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Cultural Computing, Entertainment Computing, Elsevier, Amsterdam, September 2011
(Special Issue Cultural Computing). Elsevier Site:
<http://www.sciencedirect.com/science/article/pii/S1875952111000279>

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insomuch that it includes images.

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1 . Introduction 2. Names. 3. Objects. 4. Places 5. Dates 6. Methods and Causes.
7. Knowledges 8. Conclusions

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1. Introduction

Cultural computing has many definitions. In 1949, two decades before the Internet, Father Roberto Busa (Rome) persuaded IBM to work with him on his Index Thomisticus, which became the first major computer application in scholarship. He called his work textual and hermeneutic informatics and went on to develop a bicultural lexicon.¹ This was a form of Cultural computing long before the term became popular. In the 1960s and 1970s, concordances became a key application especially in the fields of Classics,² English,³ and Linguistics.⁴ By 1966, these activities became part of a larger trend of Computers and the Humanities,⁵ later called Humanities Computing (2005)⁶ and more recently called Digital Humanities (2007).⁷ Humanities scholars in North America and the United Kingdom continue to focus on textual, and linguistic dimensions of English.

Meanwhile, in Europe there has been study of computing in art history⁸, history⁹, archaeology¹⁰ and cultural heritage,¹¹ virtual environments, visual hyperculture¹² and e-culture.¹³ Devine and Welland (2000) discussed cultural computing in terms of interactive digital media in museums.¹⁴ In Austria, Cultural computing (CC) “implies the application of information and communication technology (ICT) in the field of culture and arts.”¹⁵ While the Anglo-Saxon world continues to ponder whether humanities computing is an academic discipline,¹⁶ universities such as the Complutense in Spain have a Laboratorio de Cultura digital y Museografía Hipermedia¹⁷ as part of a Faculty of Information Sciences in the Department of Communication. In addition to producing high level Compact Discs (CDs) of museums such as the Prado and the Thyssen Collection, this group has been exploring theoretical implications of digital versions of literature, art, film and other media.

In Japan, work on a ZENetic¹⁸ computer has pointed to a new definition of Cultural Computing in terms of Human Computer Interaction (HCI). In this approach, which is also being explored in the Netherlands, personal computing, cooperative computing, social computing are seen as three initial stages followed by a fourth paradigm: cultural computing.¹⁹

Cultural Computing in the sense of electronic versions of paintings, museum objects and cultural heritage sites is an important new field. The computer science community tends to



Figure 1a -e. Siva/Shiva as Creator, Satan, Goddess, Mother of Living Things, and Wife of Veles.²⁰

Semantic Web do not address sufficiently the challenges of culture has been explored assume that this is merely another application of solutions developed for the Internet, World Wide Web (WWW) and the so-called Semantic Web. Why current approaches to the elsewhere.²¹ This paper, which is part of a larger study on new models of culture seeking to go beyond Eurocentrism, proposes a fresh approach to Cultural computing.²² It offers examples in terms of names, objects, places, dates, methods, and explanations, to suggest that the methods of information sciences need to be complemented by knowledge organization and knowledge sciences in order to arrive at a new approach to what Francis Bacon called “knowledges.”

1. Names

Names of persons, or proper names, are a long standing challenge in the library world where recent efforts include work on a Virtual International Authority File (VIAF).²³ These efforts focus on the need to establish a standard author name with “see also” references to important variants and are fundamentally important.

In the field of culture establishing a single, standard name is not sufficient. The Hindu god, Shiva may seem to be an obvious name. But even a casual search in Wikipedia leads us to a: Shiva (disambiguation) with a see also for: Siva (disambiguation), Siwa (disambiguation), Sieve, Shiv (disambiguation), Shiver, Yeshiva.²⁴ On further study we find that official variants are not simply alternative spellings of a consonant, e.g.: Adi Shankara, Adideva, Ambarisa, Ardhanarisvara, Bhava, Civan, Hara, Mahadeva, Nataraja, Om Namah Shivaya, Para-Shiva, Rudra-Shiva, Sadashiva, Shiva, Shiva (Rudra), Siba, Siv, Sivan, Zhivana, Ziva, zabdarAzi, zivA, ziva, Çiva. Indeed, Hindu religion identifies 108 Names of Shiva, 1000 Names of Shiva and 1008 Names of Shiva: cf. the 99 Names of Allah and the 72 names of the Hebrew G-d. These different names of a deity typically entail different associations, attributes, aspects, dimensions of the same deity. They cannot be dismissed as mere variants.

These associated names also vary in different countries. In Russia, for instance, a superficial search in Yandex (the Russian Search engine) takes us predictably to the Hindu god Shiva. A prolonged search reveals a tradition that links: (Russian) Veles, (Hindu) Shiva, (Egyptian) Set, (Christian) Satan, and (Muslim) Shaytan (ВЕЛЕС-ШИВА-СЕТ-САТАНА-ШАЙТАН) and portrays these as one deity (Figure 1).

Shiva, with his symbol of a linga (phallus that is symbolically a pillar of light) is one of the archetypal images of a masculine god. At the same time, one of the Hindu forms of Shiva is

Zhe, zivete, zivite	Cyrillic
Zhivete	Glagolitic
Sgiviete	Illyricum
Xivitte	Croatian Cyrillic
Jivete	Archaic Romanian, Glagolitic

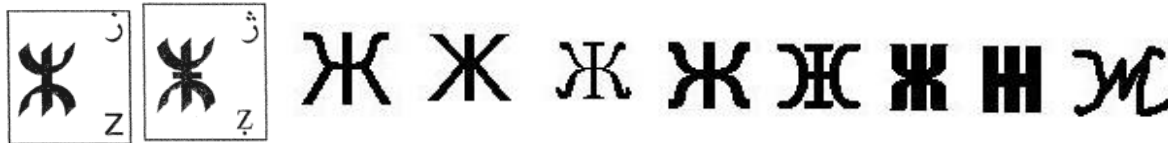


Figure 2ab Letters z, z (Tifinagh, North Africa) and Slavic variants of the letter, Zhe.

Ardhanishvara, “the lord who is half woman.” Elsewhere, this female side splits into a female goddess: “Živa, also Šiva, Siva, Siwa, Žiwia, Sieba or Razivia, the Slavic goddess of love and fertility. She was worshipped throughout what is now Poland, the Czech Republic, Slovakia, Slovenia, and Germany and especially in the Elbe (Labe) river valley.”²⁵ According to Wiki, this Živa had as consort the god, Siebog. Study of Russian sources reveals that the female Shiva was also a wife of Veles (Велес и Жива). This female Shiva (Жива) also occurs as Dzieva, Zhivana, and Deva (Дева).²⁶

This Zhivana is the Mother Goddess, the personification of all living beings. A computer science approach, treating a single name as a Digital Object Identifier (DOI) cannot prepare us for a major male Hindu god, who is a) linked to other major gods in other religions; b) who is a major female Slavic goddess; c) who is the Mother Goddess of all Living Things; d) who is a Slavic goddess married to a chief Slavic god.

The meanings of the female Shiva (Жива) are given as “Living” and “It is Living,”²⁷ which, it will be noted are also translations of Eve, Adam’s wife in the Bible. In some Russian sources, we find that this “living” is linked with the Sanskrit term “jIva”: living. Once we understand this connection, we recognize that the letter Ж of this Жива, which is the seventh letter of modern Cyrillic is linked with the seventh letter of English, G, and has a deeper history linking it via other Slavic languages to zhivete, xivitte, and jivete, which was once the final letter of Archaic Romanian. This means that, etymologically, the letters G, J, Sh, Z and Zh are all linked (Figure 2ab).

These connections point to unexpected connections between the metaphors and letters for life in India, the Slavic World and North Africa. The occurrence of these letters at different points in the alphabet suggests that “living” has multiple meanings: a) in the sense of merely existing and being alive; b) fully alive; c) living in the sense of being reborn, an end that is also a beginning. Note that this takes us towards understanding why the name, Shiva, recurs as Siva (Jiva), Shiva, and Ziva, the latter of which is etymologically linked with Sanskrit: zI, “in whom all things lie.” Lao Tze, rightly claimed that “the nameless is the beginning of heaven and Earth. The named is the mother of the ten thousand things.”²⁸ We would add that the named is much more than a simple multiplying process. It is integrally linked with our quest for ordering and developmental dimensions.

These developmental dimensions of existence, life and living within the various spellings of Shiva and other gods require further study. They are significant because the same basic principle is a starting point for the Hindu version of the trinity called the *trimurti* (three faces). The 3 gods, Brahma, Vishnu and Shiva are seen as Creator, Preserver, Destroyer, linked with 3 qualities (gunas), Potentiality, Agency, Actuality, and 3 powers (desire, action, wisdom), with 3 elements, 3 fires, 3 “bodies” (*trikaya*): body, mind, spirit (e.g. *kaya, vac, citta*); 3 phases of day, morning, noon and night, 3 phases of moon, 3 seasons of year (cf. 3 suns).

In later stages, the sequence of the 3 gods changes to Vishnu, Siva, Brahma, alternatively called Mukundan, Rudra, Kamalan or reduced to 3 syllables: MU, RU, KA, which then become joined as Muruka or Murugan as one of the sons of god. Murugan is again associated with 3 Powers: power of desire, power of action, power of wisdom (Sanskrit: *icchA-Sakti, kriyA-Sakti, jnAna-Sakti*), with 3 symbols, spear, peacock and cock or as a god with two consorts: e.g. Devasena, Skanda, Valli. In Scandinavia, we find a similar tri-fold approach to names of god: e.g. Odin, Vili, Vé or Wotan, Wili, Weh. In the Slavic, world this three-fold approach recurs with Svarog, Perun, Veles; Dievas, Perkūnas, Velnias, linked also to 3 worlds (*prav, nav, jav*), and 3 seasons. In Greece and Rome, we find 3 suns: Dionysius, Apollo, Helios. Such trinities are much more than clever imagery. They reflect fundamental dimensions of what it means to be human, which the 17th century philosopher, Bureus, described with his concept of threefold man (*homo triplex*).²⁹ A sample of such trinities is found in Appendix 1.

