

TAKOHI: DRAWING IN TONGAN THINKING AND PRACTICE

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This original essay critically examines takohi as drawing in Tongan thinking and practice, which is connected with the intersecting or connecting and separating kohi (lines) and va (spaces) across the three divisions of Tongan art, notably tufunga (material) and nimamea’a (fine) arts. The word kohi is the older form of tohi, both of which mean “line.” Kohi, like tohi, is an expression of ta (time). By virtue of the indivisibility of ta (time) and va (space) in reality, as in nature, mind, and society, takohi (drawing) is equal to ta-va (time-space), with ta (time) spatially-composed and va (space) as temporally-marked. Like kohi, tohi also means “writing,” that is, “drawing” expressed as intersecting or connecting and separating kohi (lines) and va (spaces).

*In affectionate memory of my dear friend, teacher, and colleague,
the late Dr. Max Rimoldi, who played a pivotal role in the original
conception and ongoing development and refinement of the tā-vā
(time-space) philosophy/theory of reality through reflective teaching of,
and critical inquiry into, Moana political economy and Moana
arts as common subject matters of close and intense scrutiny.*

Introduction: Issues and Problems

THIS PAPER WILL theoretically and ethnographically examine the Tongan concept and praxis *takohi* (drawing). As a subject of investigation, the theory and ethnography of takohi will be critiqued in the broader context of the

general *tā-vā* (time-space) theory of art, a derivative of the general *tā-vā* theory of reality (Māhina 2004b, 2008b; Ka'ili 2007; Potauaine 2010; Williams 2009). The term *takohi* (temporal lineal marking of space) is made up of two parts: *tā* (time) and *kohi* (line). The older word for *tohi* is *kohi* (line, sketching, and writing). The longer terms for *tohi* and *kohi* are *tohitohi* and *kohikohi*, both pointing to line producing, sketching, and writing as of social activity (Māhina 2002b). From a Tongan mathematical yet tempospacial and philosophical perspective, the terms point, line, and space are called *mata* (eye) or, its symmetry, *ava* (hole), *kohi* (line), and *va* (space), respectively. A *mata* (eye) or, for that matter, *ava* (hole), is the intersection (that is, connection and separation) of two or more *kohi* (lines), a *kohi* (line) as a summation of *mata* (eye) or, for that reason, *ava* (hole), and *va* (space), a collection of *kohi* (lines). All the *mata* (eye) or *ava* (hole), *kohi* (line), and *va* (space) as spatial identities are temporally-defined. In variance with *takohi* are *tāfakatātā* (picture drawing), *tākupesi* (design drawing), and *tātatau* (symmetry drawing),¹ both temporally and spatially differentiated as concrete manifestations of intersecting lines and spaces ('Alatini and Māhina 2009; Māhina and 'Alatini 2009a, 2009b; Māhina 2002b; Potauaine 2010).

In the following, art can be generally defined as *tā-vā* transformation, where formal, substantial, and functional conflicts in the subject matters under production are symmetrically mediated in the creative process. As a tool of line-space intersection, *takohi* will be theorized in terms of its varied abstract and concrete manifestations, with specific ethnographic examples drawn from across the three divisions of Tongan art, viz., material, performance, and fine arts (Māhina 2008b, 2010a, 2010b; Potauaine and Māhina 2011). For example, architecture as a material art deals with intersecting lines and spaces, and the performance and fine arts of poetry and mat weaving involve the mediation of formal, substantial, and functional interlacing human meanings and intersecting lining threads of leaves, respectively.

Takohi and Tatau: Creation and Mediation of Conflict

Aesthetically, this original essay and Sēmisi Fetokai Potauaine's original essay "Tatau: Symmetry as Conflict Mediation of Line-Space Intersection" (this volume) closely inform each other by way of form, content, and function (Potauaine 2005, 2010; Potauaine and Māhina 2011). While *takohi* formally, substantially, and functionally creates intersecting lines and spaces, *tatau* mediates formal, substantial, and functional conflicts at their interface. Both *takohi* and *tatau* are constitutive of time and space, demonstrating the philosophical fact that *tā* and *vā* are inseparable in mind as in reality. In both *takohi* and *tatau*, where one is a mirror of the other or both are two sides of

the same thing, time is expressed by the term *tā*, with the words *kohi* and *tau* as spatial expressions of *vā* (Māhina 2008b; Potauaine 2010).

In general, *takohi* is an artistic device for the tempo marking of space by means of lines, illustrating both time and space as mutually separate yet indivisible ontological and epistemological entities. Specifically, *takohi* involves the spatiotemporal production of *'ata* (images) at the line–space intersection by means of *tatau*. Like *takohi*, *tatau* is an artistic apparatus for the mediation of lineal–spatial conflicts. In short, *takohi* engages the creation of conflicts at the intersection of lines and spaces, and *tatau* involves their mediation.² In both cases, drawing and symmetry use *mata* (eye) as both creating and mediating artistic tools (Potauaine 2010; Potauaine and Māhina 2011), where time–space conflicts are created by means of *takohi* and mediated by way of *tatau* through transformation from *felekeu* (crisis) to *maau* (stasis).

