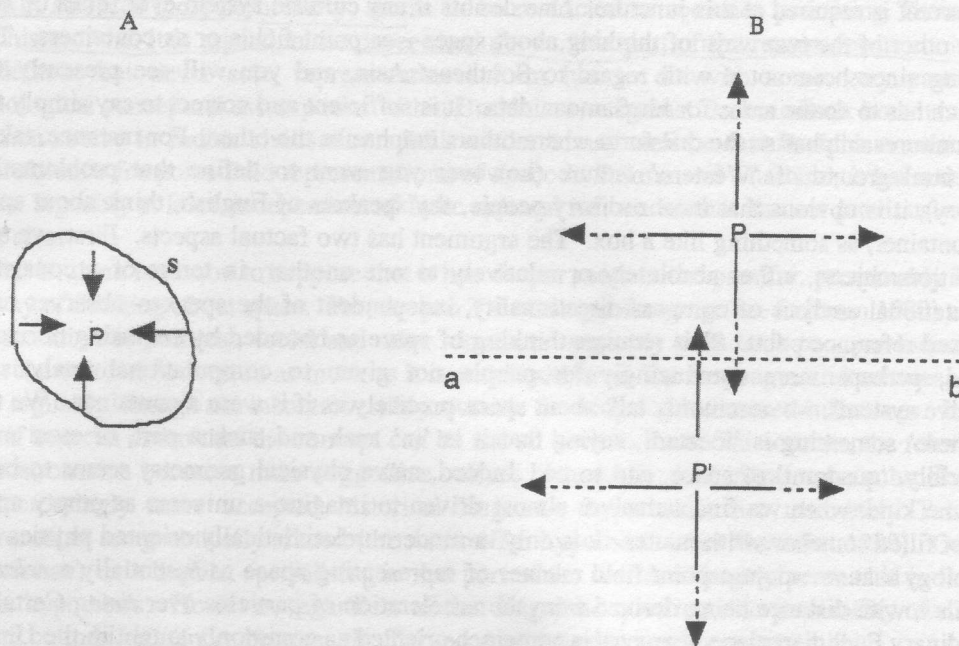
That is, there is reason to suppose that it has deeper roots in the pan Tai, presumably Proto Tai way of thinking about space. For, the pan Tai concept of *myang* (see Lehman 1980) as the representation of political, social and other 'domains' arguably goes back to a pre-Indianised era in Tai cultural history, in as much as it is employed in all Tai languages and cultures, even those arguably, though not incontrovertibly, outside the scope of Indianised influences. In any case, if one can claim that the concept can be traced back to Proto Tai sources, the relevance for Austronesian becomes more suggestive culture historically, just in case one subscribes to the increasingly more accepted historical linguistic hypothesis that ultimately Tai and Austronesian are genetically related (the Austro-Tai hypothesis—see Benedict 1990). One of us (Lehman), as a linguist specialising in that part of the world, is largely persuaded in favour of this hypothesis. However, regardless of that linguistic question, the probability of shared ancient cultural influences between the Tai and Austronesian worlds is very high.

Nevertheless, in so far as it appears on abstract computational grounds, there are only two possible, imaginable generalised ways of representing space, viz., as either point fields or as axiomatically bounded 'containers'. It is interesting that we have no formal name for the latter manner of thinking about space, but maybe that is because it is the natural 'default' idea of space in human cognition, arguably the most widespread the world over (see Lakoff & Johnson 1980:chs 15, 16 for a discussion of *conceptual* spaces viewed as containers in English; and Johnson 1987:22ff. for various substantive spaces viewed as containers). Therefore, the parallel between Polynesian and Southeast Asian ways of thinking about space may be simply accidental convergences. However, the likelihood of such an accident diminishes just in case one can demonstrate on the basis of broad comparative investigation yet to be undertaken (not possible given our current knowledge about how space is conceptualised round the world) that the dominance of point-field representations is far from randomly distributed amongst the world's cultures and languages. This is a project that needs to be pursued. At any rate, such considerations lead us to the second motivation for the present paper.

There is distinct evidence from within Polynesian ethnography that space is commonly thought of in a way that strongly suggests a point-field analysis. Some of the evidence is to be found in, for instance, Kenneth Cook's paper in the present collection with respect to Hawai'i, and, perhaps more explicitly, in Giovanni Bennardo's paper regarding Tonga. Primarily, however, Herdrich (ethnographer, cognitive scientist and archaeologist, working for some years in Samoa) has produced massive evidence that such an analysis is necessary to account for the fact of the way Samoans commonly talk about space and behave socially and culturally in and with regard to the space they inhabit traditionally. Herdrich's evidence and arguments will constitute the second part of this paper. It should be obvious that Herdrich has been influenced by Lehman's work in making point-field analysis his working hypothesis. But he has carried it much farther, and has adduced evidence for it from far more domains of social and material life in Samoa than ever Lehman did for Southeast Asia.

