Structured and De-Structured Space

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Structured Space and Natural Human Habitat

Sometimes a building or place gives us a feeling of wholesome lovability: the sense that its makers care about us. Sometimes a building seems aloof or unlovable, and this taints our opinion of its makers. We know that architects often sincerely believe they are providing wholesome, lovable, and caring places – even when they leave ordinary people cold. Perhaps this dichotomy is because architects and the people they design for follow two different goals. When these two sets of goals are better understood, perhaps they can both be more successful in their way.

Le Corbusier's Five Points of Architecture opposed some of the most essential elements of traditional and classical architecture directly: a solid base; spatially defined rooms; a façade that evokes structural support; windows that can frame a standing person; and a sheltering roof. It is easy to assume that this frontal attack on traditional verities was just a function of opposition to whatever traditional architecture happened to hold dear: a petulant "Nuh-Uh!" response to tradition. But this ignores the fact that many architects sincerely thought they were doing people a favor by making a more natural architecture. When this new architecture is successful, it can be very successful. For example, Fallingwater gives many people a natural, comfortable, outdoorsy feeling.

FIGURE 1. "VISTA OF GREAT LAWN FROM BELVEDERE CASTLE" BY KCPWIKI - OWN WORK. LICENSED UNDER CC BY-SA 3.0 VIA WIKIMEDIA COMMONS

It seems clear that these two sets of design qualities are not simply in opposition to each other. Rather, one is for human-made things that make us feel healthy and at ease. The other should not be demonized, but should be understood and used as an evocation of the sort of pastoral natural human habitat our ancestors wanted to live in. That is, modernism is not simply a negation of well-loved traditional design. It is an attempt to bring certain idyllic qualities into the human-made. Perhaps by understanding this mission more fully, architects and designers can achieve it without inadvertently alienating the ordinary people they hope to reach.

Structured Space

We can say that most human-made compositions are made of "structured space," because it refers to things people mark as human. This is the kind of compositional space that has marked human-made objects since our ancestors strung alternating beads on their jewelry. It indicates that something is made with human judgment, and isn't just deposited by nature. "Structured," here, means not only that someone has consciously composed it, but that it is structured so people can understand it. That is, not only does it imply order, but it is also packaged for human consumption.

Something that is structured, then, follows conventions so that it has meanings not only in itself, but in relation to other things. A house looks like other houses. A door looks like other doors, and a pot looks like other pots. Moreover, the house might adopt a motif from a pot, or the pot might adopt a motif from the house, and so on. There is a certain necessary grammar to communication. In order to communicate at all, the design has to draw on a shared language. Thus, by convention as well as by sheer practicality, a roof suggests shelter, and beautiful posts at either side of a door suggest dignified entry as well as physical support. Such structured space may be inspired by the old (animist) idea of trying to put a soul into things. Certainly, structured space has many characteristics in common with animal and human faces: symmetry, precision, balance, and so on. Perhaps our facility for compositional structure developed from our perception of faces.

Classical architects often say that their architecture imitates nature, but which nature? Does it imitate the shape of geological structures? No. It imitates living things: complex living things with parts that echo each other, have bilateral symmetry, and so on. Thus, we can think of structured space as space that imitates living things.

FIGURE 2. "MUSEUM OF ANATOLIAN CIVILIZATIONS025 KOPIE" BY GEORGES JANSOONE (JOJAN) - SELF-PHOTOGRAPHED. LICENSED UNDER CC BY 2.5 VIA WIKIMEDIA COMMONS

Natural Human Habitat

Another kind of compositional space is different: natural human habitat. This is the kind of compositional space emulating habitats in which people feel comfortable. It doesn't include the animals *in* that habitat. As Denis Dutton has noted, (Dutton, 2009)

great human habitat has drinking water, open land, trees we can climb, shade, and an open aspect. This flowing, natural space used to make our prey and predators visible and was suitable for foraging, grazing, and eventually cultivation. Unlike structured space, unstructured space does not require evidence of human care. It is all the more idyllic, in fact, for *just happening to be bountiful.*

Unstructured space for human habitat is soft, comfortable nature. It does not include craggy peaks, impenetrable forests, or harrowing waterfalls. Those are usually considered "sublime" in art-historical terms. Rather, ideal habitat for humans is at the mean: not too hot or cold; quenching thirst – not dry or swampy; verdant but not claustrophobically so; open but with shelter; supplied with plenty of tasty wildlife and plants but not scary bears or big cats, and etc. It is livable, even idyllic nature. The flowers and animals in that flowing habitat stand out against the open backdrop. It's a good thing, too. We notice them immediately so that we can eat them or run from them. For this reason, we can best think of unstructured natural habitat as the kind of space that helps these things stand out. It is a sort of background.