Tā and Vā: Toward a Time-Space Theory of Reality

The *tā-vā* theory of reality is inspired by the philosophical realism commonly known as Sydney realism, associated with Australia's most original and controversial thinker and atheist philosopher, Professor John Anderson. His treatment of space, time, and the categories is a case in point (Anderson 2007). Realism has, *inter alia*, the following general and specific tenets: all things exist independently of mind, all things exist in a single level of reality, there are no higher or lower levels of reality other than the one order of being, the issue is logical, the dispute is between ways of being and ways of knowing, and the epistemological questions are secondary to the ontological questions (Anderson 1962; also see Anderson, Cullum, and Lycos 1982; Baker 1979; Māhina 1992, 2008b).

Given that *takohi*, like *tatau*, is underpinned by both *tā* and *vā*, on the abstract level, and *fuo* (form) and *uho* (content), on the concrete level, both spatiotemporal entities are hereby critically examined in the broader context of the *tā-vā* theory of reality (Ka'ili 2005, 2007; Māhina 2004a, 2008b, 2010a, 2010b; Potauaine 2010; Williams 2009). The *tā-vā* theory is based on the Tongan philosophical sense of time and space. The time–space, form–content, and practical conflicts generated by drawing are mediated by means of symmetry. The mediation of these tensions involves a *tā-vā*, *fuo-uho*, and *'aonga* (functional) movement from a situation of chaos to a condition of order. Among many of both its general and specific tenets are the following:

- *Tā* and *vā* as ontological entities are the common medium in which all things are in a single level of reality.
- *Tā* and *vā* as epistemological entities are organized differently across cultures.

- Tā and vā are the abstract dimensions of fuo and uho, which are, in turn, the concrete dimensions of tā and vā.
- Tā and vā, like fuo and uho, are inseparable in mind as in reality.
- The inseparability of tā and vā, like fuo and uho, renders them four dimensional rather than three dimensional.
- Reality, spatiotemporality, or four-sided dimensionality is conveniently divided into nature, mind, and society, with mind and society in nature.
- All knowledge is knowledge of tā and vā.
- Errors in thinking are problems of mind but not of reality;
- Errors in thinking are caused by separation of mind from reality, as is the lack of understanding of conflicts across cultures.
- All things, in nature, mind, and society stand in eternal relations of exchange, giving rise to conflict or order.
- Conflict and order are of the same logical status, where order is a form of conflict.

Clearly, takohi, like tatau, is both ontologically and epistemologically informed by the tā-vā theory of reality. In general, takohi and tatau deal with both tā and vā as abstract expressions of form and content, and both are concerned specifically with fuo and uho of things as concrete manifestations of time and space (Māhina 2010a, 2010b). This is connected with the tā-vā theoretical assertion that all things, in reality, stand in exchange relations made manifest across nature, mind, and society in terms of intersecting lines and spaces or by way of intertwining human meanings. These line-marking and utilitarian spatial tendencies are transformed from felekeu (chaos) to maau (order) through tatau (Māhina 2003b, 2005a, 2005b).

Philosophically, classical Tongan thinking considers tā and vā to be formally, substantially, and functionally indivisible across nature, mind, and society. Evidently, this is seen in such instances as *vaa'i tā* (musical notes), *vaa'i 'uhinga* (human meanings), and *vā lelei* (good social relations), with tā, 'uhinga, and lelei as formally time marking of space (Ka'ili 2005, 2007; see also Helu-Thaman 2004). Such a mode of thinking, as is the case with the tā-vā theory of nature, mind, and society, is largely incompatible with the theorizing of time and space. There are scholars who privilege time over and above space (Adam 1990, 1995) and others who emphasize space to the exclusion of time (Bernardo 1996; Helu-Thaman 2004; Lilomaiva-Doktor 2009; Poltorak 2007; Refiti 2005, 2008; Tuagalu 2008; Wendt 1996). But there are scholars who treat both time and space as coexisting, inseparable entities (Anderson 2007; Baker 1979; Giedion 1967; Harvey 1990, 2000a, 2000b; Ka'ili 2007; Māhina 2004a, 2008b; Mitchell 2004; Potauaine 2010; Williams 2009).

The separation of mind from reality, spatiotemporality, or four-sided dimensionality, as well as the failure of mind to comprehend formal, substantial, and functional conflicts in the transcultural arrangement of time and space, amount to dualism of the idealist, evolutionist, and relativist sort. Similarly, the same idealism, evolutionism, and relativism lie at the bottom of the singular, technoteleological, individualistic, analytical, and linear arrangement of time and space in the West, as opposed to the realism, classicism, and aestheticism beneath the plural, cultural, collective, holistic, and circular ways in which they are organized in the Moana Pacific (Māhina 2008a, 2010a, 2010b).