A caveat is required at this juncture. One doubts if any cultural system ever relies on only one or other of the two ways of thinking about space—as point fields or as containers. This has long since been noted with regard to Southeast Asia, and you will see presently that Herdrich has to do the same for his Samoan data. It is sufficient and correct to say simply that some cultures emphasise the one form where others emphasise the other. For instance, taking the neutral ground of 'Western' culture (however you want to define that problematical category), it is obvious that most ordinary people, say speakers of English, think about space as a container, as something like a box. The argument has two factual aspects. First, we tend to position objects, either absolutely or relatively to one another, in terms of a consistent computational analysis of compass directionality, independent of the speaker-observer or of any fixed reference point. This requires thinking of space as bounded by enclosing horizons. Second, perhaps more convincingly for people not given to computational analysis of cognitive systems, we commonly talk about space precisely as if it were a container. We talk of 'where' something is 'located', saying that it is 'in' such and such a part, or even more technically, 'quadrant' of space, and so on. Indeed, naïve physical geometry seems to be of the same kind, when we find ourselves almost driven to imagine a universe as empty space that got filled somehow with matter. It is only in modern, relativistically oriented physics and cosmology that we adopt a point-field manner of representing space as essentially a *relation on points*, with distance being derived from the acceleration of particles over *time*. Certainly the ordinary Euclidian plane geometry is container-oriented as commonly taught in the United States. For, whilst there may well be a sort of implicit point-field conceptualisation hidden in Euclid, as in the older English version, where 'a straight line *lies evenly between* two points', it is a container view that motivates the revised formulation: 'a straight line is *the shortest distance between* two points', and so on. Note that the container conception of space is not called into question if two- or three-dimensional space extends infinitely in its dimensions; it remains correct to say that space 'exists' prior to the objects coming to fill it, and this amounts to saying that its boundaries, viz., its extensions or limits, are axioms of the conceptualisation.

With all that said, let us proceed first to some of Herdrich's material and findings from Samoa. In the course of describing the Samoan linguistic coding of the point-field model we will explicitly show how it is that boundaries, instead of being axiomatic as in the container view of space, are derived theorems on the point-field view. Put starkly, but effectively, *a point field defines space as the topological neighbourhood of a given point*, and boundaries are derived as the adjacency of the closures of pairwise distinct point fields. Thus, any such point field is infinite, save as it 'comes up against' the field of a competing initial point, while all other points are understood ('located') as in one or other (or indeed both) fields, though each, in its respective if subordinate way, itself establishes a field, and so on recursively.



In a container view of space, any point, P, is defined as located at the intersection of a grid of directional lines relative to boundaries, or edges, say a horizon. points, P, Q,..., are therefore in the same space, S.

In a point-field view, any point, P or P', defines a field extending in all directions indefinitely, and boundaries, as in the case of the dashed line a-b, are defined essentially by the symmetrical overlap of adjacent fields. Fields are topological neighbourhoods, and in general every point is in the neighbourhood of every other point. However, only certain points define pragmatically meaningful fields, so that all other points not on a boundary are taken as defining fields properly contained in a principal field, here defined by P and P'. Points in the region of a boundary may be taken as simultaneously in both (all) adjacent fields.

Figure 1: Space as (A) a container, with points defined with regard to boundaries that are axiomatic, and as (B) point-fields, with boundaries derivatively defined as theorems.

2 Review

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2 Review of Samoan data: the point-field system as dominant in Samoa

Earlier analyses of Samoan spatial systems have worked within and from the assumptions of a binary structuralist framework. In his book *Sala'ilua: A Samoan Mystery Shore* (1982) presented an analysis of Samoan spatial systems focusing on the village spatial organisation in terms of binary dualisms. Allen (1993) and Duranti (1994:60) were among the first to describe inconsistencies with Shore's spatial analysis. This was later followed by a re-analysis of the spatial data by Shore (1996), and Herdrich and Clark (1996). It is coming to be recognised that the binary model of the Samoan spatial system is incomplete and that many aspects of Samoan spatial organisation and thinking can be described with a point-field model (Shore refers to it as a 'centre-periphery model' or 'concentric model', while Allen calls it a 'focal point' model). However, it is important to realise that neither Shore nor Allen come anywhere near making explicit the distinctive formal properties of spatial conceptualisation involved, as between point fields and container spaces.

Even with this recognition we find that there is still a tendency in both Shore's (1996:273-276) and Allen's (1993:247) work to try to salvage aspects of the earlier binary structuralist analysis. While Shore and Allen may be correct that a binary analysis cannot be entirely abandoned we will argue here that the point-field model accounts for more Samoan data than either Shore or Allen have recognised.

Shore (1996), for example, in his re-analysis argues that Samoans use two alternative spatial models, the binary structuralist model of space for linear villages, and a centre-periphery or concentric model that is a continuous, 'graded', 'analogue' system for circular villages. We will discuss the issue of two alternative models toward the end of the paper. Here we will turn our attention to the issue of the linguistic representation of the point-field model. In arguing why earlier analyses missed or under-described the presence of the point-field model he argues that,

The use of such graded symbolic forms is appropriate for people who tacitly share the same general perspective, such as members of a common household or village and those whose mutual orientation does not require explicit verbal formulations. (Shore 1996:275)²

And,

While such a concentric schema may be derived from observing variations in Samoan behavior in the village, it is not, linguistically speaking, a well-coded public model for Samoans. (Shore 1996:272)

He furthermore states that,

The less articulate but clearly operative concentric model is more of a 'tacit cultural model' that is acted upon and represented spatially but not linguistically. (Shore 1996:275)

Our data will show that this is not the case, that, in fact, there are numerous linguistic terms that reflect the point-field structure and the consequences of such a system are a matter of day-to-day and even official legal discourse. We believe that earlier analyses projected a binary

² We set aside for now obvious questions such as: why do other societies which have members belonging to common households, villages, and who have a 'mutual orientation' not share the same type of spatial concepts? And, after all, what society does not have members who belong to a common household, members who belong to a common village, and members who have 'mutual orientation'?

structuralist model onto the data leading to an under-description of the point-field conceptual system because it did not easily fit within the binary paradigm to which investigators of that theoretical persuasion were attuned.

The point-field model can be represented as a point with a series of vectors (possibly infinitely many) radiating outward (Allen 1993; Herdrich & Clark 1996). The field extends out indefinitely and 'boundaries' within such a system are not axiomatic but are derived as relationships between points. *The 'space between' points is always in contention and is therefore a focus of attention.* We find that point-field model conceptions (points, radiating vectors, [arms or rays], and the concept of the 'space between') are not merely derived from observing variations in Samoan behaviour but are highly lexicalised in the Samoan language.