One explanation for these three-fold names is the tri-functional hypothesis linking such triple names with a three-fold social structure. This overlooks a) that the three-fold pattern has older roots in notions of a Triple Goddess and b) that the three-fold nexus is but a stage in an evolving set of associations. For instance, there are equally links of 4 gods with 4 seasons: e.g. Hades, Zeus, Helios, Iao become linked with winter, spring, summer, autumn, who become Yar, Yuri, Rai, Lad in Slavic mythology and are then replaced by 4 Saints: Saint John the Evangelist, Saint George, Saint John the Baptist and Saint Michael in a Christian context. In later stages there are associations of 7 gods with 7 planets and 7 days; 12 gods with 12 zodiac signs, and 12 months. The 3, 7 and 12 gods combine to be linked with 22 letters. Or the 33 letters of Sanskrit are linked with 33 gods: 1 Divine Conqueror, 1 Creator God, 12 Preserver Gods, 11 Destroyer Gods, 8 Elements (Vasus). The names of gods and goddesses are not arbitrary, or isolated. They are part of cosmological systems, which need to be understood as a whole. There are 33 Taoist gods. There are 33 paths in the Cabala.

The details of these associations would take us far beyond the scope of this essay. Here we are interested simply in implications for data models of names in cultural computing. As in the library world, we need standard versions of names. In addition, we need a) databases of the principle versions of the names, syllables or even letters of a god or mythological figure; b) databases which show the links between a god and other gods in a trinity, quaternity or other pantheon and c) which show the associations between these pantheons and other concepts: e.g. 7 letters, 7 gods, 7 days, 7 elements, 7 letters, 7 notes, 7 metals, 7 alchemical processes.

An interface for beginners would not show only some versions, but there would be pointers to major categories. This applies equally in the case of associated gods, which will change in different religious schools: e.g. a Shaivite, who views Shiva as the only god has different associations than a follower of Vishnu. Images, objects, symbols associated with individual versions of a sacred name are needed.

2. “Objects”

In the Western tradition, naming things was Adam’s first job (Genesis 2:19-21). In Asia, naming was intimately connected with the idea of worlds and levels of reality: ranging from 3 worlds (*tri-loka*) to 33 worlds, each linked to a letter of the alphabet. In the mediaeval period, partly via Arabic traditions, this hierarchical approach became a basic part of Western thinking. Systematic, standardized naming began seriously in the 18th century³⁰ and modern terminology only began seriously in the early 20th century.³¹ In terms of computing, the rise of object oriented programming (Oslo, early 1960s)³² opened a new chapter. The good news was that this introduced many new solutions. The less good news was that this played havoc with careful distinctions between different levels, planes, dimensions of reality developed over the past four millennia. The World Wide Web and the rise of the Semantic Web³³ has since focused on things that can be logically demonstrated. This reduces the web to mathematical demonstrations and literal truths, which are essential goals for modern science and especially for business transactions.

Cultural computing in our sense requires much more than such a “bottom line” of everything that can be rationally proved. Culture entails metaphors, similes, images, symbols, which cannot be proven in a logical sense, but which, nonetheless, play a central role in mythology, religion, philosophy and literature. By way of illustration, we shall examine some associations of the letter B and the term, body.

3a. Letter B

B is the second letter in many alphabets. In Hebrew, there are two basic versions of B: one is Beit, etymologically linked with bayt, beytl, with the notions of house, container. Another version is Beth, again linked with house as in Bethel (House of God), Bethlehem (House of Bread), Bethany (House of Dates) and Bethesda (House of Grace).³⁴ In the Celtic tradition, in the Ogham alphabet, the same letter Beth (for B) symbolizes the self and is the first letter of the BLN (Beth-Luis-Nion) and BLF (Beith, Luis, Fearn) alphabets.³⁵ In the Celtic tradition, Beth is also linked with the Birch tree, with a Birch Moon (the moon of Inception), and with a Birch Month (from 24 December to 20 January). In the Slavic tradition, B is also the first letter.

This association of B (Beth) with the birch is not limited to the Celtic traditions of the United Kingdom. In the Ukraine, the third month of the year (our March) is called Berezen from the sprouting of the birch tree (bereza). Meanwhile, in Russia, the same principles apply except

Bereg	<i>берег реки</i>	River Bank
berezi	<i>березы</i>	Birch Tree
beregin	<i>Берегиня</i>	Forest Mermaids
beregini	<i>Берегини</i>	to take care, to protect, Ancient guardian spirits
Bereginya	<i>Берегиня</i>	Goddess of Fate, Great Goddess
Bereginja Rozhanitsa		Mother Goddess, Fate, Goddess of Fate, Co-Creator Goddess
Rozhanitsa		Winter Mother Goddess

Figure 3. Terms related to Birch in Russian.³⁶

that it is the fourth month (our April) that is called Berezozol (month of the birch tree). The root “bere” (*бере*) leads to a series of other connections (Figure 3).

Runes are often dismissed as relatively recent markings, although scholarly studies officially trace them back to c. 600 B.C.³⁷ The association of B with birch in Celtic and Slavic pagan traditions suggests much older roots. This intuition becomes the more compelling when we recognize that the Russian term for birch is etymologically connected with forest mermaids, with ancient guardian spirits, and with the goddess of fate and destiny, who is ultimately a manifestation of the Great Goddess. There are no birches in the Bible and yet the opening word of that great text, *бегеуум* (Genesis, **בְּרֵאשִׁית**)³⁸, bears an uncanny resemblance to *Берег* roots in ancient Russia. So the first letter of the opening word of the Bible is linked with the first letter of a) Slavic Runes, as well as the b) BLF and c) the BNL Celtic alphabets and d) the first letter of the English word, beginning.

A data model which simply linked B and birch with translations would miss these connections. The above example also suggests that before the ABC of the English alphabet or the azbuka of the Cyrillic alphabet, there were organized versions of letters that began with B. In this context, a Slavic collection of 18 runes is of particular interest because at least nine of the letters align with the names of major Slavic deities (Appendix 2). Slavic names of the gods were built into the structure of their early letter systems.

Although, the Celtic and Slavic traditions share a common imagery linking beginnings with the birch tree, the dates connected with the birch vary dramatically in different cultures: December-January among the Celts, March in the Ukraine and April in Russia. An initial explanation is not hard to find. B, Great Goddess Bereginya and birch were linked not only with the original beginning but also with the annual reawakening of nature each spring, which takes place later if one is further North, and sooner if one is further South.

There is a fascinating history to be told how these annual cycles of the reawakening and dormition of Nature became linked with concepts, deities and sacred figures. For instance, 8 May was one of the dates for the reawakening of Nature. In India, it became one of the dates linked with the birth of Buddha and associated with mind (*manas*). In Rome, it became linked with the feast of *Mens* (mind). In the Christian tradition it became linked with the apparition of Saint Michael: 8 May marked the beginning – 8 November marked the end (the day when Saint Michael triumphed over the forces of darkness and evil, thus ensuring a new beginning).

Variants connect the dates 8 April - 8 December as the dates when Buddha moves from *manas* (mind) to *buddhi* (intellect) on his way towards *citta* (consciousness).

This annual reawakening of nature with its new beginnings inspired a category of Life-death-rebirth deities, e.g. Adonis, Attis, Atunis, Domuzi, Dumuzi, Inanna, Jarilo, Mithras, Osiris, Tammuz. There were also a series of awakenings. For instance, in Russia, the beginning and end of working in the fields became linked with Yuri's Day in Spring - Yuri's Day in Autumn. In Europe, this became George and later Saint George. Cultural computing would allow us to trace these connections between physical events, specific dates and metaphysical systems.

In terms of method, this means an object has more than one logical link or meaning. Birch is more than 1 object connected with 1 date. Beginning can also be beginnings. In cultural computing we need a richer approach whereby a single "object" such as a birch changes not only with age, but also in different regions, in different countries and in different historical periods. We have encyclopedias of trees and plants. These need to be correlated with new encyclopedias which include their mythology and symbolism and which need to be adjusted nationally, regionally and in some cases locally.

This principle applies also to events. We tend to think of carnival as an event that occurs on a fixed date, even if it shifts in alignment with a date for Easter that changes annually. Even so, although the classic carnival is typically six weeks before Easter, in cities such as Cologne, Carnival begins on the 11th minute of the 11th day of the 11th month each year. In Limburg, choosing a Prince for carnival continues to occur on a different date in most villages. Hence, a simple one to one equation between event and date would obscure many local realities.

3b. Body

Logically the body is an "object" studied in anatomy, physiology and other medical sciences. Meanwhile, metaphors of the body entail three key images: 1) as a field or soil which is fertile and can be seeded; 2) as a chariot which can be controlled and steered; 3) as a dwelling (shelter, tent, house, temple, city, kingdom, world) which can be mastered, conquered, which can protect and be protected.³⁹

The first metaphor of body as field has obvious agricultural roots (cf. Sanskrit *sIta*), wherein the plough serves as a Freudian symbol.⁴⁰ More significant is a tradition found in the *Bhagavad Gita* that distinguishes between a field and knower of the field. This leads to a series of metaphors linking the physical with the spiritual (Figure 4). These parallel images are interesting for several reasons. First there is their age. While the date of the *Bhagavad Gita* remains a matter of debate, the events on the battlefield of Kurushetra have been traced to 3102 B.C.⁴¹ This means that India introduced the imagery of Chariot - Charioteer some 2,500 years before Plato introduced it in his *Republic*. Not every cowboy who shouts "Hold your horses" realizes that he is citing ideas from Vedic India.

Field	- Knower of the Field
Body	- Self
Body	- Soul
Kshetra	- Kshetragna
Matter	- Spirit
Chariot	- Charioteer
Inferior Nature	- Superior Nature
Prakriti	- Purusa
Mother Nature	- Universal Cosmic Male
Shakti	- Shiva

Figure 4. Key metaphors linked with body and field.