Tā and Vā: Toward a Time-Space Theory of Art

The tā-vā theory of art is a derivative of the tā-vā theory of reality. From a time-space theory, art can generally be defined as a sustained and intensified transformation of time-space, form-content, and functional conflicts in subject matters under production in the creative process from chaos to order by means of symmetry to create harmony and beauty (Māhina 2002b, 2004b; also see Anderson, Cullum, and Lycos 1982). This is most evident in the abstract time-space and concrete form-content that underpin material, performance, and fine arts. As abstract entities, time and space formally, substantially, and functionally exist within and across the physical, psychological, and social spheres, as in the case of intersecting lines in nature, opposing ideas in thinking, and competing demands in society (Potauaine 2010; Potauaine and Māhina 2011).

From a realist time-space theoretical angle, art is considered to have both internal and external qualities. Internal to art are qualities such as *tatau*, *potupotutatau* (harmony), and *mālie* (beauty),³ while those that are external to it include *māfana* (warmth), *vela* (fieriness), and *tauelangi* (climaxed elation) (Māhina 2003b, 2005a, 2005b; also see Helu 1999; Kaeppler 1993; Māhina 2004c). Such a view coincides with the Tongan theory of art as both a disciplinary practice and a form of social activity, where both its quality and utility are considered coexistent. Given the coexistence of both quality and utility of art, the former is always made to precede the latter. Not only were arts made to be useful, but they were also produced to be beautiful (see, e.g., Hau'ofa 2005).

There is no Tongan word for art, merely translated as *'aati*. In general, Tongan art is divided into *tufunga* (material), *faiva* (performance), and *nimamea'a* (fine) arts. Whereas *tufunga* and *nimamea'a* are both non-body centered, *faiva* is body centered. While both *tufunga* and *faiva* literally mean “time marking of space,” the word *nimamea'a* (fine hands) is suggestive of

a state of time-space refinement. Some examples include *tufunga lalava* (kafa-sennit lashing), *tufunga langafale* (house building), and *tufunga tātatau* (tattooing); *faiva ta'anga* (poetry), *faiva fakaoli* (comedy), and *faiva fānifo* (surfing); and *nimamea'a lālānga* (mat weaving), *nimamea'a koka'anga* (bark-cloth making), and *nimamea'a tuikakala* (flower designing) (Potauaine 2010; Māhina 2003a, 2005a, 2005b).

Tufunga, Faiva, and Nimamea'a: Material, Performance, and Fine Arts

The use of takohi is more pronounced in both material and fine arts. In *tufunga lalava*, for example, the interlacing lines and spaces exist in the form of intersecting *kafa kula* (red kafa-sennit) and *kafa 'uli* (black kafa-sennit)⁴ (Māhina 2002b; Māhina, Ka'ili, and Ka'ili 2006; Potauaine 2010; Potauaine and Māhina 2011; also see Berlin and Kay 1991; Campbell 2002). Herein, *tufunga lalava* can be defined as the Tongan material art of lineal–spatial intersection. Insofar as the centrality of line–space intersection, *tufunga lalava* is considered to be the master Tongan art, with material, performance, and fine arts seen as derivatives. The intertwining of red kafa-sennit and black kafa-sennit produces an infinite number of *kupesi* (geometric designs), where the abstract forms of concrete things are brought from the inside onto the outside, such as *manulua* (birds), *kauikalilo* (fish), and *fata-'o-Tu'i-Tonga* (tombs)⁵ (Māhina 2002b; also see Potauaine 2010; Potauaine and Māhina 2011).

As a master art, *tufunga lalava* enters all arts, be they material, performance, or fine arts (Māhina 2002b). Herein, *tufunga lalava* is separate yet connected directly with the material arts of *tufunga langafale* and *tufunga fo'uvaka* (boat building). *Tufunga lalava* is neither a house art nor a boat art in the same way that neither *tufunga tātatau* nor *faiva haka*⁶ is a body art. Like the respective material and performance arts of *tufunga tātatau*, *tufunga lalava*, *tufunga fo'uvaka*, and *faiva haka*, the material art of *tufunga langafale* is concerned primarily with interconnecting lines and spaces. As a material art, *tufunga langafale* formally uses line–space intersection as its content with wood, stones, steel, and glass as its common medium. In house building, takohi is performed by means of the sharp-pointed edge of the adze as a collection of mata (eyes), or its symmetry, ava (holes), known as *mata'i toki* (eye of the adze) as a line-marking device.