2.1 *mata* 'Point'

There is an emphasis in the Samoan lexicon on describing things and boundaries in space in terms of a point or *mata*. In addition to 'point' *mata* also means 'eye', 'face', 'boundary or edge', 'cutting edge', 'blade', 'spring (of water)', 'mesh in a net', 'glasses', a name given to certain styles of communal fishing, and the most prominent point of an abscess or boil (Pratt 1893:212; Milner 1966:134).

The use of the term *mata* for eye can literally mean an eye, but it is also commonly used as a way of talking about points. For instance, Herdrich and Clark (1996) in showing that the Samoan village can be described in terms of a point and vectors, quote Samoan High Talking Chief Tualo Lemoe of Pago Pago who explicitly stated that the *malae* or village centre is conceived of starting out from an 'eye' or point.

Next, consider a series of compound words that use the term *mata*. First, Milner (1966:136) defines the term *matāgāluega* as a section or department. We generally conceive of sections or departments as well-bounded containers, but for Samoans it is literally a *mata* 'point' of work '*galuega*', that is, not a place in which work is done, but a point from which work emanates. Various government offices and Catholic parishes in Samoa are referred to as *matāgāluega*. For example, there is the *Matāgāluega Leoleo* 'police department', and *Matāgāluega o Eleele, Fuagāfanua*,³ *ma Si'osi'omaga* 'Department of Land, Survey, and the Environment'.⁴ Related to this, is the English phrase 'quarter of the wind', this is normally conceived as a well-bounded segment of space, but in Samoan the term is *matāmatagi* or point of the *matagi* 'wind'.⁵

³ A (land) survey is, of course, a matter of establishing boundaries by shooting angles from points. The English word 'survey' emphasises the boundaries, and the angles shot, and has the sense of 'to examine or look at in a comprehensive way' (Morris 1976:1295). The Samoan term *fuagāfanua* literally means *fuaga* (to measure) the *fanua* (land). *Fuaga* is derived from *fua* which in addition to meaning 'to measure' also means 'to produce fruit, to proceed from, to originate, and to begin' (Pratt 1893:163). As a noun it refers to fruit, flowers, seeds, eggs, and spawn of fish (Pratt 1893:163). So the emphasis for the Samoan term is on things that are essentially *points* of origin.

⁴ Supporting evidence for the point concept being used in this way comes from the term *gātu* which Pratt (1893:171) defines as a verb meaning 'to make headquarters, to come to one point from different places'.

⁵ The close relationship between points and the term *fua* is again apparent when one notes that a synonym for *matāmatagi* is *fuamatagi* which is defined by Pratt (1893:164) as 'to begin or come from whence the wind comes, to sail before the wind'.

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Second, an extended family under the head ship of a *matai* 'chief' is a *matā'āiga*. Thus, it appears that both the terms for chief (*matai*) and extended family (*matā'āiga*) are conceptually related to points (Milner 1966:136–137). In addition, one's obligation, duty, responsibility, or proper share of work is also conceived of as a point being referred to as *matāfaioi* (Milner 1966:136). And there is the term, *mataitū*, defined by Milner (1966:137) as a verb meaning to 'head, direct, govern'.

Furthermore, as noted above the term *mata* can mean boundary or edge, and one finds various terms such as *matāvao*—edge or boundary of a plantation, *matāfaga*—beach, *matāutu*—a point of land running out into the lagoon, and *matāmutia*—a taro plantation by the side of a house. The term *vao* is 'the bush', the term *faga* is 'bay', *utu* is 'a ditch' and *mutia* is 'a grassy area'. Boundaries are thus conceived not as absolute lines in and of themselves, but rather as points relative to other domains, such as the bush or bay—'points of intersection of domains/fields'.

Space does not warrant an analysis of all the compound terms based on *mata*, but see Appendix A.

2.2 *moa* 'Centre point'

In addition to the term *mata* for point, there is a specific word, *moa*, which refers to a central point or a point in the middle of something. For example, it has been said that the meaning of the word Samoa is 'sacred centre'. In addition, one can speak of *moa o le auala* 'the centre of the road', *moa o le potu* 'the centre of the room', *moa o le fale* 'the centre of the house', *moa o le potumoe* 'the centre of the bedroom', *moa o le avanoa* 'the centre of the space'. For instance, if one speaks of a blank piece of paper one says that it has *avanoa* or 'space'. One can then say something like *Fa'amolemole, aumai se peni fai se fa'ailoga i le moa o le avanoa*. 'Please, take a pencil and make a mark in the centre of the space.'

The word, *moa*, can also refer to a central point located at the solar plexus on one's body. Related to this is the idea argued by Forsyth that Samoan *Taulāsea* and *Fofā* [different classes of Samoan traditional doctors] conceive of the human body as having a series of 'sacred' points located at intervals running vertically along the centre of the body (Forsyth 1983:181, 288, 350).

2.3 *maga* 'The intersecting point'

Milner (1966:120) sometimes glosses *maga* as the 'space between' two intersecting lines, for example, *magālima* as the 'spaces between the fingers', but that gloss is slightly inaccurate. Instead, based on consultation with a large number of Samoans and some of Milner's other uses of the term, we find that it is more accurate to define it as the point where two lines intersect. For example, *māgafā* is the 'fork in the road where two roads intersect' (Milner 1966:120). If one has a point and radiating vectors, then given the intersection of any two of these vectors one has a *maga*.

A relatively large number of terms include *maga* to describe intersections that English speakers usually ignore. By way of example there is *magālima* 'the point at the intersect of two fingers', *magāvae* 'the point at the intersection of two toes', *māgamaga* 'having many forks', *magāmuli* 'point between the buttocks', *māgavai* 'tributary or branching stream'. The

idea of the 'space between' should be reserved for the word *vā* which we will discuss below in detail.

