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Borobudur and Chartres: Religious spaces as performative real-space blends

Abstract: Humans have historically spent immense communal effort and creativity on religious structures. In this study, we examine two famous and complex monuments: one the 9th-century Buddhist monument of Borobudur and the other the cathedral church of Chartres. We argue that metaphor, metonymy, and other blends are literally “built in” to the architecture and art to structure the experience of people in these spaces. Metaphoric mappings such as GOOD IS UP and POWER IS UP are common to many religious traditions, and certainly participate in the design of both of these structures. Asymmetry and eastwards orientation structure meaning experiences of Chartres in added ways, while the circular spiral of Borobudur, and its multiple levels, ground important aspects of Buddhist religious experience. Obviously, neither Christianity nor Buddhism claims that a glorious physical religious monument is necessary to achieve spiritual heights. But, as we examine the performative power of ritual – also performed in space, and specifically in the spaces of these monuments – we need also to consider the sources of performative power which reside in the physical spaces themselves. Human creativity not only builds blends as complex as the Mass, it also builds material anchors to match and support them.

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1 The power of material anchors in performativity

Throughout the world and throughout human history, humans have set up complex constructed environments to anchor their spiritual lives. Aurignacian cave art may already fall into this category; more recently, so do uncounted temples, pyramids, shrines, synagogues, churches and mosques. In this paper, we will examine two complex and fascinating products of this human behavior, namely the 9th Century C.E. Buddhist monument of Borobudur in Indonesia, and the medieval Christian cathedral church of Chartres in France. Crucially, we claim that they are of primary interest because they are the result of – and the trigger for – very general human cognitive processes, which are not at all restricted to

religious thought. Recent cognitive science research enables us to understand much more about the mysterious processes involved in religious experience. In bringing the theory of mental space blending to bear on religious art in particular, we follow the lead of Turner's landmark collection *The Artful Mind* (2006; especially the contributions of De Mey, Ferrari and Scott).

Material anchors (Hutchins 1995) have been recognized as powerfully affecting human cognitive processing. From ancient tally and token accounting systems to cars which beep until seat-belts get fastened, humans purposefully shape their environment to support cognition. Less evident is the degree to which all habitual environments – even when not intentionally shaped by the cognizer for this purpose – deeply shape cognition. Most of us have probably known a fragile or elderly person who became delusional during a hospital stay, but returned to a normal cognitive state when brought back to her own apartment. Other humans are of course the strongest possible material anchors, since they have so many more affordances than other physical objects. One of the authors of this paper was once requested to stay with a friend in the hospital for an afternoon while the patient's wife went out to do necessary errands. The patient then explained to her that he was becoming delusional and imagining that he was in a Nazi hospital where “patients” were being tortured. However, the presence of any familiar human face from his life outside the hospital was sufficient to maintain his sanity and prevent the delusions. Our point here is that “miracles” are being performed daily by material anchors, entirely outside of any religious context. Take the anchors away, and cognition may be radically undermined; restore them and it may be healed. Medical science so far does not understand this healing, and is very far from being able to perform equivalent cures by other means.

It is of course a short step from this to performative use of such material anchors. As Sweetser (2000) and Sørensen (2007) point out, personal ritual and “good luck” charms abound in modern Western life. Major league sports players have lucky socks or shirts – the ones they wore to pitch the no-hitter, or make the crucial goal. A husband may need to give the same kind of flowers to his wife on every wedding anniversary, or a parent may have to make exactly the same kind of cake for a child's birthday every year. Locketts and wallets containing photos, and charm bracelets with one charm per grandchild, attest to our need to keep our loved ones “with us” when they are absent.

The metonymic dimension of material anchors is particularly fascinating. The lucky shirt is metonymic for the great plays in the past game; the anniversary flowers are metonymic for all the past romantic moments of flower giving. And, as Fauconnier and Turner (2002) note, graves are metonymic material anchors for the dead people buried in them. Humans seem naturally to seize on such connections, good and bad. Tourists visit battle sites. A house previously lived in by

Mozart or Shakespeare thereby acquires a special status for modern humans who revere the past residents. Prison camp memorials such as Dachau and Auschwitz are there to remind us and educate us – but their presence is facilitated by the fact that there is no present competition for use of those “haunted” sites. We cannot imagine just building an elementary school, or suburban tract housing, on the side of the Dachau camp. Indeed, in the 1980’s residents of the adjacent town of Dachau told visitors that they preferred to rent cars when traveling – Dachau license plates were subject to negative comment elsewhere in Europe. Temporal metonymy is strong as well: we celebrate and mourn past events on anniversaries, sometimes at the locations in which they took place. Battles are reenacted on anniversary dates, on the original battlefield sites.

Western atheists may claim to find it odd that a Catholic would genuflect before an altar, or that a Buddhist would look for an auspicious date for a wedding. But Ground Zero is still a scary place for them. Many of them would find it unpleasant to live in a house where the previous residents were murdered. And almost all of them would find it entirely normal for a divorced person to reject the wedding anniversary of the first marriage as a wedding date for a second marriage – it would be weird and uncomfortable to *attend* a friend’s second wedding on the anniversary of the first, let alone to be married in such a wedding.

As we said, humans are among the most powerful material anchors. And relics associated with humans – both body parts and possessions of holy people – are important in many religious traditions. Veronica’s Napkin, which supposedly was used to wipe Christ’s face during his walk to the Crucifixion, and miraculously retained the image of his face from that moment, is a major object of Catholic veneration, as are pieces of the wood of the Cross, and bones and possessions of saints. Body parts of the Buddha, and of Buddhist saints, are also widely venerated in stupas and shrines, such as the cave at Maratika which holds physical impressions made in the walls of the cave of the saint who practiced there (Østergaard 2011). Again, this kind of association is not the special province of religious traditions. Oscar Wilde’s and Jim Morrison’s graves in the Parisian cemetery of Père Lachaise are pilgrimage sites – and not, of course, primarily for people who would call themselves religious. And any object once owned by Elvis or Princess Diana will bring in an auction price completely unrelated to its aesthetic or functional value as an object, based on its frame-metonymic link to the previous owner. These are strong metonymic connections which are richly attested across cultures and time. Recent work on Aurignacian cave art suggests a strong metonymic link between humans-as-material-anchors and early symbolic “writing” systems (von Petzinger 2009).