Second, the chariot – charioteer image transforms what could become a simple opposition between material and spiritual into a dynamic process whereby the charioteer (self, soul, spirit), can rein in, master, control, guide, lead the physical body. The physical body thus becomes linked with abstract concepts (*prakriti – purusa*), which can also be symbolized as male and female goddess – god (Shakti – Shiva). As a result, Kurukshetra, which is a physical place, not far from modern Delhi, is literally a field (*kshetra*) where the Kurus defeated the Purus. It is also an allegory of the location where the spirit (*kshetragna*) triumphed over the flesh (*kshetra*). Officially this battle is linked with a shift from a society ruled by a priestly class (*Brahmans*) to a military/kingly class (*Kshatriyas*), an early version of shift from Church to State. But the Sanskrit letter Ksha (क्ष) also refers to “the Body, Speech and Mind of the Deities.” Hence, ksha-triyas also reflect three versions of ksha. Metaphorically, kshatriyas were more than physical warriors. They had conquered their inner worlds of body, speech and mind.⁴²

A third set of images entails the body as a dwelling. These include a number of body metaphors: e.g. body as container, tent, house, temple, palace, city, kingdom, world, which generate a further series of triplicities, linked with a notion of 3 principles, e.g. essence, soul, body (as field) (Prakriti, Atman, Kshetra). Hence, we find 3 streams (nadis), 3 cauldrons, 3 chambers, 3 burners, 3 tents, 3 shelters, 3 tabernacles, 3 dwellings, 3 temples, 3 cities, and 3 worlds (cf. Appendix B). This approach is found also in the West. During the Renaissance, Cornelius Agrippa,⁴³ creates lists for the scales of numbers 1 to 12 (cf. Appendix 4. Cornelius Agrippa, Scale of the Number 3).

Once again, the details of these trinities, triads and triplicities would take us far beyond the scope of this essay. As in the case of names, our concern is with implications for data modelling. Striking about these examples is how (physical) bodies are typically divided into physical, mental and spiritual parts or linked with mental and spiritual names, concepts, realms, planes, worlds. Indeed, the whole purpose of this threefold imagery is to outline a path that goes from the visible reality of the physical world, to the non-visible reality of mental and spiritual worlds. Hence, when Shiva acts as the destroyer of 3 cities (Tripurantaka), he is not a vandal or a terrorist destroying local places but rather three cities in the sky, symbolising 3 components of bondage (ego, deeds/effects, illusion or aham, karma, maya) or 3 passions

(pride, anger and delusion) and represented by 3 demons (Kamalakshan, Tarukakshan, Vidhunmali). Destroying demons, passions and bondage is a way to spiritual liberation.

This tri-fold imagery provides a set of metaphors in religion, mythology, philosophy and literature. In addition, in India, it is linked with a quest to escape from the yoke of the physical body (*yuga*) by mastery and control the body (*yoga*) and thereby reverse the negative process of physical elements back to positive, living elements. Hence, it is also linked with ayurvedic medical practices. Similarly, in China, there is a quest to control the 3 fields (3 dantians, sanjiao) to reverse the aging process. In Christianity, this threefold imagery is reduced to dichotomies in terms of moving from an old (physical) to a new (spiritual) body. Even so the function of a bridge between physical and spiritual is maintained.

A narrow, object-oriented approach that accepts only one level of demonstrative, logical reality would deal only with the physical level. Similarly, a current definition of semantic web, which calls for verified statements would potentially preclude links to concepts which cannot be verified. So three cities would be limited literally to places associated with physical locations of 3 cities such as Tripura in India, Trypillia in the Ukraine, Tripoli in Phoenicia and Libya and Tri-Cities in Alabama, Michigan, Washington etc. We have no logical “proof” that there exist 3 realms, 7 realms or 33 realms. What we do have are religious, mythological, philosophical and literary texts, that discuss these various realms. Excluding them would be to omit the principles of seminal works of world religions, world literature and much of world culture. Needed, therefore, are databases that allow us to trace these links between the physical world and various planes, realms, worlds of ideas. The wider criterion guiding these links is not whether they are necessarily true, but that they truly have a source. If we cannot prove all the claims about Buddhism and other religions, we need at least to have claims that take us back to Buddhist texts and sources.

Where this will lead is a new history of culture and ideas, which is linked with different levels, planes, realms, worlds of reality. In Taoism, for instance, the Trayatrimsa Heaven is a term that refers very precisely to 33 heavens, 8 heavens for each of the four cardinal directions (= 32 heavens), plus one at the top of the world mountain (Mount Sumeru).⁴⁴ All this points to the need for a new kind of GIS of the mental and spiritual worlds.

3. Places

In current computing, places are already linked with Global Positioning Systems (GPS) and Global Information Systems (GIS). Projects linked with Windows Live Virtual Earth and Google Earth are transforming our traditional notions of maps.⁴⁵ Increasingly, it is becoming possible simply to point the camera of a mobile device at a tourist site such as the Eiffel Tower and receive basic information. Virtual Globetrotting has begun to explore the potentials regarding specific cultural sites.⁴⁶ Applying this approach to all cultural sites around the world can be seen as an introductory level of cultural computing in the spatial domain. For the purposes of this paper we shall outline three more challenging applications: metaphysical geography, directional deities and a spatial symbol translator.

4a. Metaphysical Geography

Asian cosmologies are particularly fascinating because they make systematic bridges between metaphysical geography in the mind with physical geography on earth. The Tibetan version of the Kalachakra⁴⁷ summarizes the universe in an image known also as the All Powerful Ten, i.e. 5 Letters of Great Emptiness (vowels) and 6 Letters of Empty Potential (consonants). At the top of this image are three symbols: a small yellow flame (Sanskrit: *nada* or *tilaka*), a white disk and a red crescent. Symbolically these link with 3 mandalas, 3 Dakinis (female deities), and 3 Mountains in Tibet.⁴⁸

The symbolism of the Kalachakra (literally the wheel of time), like that of the Sri Yantra is enormously detailed. Its principles have inspired physical temples such as the Samye Monastery and Borobodur. Simple three-dimensional reconstructions of the kalachakra already exist.⁴⁹ A next stage would be an interactive version where touching any part of the structure would introduce us to deeper meaning. A more subtle version might be sound coordinated such that uttering the sound would reconstruct parts and a systematic uttering would re-enact the oral, visually. Voice recognition is already leading to voice navigation. In future, such navigation techniques could be linked with sacred verses. Om Mani Padhme Hum (The Queen Jewel is in the lotus) is more than a holy phrase. Om Ma Ni Pa Dhme Hum are also the six worlds of Buddhism. The six syllable song re-enacts creation in 6 levels.

Perhaps the most fundamental example of metaphysical geography entails associations between the 3 main nadis (channels, streams) of the body and 3 rivers (figure 5). In the West, variations of these three streams become the strands of the caduceus and the three pillars. In India, the physical meeting points of these three rivers is at Allahabad. A meeting of three rivers became known as a *tri-veni* (literally 3 streams, cf. 3 veins) and is considered a place for bathing and crossing the river (*tirtha*). Hence confluences of rivers became holy places.

The confluence of the Ganges, Yamuna and Sarasvati was initially called Prayaga, linked etymologically with sacrifice, worship and dissolution in the sense of being reunited. This became associated with 5 Prayags, 5 confluences along the way. The mouths of the Ganges and Yamuna became linked with 2 holy places, Badrinath and Kedarnath, associated with the gods Vishnu and Siva respectively and together these became known as the 4 Dhams (4 pilgrimage places). At a later stage, Badrinath and Kedarnath became associated with 5 Badris and 5 Kedars. Hence, what began as a description of interior streams of the body became a starting point for a sacred geography of Northern India. This approach was also an organizing principle in neighbouring areas and countries. A convergence of 5 rivers (the Pach Ab became the Punjab). A convergence of 7 rivers became the Sapta Sindu.

3 Nadis	Ida	Pingala	Sushumna
3 Rivers	Ganges	Yamuna	Sarasvati
3 Colours	White	Red	Multicoloured (Rainbow)
3 Creative Fires	Fire of Sun	Fire of Moon	Fire of Agni
3 Gunas	Sattva	Rajas	Tamas ⁵⁰

Figure 5. Basic combinations of 3 in Hindu Cosmology.

4 Dhams	4 Pilgrimage Places (4 Holy Cities)
5 Panchabhoota Stalams	5 Abodes linked 5 Elements
8 Veeratta Stalams	8 Abodes linked with overcoming evil
9 Abodes Navagraha Stalam	9 Abodes linked with 9 planets
12 Jyotirlingas	12 Abodes linked also with zodiac
108 Siva Lingas	108 Abodes linked to key cosmological number
275 Paadal Petra Stalam	275 Abodes

Figure 6. Temples linked with the God Shiva.

In Nepal, there are 3 Tribeni Gatts, 2 Tribeni Ghats, 1 Tribeni. The capital, Kathmandu is situated at the confluence of 2 rivers which are joined by a third. In Tibet, the 3 channels are linked with 8 directions to create 24 channels, which are associated with 24 sacred places. Each of these 24 channels is multiplied by 3 to arrive at 72 (the number of pulses in a minute and also the number of years in one degree of the precession of equinoxes). The 72 is then multiplied by 1,000 to arrive at 72,000 nadis, which are theoretically found in a human body.⁵¹ As might be expected, different schools ascribe different numbers to the nadis in the body and different names to the 24 sacred places.

Our concern here is with an underlying organizational principle. In India, when Siva's first wife (Sati) dies, her body is cut into pieces, one for each letter of the Sanskrit alphabet. These pieces are then dispersed. Where they fall a temple is built.

In the case of her husband, Shiva (cf. Figure 1), a series of building programs emerge. One links him with key pilgrimage centres in the North. Others link him with the five elements; with the nine planets (the regular 7 plus Rahu and Ketu); with the 12 signs of the zodiac; with 108 lingas. Finally, a series of three Tamil poets (7th-8th c. A.D.) inspired a remarkable collection of 275 abodes of Shiva in Tamil Nadu. A metaphysical geography for cultural computing would link letters of the Sanskrit alphabet with a) pieces of Sati, b) basic elements and c) corresponding Shiva temples or conversely. Standing in front of a temple we could see its connections with a larger physical and spiritual landscape.⁵²

4b. Directional Deities

We mentioned earlier how gods became linked with key moments of the annual cycle. These links were in terms of specific dates and also specific directions. Most cultures developed some form of a wheel of the year linked with key events and feasts. In Asia, there are simple versions linked with the 4 cardinal points (often with a fifth figure for the centre). Then there are more complex versions with 6 directions, 8 directions, 16 directions, 24 directions etc.

This systematic approach to the positioning of deities introduces new possibilities for a future GIS of sacred realms. If these alignments of deities and directions are linked in databases, then a tourist or student of sacred traditions need only point their camera at a single figure in order to recognize the underlying matrix to which it belongs and literally get their bearings. If the god in front of them is Yama, then they are to the South of the building looking North.