The creation of conflicts at the junction of intersecting lines and spaces in tattooing is, by means of form, content, and function, mediated in the form of intersecting *kili kula* (red skin) and *vaitohi 'uli* (black ink). The mediation of lines and spaces, on the abstract level, and red skin and black ink, on

the concrete level, is connected with the production of kupesi, such as the popular *tokelau-Feletoa* (fortresses), *amoamokofe* (healing tools), and *veimau* (ordered water flow) (see, e.g., Māhina 2006; ‘Alatini and Māhina 2009; Māhina and ‘Alatini 2009a, 2009b). The material art of tufunga tātatau uses the body merely as a medium, with its content formally defined by lineally produced, spatially constituted images that are produced spatiotemporally, substantially, and functionally by red skin and black ink. In tattooing, takohi is created by means of the sharp-pointed edge of the needle called *mata’i hui* (eye of the needle).

Not only is takohi applied to tufunga and nimamea‘a, but it can also be extended to faiva, such as those involving conflicting linear-like, spatially constituted human meanings. In poetry, tensions in human meanings are created by the interplay of the symbolic and the actual, mediated by means of tatau. Herein, the mediation of conflicting takohi-led, vā-constituted human meanings is executed by an artistic device specific to *ta’anga* called *heliaki*⁷ (intersecting, intertwining, or interfacing) two or more objects, ideas, or events. There are two types of heliaki: the qualitative (epiphoric) and the associative (metaphoric) (Māhina 2003b, 2004b, 2005a, 2005b, 2007, 2008b, 2010a, 2010b). The former involves the exchange of qualities of two related objects, as in *la’ā* (sun) for *tu’i* (monarch), while the latter deals with the exchange of two associated things, such as *‘Otu Motu Anga’ofa* (Friendly Islands) for Tonga.

Likewise, comedy⁸ involves the creation of paradoxes in human thinking, defined at the conflicting formal, substantial, and functional relationships between *ngalivale* (absurdity) and *ngalipoto* (normality), the mediation of which is done through tatau (Māhina 2008a). The outcome of the interplay of absurdity and normality as mental states is *kata* (laughter). The mediation of spatiotemporal, substantial–formal, and functional conflicts at the intersection of *ngalivale* and *ngalipoto* involves a transformation from chaos to order, i.e., a transition from self-ignorance to self-knowledge. The knowledge acquired is itself a form of beauty. The laughter that is triggered is a celebration of the fact that oneself is aware of the commission of an error in one’s thinking about reality.

As for the performance art of surfing,⁹ lines and spaces are expressed in terms of spiral, vortex-like waves, mediated by way of tatau. The Tongan performance art of surfing is called *fānifo* (tooth-like way). It is quite possible that this is a reference to the pointed tooth-like, hydrodynamic characteristics of the *papa fānifo* (surfboard), suited for the mediation of temporal–lineal marking or equal- and opposite-moving waves by the surfer through tatau. Such spiral, vortex-like waves as a form of *mata kula* (red eye) or *ava kula* (red hole) are created at the interface of the *moana ‘uli‘uli* (black ocean)

and *peau fisihina* (white foamy waves). This is a movement from *'uli* (black) to *kula* (red), which variously manifests itself as *hina* and *tea*, both meaning “white”¹⁰ (Māhina, Ka’ili, and Ka’ili 2006; Potauaine 2010; Potauaine and Māhina 2011).

Similarly, fine arts, like material arts, are strictly underpinned by intersecting lines and spaces. In *nimamea’a lālānga*, the production of intersecting lines and spaces by means of *takohi* is performed by way of interfacing reddish and blackish processed, dried pandanus leaves, which are mediated in the form of *kupesi* selected from *tufunga lalava*. The physical, intellectual, and social reasons for the use of red and black in fine art of mat weaving (and bark-cloth making) apply to their incorporation in material arts of *tufunga lalava* and *tufunga tātatau*. A sharp-pointed tin blade called *mata’i kapatohilālānga* (eye of the line-marking tin blade)¹¹ is used as an instrument for the creation of intersecting lining threads of dried pandanus leaves for mat weaving (Māhina 2002b; Potauaine 2010; Potauaine and Māhina 2011).

Likewise, the creation of intersecting lines and spaces in *nimamea’a koka’anga* is carried out by means of interlacing red *koka*-painted bark-cloth and line marking black *tongo*-treated ink. The respective *hu’a koka kula* (red koka paint) and *hu’a tongo ’uli* (black tongo ink) are made from the sap of the *koka* and *tongo* tree bark (Māhina, Ka’ili, and Ka’ili 2006). The production of a selection of *kupesi* from *tufunga lalava* is mediated through intertwining space-defining red *koka* paint and line-marking black *tongo* ink. A large unpainted, white bark-cloth piece is glued together; placed on the long, convex board¹²; and covered with *kupesi* stencils, where it is rubbed against with red *koka* paint. The resulting *kupesi* imprints, defined by intersecting lines and spaces, are then marked with black *tongo* ink using a brush-like, sharp-pointed pandanus fruit known as *mata’i fo’ifā* (eye of the pandanus fruit).

