



The Taijitu, Western Dialectics and Brain Hemisphere Function: A Dialogue Facilitated by the Scholarship of Complex Integration

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INTRODUCTION

This chapter empowers a dialogue between the East Asian Taijitu—related to yin-yang theory—and Western dialectics while enriching the notion of dialogue itself. Applications or resonances, such as those found in quantum physics, are also identified; with a focus on exploring brain hemispheric function (McGilchrist 2009)—an inquiry which has far-reaching consequences for social theory and global academia. The Taijitu can be interpreted in a reductive (inferring cyclical stasis) or a rich (involving complex evolution) fashion and this chapter adopts the latter interpretation, indicating its aptness. The topic aspires to the betterment of humanity and the planet through identifying the critical underuse of such semiotic patterns as the Taijitu in academia and—at least in a formal way—in Western society at large. A general import for social theory comprises the empowerment of adequately *complex* articulations of understanding, in contrast to more reductive theorisations involving *flat ontologies in conjunction with strong bias toward one half of apparent dichotomies*, such as

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that of ‘agency versus structure’.¹ The chapter indicates the usefulness of both Bhaskar’s (2008) philosophy of dialectical critical realism in ‘underlabouring’ such apt social science, and that of the notion of ‘the scholarship of complex integration’ (after Boyer 1990). An additional contextualising triangulation via postformal reasoning (Hampson 2007) further enhances the significance of the work. The chapter ends by offering a key conceptual formulation for understanding the underlying logic of the Taijitu and postformal dialectics as part of Gödel’s (1931/1992) incompleteness theorem(s).

An introduction to Taijitu scholarship is followed by an identification of Western dialectics, focusing on Bhaskar’s dialectical critical realism as a nuanced sublation of the dialectical approaches of both Hegel and Marx, thence opening up a dialogue between it and the Taijitu. After a brief review of Taijitu applications in academia, including that pertaining to quantum physics, there is an exploratory inquiry into the relationship between the Taijitu and brain hemispheric function via the scholarship of McGilchrist (2009). A useful global academic context then follows, namely, that of the scholarship of complex integration—an adaptation of Boyer’s (1990) scholarship of integration. This is enriched by addressing the lens of postformal reasoning. Finally, an ‘ends-in-view’ (Dewey 1919/2004) section presents a summary of the chapter and indicates avenues for further exploration.²

THE TAIJITU

The Taijitu or yin-yang symbol—indicating yin-yang theory (see Fig. 1)—can be interpreted in a variety of ways, some of which can be categorised as contractive or reductive, and others expansive or rich. Whilst the chapter adopts the latter, it is worth giving an example of the reductive interpretation, such as that of Bell and Bell (2008) on why the Taijitu is unsuitable for use in the field of environmental sociology: ‘from the perspective of ecological dialogue, the Taijitu represents the world as overly unified, static, and finished’ (Bell and Bell 2008, p. 6). This contrasts with a more complex interpretation such as Choi’s (2013), regarding the ‘ecological promise’ of the Taijitu, which he explores via the insights of Thomas Berry. In terms of the symbol itself, one perspective on how a reductive interpretation might be seen by some as merely cyclical and static involves the under-regarding of not only possible consequences arising from the aspect of dynamism but also the potential significance of the complex identity of the ‘seeds’ of yin within yang, and yang within yin as elaborate

Fig. 1 The classic
Daoist Taijitu



fractal subtotalities. But first, let us consider the historical context of the Taijitu.

Historical Context of the Taijitu

Yin-yang theory has formed part of the dominant worldview of eastern Asia for millennia. For example, ‘the Han thinker, Dong Zhongshu (Tung Chung-shu, 179–104 BCE), commonly regarded as the founder of Imperial Confucianism, explored the relationship between *yinyang* theory and Confucian morality’ (Wang 2005, p. 308, original italics), thus infusing a type of yin-yang orientation into the authoritarian mindset of early Confucianism. It was not until a millennium or so later, however, that a Taijitu was formed in relation to a *philosophical* perspective on yin and yang.³ Following on from a drawing of the Great Void by Daoist hermit Chen Tuan (906–989 CE), Zhou Dunyi (Chou Tun-i, 1017–1073 CE) wrote the *Taijitu Shuo*, a philosophical account of the Taijitu that first introduced the notion of non-being into East Asian thinking (Wang 2005). Via a particular infusion of Chinese Buddhism and Daoism, Zhou Dunyi heralded *Neo-Confucianism*, which lasted as a dominant cultural style in China until the early twentieth century. This realisation is relayed in the *Daodejing* (study 42—as quoted in Stalling 2010—as):

*Dao engenders One;
One engenders Two;
Two engenders Three;
Three engenders the ten thousand things*

In terms of the first line, Stalling (2010) comments:

Here, we begin with the undifferentiated ‘Source,’ variously referred to as *taiyi* [Great One], *taiji* [Great Ultimate], *hundun* [Primordial Chaos], or *qiantian* [Primordial Heavens]—or even *xu* [the Void], which is often figured as pure undifferentiated potentiality that is the foundation of being, its origin and its destination. (Stalling 2010, p. 167)

Beyond the ‘one’, the ‘two’ of yin and yang are formed. The ‘three’ can be understood as involving their complex relationship. This relationship thence leads to ‘the ten thousand things’, that is, the myriad phenomena we witness in the universe.

The complex relationship and its consequences are traditionally explored through the notion of trigrams (combinations involving three units, each unit being either yin or yang: a total of eight possibilities), and thence hexagrams (combinations of two trigrams: a total of sixty-four possibilities). These form the core elements of the *I Ching* (see Walls 1995, for example, regarding the *I Ching* in systems thinking). Closely associated with this context is that of the five elements (see Mišić 2011, for example, regarding the five elements with respect to systems biology). The perspective taken in the current chapter, however, is an exploration of the Taijitu *without focusing* on the level of trigrams (or beyond), and *without substantive association* to the five elements.

Taijitu Semiotics

In Fig. 1 the Taijitu can be identified as involving four aspects: (a) a circular sense of totality; (b) a contrast between a yin (black) half and yang (white) half; (c) an S-like curve between the yin and yang halves; and (d) a yin ‘seed’ within the yang half, and a yang ‘seed’ within the yin half.