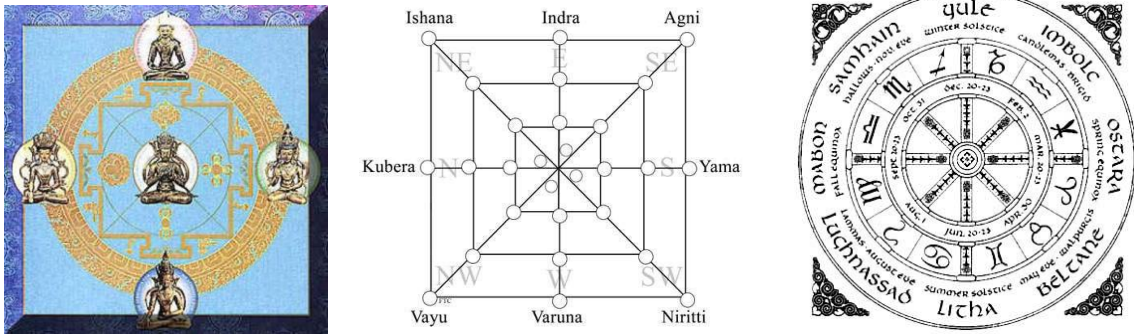


Figure 7. Buddhas, Deities and Feasts linked with points of the compass.⁵³

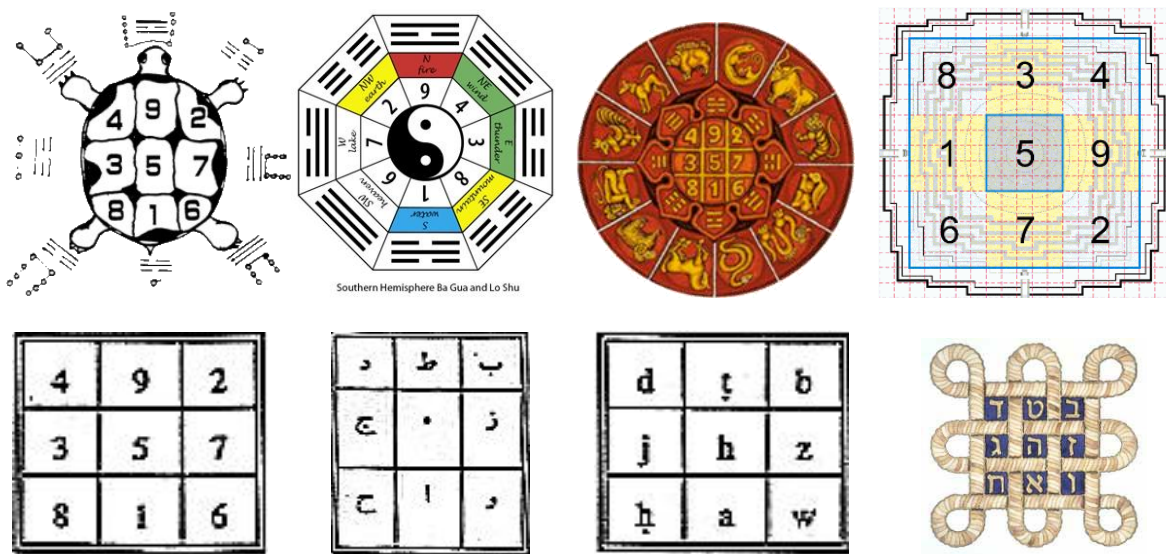


Figure 8a-h. Magic Squares in China, Bulgaria, Indonesia (Borobodur), Arabic and Hebrew.⁵⁴

A more advanced version would allow comparison with other cultures and hence they could note that in the Arabic tradition of Ibn al Arabi the 11th mansion ($8^{\circ}34'17''$ in Leo) is connected with Ya (the Lord). A more advanced version would provide a temporal version of this metaphysical geography and sacred landscapes linked with physical GIS allowing us to trace shifts over time. It would also trace changes in boundaries over time: a new online version of historical cartography, an historical and cultural equivalent of Google maps. We could trace how shifting borders frequently bring the cultural monuments and sites of one country within the boundaries of another country. We could see how two countries might have alternative borders.

4c. Spatial Symbol Translator (SST)

One of the fundamental challenges in studying historical images of cosmology is learning to see simple, two dimensional images as three dimensional spaces. Both India and China use matrices of squares to symbolize the physical world. In China, this magic square is initially on the back of a magic turtle. The magic square is often linked with 8 trigrams that come in two forms: the Archetypal Order and the Order of Change.⁵⁵ These two forms are combined. This

same array recurs in a Bulgarian zodiac, serves as a starting point for the design of the great temple at Borobodur, becomes the magic square of Saturn, becomes linked with the 9 first letters of Arabic that Allah is said to have given to Adam, recurs with Hebrew letters and is used also in freemasonry (Figure 8a-h). The examples with letters suggest a mainly two dimensional situation. Others imply a 3-D space.

The Chinese *I Ching* (or *Yi Jing*) takes as a point of departure the same principle of 8 trigrams (cf. Figure 8b). Read sequentially these function like a Western wheel of the year, linking 8 trigrams with 8 points in the year, 8 directions, 8 members of the family etc. In the fuller system these 8 trigrams are doubled to become 8 hexagrams and these in turn are put along both the x and y axes to create a matrix of 64 hexagrams.

In the past generation, new work has shown that the Yi Jing has an underlying, spherical structure which Drasny calls the Yi globe.⁵⁶ The central column of the yi globe is the world tree. In Northern mythologies, the equivalents are Ygdrassil and Irminsull. The central column is also the central spine of the human being (*sushumnah* in the Indian context) corresponding to the letter I and the rune Isaz.

A spatial symbol co-ordinator would provide spherical and other models of the universe allowing us to align points from a 2-D drawing to a 3 D space. For instance, In China, the 9 numbers are linked with 9 stars in the sky. A simple version would show where these stars appear in a map of the heavens. An intermediate version would link these the 28 Chinese mansions of the moon (28 Hsiu). An advanced version would allow us to translate the correlations of a Lo Pan Chart⁵⁷ into a 3 D Space. A research version would allow us to move between lunar mansions in different cultures, e.g. Indian Nakshatras, Chinese Hsiu, Arabic Manazils. This ability to visualize different cultural versions of the same “reality” could give a new depth to the question: “Do you see what I mean?” and lead to practical advances in viewpoint theory.

There is of course an historical dimension to these mental and physical maps of the universe. In India, there was a creation story. Then there was a version that distinguished between a) a sound form of universe and b) a universe or evolutionary trend of Maya; one aural, the other visible, one not manifest, the other manifest. Later versions distinguished between three kinds of symbols, fixed, cyclical and mutable, which became the 3 kinds of signs in astrology and 3 kinds of runes in Northern countries.

We have etymologies of individual words. Tools such as the spatial symbol translator would help us to arrive at the equivalent of etymologies for individual letters which, historically, have been linked with individual stars, elements and properties. It can also help us to understand the connections underlying the microcosm-macrocosm analogies that continued from Antiquity until recently.

A simple version would be on a mobile device. There are already Apple iPhone applications that allow us to point to a place in the sky and receive basic information about individual planets and stars.⁵⁸ The Spatial Symbol Translator would expand this by including names in sky maps from other cultures, effectively an extension of Hinckley’s Star Names. Augmented

Tangra	5808 B.C.
Russia	5608 B.C.
Byzantium	5509 B.C.
Bulgaria	5505 B.C.
Ethiopia	5493 B.C.
Persia	5022 B.C.
Egypt	4241 B.C.
India	4001 B.C.
Hebrew	3760 B.C.
China	2637 B.C.
Iran	1737 B.C.

Figure 9. Beginning dates connected with calendars in different cultures.⁵⁹

reality methods could provide overlays of shapes unto the configuration of stars. In this way we could literally see the sky as a Persian, Chinese, or Arabic astronomer would have seen it. Potential tourist applications of such devices are obvious, especially when aligning important archaeological sites such as Stonehenge or Persepolis with configurations of planets and stars at key moments of the year. More advanced versions would be linked with fixed computers and larger databases. Some versions could be immersive in the manner of today's planetariums taking us on the equivalent of a time machine applied to the heavens.

At the research level, such devices can help us understand untold stories of the sky. In earlier traditions, e.g. Celtic, the year finished at the end of October. This was seen as a portal to the other world: cf. All Souls, All Saints and Halloween. Astronomically this marked the time when the sun crossed the Milky Way and the zodiac sign, Scorpio, and then Sagittarius, at which time the sun began its course back towards the centre of the universe. So the beginning of November became linked with stories of a triumph of light over darkness, Dashain, Diwali, Christ vs. Satan, Michael overcoming Lucifer etc. These dates were linked with a lunar calendar and a lunar cosmology, which linked the moon and the Pleiades. Gradually, the focus shifted from November to the winter solstice, linked with the sun's entry into Capricorn, marking a return of longer days and a rebirth in all senses. This was partly due to a shift to a solar calendar. Gradually a star was linked with the event. In Coptic Egypt it was called Polis (The City, Civitas, cf. Heavenly Jerusalem), which became the City of God of Saint Augustine and Al Baldah of the Muslims, also called the Heavenly Mecca. A Spatial Symbol Translator would help understand historical dimensions of such key cultural metaphors.

4. Dates

Apart from obvious shifts through time zones, and the paradox that no one has enough of it, time is seldom perceived as a "problem" in everyday modern life. In various traditional societies, which continue to base dates of their religious feasts on lunar calendars, the question of dates quickly goes beyond handy watches.

Cultural historians who deal with earlier periods are immediately confronted with more troublesome problems of translating a date in the Julian calendar to the Gregorian calendar or

conversely. The same applies in dealing with Hebrew and Arabic calendars. Yes, conversion softwares exist, but it often remains a challenge to have the right compatible software available when we need it. So a first desideratum would be a tool whereby this becomes an inbuilt feature of our systems. In terms of cultural computing, we shall outline a need for two more challenging tools: a) comparative calendars and b) histories of principles and deities.