By implication, the fine art of *nimamea’a tuikakala* is produced by means of intersecting lines and spaces, which are mediated by way of flower rearrangements and pierced together in the form of *kupesi*, such as *alamea*, *nusi*, *tuitu’u*, *fakalala*, and *ve’eve’e* (Māhina 2002b, 2008b; also see Potauaine 2010). These *kakala* are made up of sweet-scented flowers, together with sweet-smelling leaves and fruits of trees, plants, and herbs, such as *fā*, *hea*, *heilala*, and *langakali*. Again, these *kupesi* are drawn from *tufunga lalava*. In symmetrical ways, the flowers are rearranged in such a manner that the red has a dominant presence, mediated by varying fine black line markings, with a total effect of great harmony and beauty. The flower lineal-spatial interconnecting formations are pierced together by an artistic device called *mata’i tu’aniu* (eye of the coconut stick), made up of a sharp-pointed coconut stick tied to a string.

Takohi, Tatau, Mata, and Ava: Drawing, Symmetry, Eye, and Hole

As artistic devices, takohi and tatau always exist side by side, with one as a mirror of the other, and vice versa. Where there is takohi, there is tatau.¹³ The same applies to all arts, be they tufunga, faiva, or nimamea'a. In architecture, the *kahoki* (rafters) of a Tongan *fale* are made from coconut wood, which are done in both lineal and symmetrical of ways, in the same fashion that, in poetry, the intertwining line-marking, space-producing human meanings are mediated at the interface of the metaphorical and the historical. As for mat weaving, the mediation of interlacing lining threads of dried leaves is done symmetrically to produce harmony and beauty. In all cases, the respective artistic devices of mata'i toki, heliaki and mata'i kapatohilālanga are used as means of both intersection and mediation.¹⁴

In like manners, mata and *ava* (hole) always go together, where both are two sides of the same thing. Takohi and tatau, on the one hand, and mata and ava, on the other, are separate entities, yet they are all interconnected in formal, substantial, and functional ways. The mata or ava is defined as a point produced by the intersection of kohi or lines so that kohi are made up of a series of mata or ava, i.e., points. So, both mata and ava are defined by a point of intersection, such as mata'i hui or *ava'i hui* (hole of the needle) and *mata'i peni* (eye of the pen) or *ava'i peni* (hole of the pen) as artistic devices used in tattooing and sketching or series of points of intersection, as in the artistic tools of mata'i toki or *ava'i toki* (hole of the adze) and *mata'i kili* (eye of the saw) and *ava'i kili* (hole of the saw), used in house building and boat building (Potauaine 2010; Potauaine and Māhina 2011; also see Refiti 2005, 2008).

Of general interest are the following: *mata'i afi* (eye of the fire) or *ava'i afi* (hole of the fire), *mata'i la'ā* (eye of the sun) or *ava'i la'ā* (hole of the sun), and *mata'i matangi* (eye of the winds) or *ava'i matangi* (hole of the winds). Of relevance to art and architecture are the following examples: *mata'i tao* (eye of the spear) or *ava'i tao* (hole of the spear), *mata'i hāmala* (eye of the hammer) or *ava'i hāmala* (hole of the hammer), *mata'i tutu'u* (eye of the chisel) or *ava'i tutu'u* (hole of the chisel), and *mata'i fa'o* (eye of the nail) or *ava'i fa'o* (hole of the nail). Here are some social uses of mata and ava, e.g., used to symbolize pure states of ugliness, pig-like behavior, and unkindness¹⁵: *mata'i palakū* (eye of the ugly) or *ava'i palakū* (hole of the ugly), *mata'i puaka* (eye of the pig) or *ava'i puaka* (hole of the pig), and *mata'i ta'e'ofa* (eye of the unkind) or *ava'i ta'e'ofa* (hole of the unkind).

As far as mata or ava is concerned, there is a distinction between *māsila* and *peku* as opposed states of affairs, as in *mata māsila* (sharp eye) and *mata peku* (blunt eye). The act of sharpening of such tools as adzes, saws, and spears is called *fakamata* (making an eye). Really, the act of fakamata, or

for that matter, *fakaava*, is primarily concerned with the mediation of the intersecting spatiotemporal, substantial–formal, and functional relationships between *māsila* and *peku*. However, the act of opening a hole with the use of such tools as needles, chisels, and nails is called *fakaava* (making a hole). Indivisibly, *mata* is a mirror of *ava*, with both intersected by *takohi* and mediated by *tatau*. This confirms the philosophical fact that *mata* is a *tatau* of *ava*, just as *takohi* is a symmetry of *tatau*.