For better and for worse, humans make these connections – pervasively and inevitably. Some of them are made by other animals as well – certainly animals

show fear of places where unpleasant things happened to them (e.g., veterinary offices) and willingly return to familiar places where good things happened. But because human construction of the world is linguistically mediated and culturally structured, the human network of associations is hugely more complex, including current anniversaries of long-past events, or objects and locations associated with long-dead people.

Returning to our holy sites, there are very strong claims associated with them. It is understood in Buddhism that for a Buddhist – but not for a Christian or Hindu tourist – the physical act of circumambulating the Borobudur monument enables the walker to attain nirvana. The person does not have to have practiced meditation actively or lived a monastic life – indeed, it’s not necessary to start out holy or knowledgeable, or even good, as a person. The act on its own is enough. Perhaps similarly, the Mass, the most primary Catholic ritual at Chartres and elsewhere, promises spiritual union with Christ to all believing participants. They do not have to be obviously “saintly” people, or theologically educated, for it to work. The point is precisely that it works on ignorant sinners too – assuming that they are Catholic and believe in the ritual (which includes some specific cognitive demands, such as sincerity in repenting past sins).

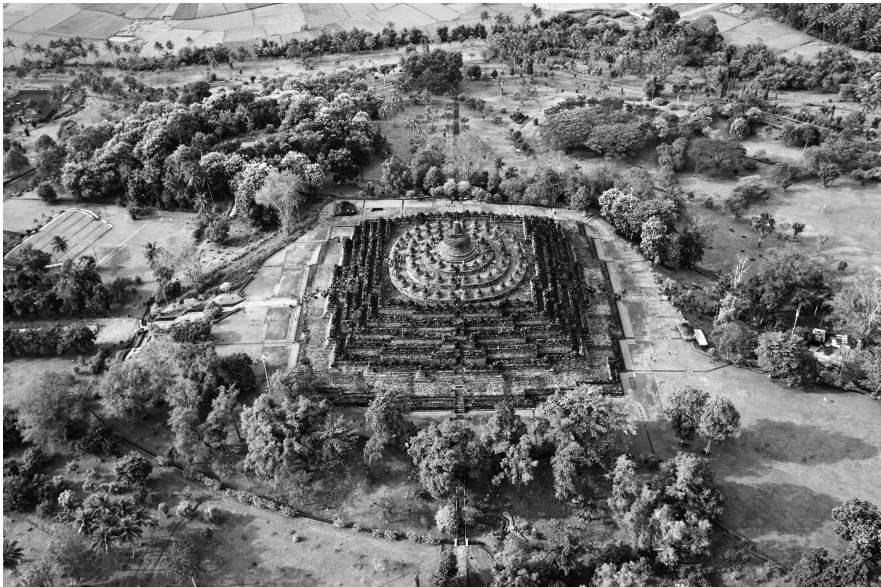


Figure 1: Aerial view of Borobudur

These are particularly strong claims given that both Buddhism and Christianity have long traditions of complex and lengthy practices directed towards the goals which are here supposed to be achieved so simply and directly. A Buddhist or Christian monk may spend an entire lifetime working towards nirvana or spiritual union with Christ. In both Buddhism and Christianity, these cognitive transformations entail a strong psychological change which completely transforms the participant's relationship to reality, not to mention changes of other cognitive traits. Such a change takes a huge amount of conscious attention and effort and is not something most people can achieve. It's possible, of course (and indeed it is the goal of these spiritual traditions), but it takes concentration and effort – just as consciously breaking habits today does. Instead of changing dependence on nicotine or alcohol, which we know to be difficult, these practices change the conscious experience of oneself in the world. No wonder it takes so much work to achieve, or that people need all the help they can get from practice, texts, teachers, and the environment.



Figure 2: Cross-section of Borobudur

Without the complex material anchor of Borobudur, the individual Buddhist practitioner needs to independently maintain the very strong, very present conscious awareness which characterizes masters like the Dalai Lama. This means keeping all different possible states in mind, as well as one's current relationship to them and progress made on the path. However, with an anchor like Borobudur, this task becomes significantly easier: as Figures 1 and 2 show, the monument is a constant, complex input to the pilgrim. Walking upwards through the structure of the monument and through the sculptural depictions is, in the blend, performatively achieving that same conscious state which would take a Buddhist master years of disciplined, conscious effort to achieve. Just by walking in circles for a few hours and becoming immersed in depictions of the cognitive transformations attained in the Buddhist world, pilgrims attain that cognitive state. The cognitive work is done "for free" by the monument and pilgrims leave the site as good as *bodhisattvas*, the living Buddha. (Obviously, a pilgrimage like this to such a remote area of the Indonesian jungle would not have been possible for most people, especially around the time of its construction in the 9th Century C.E., but those who were able to make the difficult journey received this lasting spiritual transformation in return.)

Of course, powerful and complex material anchors are part of how long complex processes are short-circuited. These particular complex anchors were not built up without real debate within the two relevant traditions. Gothic architecture was based on innovative construction techniques, allowing taller buildings with much more window space than had been possible; this coincided with new techniques in stained glass, and changes to a more ornamented artistic style in general. The new style had contemporary detractors who felt that complex decoration would distract rather than focus worshippers, and that it would be better for lay worshippers to follow more of the inner ascetic and meditative tradition of monasticism. The 12th-century Abbot Suger of St. Denis, an early and influential patron of Gothic architecture, felt obliged to defend it against detractors of excessive ornament in religious space (Kidson 1987; Rudolph 1990). Buddhists had a similar debate around the 2nd century C.E. when the Gandhara and Mathura schools broke from tradition and began depicting the Buddha in human form (Hallade and Hinz 1968). Prior to this, the Buddha was only represented iconically in order to suggest the transcendence of physical form, but the Gandhara and Mathura schools felt that in order to help lay worshippers realize their own Buddha-hood and so adopt a contemplative practice, the Buddha should be depicted familiarly, in human form. This decision to make the Buddha "human sized" had a powerful effect on the religion, which expanded rapidly shortly after anthropomorphic figures emerged. It also has a powerful effect on the construction of Borobudur (but more on that below).