So we have two kinds of space: the structured space of human artifacts – artifacts that are meant to be clearly human in origin. Then we have flowing background space like natural human habitat. There is, then, a third kind of space.

FIGURE 3. "LOUISIANA MARSH," BY BRIAN GAUTREAU. LICENSED UNDER CREATIVE COMMONS CC BY-SA 2.0 VIA FLICKR

We can make the man-made things feel beautiful or wholesome without a scientific or deep philosophical foundation as to why. Our ability is almost instinctual, and we seem hard-wired for it. In the West, traditional architects offered pattern books and rules of composition to help people embody these qualities in buildings and landscapes. Different cultures have routinely made things that have these properties by applying their own comprehensible rules to deep human judgment. Christopher Alexander enumerated the resulting qualities as the "fifteen fundamental properties of wholeness."(Alexander, 2002)

De-structured Space

Imitating Natural Habitat

While we can certainly let places go wild, it's difficult to build natural habitat. Building something requires conscious thought, which nature doesn't require. However, we can certainly imitate it through careful art. Rather than being "unstructured" like nature, this imitation is "De-structured Space." De-structured space is an artful imitation of unstructured natural habitat. A classical Japanese garden, for instance, is not the same as a natural forest or pond. A picturesque English garden is not the same as a natural rolling landscape. It is an artful representation of it. To be clear:

- **Structured space** imitates the qualities of living things, such as plants and animals – especially those with faces.
- **De-structured space** imitates the habitat these things live in: the flowing meadows, forests, and glades in which they thrive.

(This became clear in a discussion with Michael Mehaffy after he read the original version of this document.)

Table 1, below, lists the resulting qualities: those of Structured and De-structured space. It is not a how-to list. In each column below, a term is located on the left, followed after a colon by a short description. The terms in the left column are Christopher Alexander's terms. The terms on the right are this author's proposed corresponding terms for de-structured space. Sometimes the same qualities are shared between both. The two columns share four terms out of 15, in italics.

TABLE 1. TWO SPACES

Structured space (imitation of living things)	De-structured space (imitation of habitat)
Levels of scale: strongly marked, but short, jumps	Scale jump: big jumps avoiding the scale of an adult
Strong centers: intensified by their surroundings	Weak centers: exploratory saccades
Boundaries: thick boundaries that form centers	Edges: perceptual overlaps or neutral frames
Alternating repetition: oscillating centers	Non-pattern: naturalistic or mechanical repetition
Positive space: space formed as centers	Unbounded space: flowing or unformed space
Good shape: made of elementary shapes	Irreducibility: fractal parts or mute simplicity
Local symmetries: at multiple scales	Few middle numbers: many or one
Deep interlock and ambiguity: inextricability	Clarity of figure: distinct foreground
Contrast: unity through difference	*Contrast: unity through difference*
Gradients: ordered fields of variation	*Gradients: ordered fields of variation*
Roughness: well-judged finesse	Naturalness: reflecting real or imagined necessity
Echoes: unity through resemblance	*Echoes: unity through resemblance*
The void: empty foil	*The void: empty foil*
Inner calm: simplicity	*Inner calm: simplicity*
Not-separateness: openness at the boundaries	Self-containment: sharp edges

Few Middle Numbers: Many or One

Things with what Alexander calls "wholeness" have small-scale local symmetries. Christopher Alexander noted that this symmetry is more than just a way to mark local correspondences between parts. It can be used to organize elements of structured space rhythmically so that even very large designs can be combined into something greater. For example, the garden side of the Palace of Versailles is carefully broken down into wings, then into sections, then into bays, then pilasters and other details, doors, panes, knobs, and fine details. Local symmetries organize these elements into manageable chunks every scale. Individual living things have repeated parts, bilateral symmetry, a hierarchy of scales, and so on.