As far as Tongan thinking and practice go, *mata* and *ava* are classified into *kula* and *‘uli*, i.e., *mata kula* (red eye) or *ava kula* (red hole) and *mata ‘uli* (black eye) or *ava ‘uli* (black hole) (Māhina, Ka‘ili, and Ka‘ili 2006; also see Potauaine 2010; Potauaine and Māhina 2011). By the same token, energy is divided into *kula* and *‘uli*, both of which are equally powerfully transformative and disintegrative. However, the mediation of conflicts at the interface of red and black is dependent on the symmetry or asymmetry of their exchange relations. It can be said that energy is most intense at the point of intersection, defined by *mata* or *ava*. Belonged in *mata kula* or *ava kula*, with a movement from black to red, are tidal waves, surfing waves, anuses,¹⁶ volcanic eruptions, burning fire, and atomic explosions, among others. The Tongan term for tidal, seismic sea waves and tsunami is *peau kula* (red wave). But, included in *mata ‘uli* or *ava ‘uli*, where there is a movement of red toward black, are human eyes,¹⁷ eyes of the winds, twisters, black holes in outer space, and many others (Potauaine 2010; Potauaine and Māhina 2011; also see Berlin and Kay 1991; Campbell 2002).

Conclusion: Issues and Implications

The problems with respect to *takohi*, the Tongan thinking and practice of drawing, and the issues deriving from them are raised critically. By raising the problems, a number of significant issues began to surface, especially when examined in the broader context of the *tā-vā* theory of art, a derivative of the *tā-vā* theory of reality. In conclusion, implications are drawn from the ensuing critique, with emerging issues reflected upon. From a *tā-vā* theory, it is established that *takohi*, and its mirror image, *tatau*, are coexistent, with the former as an artistic device dealing with the intersection of lines and spaces and the latter as an artistic device concerning their mediation.

Like *takohi* and *tatau*, intersection is a mirror image of mediation, and vice versa, in the same way that, as prescribed by the *tā-vā* theory, conflict and order are of the same logical status in that order is a form of conflict. In general, the *tā-vā* theory argues that all things in reality, as in nature, mind, and society, stand in eternal relations of exchange (that is, intersection or connection and separation), both lineally/temporally and spatially. The same

is extended, in both formal and substantial terms, to the whole gamut of material, performance, and fine arts. As artistic techniques, takohi and tatau, on the one hand, and mata and ava, on the other, commonly deal with formal, substantial, and functional conflicts at the intersection of lines and their mediation in the creative process, both theoretically and practically.

In mathematics, both as a science and as an artform, a point is defined by the intersection of two lines, the numerical mediation of which symbolizes, in systemic and epistemic ways, the exchange relations of form, content, and function of things across nature, mind, and society. A collection of points constitutes a line, and a collection of lines makes up space. Likewise, in Tongan thinking and practice, mata and ava are a tatau of each other. A mata, like an ava, is produced by the intersection of two kohi (a collection of “eyes” or “holes” that, in their totality, forms vā). Therefore, both mathematical and Tongan thinking and practice point to the inseparable coexistence of tā and vā and of fuo and uho across nature, mind, and society. The spatiotemporal, formal–substantial, and functional conflicts at the intersection of mata and ava and their mediation are the chief concerns of takohi and tatau.

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NOTES

1. In addition, the term *tātatau* is used for the Tongan material art of tattooing. Literally, the word *tātatau* means tempo-marking symmetry, variously expressed as *tatau* (copy),

tatau (equal), tatau (image), tatau (mirror image), tatau (same), tatau (likeness), and tatau (shadow). Another word for tatau is *'ata*, which applies to all preceding variations (see, e.g., Potauaine 2010; Potauaine and Māhina 2011).

2. See Potauaine (2010) for an extended and comprehensive discussion of tatau by means of both intersection and mediation. Also see, e.g., Potauaine and Māhina (2011).

3. Potauaine (2010) made an important distinction between two senses of beauty: *mālie* and *faka'ofu'ofu*, with the former applied to *faiva* (performance art) and the latter applied to both *tufunga* (material) and *nimamea'a* (fine) arts.

4. There is a predominance of both *kula* (red) and *'uli* (black) in Moana Pacific arts, such as *tufunga lalava*, *tufunga tātatau*, and *tufunga ngaohikulo* (pottery making) in material arts and *nimamea'a koka'anga* and *nimamea'a lālanga* in fine arts. Apart from the gender-related treatment of red and black, where *kula* is considered male and *'uli* female, there are in-depth philosophical reasons associated with them across the physical, emotional, and social spectrum.

5. This is a movement from representation to abstraction.

6. Dance, like tattooing, is concerned with the formal, substantial, and functional intertwining of lines and spaces by way of intersecting bodily movements.

7. Specific to music and dance are the artistic devices of *tu'akautā* (beat outside but inside defined beats) and *hola* (escape), i.e., positioning a move between two defined moves. The term *hola* is often interchanged with the words *kaiha'asi* (steal) and *haka-funga-haka* (one move above another). Like the *heliaki* device, the devices of *tu'akautā* and *hola* involve the insertion of an extra beat within defined beats. The successful execution of such an action with a sense of both symmetry and harmony produces beauty.