The first aspect refers to the ‘one’ discussed above. The second aspect is a contrasting binary involving an apparent opposition, dichotomy, dualism or complementarity. In relation to such possibilities Brons (2009) notes that ‘while strict oppositional variants are more common in the West (and perhaps in Indian thought as well), the yin-yang model is more common in East-Asian thought’ (Brons 2009, p. 294).⁴ He is referring to the interpretation that the Taijitu offers yin and yang as a *complementary* pair rather than a pair in opposition. This understanding can be identified as the first level of insight. However, it is interesting to observe Yoke’s (2000) more nuanced—(meta-)dialectical—interpretation that yin and yang can

be understood as *both* complementary *and* oppositional: this can be identified as a second level of insight.⁵

A more nuanced understanding of the yin-yang pairing also indicates the possibility of asymmetry-within-symmetry.⁶ Specifically, at the initial level of understanding, yin and yang are symmetrical; yet particular contexts also highlight the asymmetry not only between the characters of yin and yang but also with respect to their systemic structure. From the traditional historical context, for example, the relationship between Heaven and Earth is described asymmetrically, specifically that Heaven (yang) begets Earth (yin), that Heaven/Source is primary, whilst receptive/reflective Earth is secondary. So, at the level of abstract complementarity, yin and yang can be understood as symmetrical, but in a more nuanced way, structural asymmetries can also be identified at different levels of understanding in various contexts.⁷

The third aspect indicates change, movement, dynamism—the type of which is dependent on the interpretation of the fourth aspect. The fourth aspect offers at least two possible readings. The first imaginary would be that the seeds merely indicate that yin becomes yang and yang becomes yin in a mechanical cyclical motion. But such an idea could surely be adequately represented by a diagram involving either the third aspect or the fourth aspect but not both (note that both would infer a redundancy—something unlikely in such a tight semiotic form). So even from the symbol itself, a *richer* reading would appear to be more apt. Firstly, it can be seen that the *very identity* of yin does not solely consist of yin but also of a little yang—and vice versa. In other words, each half of the Taijitu is already a complex identity, one which acknowledges the Other in its midst. Resonating with both Lacan (1988) (regarding the omnipresence of the Other in identity) and Derrida (1967/2001) (regarding what one might say as the omnipresence of the Other in the identity of the text⁸), one could specify such a complex identity as of a type of *dialectical* identity.⁹ Secondly, the positioning of the seed, namely, in the fullness of its Other, gives rise to the type of ‘movement’ found in the *I Ching* in relation to the varying strengths of yin (i.e. full versus moderate) and the two corresponding strengths of yang.¹⁰ Thirdly, and perhaps most generatively, the seeds can be interpreted as elaborate fractals, recursions or holographs of the whole: given that the seed itself can/will grow through time, it will surely become similar-but-not-identical to the major half of the Taijitu with which it shares its colour—and therefore have already implicit within itself the seeds of *its* own opposite or complement. In this explanation, I use the term *elaborate* (after Davis and Sumara 2006), to indicate that this process is not mechanical but organic,

so that—analogue to the procession of different generations of a biological family—the later iterations will be similar but never identical to the preceding ones. The combination of this aspect with the third aspect of dynamics thus indicates the prospect of evolution. Moreover, the path of evolution is very likely to be non-linear (i.e. does not form a neat geometrical helix¹¹), as Robinet (1992/1997) indicates (through her discussion of the Taijitu in the context of an alchemical spiritual path):

The cyclical process occurs in stages and, in a time quite apart from linear time, a cyclical and achronic time during which the materials on which the adept works ... are progressively deepened, purified, exalted, in an upward moving, widening spiral that culminates in the universal and the ultimate truth and finally permits escape from the cycle of life and death.

All explanations of the alchemical task follow this spiraling movement. Progress is never linear but always truncated, punctuated by movements backward. Like the task itself, these explanations do not proceed in a straight line but in a labyrinthine fashion, with repetitions and returns to earlier points, circularity, repetitively, dialectically. The perpetual reiterations are never identical, thus suggesting a constant labor or renewal and enlarging of understanding. (Robinet 1992/1997 quoted in Staling 2010, p. 234)

Here, Robinet's identification of evolution as a spiral (or helix¹²) involving a labyrinth of repetitions, regressions, truncations, punctuations, dialecticisations and so on is perhaps reminiscent of the philosopher Mary Midgley's (1985) identification of the character of evolution, in which she postulates the concept of the *bush* as offering an apt metaphor to indicate the degree and type of evolutionary complexity.¹³

But what of the Taijitu's relationship with the notion of dialectics?

WESTERN DIALECTICS

The Taijitu has been identified as a form of dialectics, as Brons (2009) indicates:

There are several forms such dialectics can take, and most of these forms can be found around the world. The famous *yin-yang* circle (*taijitu*) is a surprisingly good graphical representation of one of these forms—yin and yang are entangled, in perpetual flux, and contain each other's 'seeds'. (Brons 2009, p. 293, original italics)

Despite Brons' identification, it is mostly the case that dialectics has primarily been identified with respect to *Western* philosophy, involving such figures as Socrates, Hegel, Marx and Bhaskar. It is likely that Bhaskar's *dialectical critical realism* (Bhaskar 2008; Norrie 2010) provides the most nuanced approach to dialectics with respect to the Western tradition. It addresses the salient details of both Hegelian and Marxist dialectics and then moves dialectical understanding beyond each of these in a detailed and rigorous fashion. In its realist and emancipatory commitments, dialectical critical realism can be linked more closely to Marx, yet in its systematic philosophical rigour, it can be linked more closely to Hegel. Analogous to this, Norrie indicates that, 'Bhaskar's [theory of dialectics] is a partially preservative sublation of Hegel ... via the insights of Marx' (Norrie 2010, p. 85). The term 'preservative sublation' indicates the aforementioned manoeuvre of nuancing—in this instance signifying the differentiation of the Hegelian concept of *aufheben* or dialectical sublation (the process involved in achieving a new level of dialectical synthesis resulting from the apparent resolution of 'thesis' and 'antithesis') such that sublation may not only ('preservatively') involve *transcending and including* but also ('non-preservatively') involve *transcending and excluding*. As Bhaskar indicates, 'sublations involve the 'determinate transformative negation' of an existing state of affairs, and, as such, 'may be totally, essentially, or partially preservative'' (Bhaskar 2008, quoted in Norrie 2010, p. 82).

A relationship to poststructuralism and process philosophy—via Deleuze—can also be identified through observing differing interpretations of Heraclitus. Specifically, whilst Deleuze and some other process philosophers characterise Heraclitus as a philosopher of flux or flow, Norrie indicates that Bhaskar interprets Heraclitus as essentially offering a dialectical perspective—one specifically regarding the dialectical unit (or 'dual' in critical realist terms) between flow and structure (thus implicating Heraclitus in the fruitful identification of a *dialectic to process*).¹⁴

Given this heritage and substantive address of Hegel and Marx (with additional insights regarding Deleuze), dialectical critical realism can be used as an appropriate voice to represent Western dialectics as we bring this into dialogue with the Eastern Taijitu.