2.4 'ave 'Ray, tentacle, arm'

As argued by Allen (1993:267) and Herdrich and Clark (1996) a point-field model can be represented by a point with vectors or rays. The term 'ave is defined by Milner (1966:39) as being 'a ray such as a sunbeam or the tentacle on an octopus'. It can also be loosely used to mean an 'arm' of something. The term 'aveau means 'starfish' and *fetū* or 'stars' are also said to have 'ave. The term can be applied to virtually any ray or arm-like vector projecting from some central point or region.

In Samoa one finds that images and objects with rays are very popular as design motifs. Designs using patterns of rays and star-like images dominate Samoan fabrics, *tatau* and *malu* 'male and female tattoos', *siapo* 'tapa cloth', and stonework and stained glass in churches. Churches are frequently named after stars with explicit emphasis on their radiance. Examples include churches with names such as *Fetā o le Moana* 'Star of the Ocean', *Fetā Ao Pupula* 'Bright Morning Star', and 'Ave o le Fetā Ao 'Ray of the Morning Star'.

Turning to the human body, Samoans believe that there is an organ located at a point along the centre line of the body between the *moa* and navel known as the *to'ala* that is believed to be a 'life source' (McPherson & McPherson 1990:168–169). It is described as being like a 'closed fist and is made of an unspecified number of tentacle-like fingers, 'ave ...' and it is also likened to a 'fe'e' or 'octopus' (McPherson & McPherson 1990:169). McPherson and McPherson (1990:169) tell us that, 'In its correct position it ensures well being. Illness occurs when, usually after an excess of certain sorts of activity, it opens and, using its tentacles like an octopus, moves about the body'. Health is restored when it is returned to normal position, usually through massage (McPherson & McPherson 1990:169; see also Cox 1997:40–41).

As noted above, boils are said to have *mata*, but this is not a complete description of their structure. In addition to an eye or point they are also conceived of as having rays or 'ave.

⁶ In addition to the explicit sense of 'ray' for the word 'ave, Milner (1966:38–39) includes two other base definitions along with numerous (n=19) derived terms, compounds words, phrases, and proverbial expressions that use 'ave as a root. The underlying sense of these terms includes the structure of a ray; a directional path or line pointing from one object/state/stage, conceived of as a point, to another point. Space only permits five examples as follows:

Firstly, 'ave has the sense of to 'give', or to 'take' something to someone. So, one could say,

Peti, 'ave le meaai ia Tavita. ----> Betty, take the food to David.

If Betty and David are points, then the path from Betty to David can be conceived of as a ray.

Secondly, 'ave has the sense of 'driving' something.

'Ave le ta'avale. ----> Drive the car.

If one is driving something, one is going from one point to another along a path which, again, can be thought of as a ray.

Thirdly, 'ave has the sense of 'messenger'. And a messenger is someone who takes something from one person to another and has to travel a path which, again, can be conceived of as a ray.

Fourthly, 'ave has the sense of 'spreading' like rumours spreading. One can imagine multiple rays spreading from one point to many other points, and so on.

Fifthly, 'ave has the sense of 'becoming' (or growth). This is found in the terms meaning 'becoming', a 'stage in a baby's growth', and the sense of 'a fruit-bearing stalk of a bread-fruit tree'. Here, if one has an initial point, then the rays radiating from it represent growth or becoming over time as they extend out.

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McPherson and McPherson (1990:229) tell us that the treatment for certain types of boils is to massage 'from the periphery toward the centre ... to break the 'ave, or "tentacles", which hold the eye in place and prevent drainage'.

2.5 *vā* 'The space between'

There is a well-known phrase in Samoan, *Teu le vā*, which can be translated as 'to tend, arrange, or decorate the relationship or the space between [people]' (Shore 1977:161, 1982:136; Duranti 1981:29–30, 1997:343, 345; Maego 1998:81–84). We believe that the concept of *vā* or 'the space between' is a direct consequence of having a spatial system based on points and their associated fields. This is because social, political, and land tenure boundaries are derived from relationships between points rather than from axiomatically defined boundaries. Relationships between people (conceived as points) are, if not well tended, subject to potential change. Hence boundaries in Samoa have a built-in and recognised potential to shift relatively frequently. It is recognised that one has to take care to *Teu le vā* or cultivate relationships or 'the space between' carefully for this is what will ultimately determine where the boundaries in the 'space between' will fall.⁷

Like the concept for 'point', the idea of 'the space between' is a highly lexicalised concept. As Milner (1966:310) tells us,

words beginning with *vāi-* or *vai-* appear to be compound, consisting of *vā* followed by the particle *i* which is itself followed by another base. They usually denote an interval or intervening space between two places or events or a feature of such interval.

A few examples from Milner (1966:310) and our Samoan consultants are words like *vāi'aiga* 'refreshment served between two meals', *vāitalo* 'the interval between taro plants', *vāivao* 'bush, forest separating two villages', *vāinu'u* 'the space between two villages', *vānui* 'the interval between coconut trees', *vāilima* 'the space between fingers', *vāivae* 'the space between legs or toes'. As with *mata*, space does not permit a full analysis of all the *vā* terms (see Appendix B for more).

The consequence of a point-field system and the emphasis on maintaining space or relationships between points is far-reaching. In Samoa there is constant awareness of one's place in space relative to others, see Duranti (1997). And, for example, when one is provided an opportunity to speak in any kind of a public forum one of the first things that is usually said by a speaker is '*Fa'afetai mo le avanoa*', literally 'thank you for the space' (again, the space in question being conceived of as a gap or interval (Milner 1966:37)).