8. Compare with *faiva fakamamahi* (tragedy), in which the mediation of lineally led, spatially driven conflicts in human thinking at the interface of *anga'imanu* (animality) and *anga'itangata* (sociality) is done in terms of tatau. The mediation of such conflicts results in *fakamā* (shame). This emotional state of affairs is a response to a movement from self-ignorance to self-knowledge, where self is conscious of the fact that an error of moral judgment in self's behavior has been committed.

9. By virtue of the great unpredictable *moana* (ocean), where waves, currents, and winds are always in a state of flux, the Tongan performance art of *faiva faifolau* (navigation) has a lot in common with the Tongan performance art of *faiva fānifo*. Moreover, both the surfboard and boat are spatiotemporally, substantially formally, and functionally related in hydrodynamic terms. Given the close affinity between boat and house in Tonga, they are connected in both hydrodynamic and aerodynamic ways.

10. In Tonga, tidal and seismic sea waves and tsunami are called *peau kula* (red waves), which are formed by multiple movements of energy or force from the core of Earth to the seafloor and from the seabed to the sea surface and symbolized by a transition from *'uli* to *kula*; hence, the name *peau kula*. So, a "red wave" is a *peau ta'ane* or *peau tangata* (male wave, i.e., a male wave with both immense and intense force).

11. In the past, the line-marking blades were made from seashells; they have been replaced with tin blades.

12. The long, convex board is called *papa koka'anga* (board for bark-cloth making).

13. Potauaine (2010), in his Masters of Architecture thesis, reflected creatively on the Tongan concept and practice of tatau with depth and breath. By examining all instances of tatau, such as tatau (wringing), *tautau* (hanging), tatau (equating), tau (warring), tau (hitting), and tau (arriving), he unraveled its formal, substantial, and functional nature. Common to all these are both intersection and mediation, where things across nature, mind, and society move in opposite directions when they are mediated by means of symmetry to produce harmony and beauty (also see Potauaine and Māhina 2011).

14. Like takohi and tatau, on the one hand, and mata and ava, on the other, intersection and mediation, connection and separation, or conflict and order are two sides of the same coin. They are all instances of tatau, i.e., symmetry, copy, image, mirror image, equal, likeness, and shadow.

15. The symbolic use of mata or ava to denote such psychological, social, and moral conditions as ugliness, pig-related behavior, and unkindness of some highly intensified nature runs parallel to the assertion that energy or force is most intense at the point of intersection, i.e., mata or ava.

16. The Tongan term for anus is *mata 'usi*, “biting eye,” or *ava 'usi*, “biting hole” (literally meaning the “eye that bites” or “hole that bites”). The word *'usi* (also for anus) is short for the term *'uusi* (to bite). The naming of the anus, either as *mata 'usi* or *ava 'usi*, is connected with its spiral, vortex-like shape, as both an “eye” and a “hole.” As a matter of relevance, the alternative terms for *mata 'usi* or *ava 'usi* are *mata mui* (eye of the behind) or *ava mui* (hole of the behind), *mata siko* (shitting eye) or *ava siko* (shitting hole), and *mata'i tu'ungaiku* (eye of the tail end) or *ava'i tu'ungaiku* (hole of the tail end).

17. The pupil of the human eye is called *tama 'uli* or *mata 'uli* (black eye) or *ava 'uli* (black hole). In comparison, the Tongan word for asshole is *tafa kula* or *mata kula* (red eye) or *ava kula* (red hole). Both *tama* and *tafa* are corruptions of *mata*, a tatau of *ava*.

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GLOSSARY

- ‘aati—art
 alamea—name of kakala
 amoamokofe—name of kupesi
 anga‘imanu—animality
 anga‘itangata—sociality
 ‘aonga—use
 ‘ata—image, shadow, mirror image, likeness
 ava—hole
 ava kula—red hole
 ava mui—asshole, anus
 ava siko—asshole, anus
 ava ‘uli—black hole
 ava ‘usi—biting hole, asshole, anus
 ava‘i afi—hole of the fire
 ava‘i fa‘o—hole of the nail
 ava‘i hāmala—eye of the hammer
 ava‘i hui—hole of the needle
 ava‘i kili—hole of the saw
 ava‘i la‘ā—hole of the sun
 ava‘i matangi—hole of the winds
 ava‘i palakū—hole of the ugly