Crucially, although Chartres and Borobudur are “super-stars” of religious spaces in two very different cultural traditions, their design is deeply based on shared human cognitive structures as well as on culturally specific ones. We will be suggesting that it is in part the construction of particular kinds of Grounded Blends – building particular experientially based metaphors into the physical structure of buildings – which gives these spaces their strong impact. They are Grounded Blends – that is, blends which make use of Real Space (the construed or understood physical space surrounding the conceptualizer) as one of their inputs (Liddell 1998, 2003; Dudis 2004). Sweetser (2009) argues that this is part of what gives gestural viewpoint its vivid character – seeing an actual viewpointed body enacting an action to depict it is more deeply viewpointed than a spoken description. In some cases these religious spaces go a step further – they are what one might call “fully grounded” blends – that is, *all* the relevant domains are present in the Real Space. We shall return to this at the end of the paper.

2 Spatial alignment with the universe

Humans live in a world where physical space is meaningful in itself. We consciously create and shape our environments, and this in turn influences our behavior and development in those spaces (Kirsh 1993). In the kitchen or in the office, we cluster tools, ingredients and the items needed to complete our work, and then use that organization to mark plans, completed tasks and overall progress; e.g., a bowl of tomatoes next to the sink needs to be washed, but sliced vegetables on a cutting board are waiting for a hot skillet. The documents on my laptop’s desktop are what I am currently working on, but the stack of books on the edge of my desk is something I hope to eventually get to. These items, and their relative locations, are material anchors for our cognitive processes, and their orientation and placement reflects the way we think about them and use them. We manage them, and the space around us, constantly reorganizing it to help us think, plan, behave and work.

Kirsh (1993) notes that experts use external partitioning of the environment to represent their internal cognitive processes, and thus find enough local information in their immediate spaces to save online planning time and dynamically embed informational structure into their environments, offloading cognition into physical spaces which then act as material anchors for the activities to be completed there. The richer the environment and its information structure, the easier the task to be completed there. Like Hutchins (1995), Kirsh was describing everyday work environments, but it seems to us that this organization of space pertains

to religious spaces as well, where multiple layers of symbolism are embedded in a single physical space which is meant to evoke not only the narratives associated with that religion or that space, but also a deep, transformative religious experience.

This is possible, at least in part, thanks to the placement of objects in a physical landscape which highlights their importance and use. This placement facilitates perception and narrative retrieval which, in turn, facilitates perception (Østergaard 2011). As Østergaard argues, landscape is a dynamic instrument of religious experience; interaction with it facilitates both religious and cognitive experiences, with the one feeding the other. Only through physical interaction with the landscape, which is an anchor for metonyms that prompt the stories adepts are able to interpret and read, can a full experience be had. The landscape guides the pilgrim through a relevant set of narratives and experiences which prompt for religious and cognitive changes. The features of the landscape are tools for thought which augment a pilgrim's religious consciousness by using the environment, just as spatial arrangements in the kitchen facilitate cooking preparations. By starting in the environment, these ideas subconsciously enter the pilgrim's mind and the transformation happens naturally. The arrangement of a built monumental space is "a letter from the past to the future" which allows later inhabitants of the space to be cognitively shaped by the designers' intentions (Østergaard 2011).

Perhaps one of the most common meaningful dimensions in cognition is the association of vertical height with status, power and authority. As Lakoff and Johnson (1980) expressed it, *STATUS IS UP* and *POWER IS UP* are experientially basic metaphors – Primary Metaphors in Grady's (1997) and Chris Johnson's (1999) sense. Very young children necessarily experience the correlation between the power and authority of adult caregivers and their greater adult height; by the time children can walk and tussle, they know the advantage of height (or a higher ground) in a struggle, as well as the fact that the victor ends up on top. Sweetser (2004) has argued that these metaphors are central at least to Western metaphoric understandings of the structure of society and of selfhood – it is difficult for English speakers even to discuss status or authority without using terms such as *higher* and *lower*. But they have possibly universal experiential bases, and must join *MORE IS UP* as examples of candidates for universals of metaphoric structure; and indeed *STATUS IS UP* is a common metaphoric mapping in many non-Western cultures. To cite one salient example, Bickel (1997) details the pervasive use of spatial verticality in the Himalayan culture of the Belhare, including cultural norms such as allowing one's seniors to pass on the uphill side when they are met on a mountain path.

GOOD IS UP has perhaps a different set of experiential bases, as Lakoff and Johnson (1980) set forth (and as further developed in Sweetser 2004). Not only is it *better* to be alive, healthy, upright and physically functional, rather than dead or sick and unable to stand upright; it is also generally *preferable* to be a victor in a fight, or a taller and more powerful person, rather than a victim. To add to the complexity of this metaphor nexus, many societies normatively wish morally good people to be powerful, and morally evil people to be subject to them. Thus, in addition to HOLINESS IS UP, POWER IS UP. Both Borobudur and Chartres rely deeply on these understandings.

It is interesting to note the difference between the meanings of the vertical dimension of religious monuments such as Borobudur and Chartres, and the meanings of vertical secular monuments. It is indeed the case that POWER IS UP seems related to the competition in height between secular skyscrapers, but a person who has managed to get a view from the top of the Eiffel Tower or the Empire State Building has not thereby been spiritually changed (there is no HOLINESS IS UP OR TRANSCENDENCE IS UP involved). Although, as we shall discuss, a pilgrim at Borobudur *changes* height more than a Chartres pilgrim does, both monuments invoke these spiritual metaphors – which have certainly been basic to European holy places since ancient temples were built on heights, approached in Greece via the upwards “holy way” to the Acropolis for example.

In particular, Borobudur blends these spiritual understandings of UP with one of the central metaphors of Buddhism, the LOTUS metaphor, which relates the different stages of human (cognitive) existence to the image of the lotus (see Ward 1952 for a thorough description of the lotus as a symbol in Buddhism). According to Buddhism, the roots of the lotus flower which are stuck in the mire at the bottom of a lake mirror the confusion and suffering of ordinary human existence. By progressing from the root to the stem and finally to the flower, one transcends that confused state and attains the perfection that the lotus metonymically symbolizes. Crucially, UP-ward movement is important: the closer one comes to the top of the flower, the more tranquil one’s mind and cognitive state, and the more holy one becomes. Because of this, the Buddha is frequently depicted seated on a lotus blossom, an indication of his ultimate spiritual enlightenment.

Borobudur, which is shaped like a lotus, is iconic for the LOTUS metaphor and thus helps pilgrims focus on immersion in, and transcendence of, the human condition. As we will describe later, movement from the base to the top of the monument *is* movement along the lotus flower, each of which parts metonymically represents the cognitive state anchored there. In this way, Borobudur anchors the Mahayana message that we are all bodhisattvas capable of attaining Buddha-hood.