3 Boundaries

In addition, land boundaries in Samoa are frequently found to be overlapping and are almost constantly disputed. The boundaries derived from relationships that are agreed to are seen as temporary and likely to change relative to the changing relationship. For instance, consider the American Samoa National Park lease which was written by a Samoan who is

⁷ Considering that Mainland Southeast Asia makes much use of a point-field conceptualisation of space, it is worth noting the way Burmese spaces 'between'. In English, it seems, for instance, that a 'valley' is a space 'in its own right', in fact often defined by a stream running down along it, *bounded*, of course, by hills. But in Burmese, a valley is just *taung-ca.*, 'a separation (*ca.*, "to fall between") of mountains'.

well aware of how Samoans view boundaries. The lease was negotiated over a number of years with five Samoan village councils. The park has internal boundaries that are to be used for deciding how the money is divided among the members of the villages participating in the park. With regard to these boundaries the lease explicitly says,

Payment of rent from the trust account shall be made only to those landowners who: a. reach agreement (solely for the purposes of the National Park) with neighboring landowners as to the boundaries of their land within the park. (US. DOI/NPS 1997:272-73)

Note that the boundaries are not set by the National Park, or by the village, and there is no reference to officially registered land parcels designated in a plat book. Rather, neighbours have to agree on what are explicitly temporary boundaries. It is probably no accident that besides *mata* another Samoan word for boundary, *tuā'oi*, also means 'neighbour'. In addition, the one other term for boundary is *tapula'a*, made up of *tapu*, 'to forbid', and *la'a*, 'to step'. But *tapu* has a temporary sense to it in that traditional *tapu* or taboos were not considered to be permanent (Shore 1989:154-156).

And, in describing Samoan attitudes toward moral behaviour, Shore makes similar observations concerning boundaries. Shore (1982:118) reports that, 'In a well ordered village, life is *maopoopo* (well ordered), and the lives of its residents are *puipui* (protected or literally "walled in") by customary institutions'. But these laws are not to be seen as axiomatic boundaries. Shore (1982:118) says that 'No boundary is, however, intended to provide an absolute limit on behavior'. What is primary is the idea of the world as an indefinite field; Shore (1982:119) states that,

Laws and regulations function in Samoan belief as the dignified outer limits or constraints on behavior, giving a moral shape to a world that is otherwise *sa'oloto* (free or unbound).

There is further evidence for the temporary nature of boundaries and their traditional dependence on the relationships between people. Firstly, when the US Naval Administration in American Samoa created the Registrar's Office in 1900, making official surveying and registering of land possible, few Samoans were interested because it was recognised that fixing the boundaries would take out the flexibility in the system (Charles Ala'ilima pers. comm.). Traditionally boundaries were (and to some extent still are) denoted by rows of *nui* [*Cocos nucifera*], *poumulu*, [*Securinega flexuosa*], (sometimes explicitly marked *fa'ailoga* with an 'x'), or with rock walls that frequently amount to little more than a single course high line of rocks. Traditional boundaries involve a relatively low investment of energy and they do not in and of themselves physically constrain access to and movement between parcels of land.

Today, however, due to a legal precedence (recognising adverse possession of land) made in the American Samoan western-style land court, and the return of off-island educated Samoans with individualistic values, the surveying and registration of unregistered family communal land has become much more popular (Stover 1990, 1993). In addition, in American Samoa people are beginning to construct very substantial chain link fences and rock walls to fix boundaries.

But this building of fences and walls and registering of land is highly controversial and contentious. It has created conflict in villages and is a matter of explicit discussion in terms of how this does away with flexibility and negotiation in the relationships of neighbours. Herdrich was present at a series of lectures (and ensuing discussions) given by Samoan

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scholar Malama Meleisea between November 20 and 22, 1997 at the American Samoa Community College. We cannot present the entire discussion here, but we will relate an incident a Samoan student told to the class, and two important comments made by Meleisea at his November 21, 1997 lecture. First, the student related the following,

We had a problem within our village. One high chief wanted to have his land measured, but, let's just say that my family land is a great big part of the village and they didn't want us to survey it because this is gonna be labeling the land as our family land and the village land. And they, instead of telling us straight, or informing our high chief of what is gonna be done, they just met with themselves. And our high chief didn't even tell them that we were gonna survey the land for this reason or that reason. They just noticed from a leak within our family, or kinda like information leaked out. The village kinda got together and had a meeting without our representation. It's like the village council is like the house of representatives is in the government, having kinda like having each family represented. And without our family being represented they made a choice of stopping the survey and tried to kick out or replace our high chief with somebody else. That should not be their concern.

Meleisea responded,

We have a similar case in our family. The family is trying to put a huge fence around traditional family lands. Some of the chiefs are against it. You can't do that... You cannot fence traditional land the way you have it, particularly in the middle of the village. Because when you do it, it is very symbolic of all other things. If everybody does it the village becomes a suburb.

And,

There will always be these feelings about land. We're not just talking about geographical space. It's the *Vā o 'oe ma a'u*. [The relationships between you and me.] It's these relationships. They are very complicated. They are historical, psychological, geographical, based on gender, based on all sorts of things. So the single thing of putting a fence there has tremendous implications on the Samoan concept of space. *Vā tapuia*, [the relationship between prohibitions or taboos] *Vā fa'aaloalo*, [the relationship of respect] *Vā o le tuagane ma le tuafafine*, [the relationship between brother and sister] *O le vā o le mea lea ma le mea lea* [the relationship between this thing and this thing]. You can always argue that Samoans will insist on that, on that concept of *vā, teu le vā*. Everybody exists because they know what their relationship is to that person and this person and that other person. And when you put, bang, right in the middle of the village, a fence, all those relationships are questioned.