Dialogue with the Taijitu

The first thing to note is that neither Bhaskar's (2008) volume on dialectics nor Norrie's (2010) synergistic volume mention the Taijitu. Nonetheless, the degree of Bhaskar's enrichment of dialectical understanding adequately

facilitates a conceptual landscape within which dialogue can generatively occur. Indeed, the overall relationship can perhaps best be described as a philosophical embrace in which the Taijitu can be understood as forming a particular subset of the general landscape formed by dialectical critical realism. In other words, dialectical critical realism can be identified as a ‘philosophical underlabourer’ (Bhaskar 2008) for the Taijitu.¹⁵ The following represents the detailing of this by referring back to the section on the semiotics of the Taijitu:

1. The wholeness aspect of the Taijitu is valorised by dialectical critical realism through the concept of *totality*; specifically, the Taijitu can be identified as a totality;
2. The complementary(-opposite) aspect of the Taijitu is identified in dialectical critical realism as a *dual*, which can be understood as a subset of the concept of constellation—noting that:
 - (a) ‘Constellationality involves an overall co-relation, emergent from its parts and containing them, which depends on the real relation of the individual terms, together with the relative autonomy between them, making mediation possible. Mutual intra-action and co-mediation in a constellational state, rather than subsumption of one term within another, are stressed’ (Norrie 2010, p. 100);
 - (b) ‘Linked to [constellationality] is the figure of the dual, which also sustains the independence of linked terms, whilst insisting on their interdependence’ (Norrie 2010, p. 100);
 - (c) Thus, in dialectical critical realist terms, the Taijitu can be understood as a dual (or constellational dual);
3. The dynamic aspect of the Taijitu is identified in dialectical critical realism in a complex way, one which draws together particular identifications from:
 - (a) Plotinus and Schiller—*dialectical process* (unity to differentiation to differentiated unity);
 - (b) Hegel—*dialectical intelligibility* (involving teleology);
 - (c) Marx—*dialectical praxis* (involving a unity of theory and praxis);

4. Whilst the ‘seeds’ aspect of the Taijitu is facilitated by the concepts of:
- (a) *Heterology*—‘Something is heterologous where it has a relationship of difference with another entity, or contains elements of difference in itself’ (Norrie 2010, p. 96). The Taijitu involves heterology because yin is not entirely itself but rather contains the seed of yang and vice versa. Through dialectical critical realism, yin and yang are identified as heterologous;
 - (b) *Levels*—‘A totality can be made up of distinct, yet interconnected, levels, with each enjoying both a *sui generis* importance and being linked to other levels in the whole’ (Norrie 2010, p. 97). In the Taijitu, the *seeds* of yin and yang can be identified as operating at a different level to the main identity of yin and yang;
 - (c) *Subtotalities* (totalities within totalities)—The seeds of yin and yang can be identified as subtotalities, indicating the holistic complexity of character not only at the main level of the Taijitu but also at the level of the Taijitu seeds (as indicated above).

Dialectical critical realism further points to the contextual pertinence of such features as the dual, indicating the Taijitu’s usefulness in philosophy and social theory. For example, the Taijitu dual indicates the default significance of both agency and structure in social theory. This enables certain commonly held theoretical viewpoints to be identified as partial; for example: ‘deconstructive semiotics (Derrida) and reconstructive hermeneutics (Habermas) represent one-sided, complicit antagonists’ (Norrie 2010, p. 103).¹⁶ At a more encompassing level, the dialectic between Apollonian and Dionysian approaches (Norrie 2010) could even contextualise the usefulness or comprehensiveness of (Apollonian) academic/scientific theorisation itself.¹⁷

BRIEF REVIEW OF TAIJITU APPLICATIONS

The academic use of the Taijitu can involve different degrees of depth. At the shallower end are applications such as Beatty and Torbert’s (2013) use of yin-yang theory in leisure studies, in which yang represents the world of work and yin the world of leisure (through which yin-yang theory enables a better appreciation of the value of leisure); also Hillson’s (2011) ‘success-failure ecocycle’ (through which yin-yang theory enables

a better appreciation of the role of failure); and Chen's (2009) use of yin-yang theory as a novel methodology in biomolecular science. Whilst the possible import of Corpo's and Vannini's (2012) 'new theory of thermodynamics'—involving yang as visible, causal entropy (the divergent energy of physical systems) complementing yin as invisible and retrocausal syntropy (the convergent energy of living systems)—has merit, there are a number of questions about the details of their conception. Similarly, Bell's and Bell's (2008) reference to yin and yang with respect to the material and the ideal in philosophy appears to remain under-explored.

In terms of a deeper engagement with the Taijitu, the following vectors are indicative. Bock-Mobius (2012) indicates the usefulness of addressing the Taijitu in relation to methods of insight, exploring the idea that the scientific method (yang) can be complemented by mystic approaches (yin), where the former involves the objective and reproducible whilst the latter allows for the subjective and the non-reproducible.¹⁸ Additionally, she suggests that quantum entanglement analogises to the unity of the Dao beyond polarities.

From within the realm of science, one notable context for its application is in physics, particularly quantum physics. Specifically, the 'complementarity principle', which was introduced by Niels Bohr in 1927 to account for the, so-called, wave-particle duality (and other mutually exclusive yet collectively required descriptors of quanta).¹⁹ The principle has since received a steady interest from a small number of scientists and philosophers seeking to explore its transdisciplinary applicability in other subject matters (see von Stillfried 2010). This includes the possibility of a complementarity between:

- relativity theory and quantum theory (von Stillfried 2010),

as well as between:

- determinism–indeterminism (regarding a quantum event);
- physical–mental (regarding human individuals);
- structure–function (regarding systems);
- substance–process (regarding systems);
- science–spirituality (regarding reality as a whole); and
- individual–connectedness (regarding human being/humanity) (Walach and von Stillfried 2011).

In view of the potential of a generalised notion of complementarity, Stillfried and Walach (2006) even go as far as hypothesising that complementarity might well be an intrinsic property in all kinds of systems under certain conditions. In addition, at a paradigmatic level, Walach and von Stillfried (2011) identify possible challenges to the dominant philosophy of science following on from serious consideration of such complementarity. Such contested paradigmatic dominations include (a) science's undue privileging of reductionist and atomistic modalities; (b) the notion that 'all causes can be reduced to efficient causes in Aristotelean terms', (p. 190); and (c) the logic of the excluded middle.

Another aspect of quantum physics—namely that of the spontaneous, near-instantaneous creation and destruction of 'virtual' particles and antiparticles in a(n otherwise) vacuum—is explicitly brought into relation with the Taijitu by Schöter (2011) with respect to *wuji* (as apparent vacuum), *yin* (as virtual particle) and *yang* (as virtual antiparticle). Schöter (2011) additionally addresses the Taijitu with respect to Bohm's (1980) implicate (*yang*) and explicate (*yin*) orders.²⁰ Moreover, the author makes a parallel between this relational picture and the structure given in the *Yijing* based on the traditional realms of *tian* (Heaven), *di* (earth) and *ren* (humanity):

The trigram associated with Heaven is *qian*, the Creative; this is pure *yang*, the source of all movement, and generates the patterns which events follow. In contrast, the trigram associated with Earth is *kun*, the Receptive, pure *yin*; this provides a material substrate in which the unfolding of the Creative patterns can actually take form. The parallels between the implicate order as *tian* and the explicate order as *di* are clear. Further, in the traditional metaphysics Humanity, *ren*, arises between, and serves to connect, Heaven and Earth, which is exactly how consciousness functions in Bohm's picture, connecting the implicate and explicate. (Schöter 2011, p. 417)

Here, Schöter indicates a type of asymmetry between a *primary* yang (as Heaven) and a *secondary* yin (as Earth)—interestingly concurring with the asymmetry of spiritual ontologies often reported as part of rich near death experiences, such as those of Danison (2007) and Alexander (2012), in which the spiritual realm is identified as *more real* (i.e. the primary reality) than that we conventionally identify as real (i.e. our normal phenomenological experience as humans within this manifested universe of space and time). This asymmetry can be understood with respect to Taijitu

semiotics as discussed above; it can also be connected to insights arising from scholarship on brain hemispheric function, as indicated in the following section.