5a. Comparative Calendars and Chronologies

The deeper challenges become apparent through an anecdote. In the 17th century, John Lightfoot, Vice-Chancellor of Cambridge University, after study of biblical sources concluded that man was created on “October 23, 4004 B.C., at nine o'clock in the morning.”⁶⁰ Meanwhile, his younger contemporary at Oxford, Edward Bernard, the Savilian professor of Astronomy, claimed that the Alphabet of Adam dated back to 5509 B.C.⁶¹: i.e. precisely 1005 years before the Cambridge date of creation. Bernard’s date was not a wild theory. It corresponded to the date of creation in the Byzantine tradition. While Hebrew is frequently associated with the oldest calendar, there are at least 8 calendar systems that go back earlier than the Hebrew system (figure 9). A challenge for cultural computing would be to create a system that allows instant equivalents in the major chronology systems.

5b. Histories of principles and deities

A second challenge seems more obvious but may be more elusive. We have histories of art and histories of ideas and yet we still need histories of individual principles and deities. It is generally accepted that earliest versions of gods were often personifications of basic forces in Nature. In the Cologne Sanskrit Dictionary, for instance, the term, personification, leads to 57 results.⁶² Even so, our image of a given principle or deity is all too often linked with only a single image. God the Father, for example, is assumed to have a beard.

To illustrate the problem we offer a single example: the god, Veles. We encountered him earlier in § 2 (cf. Figures 1b and 1e) as linked with Shiva. In Russia, he is seen as a complementary god to Perun. A simplistic account of their relation is found in Wiki.⁶³ In the Christian era, Veles - Perun tended to be linked with Saint Basil – Saint Elijah. Veles, was also linked with Saint Vlasy, and Saint Blasius. But as we have seen (Appendix 1), Veles was also Lord of the Underworld, as part of a trinity that governed the 3 worlds. Early images of him are totemic. A next stage shows him in majestic form. A third stage reduces him to a noble human countenance. A fourth stage reduces him to a demonic countenance (Figure 9). Our sample images make no pretence of being comprehensive, but even a glance confirms that such a complex figure should not be reduced to a “representative” image.

Once again there is a basic methodological point. A simplistic object oriented approach would have us link a given god with 1 set of characteristics. Cultural computing requires that we have ampler categories that allow us to follow different versions of principles and deities over time.

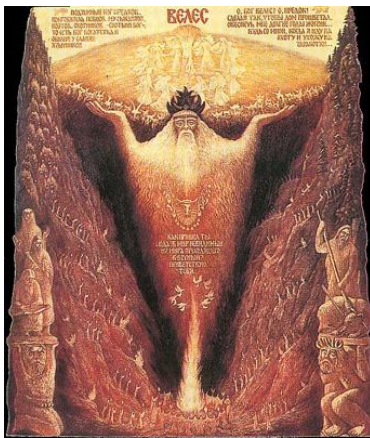


Figure 9. Images of the Veles as primitive totem, God and Demon.⁶⁴

6. Methods and Theories

These challenges of going beyond a univalent object-oriented approach apply equally to methods (How?) and theories (Why?). The current approach in science and technology generally as well as in computer science is to focus on the latest method and theory as if this current understanding of reality were the ‘truth’. To be sure, historians and philosophers of science have drawn attention to earlier, alternative explanations, but these are not reflected sufficiently in our databases.

In the case of methods the need to distinguish between different phases of development is almost too obvious to require discussion. To take a simple example, there is an early tradition of 7 stages of alchemy. A later version, linked with the 22 letters of Chaldean, has 12 stages, coordinated with the 12 signs of the zodiac. The 18th century Encyclopédie set out to catalogue arts and professions (arts et métiers) including their methods. In the 19th and 20th centuries, major countries produced their own encyclopedias (e.g. Britannica in England, Brockhaus in Germany, Larousse in France, Enciclopedia italiana in Italy). More recently there has been a widespread belief that a single ‘pedia’ such as Wiki, Citizendium or Answers.com (at a more popular level), could reflect all human knowledge. To gain some insight into the wealth of existing it is instructive and humbling to consult the authorities file of the Library of Congress. The general term Encyclopedias and Dictionaries includes 1828 titles. More specific searches yield 25 Religion Dictionaries, 37 Science and 77 Literature Dictionaries.⁶⁵ We need updated, dynamic versions that allow us to trace individual methods over time, changing in different cultures, countries and sometimes even locally.

Aristotle made a fundamental contribution by insisting that why was not a single question: it entails four causes⁶⁶. Explanations, such as early etymologies of Isidore of Seville may, in retrospect, be lacking in intellectual and methodological rigour and yet, they represent honest attempts to explain the reasons for things. Logically many of these explanations may not pass the test of veracity or veridicity. In the context of Cultural computing, however, it is important to acknowledge such attempts, while at the same time distinguishing them from others with a more solid basis in fact.

The approach of the Semantic web has been to find a single logical answer to questions, including those of how, while often sidestepping the question of why. This promises univalent answers that are static. Culture, which is about the expressions mental, physical and metaphysical of human beings in the context of time, is necessary multivalent, dynamic, changing, evolving and open to multiple versions. A photographic snapshot is hardly a film and even a cinematic masterpiece does not fully capture the flow of life. If Cultural computing only builds databases of snapshots, we will have contributions to a history of photography that remains far removed from a history and understanding of life and culture.

7. Knowledges

Information Science often claims to have a static, object oriented answer to things, which can be reduced to a single question: what? Our approach suggests that “things” involve at least six questions: Who? What? Where? When? How and Why? If information is about 1

question, knowledge is about 6 questions. Moreover, this knowledge is not static. It evolves differently in different places. There may ultimately be a single truth, but not every individual has an equal vision of all its dimensions. Hence, a database of current views of truth is extremely valuable and fully to be supported. But the scope of cultural computing must be wider.

In the course of millennia, the wisdom of India led to six schools of thought and it is claimed they developed a different alphabet for each. In China, there was one *I Ching*, but there were six schools to interpret its depths. The Greeks developed seven categories for knowledge (7 liberal arts as well as 7 mechanical arts). The current semantic web aims to codify one truth, one knowledge. In the vision of Sir Tim Berners-Lee, it aims to separate logically provable claims of reason from the rhymes of poesy. Culture is a domain that includes both reason and rhyme but is often in a parallel domain. Accordingly, Cultural computing needs to codify competing knowledges, and changing views of truth over time even if they do not coincide with the accepted views of the day. Else we are creating a subtle form of censorship more insidious than that which we decry in totalitarian regimes, and more dangerous because we could find ourselves without learned individuals and tools to discern alternatives.

8. Conclusions

Cultural computing began in the 1940s as an application to help the *Index Thomisticus*,⁶⁷ a lemmatization of every word in the complete works of Thomas Aquinas with concordances. During the 1970s and 1980s the scope expanded to other works using SGML. The 1990s again expanded the scope to include potentially all born digital materials in a World Wide Web and simplified the methods through XML. Since 2000, implications for Human Computer Interfaces (HCI) have come into focus. This is an important development, but raises new challenges of how individuals from one culture can be helped to become aware of approaches in another culture. There has also been increasing attention to cultural objects and sites in the physical world, with new terms such as e-culture, and virtual heritage. One challenge now lies in linking “objects” in the born digital world with objects in the physical world.

A limitation of these object-oriented approaches is that they tend towards a mono-valent approach to names, objects, places, dates, methods and causes, wherein all of these are treated as independent entities, as if everything would be solved if the whole world could be “reified” and fitted with a Digital Object Identifier (DOI) or its equivalent. They provide information rather than knowledge.

Our paper suggests that the deeper challenges of cultural computing lie elsewhere because cultural “objects” are fundamentally different from other objects in the everyday world. The essence of this difference is that they manage, provoke, inspire us to link a given cultural object with wider sets of mental and spiritual ideas. Objectively, Mona Lisa is less than a square meter of paint. Her smile is less than 10 centimeters and yet it has inspired miles of print and vast realms of the human imagination. The test of great cultural “objects” is the extent to which they awaken themes, subjects, planes, realms, worlds beyond the limits of a painted canvas, a marble statue or other medium.

Cultural computing cannot and should not try to codify all possible strolls, jogs, runs, ventures, forays, flights into the worlds of dreams and imagination. But it can make accessible the dictionaries and encyclopedias of religion, mythology, symbolism, folklore, ornament, decorative arts and crafts; the images of imaginary places; the mental maps of microcosm and macrocosm, a move towards a GIS of the mind and spirit.

The past half century has focused on an object oriented programming that focuses on what and sometimes who. We need context oriented programming that includes all six questions and their connections. We have shown that a name is not an isolated field. It may be linked with dozens, hundreds or even over a thousand titles of an important deity. An object is not just a physical entity. It is integrally linked with mental and spiritual dimensions. A place is not just a dot on a visible GIS map. It is often linked with a series of thoughts, concepts in different domains, realms, worlds in an (as yet invisible) GIS of the spiritual world. A date is not just a moment in our current chronological tool. It is a series of dates in a number of parallel, sometimes competing, sometimes threatening alternative chronologies. A method is not just the latest standard. It reflects a long history of earlier efforts. A cause is not just a current law of physics: it is partly a result of many earlier attempts at a normative answer.

We have outlined several practical tools such as a Directional Deities Device, and a Spatial Symbol Translator. These are short term products of a long term approach which, in our view has four main goals. A first is to understand how individual cultural objects, monuments, sites are often part of much larger programmes. The mouth of the Ganges (Gangotri) is not just a tourist site in the mountains. It is linked to the 4 pilgrimage sites (*Char Dhams*). A second goal is to connect cultural objects with the physical, mental and spiritual cultural frameworks that inspired them. The mouth of the Ganges now becomes linked with places where it converges with other rivers (*prayags*), which are also places of bathing and crossing (*tirthas*), not just of physical rivers but also their heavenly counterparts in astronomy.

The date that Sagara brought down the Heavenly Ganges on 14 January is now called Makara Sankranti, one of the most important days for bathing in the Ganges. In old calendars, this is the date that John the Baptist baptized Jesus. In India, the same date also marks the beginning of the month, Maghi, and coincides in old calendars with the date that the Magi (Italian: Maghi) arrived to worship the birth of Jesus. Such examples point to a third reason: to understand the "fundamental interconnectedness of all things".⁶⁸ A fourth reason is to make us aware that our models and systems of reality usually represent only one knowledge. Culture is about knowing the depths of our system, understanding and respecting that there are other systems. Cultural computing needs to bring us knowledge that points to knowledges and to wisdom, insight that increases tolerance, to rediscover links that take us from the limitations of the physical to the mental and the spiritual, to worlds of wonder, inspiration and creativity.