Another example has to do with a meeting Herdrich had with his landlord who happens to be a High Chief. The meeting took place at the High Chief's house which is on a dirt road. Herdrich noticed that work had begun on levelling it, and new cinders had been put down. Herdrich mentioned this to the High Chief saying, 'looks like they are finally improving your road'. He said,

yes, they are, and they are going to tar seal it as well, but they have not contacted me and asked my permission. I'm not happy about that; part of the road is on my land, my boundary goes right down the centre of the road [*moa o le auala*]. They are going to have to compensate me because once they tar seal the road that means I will not be able to change the boundary.

In other words, the way he views it is that the *moa o le auala* is one of his boundaries, but it is just a dirt road and as long as it remains so it is possible to change the location of the road and *de facto* change the boundary of his land. But if the road is improved and made

permanent, so is his boundary, not a desirable thing from the Samoan point of view, because it cuts out (or at least makes more difficult) the possibility of expanding one's boundaries at a later date.

4 Resolution and conclusions

We believe we have shown quite clearly that the point-field model of spatial representation is, contrary to Shore's earlier statements, a highly lexicalised system. We are now in a position to discuss the issue of alternative models, in particular the point-field model vs. the binary model that uses such terms as 'front' and 'back'. First, it is important to note that in any language front/back have similar equivocation built in. Take English: in one view the future is 'in front' of us [still to come]; in the opposed but equally colloquial view, the same future is coming on 'behind us' in the sense that it is 'yet to come' whilst the past has already gone on 'ahead'. The first view we can call (rather provisionally) a sort of Static or Placement view, whilst the second is a sort of dynamic or movement view (see Lehman forthcoming and its appendices). More correctly stated, however, let us call the first view that in which 'I' (speaker or reference person or object) moves *through* temporal space; the second has the passage of *events* move across the layout space of persons, objects and so on, more correctly, through the aspectual state space. On this construction, the two views or perspectives are strictly complementary, in fact necessarily entail one another!

For instance, it could be the case that on the one hand, so to speak, 'front' implicates the initial position, viz., the centre, or the focus for a layout of space, say of objects on a cosmological basis or, equivalently, a basis of cosmic priorities. On the other view (a pragmatic or practical view), of course, one proceeds from centre towards 'the front' on the temporal, and to 'the front' on the other, or cosmological, or the aspectual state space view.

In Shore (1996:ch.11) he concerns himself with Samoan spatial concepts and the spatial layout of the village. He comes to the realisation that the Lévi-Straussian model he used in his earlier work (1982) has some problems. Basically, he resolves that a point-field model is incompatible with the Lévi-Straussian binary model. That is, if the point-field model holds then the beach, which Shore says is the front of the village, is actually in the back of the high status houses. Shore's solution to this problem is to say that the Samoans have two spatial models: the point-field model and the Lévi-Straussian binary front/back model. He provides the reader with two schematic drawings of the village. One shows houses around the *malae*, with status increasing as one comes to the *malae*, and the other illustrates houses in a linear pattern along either side of the road, arranged in a seaward/inland, front/back manner.

We have no theoretical objection to positing that Samoans hold two models of space, but this only gets Shore so far. Firstly, Shore posits *tai* 'seaward' and *uta* 'inland' as being an essential binary contrast Samoans linguistically invoke in representing spatial relationships. In addition, as pointed out earlier, he states that the gradedness of a concentric model (approximately our point-field model) is not linguistically represented. However, it turns out that there are Samoan lexical items that represent a gradedness of structure for *tai* and *uta*. Milner (1966:77, 78) contains the following (still commonly used) words:

- gātai* lb. (locative base). I ~ : A little distance toward the sea.
- gātai* lb. I ~ : Further towards the sea.
- gā'uta* lb. I ~ : A little (distance) inland.
- gā'utā* lb. I ~ : Further inland.

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However, instructively, ocean and the spatial model not alternativ fronts of hou mountain or malae as hav Samoan *tulāp* of ours, expl takes place in The houses talking chiefs their backs t 'toward the s a matter of t the point-fie perspective o But if one lo 'back' in kee

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The second difficulty for Shore's account comes about because his drawing of the linear village is misleading in that he only shows the guesthouses (high status houses) and fails to show what is behind them (in the empirical world). Moreover, what is behind them towards the ocean? Lower status structures such as cookhouses, bathrooms and the like are found there (which his schematic sketch does not show), just as the point-field model predicts. His positing two models in this way does not work.

However, he is correct in stating that Samoans will tell you that a village (or more instructively, the *malae*) has a front and a back and that the front often corresponds to the ocean and the back to the mountains. So what is happening? Samoans do have two internal spatial models for the village layout—point field and front/back—but they are integrated and not alternative models. With the point-field model, front/back can be used to talk about the fronts of houses toward the *malae* and backs of houses and their out-buildings toward the mountain or sea, depending on where one's house is. But Samoans also conceive of the same *malae* as having a front and a back with the sea to the front and mountains to the back. One Samoan *tulāfale* 'high talking chief' in discussing the structure of the *malae* with a colleague of ours, explicitly made an analogy between the Samoan village *fono* 'village council which takes place in a guest house on the *malae*' and the *malae* (Micah Van der Ryn pers. comm.). The houses on the *malae* were likened to the posts in the *fono*. So, as the *tulāfale* 'high talking chiefs' sit at the posts at the front of the *fono* house facing the centre of the house with their backs toward the *malae*, so the *tulāfale* houses are placed at the front of the *malae* 'toward the sea' facing the *malae*'s centre with their backs toward the sea.⁸ So, it is not really a matter of two separate models but rather that the ideas of front and back are integrated into the point-field model. Whether an area is referred to as 'front' or 'back' depends on the perspective one takes. If one takes the perspective of the *malae*, it has a front towards the sea. But if one looks at the houses that surround the *malae*, the direction toward the sea is to the 'back' in keeping with the orientation of the houses facing to the centre of the *malae*.