Habitats, on the other hand, are flowing and asymmetrical. In de-structured space, things tend to be either singular – a waterway, for instance – or multiple, like multiple trees or multiple rocks. This is especially true because habitats' space is unbounded. In any case, things aren't usually grouped compositionally except at the scale of an organism or e.g. a hive. The shrubs in a field are generally arranged in a free-flowing

pattern within the neutral space of the field. De-structured space imitates this arrangement. Big structures are usually designed as a neutral ground against which other things occur. Conceptually, the strategy is like a trellis with a vine on it. The trellis itself is neutral; the vine wraps organically through it. Thus, unlike unstructured space, de-structured space can accommodate human-made structure – by making it a neutral background.

FIGURE 4. "TURPAN-CALLES-D01." LICENSED UNDER CC BY-SA 2.5 ES VIA WIKIMEDIA COMMONS

FIGURE 5. "PENZOIL PLACE, HOUSTON, TEXAS" BY KEN LUND. LICENSED UNDER CC BY-SA 2.0 VIA FLICKR

Scale Jump: Avoiding the Scale of a Standing Adult

Good structured space has a complete ladder of many "levels of scale," as Alexander called them. Many of the rules for composing structured space ensure that every scale is represented and there are few big jumps. Things are usually grouped in small numbers (usually less than five or seven) and if a designer feels that something is stark, it is usually because some embellishment would help to lock the overall composition together into such a ladder of scales.

When de-structured space imitates unstructured space, though, it usually leaves out the scale around the size of a human being. It also very often groups much larger numbers

together. For example, a skyscraper may have thousands of nearly identical windows, and the doors at its base may be so tall or thrown into such deep shadow that there is no echo of the human frame. People often criticize modernist architecture for avoiding the "human scale." The effect of removing the human scale is to showcase human beings by contrasting with them. People stand out even from a distance. Similarly, in actual human habitat such as a field, we want to be able to pick out people and animals, so we appreciate this vignetting.

FIGURE 6. "PALACE OF ASSEMBLY CHANDIGARH 2006" BY DUNCID. LICENSED UNDER CC BY-SA 2.0 VIA WIKIMEDIA COMMONS

Weak Centers: Exploratory Saccades

In wholesome structured space, the eye is arrested and rewarded at carefully composed points. This is the essence of "visual interest." Alexander points out that in things with a sense of wholeness there is a clear and well-defined array of centers of visual interest of various sizes, arrayed in careful geometrical arrangements. Our eyes go on a journey around the work, but come back to a focal point, like a musical coda that returns to the beginning. There is something calming and reassuring about having little correspondences between the parts everywhere. As our eyes scan something with

definite centers, like a face, they reinforce the compositional structure. In fact, the eyes' saccades approximate the network of points used by computer facial recognition.

FIGURE 7. "SZAKKAD" BY ORIGINAL FILE: SPOOSPA. DERIVATIVE: SIMON VIKTÓRIA - DERIVATIVE WORK FROM FILE:FACE OF SPOOSPA.JPG. LICENSED UNDER CC BY-SA 2.0 VIA WIKIMEDIA COMMONS

In a natural scene, though, the eye darts around from one point of fixation to another. A pastoral landscape allows the eye to glide relatively freely. This makes sense, as we want to be able to scan the landscape for food and safety. Many serene modernist spaces emulate this quality of void and calm, but too often without eventually rewarding that scan with visual interest. (See Figure 3.) De-structured space, then, needs to avoid creating strong centers, so that the eye keeps roving, scanning the scene as in nature.

Edges: Perceptual Overlaps or Neutral Frames

Working in structured space a designer will usually make a border that takes into account both the area it bounds and the centers near it. The border gives a feeling of harmony and care. The bounded area and its border very often make a larger center in a larger composition. A wide, bold frame around a picture can both set the picture apart and ingratiate it into the room with the other furnishings. These borders help to make wholes out of parts.

Although there are some visual borders in living things, such as hostas' leaves or leopards' spots, borders in natural habitat rarely reconcile one part with another compositionally. Rather, things in natural habitat usually overlap each other, blur into each other, or abut, as rocks abut beach sand. One of the main ways that human beings help to differentiate things made by humans from nature is by putting borders around them. The de-structured space of modernism usually uses un-bounded areas that overlap or abut each other, as a natural habitat. It also often uses transparency and the thinnest of frames. It does this not to make us uncomfortable, but to open up to nature – whether real or imagined.

Modernism often seeks a "three-dimensional" quality, which means that things overlap or are transparent, so that one must move around the scene to understand it. By contrast, structured space often uses borders and visual prominence to make basic relationships legible at a glance. For instance, the cornices and corners of traditional buildings instantly elucidate their forms. De-structured buildings, though, often invite us to explore them by moving through space to find the exact bounds.