Acknowledgements

I thank Professor Matthias Rauterberg for kindly inviting me to write this paper. It represents the tip of an iceberg that currently takes the form of a database of over 250,000 terms and will lead to a book on *Alphabets, Runes and the Cosmos*. I am deeply grateful to friends who have been a constant source of encouragement often with suggestions and ideas: Madhu Acharya,

Professoressa Anna dell'Agata, Professor Frederic Andres, Professoressa Francesca Bocchi, Professor Arturo Colorado y Castellary, Professor André Corboz, Dr. Jonathan Collins, Professor Edgard Costa Oliveira, Alexander and Vasily Churanov, David Fabish, Professor Francisco Ficarra, Rizah Kulenovich, Nino Nien, Professoressa Giuseppina Saccaro Battisti, Dr. Sabine Solf, Professor Jaap van Till, Dr. Marie-Luise Zarnitz. I am grateful to Maksim Kutsov for the demo.⁶⁹

Appendix 1. Some links between gods, cycles and stages

3 Stages	Beginning	Middle	End
3 Gods	Brahma	Vishnu	Siva
3 Phases	Morning	Noon	Evening
	Brahmarupen	Vishnurupen	MaheSrupen
	Brahma Creating	Siva Destroying	Vishnu Preserving
3 Gunas	Sattva	Rajas	Tamas
	Potentiality	Agency	Actuality
	Desire	Action	Wisdom
3 Gods	Mukundan (Vishnu)	Rudra (Siva)	Kamalan (Brahma)
3 Syllables	MU	RU	KA
3 Symbols	Spear	Peacock	Cock
3 Powers	icchA-Sakti	kriyA-Sakti	jnAna-Sakti
	Power of Desire	Power of Action	Power of Wisdom
	Will	Action	Knowledge
3 Gods	Valli	Sri Deivannai	Vel
	Devasena	Skanda	Valli
	Devasena	Valli	Vel
	Atem	Willi	Weh
	Odin	Vile	Vi
	Odin	Vili	Vé
	Wotan	Wili	Weh
	Wotan	Wili	Weih
	Wotan	Hönir	Lodur
3 Seasons	Spring	Summer	Autumn/Winter
3 Suns	Bacchus	Apollo	Sol
	Dionysius	Apollo	Helios
3 Gods	God of Spring	God of Fire	God of Underworld
	Svarog	Perun	Veles
	Dievas	Perkūnas	Velnias
	Dievs	Perkons	Velns
	Patrimpas	Perkunas	Pykoulis
	Patrimpas	Perkūnas	Patulas
	Pocullus	Perkunas	Potrimpo
	Pokulyusa	Perkunas	Potrimpo

Appendix 2. a) 18 Slavic Runes, b) their corresponding Cyrillic Letters, c) corresponding Slavic gods.

a) 18 Slavic Runes

Мир	У	М	Берегиня	Б	Б
Чернобог	Ц, Ч		Уд	У	У
Алатырь	А		Леля	Л	Л
Радуга	Р		Рок	Ж	Х
Нужда	Н		Опора	О	О
Крада	Г, К		Дажьбог	Д	Д
Треба	Т		Перун	П	П
Сила	С		Есть	Е	Е
Ветер	В		Исток	И	И

b) Corresponding Cyrillic Letters

Берегиня, Уд, Леля, Рок, Опора, Дажьбог, Перун, Есть, Исток
 Bereginuya, Ud, Lel', Fate, Support, Dazhdbog, Peroun, Est, Istok
 Б У Л Ж О Д П Е И

Мир, Чернобог, Алатырь, Радуга, Нужда, Крада, Треба, Сила, Ветер
 Peace, Chernobog, Alatur, Rainbow, Need, Krada, Religious Rite, Force, The Wind
 М Ц/Ч А Р Н Г/К Т С В

c) Corresponding Slavic Gods

Берегиня	Bereginuya
Леля	Lela
Рок	Rok
Дажьбог	Dazhbogh
Перун	Perun
Мир	Mihr
Чернобог	Chernobog
Радуга	Radogast, Radogist
Сила	Sipa

Appendix 3. Metaphors of Body

3 Bodies (trikaya) Dharma Body, Body of Perfect Enjoyment, Emanation Body
Dharmakaya, Sambhogakaya, Nirmanakaya

Body as Field

3 Fields Upper, Middle, Lower Cinnabar Field
3 Elixir Fields Upper, Middle, Lower Elixir Field

Body as Stream

3 Streams Ganges, Yamuna, Sarasvati
3 Nadis Ida, Pingala, Shushumna
3 Channels Channel of Consciousness, Channel of Speech, Channel of Body

Body as Chariot

3 Principles Essence, Soul, Body as Field

Body as Container

3 Cauldrons Knowledge, Vocation, Warming
3 Chambers Brain, Heart, Abdomen (Upper, Middle, Lower Cinnabar Field)
3 Burners⁷⁰ Respiration, Digestion, Elimination (Upper, Middle, Lower Burner)

Body as Tent

3 Tents One for Jesus, One for Moses, One for Elijah
3 Shelters “ ”
3 Tabernacles Heavenly Tabernacle, Earthly Tabernacle, Tabernacle of Man

Body as House

3 Dwellings Triple Beytl

Body as Temple

3 Temples Jing, Qi, Shen (Semen Essence, Bio-Energy, Spirit)

Body as Palace

3 Palaces Body Palace, Speech Palace, Mind Palace

Body as City

3 Cities (tripura) Earth, Sky, Heaven

Body as Kingdom

3 Kingdoms Wei, Shu, Wu
3 Mountains Du Mountain, Ming Mountain, Jien Mountain
3 Epochs Shan Yuan, Xia Yuan, Zhong Yuan
Moons 1-6, Moons 7-8, Moons 9-11

Body as World

3 Worlds Higher Worlds 1 2 3 (Bhu, Bhuvarka, Svarloka)
3 Planes Terrestrial Plane, Astral Plane, Celestial Plane
3 Realms Desire Realm, Form Realm, Formless Realm

Appendix 4. Cornelius Agrippa, Occult Philosophy.⁷¹

The Scale of the Number of three.

In the Original world.	The Father	éãù Sadai The Son.	The Holy Ghost	The name of God with three letters.
In the Intellectual world.	Supreme. Innocents.	Middle Martyrs.	Lowest of all Confessors.	Three Hierarchies of Angels. Three degrees of the blessed.
In the Celestial world.	Moveable. Corners. Of the day.	Fixt Succeeding. Nocturnall.	Common. Falling. Partaking.	Three quaternions of Signs. Three quaternions of houses. Three Lords of the Triplicities.
In the Elementary world.	Simple.	Compounded.	Thrice compounded.	Three degrees of Elements.
In the lesser world.	The head, in which the Intellect grows, answering to the intellectuall world.	The breast, where is the heart, the seat of life, answering to the Celestiall world.	The belly, where the faculty of generation is, and the genitall members, answering the Elemental world.	Three parts, answering the three-fold world.
In the infernal world.	Alecto. Minos. Wicked.	Megera. Acacus. Apostates.	Ctesiphone. Rhadamantus. Infidels.	Three infernall furies. Three infernall Judges. Three degrees of the damned.

Notes

¹ Busa, Roberto. (1980). 'The Annals of Humanities Computing: The Index Thomisticus', in *Computers and the Humanities* 14:83-90. He went on to found the Lessico Tomistico Culturale.

² Theodore F. Brunner, "Classics and the Computer: The History of a Relationship," in *Accessing Antiquity: The Computerization of Classical Studies* (1993), ed. Jon Solomon, Tucson: U. Arizona Press.

³ For instance the Dictionary of Old English in which Juri Rubinsky (Coach House Press and Soft Quad) played a significant role. Ian Lancashire: <http://homes.chass.utoronto.ca/~ian/>

⁴ Antonio Zampolli: http://www.allc.org/content/memorials/zamp_bio.html

⁵ Joseph Raben founded the journal *Computers and the Humanities* (1966-) Emsford New York. http://books.google.com/books?id=Utc32E7rsMC&pg=PA553&lpg=PA553&dq=raben+Computers+and+the+Humanities+1966-&source=bl&ots=fycFrpWA4q&sig=quZZGwsRsO4YJcNZGeiC-00zj1Y&hl=en&ei=ZwA0TatrgaE69cCktgI&sa=X&oi=book_result&ct=result&resnum=5&ved=0CC0Q6AEwBA#v=onepage&q=raben%20Computers%20and%20the%20Humanities%201966-&f=false

⁶ McCarty, Willard (2005), *Humanities Computing*, Basingstoke: Palgrave Macmillan

⁷ Digital Humanities Quarterly: <http://www.digitalhumanities.org/dhq/vol/1/1/bios.html>

⁸ Paola Barocchi: <http://www.sns.it/it/lettere/menunews/emerito/barocchi/>

⁹ Francesca Bocchi:

<http://www.unibo.it/SitoWebDocente/default.htm?mat=013709&TabControl1=TabCV>

¹⁰ Antonella Guidazzoli, e.g.: Virtual Archaeology:

<http://mosaic.infobyte.it/project/towardsa.html> Cf. Scuola

Di Archeologia Virtuale: <http://www.vhlab.itabc.cnr.it/scuola/index.html>

¹¹ Maurizio Forte trained in Bologna, was at CNR Rome, now in UC Merced:

<http://ucmerced.academia.edu/MaurizioForte/>

¹² Arturo Colorada y Castellary: <http://www.paperbackswap.com/Arturo-Colorado-Castellary/author/>. Cf. http://www.ucm.es/info/especulo/numero7/colo_bio.htm

¹³ A number of these figures worked together to create E Culture Net:

<http://www.eculturenet.org/data/FP5/index.htm>

¹⁴ James Devine, Ray Welland, "Cultural computing: exploiting interactive digital media", *Museum International*, vol. 52, January-March 2000, pp. 32-35.