⁸ We know of one village—Vailoatai on Tutuila island—where the *malae* is actually arranged like the *fono*:

The high talking chiefs' houses are in the front, the high chiefs' houses are opposite each other on the sides and lower status *matai* have their houses on the back side of the *malae* on the inland side. We also note that not all villages reflect this ideal, as we know of other villages where the high chiefs' guest fales are toward the sea, but even in these villages that area of the *malae* is referred to as 'the front'. These variations in the actual placement of chiefs' houses may be due to individual histories and pragmatics of different villages, but do not appear to change the conception that the *malae* has a front and a back. Finally, it should also be noted that the front of a *malae* in an inland village (or even a coastal village) may not be towards the sea and that instead a modern inland road may considered the 'front' of a village's *malae*.

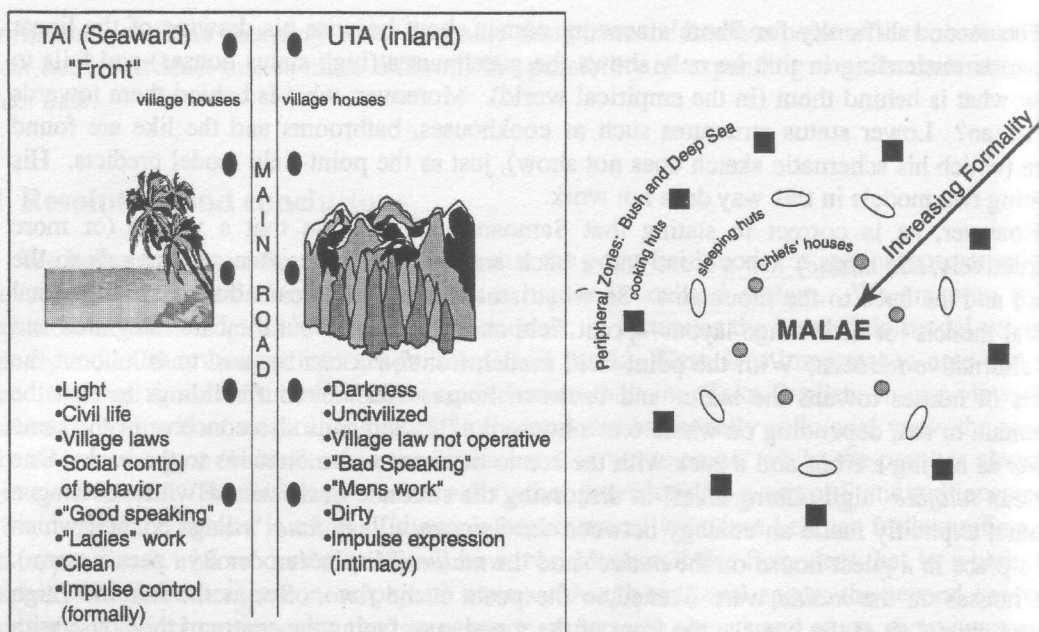


Figure 2: Shore's figures 11.1 and 11.2, showing his model of Samoan dual representation (1996:269, 271)

It seems to us that, if the above is right, then we can argue effectively that indeed the point-field model is after all *consistently* dominant culturally because now Shore's data do not require, in the manner of the so-called Lévi-Straussian model, anything like a container view of lived-in space. Or, at most, it is strictly subordinated to the point-field view just where pragmatics is imposed *upon* the cosmological view.

We have one final observation. Regarding what Giovanni Bennardo has called, in his paper in this volume, the 'radial' system of orientation space, it should now be clear that it remains necessary to distinguish fundamentally between two forms of radial systems of orientation; moreover, a system of orientation is not necessarily a system of spatial construction.

On the one hand there is one grounded in the container construction of space. It takes as its focus either some person (by default, the speaker) or some landmark, and it places some object or person relatively with respect to the former, but in terms of invariant compass directions: North, South, East, or West, say, of the speaker or the reference object.

On the other hand there is one grounded in the point-field construction. The radial system of orientation grounded in the point-field conception of space itself, places some object only relatively with respect to the reference object or person. For example, an object is placed to the right or left, or in front or back of a reference person, or a reference object *just in case the latter is independently conceived of as having an inherent front / back* (see Bennardo forthcoming, and his references to various papers by Levinson, having reference to radial representation of spatial orientation in Levinson's 'frames-of-reference' theory; also Shore's discussion at 1996:274).

As a marginal consideration in the present context (hardly marginal in a context of considering spatial cognition in general as embedded in human cognitive capacities), it is just possible that the container orientation is in some sense more basic, or say, the default

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conceptualisation of space for human cognition. The argument is not particularly strong from the standpoint of our current state of knowledge, but there are nevertheless two possible lines of evidence for this suggestion. First, it seems to be the case that if any culture or language has only one of the two constructions (point-field, container), it will be the latter. An example of this is for (some, many?) Australian Aboriginal systems (see Levinson 1992 and discussion in Bennardo and Lehman forthcoming), if only because the language provides no ready-made means for expressing the point-field method of orientation. It is interesting that such systems are found in societies until recently isolated from the rest of the world and with only foraging economies and low-level socio-political organisation. It is, however, probably beside the point, if only because it is a well-known error to think of these societies as representing a relatively unchanged instance of a 'primordial' human condition.

Second, as was mentioned earlier, even in so-called modern, 'Western' cultures, there is some indication that the default representation, that of naïve physical geometry, is the container construction. Similarly, even where, as in Samoa and Mainland Southeast Asia, the basic cosmological conceptualisation of space seems to be the point-field construction, the container conceptualisation continues to be operative, more or less by default, where the pragmatics of day-to-day activity is concerned.