As a material anchor for the cognitive/spiritual transformations taking place within the pilgrim, both the physical structure of Borobudur and the stories depicted on its various levels work together to enhance the pilgrim's feeling of immersion in the human condition (i.e., suffering) and, later, of its transcendence. The square shaped lower terraces with their narrow corridors, high walls and richly depicted stories iconically represent the murky confusion accompanying ordinary existence. As these stories shift from depicting pure suffering to the life of the historical Buddha who was able to remove himself from the cycle of endless suffering to the not-so-subtle suggestion that anyone is capable of such transcendence, the pilgrim's relative height increases until, at the apex, she joins other meditating Buddhas and attains that state herself. Figure 3 shows the expansive, tranquil scenery pilgrims enjoy along with the meditating Buddhas at the top of the monument.



Figure 3a: View from the top of Borobudur

Borobudur is composed of three parts and is, like many religious sites, oriented to the East. The base of the monument is composed of five square terraces, the roots and stem of the lotus, surrounded by 2m high walls full of well-organized and detailed panels which tell various stories of human suffering in all of their gory detail. These stories range from humans suffering from the whims of demons to the historical Buddha's removal of himself from that cycle to the culmination

at the top of the monument of the *Gandavyuha*, a sort of “everyman’s” search for transcendence by means of the perfect teacher. The square shape of the terraces indicates imperfection, compared to the higher levels of the monument, whose circular shape is considered in Buddhism to be more perfect. These square terraces are followed by three circular terraces (without any walls), the lotus flower, on which 72 Buddhas sit, serenely meditating over the valley. In the center of these circular terraces is the apex of the monument, the stigma of the lotus: one stupa which stands over the center of the monument containing a likeness of Shakyamuni, meditating peacefully. As the highest, central point of the monument, it is the most powerful and holy – and so gives the more important message: just like the Buddha, who transcended the endless cycles of suffering as a human, the pilgrim also can attain nirvana and transcend the world. This is described by the blend given in Table 1, which relates the physical structure of Borobudur to the LOTUS metaphor.



Figure 3b: View from within Borobudur

| Input 1: Lotus Metaphor | Input 2: ENLIGHTENMENT IS UP (from HOLINESS IS UP) | Input 3: Buddhist Stories | Input 4: Physical Structure | Blend: Borobudur |
|--|---|--|--|---|
| the root | trapped by <i>maya</i> /unenlightened and suffering | the story of human suffering | the outer “foot” | the outer edge of the monument is the root of human suffering |
| the stem | limited awareness | the story of the historical Buddha the stories of other Buddhist saints the Gandavyuha | square terraces | the square terraces are the slow transcendence of that suffering |
| the root and stem, surrounded by murky water | limited awareness | <i>maya</i> | 2m high walls | the high walls are <i>maya</i> |
| the flower | enlightened/ full awareness | <i>nirvana</i> | circular terraces | the circular terraces are the lotus flower, the state of perfect knowledge and enlightenment and the open air |
| the flower, surrounded by clean air | enlightened/ full awareness | <i>satya</i> | no walls | (no walls) is the full awareness accompanying that state |

Table 1: The Borobudur Blend

The vertical structure of Gothic cathedrals such as Chartres, with its high ceiling and tall towers, was intended both to reach upwards towards the sky (God’s metaphoric home in Heaven), and to impress viewers with the power and majesty of an important church. Since Chartres is still very impressive to a modern viewer, one can only imagine the effect of the first Gothic churches on contemporary viewers, at the time when they were the first “sky-scrapers”. The vertical dimension is consistently present in the viewer’s interaction with the structure (see Murray 1996). A depiction of Christ in Judgment sits above the main portal of the cathedral, as in many medieval churches (as shown in Figures 4 and 5, which depict the West Façade of the cathedral and the tympanum over the central western portal at

Chartres), from which he looks down at those entering. Directly above this central west portal, but visible primarily from the interior (since stained glass depictions require light from outside to be visible) is a tall stained glass window depicting Christ's genealogical tree, growing from the loins of his ancestor Jesse; Christ is shown at the top of the tree (and of the window). And directly above the "Jesse window" on the same western wall is a Rose Window with a depiction of Christ at the center. (See the Pittsburgh MEDART Team's website [www.pitt.edu/~medart] for images of these windows and the rest of Chartres.) These two windows (whose outlines are visible in the West Front photo) loom above the viewer who faces westwards inside the church. Within the church, the altar is on a platform, higher than the congregation – and so is the pulpit from which sermons were preached. On that altar, or suspended above it, is the cross which metonymically symbolizes Christ; and on the altar are also placed the blessed wafers which are metaphorically Christ's Body. Priests and congregants alike *genuflect* (drop to one knee in a low bow) when crossing the line of the aisle leading to the altar and its cross.



Figure 4: Chartres Cathedral (West front)



Figure 5: West portal at Chartres

The simple experience of being in Chartres Cathedral, therefore, is one of profound immersion in the radical Divine-human differential of holiness and power. This is manifested in the constant and radical differences of height and vertical position between the congregant and manifestations or images of Christ, as well as between the congregant and the physical church (metonymically representing the social Church and God), and between the congregant and the sky (metaphorically Heaven). The relevant blend is shown in Table 2, the Chartres Height Blend.

| Input 1 (Source): building | Input 2 (Target): human-divine relations | Blend |
|---|--|--|
| height | holiness/power | HOLINESS/POWER IS UP |
| Christ image on west portal tympanum is above humans entering | Christ is more holy and more powerful than human worshippers | Viewer is in a deeply asymmetric power/holiness relation with Christ |

Table 2: The Chartres Height Blend

Chartres, again like many Christian holy sites, is built on top of an earlier church site which was already sacred (part of that structure is in the current cathedral

crypt). Many important Christian holy sites were also sacred to pre-Christian Europeans; a Roman Mithraic temple has been excavated under part of Köln Cathedral, for instance. Being in Chartres Cathedral, therefore, is both to be in the physical blend of a radically asymmetric Divine-human relationship and to participate in the literal *superiority* of this towering Christian edifice to preceding structures underneath it (at least to the extent that the observer knows the history).