FIGURE 8. "APOLLO PAVILION REFLECTION" BY DOMMYLIVE. LICENSED UNDER CC BY-SA 2.0 VIA FLICKR

Non-Pattern: Naturalistic or Mechanical Repetition

Structured space adopts and enhances some of the qualities of living things. One of these is alternating repetition. Foliage often alternates leaves with voids, for example, but structured space often extends this into an A-B-A-… rhythm or a more complex one. This helps to mark structured space as specifically human. It's probably not coincidental that it can often give us a soothing feeling. We have made simple, presumably reassuring, alternating rhythms since cave-painting days.

De-structured space, however is different. Certainly living things in it, such as foliage, have some alternating rhythms. At the larger scale of the habitat itself, though, the landscape rarely alternates. It generally has quasi-random patterns like trees dotted across a meadow or like a rock outcropping. Other than that, it generally has all-over patterns like tall grasses on a prairie. Modernism usually adopts one of these two

approaches: either naturalistic patterns like random flagstones or all-over patterns like grids on walls. It usually avoids alternating repetition. While a mint plant, for instance, will have leaves that repeat in alternating orientations on the front-back and right-left side of a stem, de-structured space is artful. Thus, the plants in a classical Japanese garden may be carefully trained and clipped into a precise asymmetrical gesture. It is true that in a trivial sense the joints between wall panels, for example, alternate with the wall panels. However, every care is usually taken to avoid creating an ornamental effect in which there is any sense of exchange between the joint and the thing it joins. In the best cases, this allows modernist design to create a sort of neutral field on which other, more important, design elements can be vignetted. (See Figure 5.)

Unbounded Space: Flowing or Unformed Space

Things that have wholeness seem like entities in themselves. They have personalities of their own, almost like living things. They are usually generally convex, bounded, and whole in themselves, even though they also have deep interlock. When positive space indicates that human-made spaces are human-made, this enclosure is reassuring. Thus, native settlements in the Amazon often contrast very strongly with the green wilderness around them – e.g. by taking a clear circular form.

Spaces in nature, though, including pleasant habitat, are generally un-bounded. Certainly living things in nature embody positive space, but they exist within an unbounded space. We probably prefer such open habitat for a reason. Narrow spaces in nature, like gorges, are often dangerous because one can't get out. Modernist design often imitates this kind of flowing space. It is usually most successful in nature, where its artful de-structured blends with the natural unstructured space it imitates. (See Figure 1.)

Irreducibility: Fractal Parts or Mute Simplicity

Structured space is usually simple at the smallest scale. Human-made things can usually be broken down into elementary parts that are simple in form. Things with "good shape," as Alexander calls it, are elementary in form at a fine scale. There's usually some imprint of a tool. More importantly, there's usually the imprint of a human decision – to make some mark or some simple detail.

However, natural things – especially living ones – are generally detailed down to microscopic scale. There is almost always some finer grain of detail. It is usually fractal – be it the intricacies of living things right down to the limit of perception or the detailed grain of minerals. Modernism usually does one of two things. It sometimes reproduces this fine detail, as with the imprint of a textured board in the cement of beton brut. One can zoom in repeatedly without seeing a final, simple, clear shape. More often, though, modernism has a plain texture, such as a plain wall. This plain texture acts as a foil to nature, dramatizing it. A potted fern can thus animate a large room. De-structured space, then, either imitates natural fractals or is smooth and mute.