BRAIN HEMISPHERIC FUNCTION

An application not yet identified in the literature but one which appears to have great promise pertains to the qualities and differences regarding the functioning of brain hemispheres—as richly exemplified in the human animal.²¹

The most scholarly integrative mention in the brain hemisphere literature to date appears to be by McGilchrist in his seminal tome, *The Master and his Emissary* (2009). This section presents a reading of McGilchrist's account of the character of the two hemispheres; followed by an exploration of the relationship between brain hemispheric function and the Taijitu based on McGilchrist's scholarship.

Firstly, the context of a *shared hemispheric involvement in one brain* (similar to the variously entwined involvements of *yin and yang as a totality* in lifeworld contexts) can be identified when McGilchrist notes that, 'both hemispheres take part in virtually all 'functions' to some extent, and in reality both are always engaged' (p. 93). McGilchrist notes that the hemispheres operate in many ways as two separate brains engaging the world in decidedly contrasting ways. Within such a context, major types of Taijitu-like complementarity(/opposition)—one might say, complex complementarity—can be identified. In general, the aspect of complex *co-involvement* between the hemispheres can be understood in relation to (although not necessarily conterminous with) the seed vector where the Other is included in Identity (e.g. yin within yang). A more specific aspect that may arise in certain contexts is that of structural asymmetries between the hemispheres, such as is indicated by McGilchrist's primary metaphor for the hemispheres comprising 'master and emissary'.

A complex complementarity which could be explored as being useful as a key overarching category with which to frame other dialectical categories involved in brain hemisphere function is that of '*presentation*' v '*re-presentation*'.²² Specifically, it is the right brain hemisphere that has a strong tendency to directly present living reality to us, whilst the left has a strong tendency to *re-present* (i.e. *represent*) the information which comes from the right hemisphere; here one might note that the left thus has a

more indirect or secondary relationship to living reality.²³ We will first address the right hemisphere.²⁴

Given that each moment of living reality involves a significant intensity of possible information encompassing myriad types of phenomena arriving through multiple outer sensory inputs—in addition to inner sensations, emotions, thoughts and so on—and given that one moment is followed almost instantaneously (as it were) by the next (which involves some change to the previous moment), then for the right hemisphere to capture the whole of the moment (in its unique flavour) for it to be sufficiently ‘presented’ to us, it needs to be oriented by the following particular type of operation and sensibility:

- that of prioritising *process* (i.e. regarding the movement of moments) over static structures;
- that of prioritising a necessarily *soft focus* or *fuzzy felt sensing* of the whole rather than prioritising (more distinct) focusing on any particular part (note that the latter would distract it from being able to take in a sense of comprehensiveness or Gestalt); and
- that of an *intimate connection with the body* and its sensory abilities.

With respect to the first characteristic, given that the present moment is ever-changing into the new, the right hemisphere incorporates a corresponding interest in *openness to novelty* or to the Other (in relation to that which is already known). Additionally, as each moment presents a slightly different context to the previous one, the right hemisphere prioritises *context-dependent* knowing (over abstract or context-independent knowledge).

With regard to the second characteristic, given the multifarious (complex, living) nature of phenomenological reality, the right hemisphere carries a competence regarding ‘complex pattern recognition’ (McGilchrist 2009, p. 93), a type of integration or coherence which can be signified as ‘heteromodal’ or ‘complex’ (p. 93). Such complex integration involves a *prioritisation of ‘broad connectivity’* rather than the prioritising of more ‘local’ connections. The manoeuvre of *analogising* can be understood as one example of broad connectivity; the notions of ‘family resemblances’ (after Wittgenstein—as noted by McGilchrist) and ‘clustering’ (Hampson 2013) can be used as additional framing here. Resonantly, the analogising ‘organic’ quality of our living reality inclines the right hemisphere to prefer more *poetic or aesthetic communication modalities* over more linear

media such as prose. Furthermore, given the complexity of connectivity, the right brain has a meta-interest, so to speak, in *connectivity* itself (i.e. it has an explicit interest in the relationship between things and not only in the things themselves).

In terms of the third characteristic, the right hemisphere prioritises connection to the body. It thus has stronger connectivity with the lower brain and the nervous system.

Additionally, given that living reality involves we humans, and given that we have an intimate knowledge of our interest in being cared for and for caring, the right hemisphere prioritises an attitude of *care*. This can be understood as involving prioritising a recognition of the *inherent value* in all things. Such an orientation can be understood with respect to another right hemisphere orientation, namely, that of prioritising the *how* (i.e. with careful manner) over the *what*.

Shifting our attention now to the left hemisphere, a general understanding is that it complements (or opposes, or sits in dynamic tension/generativity with) the right in all the above ways, through its operations and sensibilities of *re-presenting* the right hemisphere's presentations. The left hemisphere thus prioritises:

- static structures over process;
- a decidedly *focused* address of *parts* of the whole (rather than fuzzily 'grokking' the whole);
- an intimate connection *with itself* (rather than with outer reality), thus enabling depths of abstract thought;
- internal logical (*closed system*) consistencies within any particular item of address (rather than more open-ended coherences arising from the overall *open system* of the living whole);
- context-independent (universal or invariant) types of knowledge over context-dependent knowing;
- atomistic, digital, monomodal thinking—which may include *complicated* atomistic (technological) forms (see Hampson 2010)—rather than thinking in terms of *complex-integrative patterns*;
- prose over poetics;
- identifying things-in-themselves rather than things-in-relationship;
- an interest in the *what*—synergising with an interest in *control* (rather than care) and *extrinsic* value (necessitating *instrumental reasoning*) over inherent worth.

Dialogue with the Taijitu

An initial exploratory comparative reading between the general semiotics of the Taijitu and that of brain hemispheric function suggests—via McGilchrist’s (2009) insights—significant similarities, as follows:

- The wholeness aspect of the Taijitu corresponds to the totality of brain function as a whole;
- The complex complementary (dual) aspect of the Taijitu corresponds to the hemispheric differentiation of brain function;
- The dynamic or developmental aspect of the Taijitu corresponds to the intricate, ‘conversations’ (at a spectrum of speeds from neuron-firing to those regarding the human life cycle)—and parallel-processing ‘non-conversations’—that occur between hemispheres;²⁵
- The seeds, or complex-identity, aspect of the Taijitu corresponds to the ways in which each hemisphere holds the other; specifically, the left hemisphere can have conceptual understandings regarding the right (such as enables the current inquiry!), whilst the right hemisphere directly knows or ‘feels’ its neighbor—it has this knowing inside itself such that it has the ability to choose to enact left brain modalities itself if the context indicates the pertinence of such a manoeuvre. As identified at the beginning of the section, it is also the case that the more general co-involvement of both hemispheres in virtually all contexts indicates something of a mixed identity for each.