Like most medieval cathedrals, Chartres is *oriented*; that is, the sanctuary is at the eastern end of the building, and congregants enter from the west end. Once again, this is nothing surprising cross-culturally; meaningful relations to the cardinal directions are deep and common even in cultures whose linguistic systems do not rely on absolute directionality. Christians built churches with eastern sanctuary ends so that worshippers would face simultaneously towards the physical altar and towards the city of Jerusalem. The altar bears the symbols of Christ's death (the Cross, and bread and wine as his metaphoric Body and Blood); Jerusalem is the location where the Crucifixion and Resurrection took place. Facing the altar is thus facing towards a local material anchor which is blended with the more distant primary material anchor for Christ and the events which make Christ religiously meaningful – in the blend, facing the altar is facing Christ.

3 Structural blends and alignments in the buildings

Multiple features of these sacred spaces support the cognitive transformations we describe. Not only the physical outer shape of these spaces (which may have been chosen because of connections to particularly salient conceptual metaphors), but also their inner organization and relationship to stories (some of which were described above) is relevant as well. Obviously, this kind of interplay between different physical and conceptual structures, or between landscape and the mind, is not restricted to religious spaces. Part of the reason why the memorials at Dachau or Auschwitz are so powerful is because of the vivid way in which the stories told there are depicted and in how those depictions relate to the physical structure of the camps. This makes for a sort of symbiosis between people and their environment, making a bridge between physical and conceptual structure.

This is especially true of pilgrims in sacred landscapes: these transformative experiences result from the pilgrim's own mind and material anchors in the physical landscape. The kind of rich understanding which leads to the powerful, transformative changes we describe here emerges from this relationship the

pilgrim shares with her religious background and its representation at the site. As Østergaard (2011) points out, a Buddhist who lacks the ability to read the signs at a sacred site – such as recognizing that a particular depression in a cave is the footprint of a revered master – is not able to experience the site or its transformative properties in the same way that a pilgrim possessing that knowledge can. This holds true for our sites and pilgrims as well.

At Borobudur, the lower, square terraces depict multiple stories from within the Buddhist cannon. As mentioned earlier, corridors on lower levels are both narrow and high, iconically representing the constraints of narrow-mindedness, confusion and suffering which characterize the Buddhist perspective on the human condition. The lowest level, the so-called “hidden foot” on the outer, lower edge of the monument, describes intense tales of human suffering at the hands of various demons. Moving up, the lowest of the square terraces tells four simultaneous stories about the Buddha’s previous lives, his final incarnation and the histories of various Buddhist saints. This reduces to one story told simultaneously on two walls on the remaining levels: the *Gandavyuha*, a sort of “everyman’s” search for the perfect teacher to lead him to enlightenment. The *Gandavyuha* documents a young boy’s search for enlightenment from different masters and culminates on the last panel at the top of the monument with the realization that he does not need any master, he has the power to attain that state himself whenever he wants (and thus, metonymically, whenever the pilgrim wants). Just as the boy makes this realization, the high walls containing the panels end and the pilgrim is left on the lowest of the circular terraces, overlooking the valley in the company of peacefully meditating Buddhas who invite him (or her) to sit and attain that state. These are very powerful suggestions, simultaneously anchored to the height of the monument and the expansive vision of the surrounding environment which it provides. A true pilgrim would be hard pressed to miss that message and its resulting cognitive state.

Once again, we see that the monument iconically represents the cognitive states it embodies, acting as a material anchor for the pilgrim’s transformed state of mind. The sudden visual expansion and sense of quiet that follows so many hours and kilometers of reading stories about human suffering and its transcendence (both obviously couched within Buddhist philosophy) makes the pilgrim particularly receptive to the suggestion of immediate enlightenment found at the top. The sense of endless, serene space found there is heightened when compared to the busy, high-walled terraces found on the lower levels. Resting there, the pilgrim feels the tranquility that comes with such uninterrupted, perfect (literal and metaphorical) vision. Note that, as with most performative actions, descending from Borobudur does not reverse the spiritual changes brought about by the

ascent. The descent is not metaphorically mapped in the performative space of gaining enlightenment.

The physical structure of Chartres is also built to represent, indeed to embody, aspects of the theology and social structure of the builders. One salient aspect of this is the relationship between Hebrew scripture and New Testament scripture. A relatively common understanding in the medieval world was that events of the Old Testament not only preceded but *prefigured* events of the New Testament. In this understanding, Moses’ vision of God in the Burning Bush is not to be seen merely as predicting, or representing, the divine vision of the tongues of fire at Pentecost – in fact, it was an earlier Pentecost. Noah’s Flood is sometimes shown as a prefiguration of Christ’s baptism in the Jordan by John the Baptist. In Chartres Cathedral, the Typological Passion window is a salient example of this kind of structure; the label refers to the “typological” relationship between corresponding Old and New Testament equivalents. In this case, the scene of the Crucifixion is depicted together with the Binding of Isaac, the passage where Abraham is ordered by God to sacrifice his son and agrees, though finally Isaac is spared. It is understood that Abraham’s willingness to sacrifice his son corresponds to God’s willingness to sacrifice his own son. This Typological Blend is laid out in Table 3, the Old/New Testament Blend at Chartres.

| Input 1 | Input 2 | Blend |
|------------------|-----------------------|---|
| Old Testament | New Testament | OT stories, situations, ARE topologically similar NT stories, situations. |
| Noah’s Flood | the Baptism of Christ | Noah’s Flood is the Baptism of Christ |
| the Burning Bush | Pentecost | the Burning Bush is Pentecost |

Table 3: The Old/New Testament Blend at Chartres

These depictions bring two distant times together, and implicitly, of course, also include the contemporary era of the builders, where Christian history is still understood to be playing out. Since medieval art made no attempt to depict Roman or ancient Near Eastern events in “period” clothing or technology, thirteenth-century viewers would have seen everyday dress and objects in the depictions of these ancient events, blending them implicitly with their own times. The cathedral also carries depictions of Old Testament kings and queens, alongside those of medieval French monarchs, blending the social structures of the biblical and contemporary worlds and embodying that blend in the physical structure of the cathedral. The local community is also built into the cathedral via

similar blends. For example, the Noah window depicts medieval carpentry and wheel making – one hypothesis is that it may have been donated by or on behalf of the Carpenters’ and Wheelrights’ guilds. (Wealthy vintners’ guilds frequently donated depictions of the Wedding at Cana to churches.) Again, although Noah is not the prefiguring “type” of the modern carpenters, such depictions emphasize the similarity or unity across time between the modern community and the miraculous ancient history. They also build the community into the church building – not only prophets but vintners and wheelrights are physically represented in the cathedral structure. Chartres is by no means unusual in this regard; sculptors depicted all kinds of everyday people and scenes, as well as contemporary patrons and donors (Abbot Suger, mentioned above, is depicted in stained glass in the abbey church of St. Denis which he built).