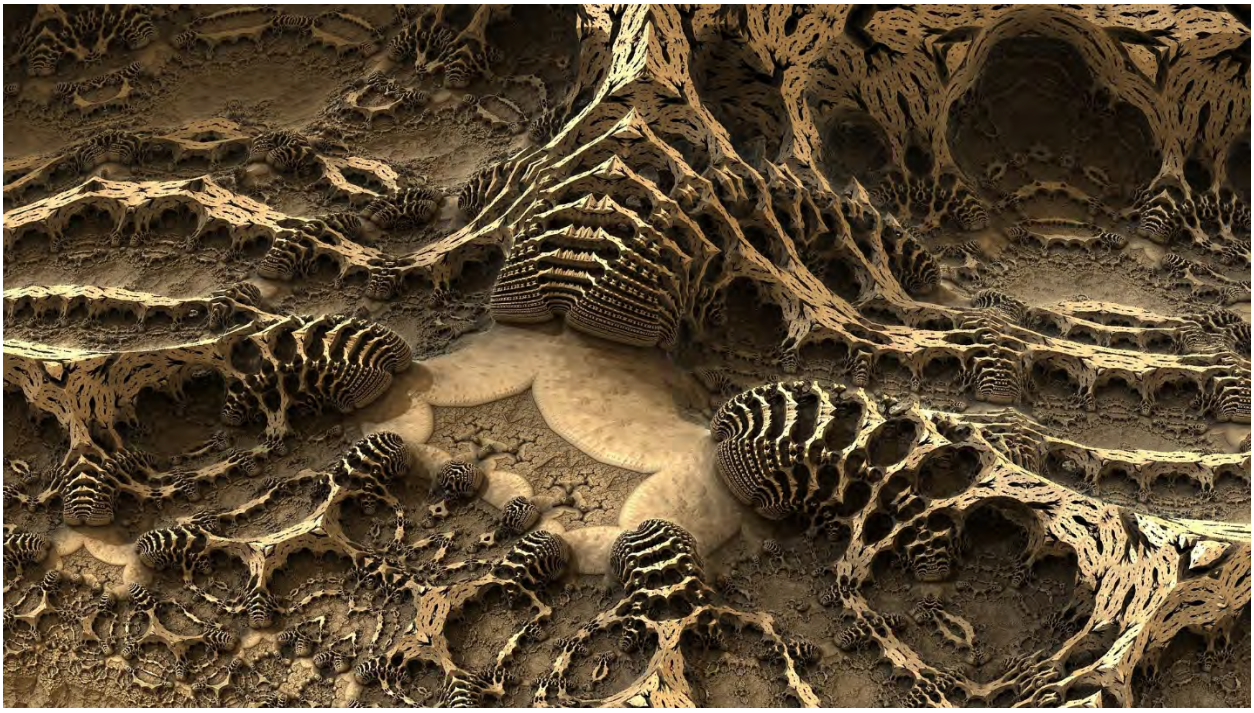

FIGURE 9. "FRACTAL BONES CAVE FOSSIL RENDER" BY PETELINFORTH - LICENSED UNDER CC0 1.0 VIA PIXABAY

Clarity of Figure: Distinct Foreground

When human beings design things to join the rest of the world, we consider what is or might be around them. We might echo the color of the trees in a cabin's walls, for instance, or ensure that a necklace drapes flatteringly. In structured space, we like things to "go together." Alexander called this "deep interlock." It is not necessarily a matter of having an interlocking edge within a certain design, but of echoing or achieving careful symbiosis with surroundings in any number of ways.

This sometimes happens in nature. Sometimes, when we look at the sky between trees, we notice that the younger trees have grown into the spaces between the older ones – a sort of interlock. Nevertheless, good human habitat is usually extremely clear to the eye. We need to be able to pick out figure from ground, and tell when something is out-of-place. In fact, in nature "deep interlock" becomes "camouflage," which can be frustrating or dangerous, depending on the situation. Of course, camouflage is *present* in

ideal human habitat, but it is not desirable for survival. De-structured space is usually at a best when it avoids deep interlock. In de-structured space, design elements are usually clearly separate from their background. Instead of making sure things "go with" each other, the usual approach is to ensure that they contrast. Modernism provides a blunt background for foreground elements – or people.

FIGURE 10. "BARCELONA PAVILION" BY EMPOOR. LICENSED UNDER CC BY-SA 3.0 VIA WIKIMEDIA COMMONS

Contrast: Unity through Difference

Good human habitat and good human-made things are not quite opposite, because they share some characteristics. What Alexander called "contrast" is the first item in the list that is in both structured space and de-structured space. Contrast is more than just

contrast of color. It includes other kinds of contrasts, like contrasts of contour and materials. In both good human habitat and in good human-made things, contrast helps us to distinguish figure from ground and to distinguish things from each other. In the case of good human-made things, contrast works with deep interlock, good shape, and the other characteristics to create a more holistic whole. In human habitat, contrast supports clarity of figure, unbounded space, and clarity in general. (Most of these diminish camouflage's effectiveness.)