ava'i peni—hole of the pen
ava'i puaka—hole of the pig
ava'i ta'e'ofa—hole of the unkind
ava'i tao—hole of the spear
ava'i toki—hole of the adze
ava'i tutu'u—hole of the chisel
ava'i tu'ungaiku—hole of the behind, asshole, anus
fā—pandanus fruit
faifolau, faiva—voyaging, performance art of
faiva—performance art
faiva fakamamahi—tragedy, art of
faiva fakaoli—comedy, art of
faiva fānifo—surfing, art of
faiva haka—dance, art of
faiva ta'anga—poetry, art of
fakaava—make a hole; sharpen (e.g., adze)
fakalala—name of kakala
fakamā—shame
fakamata—make an eye; sharpen (e.g., adze)
faka'ofa'ofa—beauty
fale—house
fānifo, faiva—surfing, performance art of
fata-'o-Tu'i-Tonga—name of kupesi
felekeu—chaos
fuo—form
fuo-uho—form—content
haka-funga-haka—dance device
hea—name of sweet-scented fruit
heilala—name of sweet-scented flower
heliaki—poetic device
hina—white
hola—dance device
hu'a koka kula—red koka paint
hu'a tongo 'uli—black tongo ink
kafa—kafa-sennit
kafa kula—red kafa-sennit
kafa 'uli—black kafa-sennit
kahoki—house part
kakala—flower designs
kata—laughter
kauikalilo—name of kupesi

kaiha'asi—dance device
kili kula—red skin
kohi—line, write
kohikohi—multiple lines, writing
koka—name of tree
kula—red
kupesi—design
la'ā—sun
langakali—name of sweet-scented flower
lelei—good
maau—order, poem
māfana—warmth
mālie—beauty
manulua—name of kupesi
māsila—sharp
mata—eye
mata kula—red eye, asshole
mata māsila—sharp eye
mata mui—eye of the behind, asshole, anus
mata peku—blunt eye
mata siko—shitting eye, asshole, anus
mata 'uli—black eye, eye pupil
mata 'usi—biting eye, asshole, anus
mata 'i afi—eye of the fire
mata 'i fa'o—eye of the nail
mata 'i fo'ifā—eye of the pandanus fruit
mata 'i hāmala—eye of the hammer
mata 'i hui—eye of the needle
mata 'i kapatohilālanga—eye of the leaf-lining, mat-making metal tool
mata 'i kili—eye of the saw
mata 'i la'ā—eye of the sun
mata 'i matangi—eye of the winds
mata 'i palakū—eye of the ugliness (i.e., extremely ugly)
mata 'i peni—eye of the pen
mata 'i puaka—eye of the pig
mata 'i ta'é ofa—eye of the unkind
mata 'i tao—eye of the spear
mata 'i toki—eye of the adze
mata 'i tu'aniu—eye of the coconut stick
mata 'i tutu'u—eye of the chisel
mata 'i tu'ungaiku—eye of the anus

- moana*—ocean
moana ʻuliʻuli—black ocean
ngalipoto—normality
ngalivale—absurdity
nimameaʻa—fine art
nimameaʻa kokaʻanga—mat weaving, art of
nimameaʻa lālanga—bark-cloth making, art of
nimameaʻa tuikakala—flower designing, art of
nusi—name of kakala
ʻOtu Motu Angaʻofa—Friendly Islands (i.e., Tonga)
papa fānifo—surfboard
papa kokaʻanga—bark-cloth making board
peau fisihina—white foamy waves
peau kula—red wave, tsunami
peau taʻane—male wave (see tidal wave or *peau kula* [red wave])
peau tangata—male wave (see *peau taʻane* or male wave)
peku—blunt
potupotutatau—harmony
tā—time
taʻanga, faiva—poetry, performance art of
tafa—cut open (see operation)
tāfakatātā—picture drawing
tafa kula—red eye, asshole
tama—child
tama ʻuli—black eye, eye pupil
tātatau, tufunga—tattooing, performance art of
tatau—symmetry, copy, mirror image, equal, same, likeness, wring, wringing,
part, parting, conclude
tau—war, warring, arrive, arriving, hit, hitting
tauelangi—literally meaning “reaching-the-sky” (i.e., climaxed elation)
tautau—hang, hanging
tā-vā—time-space
takohi—drawing
tākupesi—design drawing
tāvalivali, tufunga—painting, performance art of
tea—white
tuʻakautā—music device
tufunga foʻuvaka—boat building, art of
tufunga ngaohikulo—pottery making, art of
tufunga tātatau—tattooing, art of
tuitu ʻu—name of kakala

tu'i—king
tokelau-Feletoa—name of kupesi
tohi—line, write
tohitohi—multiple lines, writing
tufunga—material art
tufunga lalava—tattooing, art of
tufunga langafale—house building, art of
tufunga tāvalivali—painting, art of
uho—content
'uhinga—meaning
'uli—black
'usi—asshole
'uusi—bite
vā—space
vā lelei—good sociospatial relations
vaa'i tā—space between two beats
vaa'i 'uhinga—space between two meanings
vaitohi 'uli—black ink
ve'eve'e—name of kakala
veimau—name of kupesi
vela—fieriness