The *asymmetrical* character of the hemispheres is already apparent in this fourth point in that the seed of the left-in-right has a decidedly different nature to the seed of the right-in-left. Moreover, the aforementioned descriptions of the hemispheric functions indicates a more fundamental asymmetry, namely, that the right holds the big picture of reality (including a sufficiently accurate, intimate knowing of the two hemispheres) whilst the left does not have such direct access to immediate knowing and consequently has the ability to distort, marginalise or otherwise misinterpret reality, including the nature and systemic significance of itself and its hemispheric neighbour (McGilchrist 2009). In McGilchrist’s terms (calling upon a parable by Nietzsche), the right is the ‘master’ and the left is (merely) the ‘emissary’, even if the emissary has the ability to (inaccurately) imagine itself to be the master (due to its

ability to prioritise addressing *partialities* with consequent possibilities regarding degrees of misrepresentation conveyed as denial of *that which does not pertain to this part*.

The following question arises: Is it possible to compare not only the structural relationship of yin and yang with that of left and right hemispheric cognition, but also to compare the characteristics of the poles that enter into these relations? For example, we might ask which hemisphere maps on to yin and which on to yang? At first, it might be assumed that the left hemisphere maps on to yang due to the left's 'loud' interest in focus, directionality and particularisation (perhaps corresponding to *particle* in the quantum complementarity of *wave-particle*), in contrast to the right's 'quiet' interest in embracing, allowing and yielding (yin); and indeed, there is much to be said about this correspondence at this level of content or sensibility (see McGilchrist, 2009). Yet, at a subtler or more structural level, our exploratory lens might inquire (calling upon Bohm, 1980) into the relationship between the right hemisphere as corresponding to the 'implicate order' of Heaven (as *yang*) and the left hemisphere as corresponding to the receptive 'explicate order' of the Earth (as *yin*), through noting that the left hemisphere *receives, complexly echoes* and works with information from the right hemisphere analogous to the way in which the Earth realm receives, complexly echoes and works with the Heaven realm, according to the Daoist understanding relayed above (in which Heaven 'begets' Earth). The yin-type receptivity here is that the left hemisphere receives direction from the right. From the left hemisphere (Earthly) perspective, the right hemisphere (Heaven) looks 'quiet' or hidden—even if it is in reality *that which initiates*; from the left hemisphere (Earthly) perspective, the left hemisphere (Earth) looks 'loud' or even self-evidently causally efficacious—even if in reality it is *that which reflects, resonates and responds*.

So, in this regard, it seems that a *vertical* understanding of the relationship between brain hemispheres and yin-yang—one involving at least two *levels* of understanding—might well be in order.

CONTEXT: THE SCHOLARSHIP OF COMPLEX INTEGRATION

At this juncture, it might be useful to introduce an overarching academic context which can help valorise the current chapter's interest in such a global, integratively complex dialogue—potentially operating at three levels, namely: (a) intra-dialogue (e.g. within an Identity such as the Taijitu); (b) inter-dialogue or simply dialogue (e.g. between the Taijitu and Western

dialectics); and (c) extra-dialogue or dialogue between Identity and context (e.g. regarding the scholarship of complex integration as per the current section). Specifically, the chapter can be contextualised as taking place within the general notion of Boyer's (1990) 'scholarship of integration'—a framing which (*inter alia*) seeks to increase *meaning-making* through pertinently drawing together otherwise unrelated items. A slight adaptation to Boyer's signifier can be made: the preferred term could become 'the scholarship of *complex* integration'.²⁶ Such a move attempts to ensure that the type of integration intended is not taken to mean *reductive* integration (of a flat, assimilative, overly hierarchical, mono-discursive nature), but rather one which pays homage to such philosophical understandings of complexity as that offered by Morin (2007)—complexity as paradigm—or one, perhaps, offering a *creative transdisciplinary* orientation (Giri 2002). There are numerous implications of complexity. The following two default structural imaginaries are indicative. The first involves *more ecosystemic patterns than atomistic* expectations. The second problematises the privileging of *closed system thought* in favour of *open system thinking*. The radicality of open system thinking is indicated by Gödel's (1931/1992) mathematical *incompleteness theorems*, which point to the logical impossibility of a system being both comprehensive and internally consistent. Such an idea can be used (*inter alia*) to underscore the notion of eternal change implied by the Taijitu.

Complex integration not only allows for the complex integration of atomistic parts, but more radically enables an elaborate holography of complex integrative fractals such that the very 'units' of integration are already complexly integrative (see Hampson 2013). An example of a complex integrative semiotic language is Tim Winton's 'pattern dynamics', which potentially offers various further generative perspectives on the Taijitu through such patterns as linguistically signified by 'source', 'pattern', 'enantiodromia', 'polarity', 'holarchy', 'seed', 'evolution', 'elegance', 'iteration' and 'harmony'—see Winton (n.d.).²⁷

Moreover, through the valorisation of this form of scholarship, the concept and practice of *dialogue* becomes foregrounded. This occurs both within and beyond the identity of the system in question—in this instance, the Taijitu. Firstly, complex integration necessitates *intra*-dialogical manoeuvres. Regarding the Taijitu, the above exploration indicates a complex 'conversation' between yin and yang involving complex identities (intra-dialogue within these two subtotalities), a complex conversational character of a dynamic or context-dependent dialectic between comple-

mentarity and opposition ('contrast' being an additional useful signifier in such a cluster or constellation), a dynamic element in which the conversation changes through time (with the prospect of developing or evolving, albeit in a non-linear fashion in all probability), and various symmetries and asymmetries. Such a type of integration additionally involves *extra*-dialogical manoeuvres due to its identity as an open system and consequent commitment to identifying pertinent contexts. In this regard, the current chapter brings the East Asian Taijitu into dialogue with items (apparently or initially) beyond itself, such as Western dialectics (as part of *planetary* complex integration) and brain hemispheric function (as a form of complex integration *between domains*).

Such a multilevel analysis regarding dialogue in this chapter hopefully contributes to enhancing dialogical consciousness in general. Specifically, dialogue is valorised as a key intellectual tool. This can readily be seen to have implications for practice, too, such as the empowerment of a new prioritisation of dialogical spaces within the academy (in addition to other organisational types such as corporations) to better enable complex integrations—spaces which would no doubt necessitate considerable 'social innovations' in the social practices and structures of such organisations, involving the facilitation of deep dialogue among members/workers/faculty, as well as in inter-domain contexts such as between faculty and other 'stakeholders' in the (creative) transdisciplinary system (where 'stakeholders' is defined in very broad terms allowing for not only governmental, community and corporate players, but also the inclusion of such 'actors' as future human generations, other sentient beings, and ecosystems). Such structural innovations obviously have implications for both the interior (e.g. communication paradigms and sensibilities—see, e.g. Kantor 2012 and Isaacs 1999) and exterior of organisations, namely, a heralding of transformations in both (sub)cultural norms and structural–institutional forms. In short, the scholarship of complex integration requires a transformation of worldviews (in both ideational and exteriorised forms) for 'optimal' operation.²⁸ (Of course, there is a Morin-type feedback loop here in that it is the new worldview which is most likely to be able to identify the pertinence of this scholarship in the first place, and thus to seek to empower it).²⁹