4 Moving through sacred spaces

Performatively, one does not only exist in a sacred space, one moves and acts towards it and in it. Pilgrimages could bring physical healing, either to the pilgrim or to someone being prayed for; they could also bring absolution and were therefore frequently undertaken as penances. Metaphorically – another extremely Primary Metaphor – STATES ARE LOCATIONS and CHANGE OF STATE IS MOTION (Lakoff and Johnson 1980, 1999). Being in the cathedral is a state of union (co-location) with God, and hence of holiness; being far from it is the state of non-holiness. Moving from a distant location to Chartres Cathedral is becoming holy, but only if done intentionally.

At Borobudur, simply the act of following the full circuitous upwards path and passing through the various stages is enough to make the pilgrim a bodhisattva. This is perhaps best exemplified by the last panel of the final story of the *Gandavyuha*, where the young boy realizes he has the power to attain nirvana right now, and as he sits to do so, the high walls of the square terraces drop away and the pilgrim is left with the expansive view which metonymically evokes nirvana. This is reinforced by the sitting Shakyamuni at the apex of Borobudur who gently reminds pilgrims of the universality of Buddhism: everyone can attain nirvana. This is really the point of the monument – to make “Buddha-hood” both comprehensible and achievable in the here-and-now, which is to say: human-sized. This, combined with the material anchoring to the monument, greatly reduces the pilgrim’s “work” and lets the feeling of nirvana come “for free” (see before Fauconnier and Turner’s discussion of human-sized cognition).

There has been an empty sticky note.
Do you want to change before into above?

| Input 1: Borobudur Blend | Input 2: Physical Structure | Input 2: Spiritual Life is a Journey | Input 3: Generic Space (Movement) | Blend: Borobudur as spiritual transformation |
|--|--|---|--|--|
| | | spiritual seeker | mover | pilgrim |
| the outer edge of the monument is the root of human suffering | the outer “foot” | original state (profane) | origin | the pilgrim’s basic state (suffering) out of which transcendence is borne |
| the square terraces are the slow transcendence of that suffering | square terraces | intermediate states | | the square terraces are the pilgrim’s dawn of awareness |
| the high walls are <i>maya</i> | 2m high walls | obstructions | | the high walls are the obstacles blocking awareness which must be overcome |
| | corridors and stairs around and up down | the means | movement | walking up is changing from a profane to a sacred (enlightened) state |
| the circular terraces are the lotus flower, the state of perfect knowledge and enlightenment | circular terraces | destination state (sacred/holy) | destination | the pilgrim’s arrival at the circular terraces is the pilgrim becoming enlightened |
| and the open air (no walls) surrounding the circular terraces is the full awareness of enlightenment | no walls | destination state (sacred/holy) | | the expansive vistas are the full awareness of the pilgrim’s mind |

Table 4: The Borobudur as Spiritual Transformation Blend

Pilgrims enter Borobudur through the main gates on the Eastern face and walk each of the levels in turn, often multiple times since the levels tell multiple stories

simultaneously. Progression is made up the monument through these Eastern gates which are situated at every level. Although it is possible to ‘jump’ from the lower levels to the higher, pilgrims were expected to circumambulate the two kilometers of paths linking each of the levels while contemplating the depicted changing states which mirror – that is, physically anchor – their own changing cognitive state. This is shown in the complex “fully grounded” Real Space blend given in Table 4, where the physical shape of the monument, the conceptual structure which is laid over it, and the motion of the pilgrim interact to create the fully transformative, transcendent experience described here. Note that crucially, and in line with Sweetser (2000), only the journey up Borobudur is mapped in the blend. Despite walking down the same stairs at the end of the journey which were used to climb up at the start, the pilgrim does not return to the murky confusion of the monument’s base but stays “above” it, having done so literally.

Chartres, like many major cathedrals, was a medieval pilgrimage site. Coming to it, perhaps walking to it, and approaching it by ascending the stone entry steps on their knees, was an act of spiritual submission and penitence. This upwards motion is not as dramatic as the ascent of Borobudur – most of the upwards dimension of the cathedral still lies above the pilgrim. But the stone entry steps of major European cathedral pilgrimage sites are actually worn down from pilgrims’ knees. Within the cathedral, processions such as the Good Friday Stations of the Cross moved the congregation through the stages of Christ’s walk towards the Crucifixion – by walking as Christ did and looking at each image of a scene of Christ’s suffering, the congregants gained empathy with Christ.

Chartres also has a famous labyrinth – a complex path built into the floor, which winds and turns to cover an entire floor surface. It is a *unicursal* labyrinth: that is, it consists of exactly one path from entry to center, with no branchings. Although this is not at all obvious to a viewer, a person who starts along the path will eventually end up at the center, having covered every turning in the labyrinth structure (see Figures 6 and 7 for depictions of the labyrinth). Normally pilgrims exit the same way – that is, at no point do they cross the lines of the labyrinth, although tourists may do so without even noticing them. As with the path through Borobudur, a pilgrim walking a Christian unicursal labyrinth has to give up “figuring out” what path to take, and simply follow the local path ahead – an abdication of personal agency with respect to direction of movement, trusting that the journey will lead to the right goal. This is very different from *mazes*, which are also popular in Europe (hedge mazes, for example) where the point is that you can readily make a wrong choice of path and become confused or trapped. There is no incorrect direction of motion where there is only one path.



Figure 6: The Labyrinth at Chartres

Labyrinths were a metaphor in medieval Christianity for religious mystery, and for divine guidance in spiritual confusion. To make this one more interesting, it has a rose-shaped central compartment, and the image of the Western Rose Window above it is (when the angle of afternoon sun is right) projected onto it – with the right alignment, the Christ at the center of the Rose Window is projected onto the center of the labyrinth, adding another factor to the blend. The blends involved in the labyrinth and its relation to the Rose Window can be seen in the following tables: Table 5 shows the Central is Essential Blend at Chartres while Table 6 shows the Essential is Central/Holiness is Height Superblend.