FIGURE 11. "HOOVER BUILDING FRONT" BY EWAN MUNRO. LICENSED UNDER CC BY-SA 2.0 VIA FLICKR

Both structured space and de-structured space have plenty of contrast, but for different reasons. Modernism tends to use clear figure/ground relationships to separate people and things from their context. For example, the Barcelona Pavilion by Mies van der Rohe uses the flat geometry of polished stone to contrast with Georg Kolbe's fully

modeled statue of Dawn. In modernist art galleries (as opposed to old painting galleries), the walls are often stark white so that colorful art will seem to float free. This is similar to the way, for example, a lone tree is silhouetted against a savanna's grass – or shimmering water shines through reeds. Modernism revels in de-structured space's clear separation of figure and ground.

Gradients: Ordered Fields of Variation

The second item shared between structured space and de-structured space is "gradients." At the same time that bright contrast rivets the eye in both good human habitat and in good human made things, it can overwhelm us. It tends to create a sort of bipolar effect. In both cases, we like a bit of softness as well – some gradation between white and black; some variety of contour. In fact, when contrasts are too stark, our perception can grow dull and in extreme cases we may suffer from e.g. afterimages.

FIGURE 12. "ROOM DE LUXE" BY DAVE SOUZA. LICENSED UNDER CC BY-SA 2.5 VIA WIKIMEDIA COMMONS

Our perceptual systems seeks out gradation. Perhaps it rests our eyes and other senses, which must constantly compensate for loud and soft sounds, brightness and darkness, and so forth. A well-graduated visual composition or piece of music soothes us a little by covering the whole range. Modernism, despite a tendency to celebrate strong figure and ground, very often benefits from modulated colors, textures and contours.

Naturalness: Reflecting Real or Imagined Necessity

De-structured space has careful naturalness, which is different from what Alexander calls the "Roughness" of structured space. One of the main ways that we judge whether someone has made good structured space is whether its details are small and carefully considered. In fact, this quality is often lampooned in the image of a naïve museum-goer who strides up to a massive painting in order to marvel at the brushstrokes. This

boorishness is understandable, since we value such *care.* Alexander's term, "roughness" doesn't quite capture this quality. It is only "rough" in the sense that it isn't mathematically precise. When someone puts something exactly where it feels right, this is actually a kind of precision.

By contrast, the flora, fauna, and minerals in good human habitat *are* placed imprecisely to the human eye. Certainly, a plant growing in the shadow of another takes a precise shape, but we don't perceive it to. Unstructured space has a naturalness to it. Modernist de-structured space tends to imitate this natural quality: things simply being where they have to be. From a modernist perspective, careful visual composition is "fussy" or "unnatural," which is to say that the main reason things are where they are is to ensure that parts correspond to each other. Some early modernists admired Japanese flower arrangement, in which as few as three stems can give a natural, unstudied feeling. Such artful imitation of nature is one of the ideals of modernism – particularly of early modernism.

FIGURE 13. "RIETVELDSCHROEDERHUIS" BY STEINBACH. (CROPPED.) LICENSED UNDER PUBLIC DOMAIN VIA WIKIMEDIA COMMONS

Echoes: Unity through Resemblance

Another, third, property that structured and de-structured space have in common is what Alexander calls "echoes." Either space has "echoes" when one thing takes on some resemblance to another thing. For instance, a window often resembles a door, or a plate often resembles a bowl in the same set. Sometimes the shape of a building echoes its entrance, or a lake has a curve similar to a hill rising over it. Such subtle echoes pull together both designs and natural environments in our perception.

FIGURE 14. "MOSCHEA DI OMAR (DOME OF THE ROCK) - GERUSALEMME" BY GIOVANNI FROM FIRENZE, ITALY. LICENSED UNDER CC BY 2.0 VIA WIKIMEDIA COMMONS

In modernist architecture, this is sometimes meant to look accidental, such as when a rectangular entrance echoes the boxy form of its building. Sometimes it is deliberate, as when a circle-and-square motif of a carpet echoes the circle-and-square motif of wall sconces. In both cases, de-structured space has plenty of echoes. Modernist designers and traditional ones both consider this sort of "echo" to be a good design choice. One major difference, though, is that traditional designers often deliberately share motifs in order to echo between buildings and other designs. Traditional buildings on a street will echo the same forms from one to the next, and traditional home furnishings and art will tend to echo each other too. In modernism each work tends to take advantage of the void and of contrast, to set itself apart. In modernism, different works are generally not *supposed* to fit in.