A Festal Ecosystem of Postformal Modalities

To deepen coherence regarding complex integrative scholarship, it would be useful to indicate the value of postformal reasoning. Postformal discourse arises from the interrelationship between postformal operations

addressed in positive adult developmental psychology (specifically, psychological operations beyond Piaget's identification of 'formal operations'—see Hampson 2007) and postformal approaches to education arising within critical educational discourse (see Kincheloe and Steinberg 1993). A contextualisation of the current chapter with respect to the potential dialogical 'festival' of postformal modalities might offer the following indications at the first level of analysis (i.e. without strongly focusing on implications arising from the possible interactions of postformal modalities):³⁰

- *Critical contextualisations.*³¹ These include the following four vectors that help rectify an under-regard for: (a) non-Western approaches; (b) various pre-modern insights; (c) the significance of brain hemisphere function—particularly with respect to appropriately valorising right hemispheric function (in contrast to much conventional scholarship—see McGilchrist 2009); and (d) the scholarship of integration, with its consequential rectification (through the above argument) of the under-enactment of deep dialogue;
- *Dialectical operations.* The substantive content of this chapter can be identified as comprising dialectics;
- *Complex integration.* The postformal interest in unitive consciousness coupled with its interest in complexity—particularly as represented by Morin's (2007) paradigmatic interpretation of complexity—enables this chapter's advocacy of complex integration;
- *Complex sublation.* This indicates that various pre-formal (pre-modern) and formal (modern) aspects might be identified as worthy of inclusion, and others of exclusion. The current chapter includes the formal (modern) interest of enabling the Taijitu to be employed as a 'conceptual technology'; unlike a mere formal-modern viewpoint, however, it also honours particular mythic understandings as aptly contributing to rich understanding; the chapter further prioritises types of nuancing, reflexivity and contextualisation characteristic of specifically *postformal* reasoning modalities;
- *Context-dependency.* This vector indicates that the Taijitu should be employed *judiciously* (i.e. depending on context) rather than universally (fundamentalistically). This synergises with reflexively employing dialectical operations upon itself;
- *Discernment and creative agility.* The degree of judgement involved in many of the above vectors should indicate that a necessary ingredient in postformal reasoning is the use of discernment or creative agility (adaptive intelligence) in service of purpose;

- *Reflexivity*. In what way can or does this chapter address itself through its own terms? This is a complex question, but it is hoped that by at least explicating the vector of reflexivity, an ongoing inquiry can be conducted in this regard beyond the following two initial thoughts as indicative: (a) a dialectic of the Taijitu (as yang) is indicated through context dependency in theorising in the possible usefulness of non-usage (yin) in particular contexts; and (b) I acknowledge the intuitive or ‘Gestalt felt-senses’ I have that fuel my motivation to address such topics as those in the current chapter that can be understood as arising from an explicit empowerment of right hemispheric functions;
- *Construct awareness*. An attempt has been made in to indicate transparencies regarding terms used. The complex integrative manoeuvre of semantic clustering (Nietzsche’s family resemblances) forms part of this quest.

ENDS-IN-VIEW

Thought as process, reasoning or ‘thinking’, and the role of more complex or abstract concepts in (such) thought tend to be mostly ignored in psychology and philosophy. Conceptual and intellectual history, on the other hand, cannot be accused of such neglect, but the common lack of a comparative perspective in those fields precludes any generalized inference. (Brons 2009, p. 293)

It is hoped that the current chapter has helped rectify some of the imbalances identified in the above quotation as problematic within the dominant form of contemporary academia, both with regard to addressing complex conceptual patterns and with respect to indicating the facilitation of conceptual landscapes and lifeworld contexts which enable apt conversations to take place. Specifically, the inquiry has opened up (or furthered) dialogical spaces between the Taijitu, Western dialectics, brain hemispheric function and other possible similar patterns, such as those identified in quantum physics. It has additionally offered meta-frameworks and understandings that empower the facilitation of such work. The exploratory nature of these early understandings clearly beckons for further scholarship to delve more deeply into this integrative territory, to unpack its nuances, to identify its complexities and implications more

strongly and to act as a generative springboard in this regard. The following indications can hopefully add appropriate strength and flavour to this prospect:

- The Western philosophy of science of dialectical critical realism can adequately act as philosophical ‘underlabourer’ in general support of the East Asian Taijitu construct;
- The (Western) notion of the scholarship of integration valorises addressing the Taijitu as topic; in addition, it specifically enables an *integrative* address of the topic; through so doing, it valorises (at a meta-level) the concept and practice of (sufficiently deep) dialogue—in terms of: (a) dialogue *as* topic (here, between the Taijitu and Western dialectics); (b) dialogue *within* features of the topic (here, between yin and yang, for example); and (c) dialogue between topic and context (here, where context includes the scholarship of complex integration). Obversely, the Taijitu valorises the significance of the scholarship of integration. Furthermore, postformal reasoning can be used as an appropriate ecosystem of modalities to enhance the expression and evaluation of such an integrative address;
- The Taijitu might well be a useful construct in addressing the topic of quantum complementarity;
- A generative horizon of understanding opens up when the Taijitu is brought into dialogue with brain hemispheric function, suggesting substantive implications for social theory, for academia in general and, indeed, for society as a whole as it manifests through myriad organisational forms (including those pertaining to business and government) at different scales. For example, regarding academia, it might be identified that conventional orientations to (or interpretations of) science unduly privilege left hemispheric function. If so, a matrix of questions would arise, including: *What meanings might be given to this realisation?* and *What might happen if science adopted a more hemispherically balanced approach to understanding itself and the world? What new ‘world dance’ might unfold?*

Such a summary indicates the fruitfulness of a kaleidoscope of directions regarding further thought and research. It is thus perhaps best to understand the current juncture not as offering a conclusion but rather as

comprising (a more dialectical notion of) ‘ends-in-view’ (Dewey 1919/2004), ones which might nevertheless benefit from the following generic wish:

Toward the way of way-and-no-way-and-both-and-neither-and-all-and-none-and-some-and-other-and ...
 (... and yet the Dao ...)
 ... in service of pertinence.

NOTES

1. Example of *complex* is postformal dialectical.
2. ‘Ends-in-view’ is a dialectical identification advancing the notion of ‘conclusion’ through recognising that further dialogue is always possible.
3. From an iconographic perspective, *identical* designs of the classic Daoist symbol (as per Fig. 1) appeared in the West in Roman times—around 430 CE—and in *similar* forms in Celtic times several centuries BCE. However, these Western examples do not appear to have had any philosophical or cosmological significance—notwithstanding possible inferences regarding the caduceus or ouroboros (see Di Giovanni Monastra 1996/2000).
4. Two more nuanced cross-cultural identifications in this regard are: (a) dichotomisation ‘*may* reveal a different kind of relationship hiding behind the strict opposition—they may overlap or even coincide (as in the Medieval Christian *coincidentia contradictorium*), they may both be illusory (as in Nagarjuna’s or Sextus Empiricus’s skeptical dialectics), or there may be some kind of interrelatedness and/or flux (as in Heraclitus and/or some aspects of Hegelian dialectics). Cultural differences, especially East–West differences, are often phrased in absolute terms, but generally the ‘absolutes’ are mere tendencies, or modal forms of thought. All forms of dialectical relationships can be found in both ‘East’ and ‘West’. However, while strict oppositional variants are more common in the West (and perhaps in Indian thought as well), the yin-yang model is more common in East-Asian thought. Nevertheless, Heraclitus, Hegel, and a few others occasionally seemed to get close to the yin-yang model’ (Brons 2009, p. 294–295); (b) the *reason–passion dialectic* ‘while being foundational for much of Western thought, does not have a clear equivalent in Chinese or Japanese thought. And conversely, there is no Western equivalent for the Neo-Confucian dialectic of ‘reason/principle’” (Brons 2009, p. 294).
5. Further dialectical operations can be performed upon the Taijitu to produce further levels of insight.