Borobudur shares structure with a unicursal labyrinth: not only do pilgrims move upwards through the lotus, as we have argued, but they also take a circuitous two-kilometer route that ultimately brings them from the periphery of Borobudur to the center. That is, both Borobudur and the Chartres labyrinth embody the ESSENTIAL IS CENTRAL metaphor as well as the STATES ARE LOCATIONS metaphor inherent in the understanding of pilgrimage. (As Sweetser [2004] has argued, ESSENTIAL IS CENTRAL is a Primary Metaphor based in experiential facts such as that the organs essential to life are in the body's central trunk, rather than in the fingers or the hair). KNOWLEDGE IS VISION is equally important to both structures

as well. In Borobudur, you cannot see outside the walled pathways of the lower levels – certainly, you cannot see ahead to the eventual high central platform. And in the Chartres labyrinth, you can see the whole maze at any time, but you cannot visually pick out the path through it which will lead you to the center. In both cases, the trusting pilgrim has to keep moving ahead along the sole path through the physical structure, and by following it will eventually reach the central destination. The inevitability of reaching the destination, even though you cannot see your way, maps in the blend onto the inevitability of attaining the new spiritual state, even though the pilgrim may not entirely know how it is achieved.

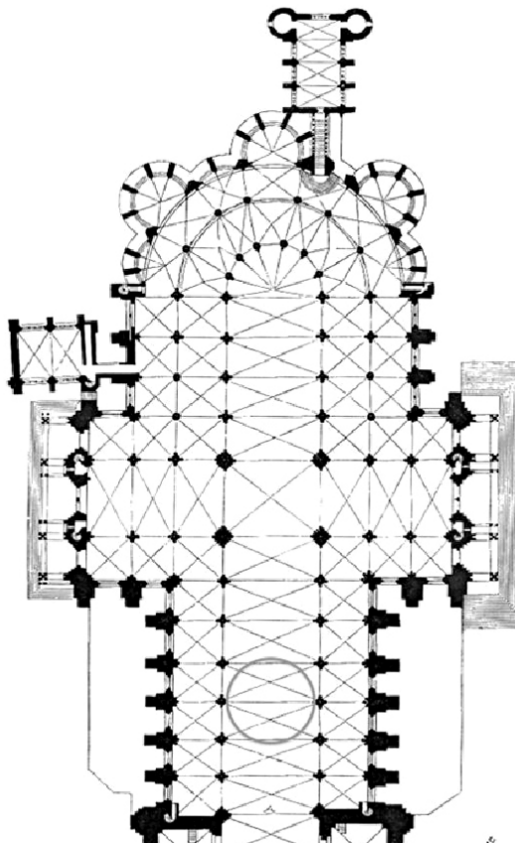


Figure 7: Plan of Chartres Cathedral: the West Front is at the bottom of the image, with the West Portal and tympanum at the center of that side. The nave stretches from bottom to top of the image (west to east), with the sanctuary at the east end. The circle represents the location of the Labyrinth in the nave floor.

| Input 1 (Source): physical labyrinth | Input 2 (Target): spiritual change | Blend |
|---|--|--|
| centrality | essentialness | ESSENTIAL IS CENTRAL |
| movement | change | STATES ARE LOCATIONS CHANGE IS MOTION |
| visibility | cognitive accessibility | KNOWLEDGE IS VISION |
| looking at the labyrinth, the route from entry to center is not visually obvious. | it's not cognitively obvious how a spiritual pilgrim changes from her everyday state to contact with spiritual "essentials". | |

Table 5: The Essential is Central Blend

| Input 1 | Input 2 | Input 3 | Input 4 | Super-blend (co-aligned) |
|--|--------------------------|--|--|--|
| physical centrality, journey to center | change towards essential | Rose Window (higher than viewer) | Christ is more holy/powerful than viewer | Movement inwards is movement upwards is change towards essentials is change towards holiness |
| labyrinth | spiritual change | Western wall vertical height (above viewer) | | |

Table 6: The Essential is Central is Height Superblend

We can end this section by considering the blends involved in the experiences of reaching the final platform of Borobudur, and of standing in the center of the Chartres labyrinth facing eastwards. The Borobudur pilgrim has reached the top and center of the monument, and has also moved from highly restricted vision to an unrestricted view of a serene countryside with mountains. She has now therefore achieved a “higher” spiritual state, understanding of the “central” or most important aspects of spirituality, and of course spiritual “vision” or enlightenment. She is now sitting on the lotus blossom of nirvana, though still connected with past states via the “stalk” of the monumental structure. Borobudur is a particularly interesting example of *co-aligned* metaphoric structure; as in some of the examples discussed in Sweetser (2004), moving upwards towards holiness is necessarily also moving eventually inwards towards the essential.

The Chartres pilgrim has reached the center of the labyrinth, and is still surrounded by towering structures, with depictions specifically of Christ high above. She too has achieved connection with the “central” mysteries of Christian faith – and remains in vertical alignment with “higher” powers, as well as in face-to-face connection with Christ via the orientational blend of the building with Jerusalem. It is at least possible, at some times, for the pilgrim to be standing at the center of the labyrinth with the Christ image from the Rose Window projected onto that same spot – so location on that spot is “union” with the higher power of Christ. The Chartres pilgrim has not reached an expansive outdoor physical view; a Gothic cathedral allows a great deal of light to enter, but only via the many and complex stained glass windows, full of religious images. In short, in Chartres Cathedral, not only is divine knowledge metaphorically vision, all knowledge of one’s surroundings is literally “religious vision” – there is literally no physical vision independent of the religious images on the windows, which transmit appropriate spiritual knowledge. This blend is shown in Table 7.

| Input 1 | Input 2 | Physical Blend | Cognitive Blend |
|--|---|--|---|
| light from windows | content of windows | viewer cannot see anything without also seeing visual input of stained glass windows | viewer’s cognitive input about environment is controlled by cognitive content of stained glass window narratives. |
| viewer’s physical knowledge of environment | religious knowledge in stained glass depictions | | |

Table 7: The Knowledge is Religious Vision Blend

Borobudur’s linking of upwards with inwards, and Chartres’ built-in co-experience of light are what we mean by *fully grounded blends* – spiritual/intellectual input and visual input are both present in the Real Space, and are physically accessed via a single input, in the way that a conventional liquid-column thermometer physically unites changes in height with changes in temperature.