¹⁵ Faculty of Informatics at the Technical University of Vienna: <http://www.multimedia-metadata.info/job-openings/jobopening.2007-04-05.9656839538>

¹⁶ "Is Humanities Computing an Academic Discipline?" An Interdisciplinary Seminar, <http://www.iath.virginia.edu/hcs/index.html>

¹⁷ Laboratorio:

<http://www.ucm.es/centros/webs/gi5068/index.php?tp=&a=dir2&d=24673.php>

¹⁸ Zenetic Computer: <http://www.tosa.media.kyoto-u.ac.jp/zen/>

¹⁹ Cultural computing which is based on Kansei Mediated Interaction. The latter is a form of multimedia communication that carries non-verbal, emotional and Kansei information (e.g. unconscious information). It is a combination of Kansei Communication (i.e., 'content') and Kansei Media (i.e., 'form'). See: Alice Project

<http://www.alice.id.tue.nl/#experts>. Cf. Book: Cultural Computing:

<http://www.springer.com/computer/hci/book/978-3-642-15213-9>

Projects such as Zenetic Computing are important because they have begun to explore the potentials of culture in the domain of Human-Computer Interface (HCI). They also face challenges analogous to those faced by the semantic web community. A Zen interface is interesting and could be very useful. But Zen is for monks who have chosen to live outside the active life of regular society. Should there then be one Zen interface for Zen professionals and another for amateurs? Should there be different interfaces for each school of Zen? Should there be interfaces for each sect of Buddhism? If so how is an untrained user to know which of the dozens of interfaces they should use?

²⁰ Shiva as:

Nataraja: http://dustysojourner.files.wordpress.com/2009/06/shiva_nataraja_musee_guimet_25971.jpg

Satan: <http://rajyogi255.files.wordpress.com/2010/08/shiv-bhola-chakravarti-tyache-pay-mazya-chitti.jpg?w=520&h=720>

Ziva, Goddess: http://en.wikipedia.org/wiki/File:Siwa_Westphalen.png

Zhivana, Mother of Living Things: http://www.svarga.su/svarga_jiva.html

Wife of Veles: http://svitk.ru/004_book_book/11b/2385_veleslav-veles.php

²¹ For other aspects of this complex theme see the author's: "Towards a Semantic Web for Culture," JoDI (Journal of Digital Information), Volume 4, Issue 4, Article No. 255, 2004-03-15. Special issue on New Applications of Knowledge Organization Systems. See: <http://jodi.ecs.soton.ac.uk/Articles/v04/i04/Veltman/> (87 pp.); "The Semantic Web: past and future", World Digital Libraries, New Delhi, June 2009, 2(1): pp. 33-49.

²² For other aspects of this complex theme see the author's: "Memory Institutions in a Networked World," Memory in Digits. Communication of Memory in Archives, Museums and Libraries: The Interaction of Science, Policy and Practice, International Conference, 4-5 October, 2007, Vilnius: Vilnius universiteto leidykla, pp. 17-33. Cf. <http://www.kf.vu.lt/atmintis/en/?m=2>; "Culture, Creativity and the Internet", Prospective de l'Internet - Foresight of the Internet: Digital networks as structuring tools for the Knowledge Regions, Actes du colloque, Marie-Anne Delahaut. Ed. Préface de Viviane Reding, Postface de Markus Kummer, Namur: Institut Destrée, 2005, pp. 365-394; "Access Claims and Quality on the Internet: Future Challenges", Progress in Informatics, Tokyo, no. 2, November 2005, pp. 17-40. http://www.nii.ac.jp/pi/n2/2_17.pdf; "Europe's Cultural Heritage in the Digital Age", Bolletino telematico di filosofia politica. On-line journal of political philosophy, Pisa, November 2005. <http://bfp.sp.unipi.it/hj/viewContribution.php?siglum=http://purl.org/hj/bfp/76>. For further discussion see the author's Understanding Media (Calgary, University of Calgary Press, 2006), which contains over 9000 references in the electronic version: <http://vmmi.sumscorp.com/kavai/newmedia/>.

²³ VIAF: <http://outgoing.typepad.com/>

²⁴ Interestingly enough, Wiki also has a Zivah (disambiguation), not linked to the foregoing, which claims that Ziva is a Hebrew name, which is a variant of Ziv, meaning "radiance, brilliance, light, God, brightness."

²⁵ Ziva Goddess: [http://en.wikipedia.org/wiki/%C5%BDiva_\(goddess\)](http://en.wikipedia.org/wiki/%C5%BDiva_(goddess)).

²⁶ Shiva as woman in Russia: http://svitk.ru/004_book_book/11b/2385_veleslav-veles.php. cf.: <http://la-eterna.hiblogger.net/1094021.html>

²⁷ It is instructive that if we go to Google Translate or Yahoo's Babelfish and begin with these terms we do not arrive at these names of ЖИВА:

	Google	Yahoo
Life:	жизнь	жизнь
Living:	живой, жизнь	жить
It is living:	это жизнь	оно живет

²⁸ Lao Tze: <http://www.iging.com/laotse/LaotseE.htm>

²⁹ Stephen E. Flowers, Johannes Bureus and Adalruna, Smithville, Texas 1998. See also: <http://lib.rus.ec/b/192100/read>. Sir Karl Popper's more recent discussion of three worlds may be useful for aspects of science and ontology, but is not helpful in the context of culture. For an introduction see: Wiki: http://en.wikipedia.org/wiki/Popper's_three_worlds.

Popper's World 1 is the "the world of physical objects and events, including biological entities." This conflates the largely a-temporal dimensions of physical objects and the temporal dimensions of biological entities. Popper's World 2 is "the world of mental objects and events." This conflates mental and spiritual dimensions as if philosophy and religion/theology were one. Popper's World 3 is "Objective Knowledge" which is not directly relevant in the case of cultural expressions. Leonardo's Mona Lisa is great not because it belongs to one of the three worlds but precisely because it takes us on journeys between the three worlds of a physical painting, our mental world of women and landscapes and our spiritual world of the divine feminine and Nature.

30 Google Timeline for nomenclature begins in 1720: botanical nomenclature, 1753; zoological, 1758; chemical nomenclature 1787. See:

http://www.google.com/search?source=ig&hl=en&rlz=&q=nomenclature+history&aq=f&oq=#q=nomenclature+history&hl=en&prmd=ivns&tbs=tl:1&tbo=u&ei=j542TbmjCoXusgaovoCaAQ&sa=X&oi=timeline_result&ct=title&resnum=11&ved=0CGIQ5wIwCg&fp=5fc6e4edb7c346ed

³¹ E.g. Eugen Wüster, Venna: http://de.wikipedia.org/wiki/Eugen_W%C3%BCster cf. Infoterm:

http://www.infoterm.info/about_us/history_of_infoterm.php

³² E.g. Simula: <http://en.wikipedia.org/wiki/Simula>

³³ Alas, the semantic web, in its present form continues this havoc. When he first articulated his ideas publicly (WWW7, Brisbane, 1998), Sir Tim Berners Lee called for a clear separation of rhyme from reason. The Semantic Web, he argued, would focus on all things that could be logically demonstrated. All that fell outside this definition, e.g. poetry, and rhyme would not be covered. At a time when the W3 consortium was both defending and establishing its relevance, this was an excellent pragmatic decision. Admittedly, any attempt to

include every possible interpretation of poetic verses is likely to remain beyond the scope of even the most utopian computer science project.

In between the logic now associated with science and the poesy used to characterize the humanities, there is a vast domain of metaphor. In theory, the interpretations of metaphor are as manifold as allusions of poesy. In practice, the number of seminal metaphors that have changed the world are surprisingly few in number and these need to be included if we are to understand culture.

³⁴ Beth: [http://en.wikipedia.org/wiki/Beth_\(Hebrew\)](http://en.wikipedia.org/wiki/Beth_(Hebrew))

³⁵ BLN and BLF: <http://www.arapacana.com/glossary/misc/letters.html>

³⁶ Bereginya:



The keywords: Birch; Fate; Mats the Earth; You [makosh] [Bereginya] in the Slav tradition - female mythological means, which is associated with the protection and the maternal beginning; in the archaic antiquity by the name Of [bereginia] came out You [makosh], the Goddess- mother. Therefore the fleece Of [bereginia] - this of the fleece of Goddess- mother, who knows and by terrestrial fertility, and by the fates of entire living. According to the traditional ideas, the Goddess- mother gives life to the showers, which are necessary in order to be personified on the Earth, and it takes away the life, when time comes. And with the equal rightness it is possible to call to the fleece Of [bereginia] of [runoy] life and [runoy] death, since and celestial mother (Scandinavian [Frigg]), [spradayushchaya] the threads of fates. and underground mother (Scandinavian [Khel]). ruling by the reign of corpses, the essence of the hypostasis of one and the same goddess. The same of fleece appears [runoy] fate, as it is understood in the Nordic tradition. And the even [runoy] of wealth and good, since goddess You [makosh] - husband (read: female hypostasis) the god Of [velesa]. And so, as the fleeces of wind, fleece Of [bereginia] it appears [runoy] [sipy] - but this is entirely other force: the heavy and powerful force of the Earth, with whose element very means of great goddess is connected... If - being turned to the eastern traditions - [Sipa] of wind is connected with the upper energy centers of man that is the force Of [bereginia] - with the lower...

See: <http://fotki.yandex.ru/users/eugenio19/tags/%D0%BC%D0%B0%D0%BA%D0%BE%D1%88%D1%8C/viw/131440?page=0> (via BabelFish Translation)

Bereginya: http://pandora.cii.wvu.edu/vajda/russ110/handout_p1_paganism.htm

³⁷ Rune Alphabets: <http://www.arapacana.com/glossary/misc/letters.html#common>

³⁸ Bereshit: <http://bible.ort.org/books/torahd5.asp>

Cf. <http://bible.ort.org/books/torahd5.asp>; http://www.akhlah.com/parsha/bereshit/bereshit_index.php

³⁹ For a discussion of other aspects see the author's : Cultivation, Culture, Meditation and Eternal Youth, Naples, 2008: http://sumscorp.com/new_models_of_culture/culture/news_297.html

⁴⁰ Psychopathology:

http://books.google.com/books?id=6tCKBatwpyUC&pg=PA260&lpg=PA260&dq=ploughed+field+symbolism&source=bl&ots=_MUpZo6mcK&sig=INymMqeI_7M1pNNIs6QVxk_EUtc&hl=en&ei=92M9TdCTFMqCOsy7yKQL&sa=X&oi=book_result&ct=result&resnum=10&ved=0CEsQ6AEwCQ#v=onepage&q=ploughed%20field%20symbolism&f=false

⁴¹ Date of Bhagavad Gita: <http://www.bhagavad-gita.org/Gita/intro.html>

⁴² The shift from Brahmans to Kshatriyas is also linked with a shift from a Lunar Race (chandravamsa) to a Solar Race (suryavamsa), i.e. shift from a lunar to a solar or, more precisely, a luni-solar calendar. The genius of the Mahabharata lies in combining proto-historical narratives with allegorical stories of progress and redemption. Attempts to reduce it logically to a history text, or to dismiss it as a treatise on metaphysics, obscure the fundamental meaning and value of the sacred text.