Finally, let us return very summarily to our tentative claims at the beginning of this paper concerning Oceania in general and the putative connection between (Austronesian-speaking) Oceania and the Mainland of Southeast Asia. More particularly, we must here and now address the obvious question of how we can appear to make claims about this larger sphere while almost exclusively analysing ethnographic and linguistic materials from Samoa only.

Taking this last question first, we showed, by selected references, that there is at least intriguing evidence from elsewhere in Oceania of a point-field spatial conceptualisation. The evidence is Polynesian as so far cited, although Melanesia is not without sources of evidence as well (cf. Ross 1973:111ff.). It seems to us that the way Micronesians are reported to conceptualise space for purposes of navigation (especially in the work of Hutchins 1995:65-93; see also Gladwin 1970), has to be a function, in part at least, of a point-field view. This Micronesian navigational conceptualisation seems to visualise the surrounding space through which the vessel is actually moving as rather *a field shifting about the vessel taken as a defining point* instead of thinking of the vessel as moving with respect to landmarks or other designated points against the orienting background of a fixed horizon (a containing boundary, in other words). Still, we have only dealt in any detail whatsoever with Samoa. However, one must start with concrete and systematic detail from some particular cultural system, and little if any attention has been paid in most of the Oceanic literature to questions of spatiality in the cognitive sense, and so one must take one's materials for analysis from wherever such attention has been prominently paid. That means Samoa.

Given the fact that, after all, Samoa certainly *is* a fairly representative Polynesian society and culture, this is a reasonably sensible starting point; all the more so when one places it within the larger context from which the other snippets of suggestive evidence has been cited. Moreover, one cannot forget the aforementioned argument that there is a clear-cut culture-historical connection between Austronesian Oceania and Mainland Southeast Asia, more especially the Tai-speaking world. This Tai-speaking world is one whose notions of space, especially for the purposes of fundamental political and social ordering is centred about the notion of the *myang* a 'domain', at any level, defined by its 'exemplary centre' (see Lehman 1980 and references therein). Whether that relationship is one of genetic linguistic relationship or not (the Austro-Tai hypothesis), it remains pretty uncontroversial that the

ultimate Proto Austronesians were originally found on the Mainland of what is today South Central China in at least close juxtaposition with Proto Tai communities (cf. Bellwood 1992:111ff.). And then in view of the fact that the major employment of point-field type spatiality is restricted while the default construction of space is the container construction, it is at least increasingly suggestive of the hypothesis that the point-field conceptualisation of spatiality that seems at very least sporadically in use throughout much of Oceania may have deep Austronesian (say Austro-Tai) culture-historical roots.

Of course, this is only a working hypothesis being put forward here tentatively for purposes of, one hopes, stimulating further investigation by ourselves and others more widely. But the kind of systematic work that such investigation requires simply has not yet been done—save, we claim, by ourselves with respect to Samoa (and certainly to a considerable extent by Bennardo for Tonga), and so here is where we are bound to start, if only as an example showing what might be looked at elsewhere in Oceania.

Appendix A: Further uses of *mata* in lexicalised compound words in Samoan

- fa'amata'ese'ese* v. '(of opinions) Point in different directions, be divided' (Milner 1966:134).
- mataafi* n. 'Groove along which the pointed stick (used in the "fire-plough" method of making fire) is run to and fro' (Milner 1966:134). 'A large fire to burn off trees in clearing a forest' (Pratt 1893:212).
- matāfala* n. 'The edge of the end of the mat in the game of *lafoga tupe*' (Pratt 1893:214).
- matāmeli* n. 'Drop of honey' (Milner 1966:136).
- matāmua* n. 'The title page of a book' and 'a person who wants to be first in something' (Pratt 1893:215).
- matānofo* n. 'A row of sitters' (Pratt 1893:215).
- matāsele* n. 'Noose' (Milner 1966:136; see also Pratt 1893:216).
- matāsusu* n. 'Nipple, teat' (Milner 1966:136; see also Pratt 1893:216).
- matātalo* n. 'Crown of taro plant (when cut off for planting)' (Milner 1966:136).
- matātuai* n. 'Toothed grating tool' (usually used to grate coconut) (Milner 1966:136).
- matāua* n. 'Raindrop' (Milner 1966:136; see also Pratt 1893:213).
- matā'upega* n. 'Mesh (of a net)' (Milner 1966:136; see also Pratt 1893:213).
- matā'upu* n. 'Subject, theme' (Milner 1966:136).
- matāvaga* adv. 'Separately' *Na ia tu'u ~ mea 'uma*: 'He put all the things ~ (i.e. in their proper place).' (Milner 1966:136).
- matāvana* n. 'Point of a pump drill' (Milner 1966:136; see also Pratt 1893:217).

- matāvai* n. 'Spring, source' (Milner 1966:136).
matāvili n. 'Bit (fixed on the end of a pumpdrill or a brace)' (Milner 1966:136).

Appendix B: Further uses of *vā* in lexicalised compound words in Samoan

- vāi'a'ai* n. 'Neighbourhood' (Milner 1966:310).
vāiania n. 'A fissure in the reef underwater' (Pratt 1893:332; see also Milner 1966:310–11).
vāiaso n. 'Week (i.e. interval between two Sundays)' (Milner 1966:310).
vāi'aso n. 'Space interval between two rafters' (Milner 1966:310).
vāifale n. 'Relationship between two neighbours' (also, simply the space between two houses) (Milner 1966:310).
vāitula n. 'Period, time of day' [i.e. the interval between hours] (Milner 1966:310).
vāimasina n. 'Season' [i.e. the interval between months] (Milner 1966:310).
vāita n. 'Half hour' [i.e. the interval between two hours] (Milner 1966:310).
vāitaimi n. 'Interval, period' [i.e. the interval between time] (Milner 1966:310).

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Section Three

'Space and culture'