6. Thanks to Nikolaus von Stillfried for our generative conversations regarding this topic and helping to emphasise the identification of asymmetry in complementarity/postformal dialectical units.
7. Further dialectical operations upon this situation would reveal further complexities involving relations between symmetry and asymmetry.
8. Hence Derridean deconstruction.
9. Applying dialectical operations to such poststructural approaches indicates the context-dependence of the Other whereby ‘the Other of the Other’ offers the possibility of *that which is not the Other*; this might include a return to singular identity or might infer something more complex; regardless, the possibility of a reconstructive postmodernism (see Griffin 2002) is surely born from othering a fundamentalist or essentialising interpretation of deconstructive postmodernism on the understanding that a nuanced reconstructive postmodernism sits in positive relation with its deconstructive complement (see Hampson 2007).
10. The spatial positioning of the seed in each is such that the seed is identified as occurring in the fullness or extreme aspect (rather than partial, moderate or developing aspects) of the other. This locational significance plays a part in the *I Ching*’s differentiation between ‘moving’ yang (one about to transform to stationery yin) and ‘stationery’ yang (and vice versa regarding moving yin and stationery yin).
11. Note that a helix is formed by the combination of a circular motion (horizontally)—the yin-yang cycle—with a linear motion (vertically)—the evolution of the yin-yang seeds.
12. See endnote 11.
13. Such an understanding should certainly take account of cetaceans (Hampson 2005).
14. One may additionally, lightly, ironically or otherwise note that—at a more meta-level—this *difference* in interpretation could possibly be allowed for by a meta-Deleuzian approach which explicates difference at this level.
15. From a dialectical critical realist perspective, it might also be that various questions arise about the use of the Taijitu in the manner of ‘why should there be a focus on this particular formation (against possible others)?’ and ‘what might be the benefits and dangers of such a focus?’ Additional questions might also arise with respect to the relationship(s) between the Taijitu and the real (i.e. inquiries addressing the epistemic fallacy). Whilst such questions form part of a potential dialogue between dialectical critical realism and the Taijitu, space does not permit here a detailed engagement in this regard, please note that this chapter’s intention is merely to empower such dialogue rather than to fully explicate it.
16. See endnote 9.

17. Such critical contextualisation of conventional academic norms is given further weight in the discussion on brain hemispheric function below.
18. This exploration resonates both with the aforementioned dialectic between Apollo and Dionysius and with the following section on brain hemispheric function.
19. Complementarity can be identified as a pattern comprising a ‘dual’, or dialectical binary, each half of which is apparently ontologically incompatible with the other, where such incompatibility is understood through conventional logic. Here it may be of particular interest to mention that, when asked to design a coat of arms in the context of being honored by the Danish King for his achievements, Bohr chose the Taijitu—thus implicitly acknowledging that this symbol best represented the physical principle of complementarity which he identified as the most fundamental feature of physical reality known to humanity so far (von Stillfried 2010).
20. He further relates this to Sheldrake’s (1987) morphic fields and Jung’s (1973) synchronicity.
21. Given the probable approximately-equivalent intelligence of many cetacean species, research regarding cetaceans and brain hemisphere function with respect to the Taijitu seems yet more promising, given its current under-regard.
22. In this context I use ‘v’—abbreviation of ‘versus’—as shorthand for ‘complex complementarity’ or ‘the dialectic between complementarity and opposition’ as indicated above.
23. The direct reception of sensory information from the right half of the body by the left hemisphere should be noted as an aspect of the counter-tendency.
24. Whilst the degree of simplification inferred below should suffice for the current context, please note the yet-more inherent complexities regarding the character of the hemispheres.
25. Note the few physical connections between the hemispheres and that many of these primarily function as dampeners of connection!
26. Other possibilities for adaptive signification include ‘the scholarship of ecosystemic integration’ (or ‘eco-logics’—Hampson 2012) or ‘the scholarship of postformal integration’. Like *the scholarship of complex integration*, these similarly imply a more ecosystemic, multi-layered approach to integration than reductive integration. In the current instance, one implication of this sensibility is that there is not *necessarily* any requirement to establish a singular essentialising perspective on the connections identified in the chapter: the territory may be left with a multiple of signifiers, it may be pragmatically cohered through the context in question (the Taijitu in the current instance), or it might be that a grounded approach may eventually identify a singular key perspective, i.e. signification is context-dependent.

27. It is beyond the scope of the current chapter to explore this further at this juncture.
28. To use a ‘modern’ metaphor.
29. For the new worldview: my preferred academic or ‘logical’ signifier is ‘reconstructive postmodern’—see Griffin (2002) and Hampson (2013); my preferred ‘public-friendly’ signifier is ‘planetary’; I would also note the potential usefulness of the notion of ‘eco-logics’ (Hampson 2010, 2012), which calls upon the concept of ecosystem across the three domains of the ‘environment’, human society, and the realm of thought(-feeling)—see Bateson’s (2000) *ecology of mind* and Guattari’s (1989/2000) *three ecologies* (in relation to Naess’s et al. 2005 *ecosophy*).
30. With gratitude to Ananta Giri for empowering the festival metaphor.
31. Context in relation to the host book on ‘social theory’: relations to ‘social theory’ are postformal in combining two contrasting but harmonising perspectives. The first is that the topic *adds content* to social theory by exploring underlying patterns which might empower social theories of an aptly Asian-inclusive nature, ones which normatively seek to move us into a collectively preferred future (here signified as moving beyond modernism to reconstructive postmodernism). The second is that the construct ‘social theory’ is held lightly to enable its *partial deconstruction and reconstruction* in two ways: firstly, there is an interest in expanding ‘social’ integratively to include the planet as a whole (i.e. whilst it is only in the social sphere that we can create social theories, they nonetheless often have impact upon other species, ecosystems, and future human generations); secondly, the construct ‘theory’ from a postformal perspective might in some contexts be useful, but in others it might be generative to use the more accurate construct ‘poetics’ which, roughly understood, is the consequence of a conversation between theory and aesthetics through employing such approaches as construct awareness used in the generic process of theorising; specifically, conceptual metaphor theory indicates that language (including that of theory) can never be totally innocent, value-neutral or without metaphoric or aesthetic inference (even if relatively slight). So it could be said that the study contributes to ‘planetary poetics’ (or similar)—a context which is sufficiently/aply preservative of the notion of ‘social theory.’

REFERENCES

- Alexander, E. (2012). *Proof of Heaven: A Neurosurgeon’s journey into the Afterlife*. New York: Simon & Schuster.
- Bateson, G. (2000). *Steps to an ecology of mind: Collected essays in anthropology, psychiatry, evolution, and epistemology*. Chicago: University of Chicago Press.