The Void: Empty Foil

Alexander calls the fourth quality shared between structured space and de-structured space "the void." This is often literally a void, but can just as easily be some other sort of buffer between the elements of a design. In good man-made things, then, the "void" isn't necessarily (or even mainly) as literal as the hollow of a vessel. It can be the compositional space against which its decoration is set. This can be the pictorial void, but it can also be the white space. In music it can be silence, but it can also be a consistent rhythm.

Clearly, nature has "the void" in the form of empty space, but it is probably either *too present* or *not present enough* in natural habitats that are not ideal for growing and catching food. A desert or tundra, for instance tends to have too much, and a dense forest tends to have too little. This un-formed space sounds as if it might be the opposite of *positive space*, but it isn't quite. "Positive space" is about the shape of the space, whereas "the void" is about how full it is. A quintessential Victorian room crammed with furnishings will have positive space, but will have a weak void. On the other hand, a prairie with a big sky may have a strong void but weak enclosure. Modernism and traditional design both tend to use the void to advantage.

FIGURE 15. "CHINESE COURTYARD IN THE STYLE OF THE MING DYNASTY, METROPOLITAN MUSEUM OF ART, NYC, USA 2012 7" **BY WESTPORTWIKI - OWN WORK. LICENSED UNDER** CC BY-SA 3.0 **VIA WIKIMEDIA COMMONS.**

Inner Calm: Simplicity

The fifth and last quality shared between structured space and de-structured space is a sense of inner calm or inner simplicity. This "inner simplicity" suggests both compositional simplicity and also a coherent personality. A Chinese drawing of a dragon may be highly complex, but have such a clear personality that it has inner simplicity. A very complex Gothic cathedral can have inner calm.

FIGURE 16. "GEPPA-RO" BY RAPHAEL AZEVEDO FRANCA - OWN WORK. LICENSED UNDER PUBLIC DOMAIN VIA WIKIMEDIA COMMONS -

Good human habitat, of course has such inner calm. It will be soothing. This soothing quality is very different from, say, rocky peaks and other wild places. Those have a sense of grandeur or even fear. Modernism often achieves a certain inner calm or simplicity. For example, the Guggenheim in New York has a very complex composition, but it feels unitary in personality. Unfortunately, in unskilled hands, inner calm can turn faintly chilling, rather than calming.

Self-Containment: Sharp Edges

Good human-made things have a sort of echo that extends beyond themselves into their environment, or a certain exchange with it. Alexander calls this "not-separateness." Perhaps we can say that this quality is common to both good human-made things and

good human habitat, but things in good human habitat also tend to have a quality of self-containment. *Not separateness* does not mean that things are not physically contained, feathering out into their surroundings. Rather, it means that they have some echo and interlock of centers with what is around them. A Swiss chalet, for example, may echo the lines of the landscape around it.

Good human habitat, of course, is *not separate* in this sense. However, we like the things in the habitat to be distinct. Scale jumps, edges, non-patterns, and clarity of figure all tend to create a feeling of clarity. De-structured space tends to be more about separation of figure and ground, etc. than about continuity. However, many of the most successful designs of de-structured space – Fallingwater, for instance – do have a sense of not-separateness.

FIGURE 17. "SALK INSTITUTE" BY THENOSE. LICENSED UNDER CC BY-SA 2.0 VIA WIKIMEDIA COMMONS

Modernism and Traditional Design

Design, traditionally, has been full of structured space, and has only included de-structured space relatively recently. De-structured space usually makes an excellent setting for the former. Modernism uses de-structured space almost exclusively – and all traditional design uses structured space. The dichotomy goes by several names. For instance, Steven Kent Peterson approached roughly these same types of space *anti-space* and *space,* respectively, in 1980.(Peterson, 1980) The difference is that he was concerned with volumetric space, as in a volume of air. The current discussion is about the compositional space of design. Moreover, "un-" sounds more diplomatic than "anti-."

Structured space has some characteristics that are commonly found in plants and animals (e.g. local symmetries) but that are not found at the scale of a whole habitat. Structured space is mainly characterized by *not* appearing natural. We're not likely to confuse an Ionic column, for instance, with natural stone. Structured space is *designed*, and we appreciate when the designer and makers use conspicuous care. De-structured space often requires a great deal of care to execute, but it is usually meant to look effortless. Thus, structured space doesn't require the same specific, subjective posture to appreciate. Structured space is usually considered more "accessible." In any case, we have lived with structured space longer than we have with naturalistic de-structured space's imitation of idyllic habitat.