5 Conclusions

Built environments allow the builders to exert remarkable influence on the cognition and perception of those who inhabit those spaces – including the potential for cognitive healing. Religious structures have major cognitive systems (namely the religious systems involved) to exploit and to embody by exerting their unique physical influence. We do not here offer any general conclusions about religious

structures. Rather, as Mark Turner would say, we have examined two pyrotechnic examples of religious architectural blending. Any comparative study should examine many traditions, and should also examine a far wider range of examples within each tradition (e.g., including interior Buddhist spaces, and outdoor Christian spaces). Therefore, we can speak only about these two remarkable examples.

As in many recent cross-cultural studies of language and cognition, in looking at Chartres and Borobudur, it is equally fascinating to note their radical differences, as well as the shared cognitive structures underlying their physical structures. The Christian tradition has no LOTUS Metaphor and the Buddhist tradition no orientation towards Jerusalem, or “typological” blends of Old and New Testament. These are unique and complex cultural constructs which are tightly woven into the conceptual environments their practitioners inhabit. At the same time, both structures are deeply metaphoric, and reflect different interpretations of the same underlying conceptual metaphors. Given what we know of Primary Metaphors and their primary experiential bases, we are not surprised to find that HOLY/GOOD IS UP, KNOWLEDGE IS VISION, CHANGE IS MOTION, and ESSENTIAL IS CENTRAL are important underlying metaphoric structures in both the religions considered here, as well as in the monuments constructed to foster a particular kind of religious experience.

As we saw with both Chartres and Borobudur, the Real Space surrounding the pilgrim served as multiple inputs which “fully grounded” the blend. Both the organization of the sacred space and the conceptual structure laid on top of it were inputs to a “fully grounded” blend which reinforced the central tenets of the religion while influencing the deeply personal religious experience the pilgrim had there. The term “fully grounded” blend was offered as a way to talk about the deep ways in which Chartres and Borobudur potentially shape every aspect of a knowledgeable inhabitant’s experience by richly constructing space to aid cognition and experience. In turn, this may help us understand exactly why they are such impressively successful religious monuments and exert such profound transformative forces.

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7 References

- Bickel, Balthasar: Spatial operations in deixis, cognition and culture: Where to orient oneself in Belhare. In: Jan Nuyts and Eric Pedersen (eds.) *Language and Conceptualization*, 46–83. Cambridge: Cambridge University Press 1997.
- De Mey, Marc: Mastering ambiguity. In: Mark Turner (ed.), *The Artful Mind*, 271–304. Oxford: Oxford University Press 1996.
- Dudis, Paul: Body partitioning and real-space blends. *Cognitive Linguistics* 15 (2): 223–238, 2004.
- Fauconnier, Gilles and Mark Turner: *The Way We Think*. New York: Basic Books 2002.
- Ferrari, Gloria: Architectural space as metaphor in the Greek sanctuary. In: Mark Turner (ed.), *The Artful Mind*, 225–240. Oxford: Oxford University Press 1996.
- Grady, Joseph: THEORIES ARE BUILDINGS revisited. *Cognitive Linguistics* 8 (4): 267–290, 1997.
- Johnson, Christopher: Metaphor vs. conflation in the acquisition of polysemy: the case of *see*. In: Masako K. Hiraga, Chris Sinha, and Sherman Wilcox (eds.), *Cultural, Psychological and Typologica I Issues in Cognitive Linguistics*, 155–169. Amsterdam/Philadelphia: John Benjamins 1999.
- Hallade, Madeleine and Hans Hinz: *The Gandhara Style and the Evolution of Buddhist Art*. London: Thames and Hudson 1968.
- Hutchins, Edwin: *Cognition in the Wild*. Cambridge MA: MIT Press 1995.
- Kidson, Peter: Panofsky, Suger and St. Denis. *Journal of the Warburg and Courtauld Institutes* 50: 1–17, 1987.
- Kirsh, David: The intelligent use of space. *Artificial Intelligence* 73: 31–68, 1993.
- Lakoff, George and Mark Johnson: *Metaphors We Live By*. Chicago: University of Chicago Press 1980.
- Liddell, Scott K.: Grounded blends, gestures and conceptual shifts. *Cognitive Linguistics* 9 (3): 283–314, 1998.
- Liddell, Scott K.: *Grammar, Gesture and Meaning in American Sign Language*. Cambridge: Cambridge University Press 2003.
- Murray, Stephen: Slippages of meaning and form. In: Mark Turner (ed.), *The Artful Mind*, 189–207. Oxford: Oxford University Press 1996.
- Østergaard, Jesper: *The Topographic Mind: Connecting Cognition to Landscape in the Study of Religion – with Empirical Illustrations from Maratika, a Pilgrimage Site in Nepal*. Unpublished dissertation, Aarhus University, Denmark 2011.
- von Petzinger, Genevieve: Making the abstract concrete: The place of geometric signs in French Upper Paleolithic Parietal Art. Masters Dissertation, University of Victoria 2010.

- Rudolph, Conrad: *Artistic change at St. Denis: Abbot Suger's Program and the Early Twelfth Century Controversy over Art*. Princeton: Princeton University Press 1990.
- Scott, Robert A.: Making relics work. In: Mark Turner (ed.), *The Artful Mind*, 211–223. Oxford: Oxford University Press 2006.
- Sørensen, Jesper: *A Cognitive Theory of Magic*. Lanham MD: Altamira Press 2007.
- Sweetser, Eve: Blended spaces and performativity. *Cognitive Linguistics* 11 (3/4): 305–333, 2000.
- Sweetser, Eve: 'The suburbs of your good pleasure': Cognition, culture and the bases of metaphoric structure. In: Graham Bradshaw, Tom Bishop and Mark Turner. (eds.) *The Shakespearean International Yearbook vol 4. Shakespeare Studies Today*: 24–55. Aldershot: Ashgate 2004.
- Sweetser, Eve: What does it mean to compare language and gesture? Modalities and contrasts. In: Jiansheng Guo, Elena Lieven, Susan Ervin-Tripp, Nancy Budwig, Kei Nakamura and Şeyda Özçalışkan (eds.), *Crosslinguistic Approaches to the Psychology of Language: Studies in the Tradition of Dan Isaac Slobin*, 357–366. New York: Psychology Press 2009.
- Turner, Mark (ed.): *The Artful Mind*. Oxford: Oxford University Press 2006.
- Ward, William E.: The lotus symbol: Its meaning in Buddhist art and philosophy. *The Journal of Aesthetics and Art Criticism* 11 (2): 135–146, 1952.

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