- Beatty, I., & Torbert, W. R. (2013). Yin and Yang: The relationship of leisure and work. In T. Blackshaw (Ed.) *Routledge Handbook of Leisure Studies*, Abingdon, UK: Routledge.
- Bell, M. M., & Bell, M. (2008). *An invitation to environmental sociology*. New York: Sage Publications.
- Bhaskar (2008). *Dialectic: The Pulse of Freedom*. Abingdon, UK: Routledge.
- Bock-Mobius, I. (2012). *Qigong Meets Quantum Physics: Experiencing Cosmic Oneness*. St Petersburg, FL: Three Pines Press.
- Bohm, D. (1980). *Wholeness and the Implicate Order*. London, New York: Routledge & Kegan Paul.
- Boyer, E. L. (1990). *Scholarship Reconsidered: Priorities of the Professoriate*. Lawrenceville, NJ: Carnegie Foundation for the Advancement of Teaching, Princeton University Press.
- Brons, L. L. (2009). Concepts in Theoretical Thought: an Introductory Essay. In *CARLS Series of Advanced Study of Logic and Sensibility, Volume 3*. Tokyo, Japan: Keio University Press.
- Chen, C. Y. C. (2009). Weighted Equation and Rules—A Novel Concept for Evaluating Protein-Ligand Interaction. *Journal of Biomolecular Structure and Dynamics*, 27(3), 271–282.
- Choi, K. S. (2013). Explorations of Zhou Dunyi's Confucian Cosmology for an Ecological Promise. *Religion Compass*, 7(6), 201–213.
- Danison, N. L. (2007). *Backwards: Returning to our Source for Answers*. Columbus, OH: A. P. Lee & Co.
- Davis, B., & Sumara, D. (2006). *Complexity and Education: Inquiries into Learning, Teaching, and Research*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Derrida, J. (1967/2001). *Writing and Difference*. London: Routledge Classics.
- Dewey, J. (1919/2004). *Reconstruction in Philosophy*. North Chelmsford, MA: Courier Dover.
- Di Corpo, U. and Vannini, A. (2012). Syntropy, the law of complementarity and unity. *Syntropy 2–13* (1), 83–92
- Di Giovanni Monastra. (1996/2000). The Yin-Yang' among the insignia of the Roman Empire? *Sophia* 6(2).
- Giri, A. K. (2002). The calling of a creative transdisciplinarity. *Futures*, 34(1), 103–115.
- Gödel, K. (1931/1992). *On formally undecidable propositions of Principia Mathematica and related systems*. Mineola, NY: Dover.
- Griffin, D. R. (2002). Introduction to SUNY Series in Constructive Postmodern Thought. In C. Keller & A. Daniell (Eds.), *Process and Difference: Between Cosmological and Poststructuralist Postmodernisms*. Albany, NY: State University of New York Press.
- Guattari, F. (1989/2000). *The Three Ecologies*. London, New York: Continuum.

- Hampson, G. P. (2005). Human: Machine, ape or dolphin? *Journal of Futures Studies* 9(4), 29–44.
- Hampson, G. P. (2007). Integral re-views postmodernism: The way out is through. *Integral Review* 4, 108–173.
- Hampson, G. P. (2010). Facilitating eco-logical futures through postformal poetic. Ecosophy. *Futures* 42(10), 1064–1072.
- Hampson, G. P. (2012). Eco-logical education for the Long Emergency. *Futures* 44(1), 71–80.
- Hampson, G. P. (2013). Toward a genealogy and topology of Western integrative. Thinking. *Integral Review* 9(2), pp. 46–75.
- Hillson, D. (Ed.) (2011). *The Failure Files: Perspectives on Failure*. Triarchy Press Limited.
- Isaacs, W. (1999). *Dialogue and the Art of Thinking Together*. New York: Currency.
- Jung, C. G. (1973). *Synchronicity: An Acausal Connecting Principle (Vol. 8)*. Princeton: Princeton University Press.
- Kantor, D. (2012). *Reading the Room: Group Dynamics for Coaches and Leaders*. San Francisco: Jossey-Bass.
- Kincheloe, J. L., & Steinberg, S. R. (1993). A tentative description of post-formal thinking: the critical confrontation with cognitive theory. *Harvard Educational Review*, 63(3), 296–320.
- Lacan J. (1988). *The Ego in Freud's Theory and in the Technique of Psychoanalysis*. New York: Norton.
- McGilchrist, I. (2009). *The Master and his Emissary: The Divided Brain and the Making of the Western World*. New Haven; CT: Yale University Press.
- Midgley, M. (1985). *Evolution as a Religion*. York, UK: Methuen & Co.
- Mišić, N. (2011). Chinese concept of five phases (wu xing-五行) in the light of systems science. *Symposium of Quantum-Informational Medicine: Acupuncture-based and Consciousness-based Holistic Approaches and Techniques*, Belgrade, 23–25 Sept 2011.
- Morin, E. (2007). Restricted complexity, general complexity. In C. Gershenson, D. Aerts & B. Edmonds (Eds.), *Worldviews, Science and Us: Philosophy and Complexity*. Singapore: World Scientific Publishing Co.
- Norrie, A. (2010) *Dialectic and Difference: Dialectical Critical Realism and the Grounds of Justice*. Abingdon, UK: Routledge.
- Robinet, I. (1992/1997). *Taoism: Growth of a Religion*. Stanford, CA: Stanford University Press.
- Schöter, A. (2011). The *yijing*: metaphysics and physics. *Journal of Chinese Philosophy*, 38, 412–426.
- Sheldrake, R. (1987). *A New Science of Life: The Hypothesis of Formative Causation*. Los Angeles, Boston: J. P. Tarcher.
- Stalling, J. (2010). *Poetics of Emptiness: Transformations of Asian Thought in American Poetry*. New York: Fordham University Press.

- von Stillfried, N. (2010). *Theoretical and empirical explorations of Generalized Quantum Theory*. Doctoral dissertation, Universität Viadrina, Frankfurt (Oder), Germany.
- von Stillfried, N., & Walach, H. (2006). The whole and its parts: are complementarity and non-locality intrinsic to closed systems. *International Journal of Computing Anticipatory Systems*, 17, 137–146.
- Walach, H., & von Stillfried, N. (2011). Generalised Quantum Theory—Basic idea and general intuition: A background story and overview. *Axiomathes*, 21(2), 185–209.
- Walls, J. W. (1995). The *I Ching* as a paradigm for understanding corresponding states in fundamentally different systems. *Advances in human factors/ergonomics* 20: 1047–1052.
- Wang, R. (2005). Zhou Dunyi's diagram of the Supreme Ultimate explained (Taijitu shuo): A construction of the Confucian metaphysics. *Journal of the History of Ideas*, 66(3), 307–323.
- Winton, T. (n.d.). *Pattern Dynamics: a planetary social enterprise*. <http://www.patterndynamics.com.au>. Accessed 2013/09/18.
- Yoke, H. P. (2000). *Li, Qi, and Shu: An Introduction to Science and Civilization in China*. DoverPublications.com.