⁴³ Cornelius Agrippa, Occult Philosophy:

<http://www.esotericarchives.com/agrippa/agrippa2.htm>

⁴⁴ Trayatimsa: <http://www.taoistsecret.com/taoistgod.html#2> Trayastrimśā

⁴⁵ For a study of some potentials see the author's: "The New Book of Nature", *eARCOM 07. Sistemi informativi per l'Architettura Convegno Internazionale*, Con il Patrocinio di UNESCO. Ministero dei Beni Culturali, CIPA, Regione Marche, Ancona-Portonovo Hotel La Fonte, 17-18-19 Maggio 2007, Ancona: Alinea Editrice, 2007, pp. 659-669.

In 2010, the scope of Google's activities expanded to include: [Google Earth for Android](#), [Google Earth mobile](#), [Google Earth Roads](#), [Google voice search](#), [voice recognition](#).

⁴⁶ Virtual Globetrotting: <http://virtualglobetrotting.com/category/buildings/ancient/>

⁴⁷ Kalachakra: http://kalachakranet.org/kalachakra_tantra_10-fold_powerful.html. Kalachakra Palace: http://kalachakranet.org/mandala_inner.html

⁴⁸ Kalachaka Correspondences:

Nada,	White Disk,	Crescent
Mind Mandala,	Body Mandala,	Speech Mandala
Black Sow-faced Dakini	White Lion-faced Dakini	Striped Tiger-faced Dakini
Mount Tsari	Mount Kailash	Mount Lapchi

⁴⁹ Kalachakra Reconstruction: http://www.youtube.com/watch?v=aMKNDZUiY0A&feature=player_embedded#

⁵⁰ These are variously translated as:

Potentiality	Agency	Actuality
Desire	Action	Wisdom
Goodness	Passion	Darkness

⁵¹ These 3 streams (channels, nadis) become a starting point for larger frameworks:

8 Elements x 3 Channels = 24 x 3 = 72 x 1000 = 72,000 channels (or nadis):

8 Elements	8 Elements	8 Elements
x	x	x
Channel of Consciousness,	Channel of Speech,	Channel of Body
Winds	Red Drops	White Drops
= 24	= 24	= 24
x 1000	x 1000	x 1000
= 24,000	24,000	24,000
= 72,000 channels or nadis		

See: http://www.shalagram.ru/knowledge/mysticocosmos/mystic_cosmos_appendix_i.htm

⁵² We would also be able to see alternative versions linked with Kali's heads and parts of Ganesha's body.

⁵³ 5 Dhyani Buddhas: http://s3.hubimg.com/u/250142_f520.jpg

8 Gods and 8 Directions: http://varahamihira.blogspot.com/2004_06_25_varahamihira_archive.html

8 Directions and Celtic Wheel: <http://www.ostreraederlauf.com/luegde/origins.html>

⁵⁴ Chinese Lo Shu: <http://www.clickastro.com/image/tortoise.gif>

Bagua: <http://www.nzfengshui.co.nz/images/FS%20SH%20Ba%20Gua.JPG>

Bulgarian Zodiac: http://3.bp.blogspot.com/_Z8kKo6Pe3_I/SsJuXNHqG-I/AAAAAAAAAC0c/F67hiCPKVqw/s1600-h/%D0%9A%D0%B0%D1%80%D1%82%D0%B8%D0%BD%D0%B026.png

Borobodur: http://www.borobodur.tv/survey_1.htm

Arabic Magic Square: <http://www.nlm.nih.gov/hmd/arabic/glossary.html>

Hebrew Magic Square: http://www.sandiknelltamny.com/2_amulets.htm

⁵⁵ These have a number of names including:

Earlier Heaven - Later Heaven; Fixed Signs - Moveable Signs; He Tu - Lo Shu; King Wen - Fu Hsi; Control Cycle - Creative Cycle; xiantian gua - houtian gua; Cf. Maharsi - Bramharsi, Unmanifest - Manifest

⁵⁶ See: Lothar Teikemeier: <http://trionfi.com/tarot/new-themes/sepher-yetzirah/> traces this back to 1974

József Drasny, Yi Globe: <http://www.i-ching.hu/chp00/chp2/reconstruct.htm> did this in 2007 -2010

⁵⁷ Lo Pan: <http://www.valdostamuseum.org/hamsmith/LoPan.html>

⁵⁸ Astronomy Applications: <http://www.iphoneness.com/iphone-apps/top-astronomy-applications-for-iphone/>

⁵⁹ For sources of these see; First Calendar Dates at:

http://195.28.20.73/index.php?id=249&statement=get_obj&id_object=150390&session=ZW5nbGlzaDtlbmdsaXNoO05ldyBNb2RlbHM7MTI0MzQxOzE3OzA7MDtJbnRlcm1lZGlhdGU7MDtsb29rdXA-

India is a complex case with subsequent calendars that begin in 543 B.C., 57 B.C., 78 A.D.

⁶⁰ Ussher: <http://www.sacred-texts.com/time/timeline.htm>

⁶¹ Edward Bernard: <http://www.fromoldbooks.org/Brown-OratioDominica/pages/morton-tabulum-02/morton-tabulum-02-582x906.png>

⁶² See: <http://www.sanskrit-lexicon.uni-koeln.de/scans/MWScan/tamil/index.html>

⁶³ Perun and Veles: http://en.wikipedia.org/wiki/Slavic_mythology#Perun_and_Veles:

A cosmic battle fought between the two of them echoes the ancient Indo-European myth of a fight between a storm god and a dragon. Attacking with his lightning bolts from the sky, Perun pursues his serpentine enemy Veles, who slithers down over the earth. Veles taunts Perun and flees, transforming himself into various animals, hiding behind trees, houses, or people. In the end, he is killed by Perun, or he flees into the water, into the underworld. This is basically the same thing; by killing Veles, Perun does not actually

destroy him, but simply returns him to his place in the world of the dead. Thus the order of the world, disrupted by Veles's mischief, is established once again by Perun.

⁶⁴ Veles Images:

http://img0.liveinternet.ru/images/attach/c/1/48/616/48616977_RRRRS.jpg

<http://fotki.yandex.ru/users/eugenio19/tags/%D0%B1%D0%BE%D0%B3%D0%B8/view/137298?page=0>

<http://rugevit.ru/vera/svet/image/Velesov%20Day%202009/album/slides/velesday.09.007.html>

http://svitk.ru/004_book_book/11b/2385_veleslav-veles.php

http://svitk.ru/004_book_book/11b/2385_veleslav-veles.files/image010.jpg

<http://www.autentik.net/forum/index.php?topic=4162.120>

<http://www.starisloveni.com/VELES.jpg>

http://www.bg-znanie.ru/rubrics.php?r_id=1315

⁶⁵ LC Titles Terminology by subject, e.g. Mythology--Terminology 1, Religion--Terminology 14, Philosophy--Terminology 71, Literature--Terminology 227, Art--Terminology 38, Science--Terminology 114, Trivium Grammar ----- cf. Grammatical Terminology Dialectic = Logic--Terminology 3, Rhetoric--Terminology 17 ,Quadrivium Arithmetic--Terminology 1, Geometry--Terminology 1, Music--Terminology 201, Astronomy--Terminology 12,

Dictionaries by subject Most important disciplines and subjects have their own dictionaries. The following are initial examples. LC Titles LC Titles Trivium Grammar --- Grammar-Encyclopedias ---- Dialectic--Dictionaries 2, Dialectic--Encyclopedias 1, Logic--Dictionaries 10, Logic -Encyclopedias ---- Rhetoric--Dictionaries 3, Rhetoric--Encyclopedias 2, Quadrivium Geometry--Dictionaries 3, Geometry -Encyclopedias ---- Arithmetic--Dictionaries 1, Arithmetic-Encyclopedias ---- Astronomy--Dictionaries 92, Astronomy--Encyclopedias 20, Music--Dictionaries 251, Music--Encyclopedias 30, Mythology--Dictionaries 151, Mythology--Encyclopedias 19, Religion--Dictionaries 72, Religion--Encyclopedias 23, Philosophy--Dictionaries 125, Philosophy--Encyclopedias 27, Literature--Dictionaries 121, Literature--Encyclopedias 33, Art--Dictionaries 152 ,Art--Encyclopedias 17 ,Science--Dictionaries 296, Science--Encyclopedias 73. These figures pertain only to the number of titles under these general headings. For instance the subheading: Philosophy, English--17th century has 62 further titles. See Library of Congress Authorities:

<http://authorities.loc.gov/cgi->

[bin/Pwebrecon.cgi?Search_Arg=encyclopedias&Search_Code=SHED_&PID=Kr_P7f4cy-v0BsKXgwJ2yGB7C&SEQ=20110616050635&CNT=100&HIST=1](http://authorities.loc.gov/cgi-bin/Pwebrecon.cgi?Search_Arg=encyclopedias&Search_Code=SHED_&PID=Kr_P7f4cy-v0BsKXgwJ2yGB7C&SEQ=20110616050635&CNT=100&HIST=1)

⁶⁶ Aristotle's four causes: <http://faculty.washington.edu/smcohen/320/4causes.htm>

⁶⁷ This project reached 56 printed volumes and as of 2005 is also available online:

http://www.corpusthomisticum.org/it/index_age Cf. <http://www.corpusthomisticum.org/>

⁶⁸ Alas this phrase is currently linked as much with holistic detective, Dirk Gently, as with deeper Buddhist roots: cf. http://en.wikipedia.org/wiki/Dirk_Gently's_Holistic_Detective_Agency

⁶⁹ Database:

http://195.28.20.73/index.php?id=249&statement=new_models&object_package=124341&package_title=New%20Models&package=17 General site of Virtual Maastricht McLuhan Institute (VMMI) and SUMS: www.sumscorp.com

⁷⁰ (3 Heaters, 3 Dantians, 3 Tan Tians, Triple Warmer, Triple Healer)

⁷¹ Agrippa: <http://www.esotericarchives.com/agrippa/agrippa2.htm>