Beginning with picturesque art, or perhaps with Chinese strolling gardens, evocations of unstructured space have entirely different characteristics. These evocations are made of de-structured space. De-structured space is *not* the opposite of structured space. Rather, the two share some characteristics. They are both highly-designed. Moreover, the two can enclose each other. A picture gallery may consist of full, structured space with local symmetries, a full ladder of scales, and so on. But the pictures can be naturalistic, unstructured. Likewise, a picturesque landscape – e.g. Central Park in New York – can include structured space, like Bethesda Fountain's. The ideal is like the dot of yin in a field of yang, or vice versa.

De-structured space is excellent for framing and highlighting structured space. Structured space, like a folly in a garden, can use it as a foil. It takes a certain aesthetic posture to enjoy. When we make de-structured space, we make something at least a little "naturalistic." It is not nature, but it evokes nature. In fact, the naturalistic takes a great deal of skill to pull off. In exchange for a sort of aesthetic retreat from the everyday, it can heighten our appreciation for carefully put-together structured space. So even though nobody would confuse Wright's Guggenheim with an artifact of nature,

there are many details by which design elements communicate that they "just happen" to be there. For instance, when the spiral ramp penetrates the vertical core, it is saying, "I just happen to be sailing through this volume."

This posture, though, is very difficult to pull off routinely, and it requires active participation from the viewer and user. The posture is rarefied enough that if more than a tiny amount of structured space can collapse it. De-structured space can easily engender a feeling of aloofness, which is appropriate since it is descended from nature. We must align ourselves with certain intellectual and aesthetic postures in order to grasp, let alone enjoy, many de-structured works.

The lineage of de-structured space, incidentally, may well date to Chinese art, particularly strolling gardens that began as hunting gardens. If so, picturesque de-structured space entered the Western imagination through English gardens and Chinese export goods by imitating actual human habitat explicitly. Certainly, de-structured space was virtually unknown in the West prior to these imports, baroque naturalism, and picturesque art – all of which have sometimes been traced to Chinese art.

These two types of compositional space are not quite opposites of each other, and they can complement each other. A very literal example is Stowe House in Buckingham, UK. It consists of a grand house of pure structured space surrounded by a naturalistic park of archetypal de-structured space dotted with follies of structured space. The follies help the visitor get into a particular romantic frame of mind with which s/he can appreciate the naturalistic experience better.

It is rare to find such a grand example of the opposite: de-structured space within structured space. However, the first modernist building in a traditional street can usually count on the street to function as a foil. The modernist building is stronger,

then, for being simpler – for being whatever the traditional street is not. An ambiguous example is the Kimball Museum in Fort Worth. It seems traditional in its overall symmetry and its basic language of arches and vaults. However, if we check off items in Table 1, most of the checks will be on the unstructured-space side. One reason it succeeds as a museum is that it tends to vignette the artwork, as de-structured space does.

Reconciliation

We can, perhaps, consider some rules for combining structured space and de-structured space.

General

1. De-structured space and structured space should generally only use each other as foils. When they compete in like amounts, the results are generally unattractive.

Urban and Rural Space

2. The urban space of streets and squares should generally consist of structured space, since flowing de-structured space doesn't articulate public and private territories well, or reassure people they are cared for. In streets and squares, building facades should enclose streets, creating positive space.
3. Structured-space buildings should echo each other recognizably, so that they work together to form a greater whole. De-structured space should not be allowed to undermine this continuity.
4. De-structured space can, however, use surrounding urban structured space as a foil: Central Park in New York, for instance. To do this, it must be enclosed by structured space.

5. Likewise, rural space should usually be de-structured space. Where the roadway is unencumbered by emphatic vertical structure (street lights and traffic controls) it can take on the qualities of de-structured space. It can be literally pastoral. This space is open and flowing, and somewhat aloof – which is appropriate to a place where one is usually out of sight of others.

Structured space

6. Structured space should obey conventions. It has a grammar that can be shared between similar designs, even across different fields of design, such as architecture and pottery.
7. Structured space should be treated as a medium for expressing care. Most of its qualities require human attention at every scale – though this doesn't necessarily imply expense.
8. Structured space should always impart a human scale. While "human scale," specifically meaning the inclusion of a full range of scales, including the range of sizes around the size of a standing human being. A one-story building consisting of flush-mounted slick glass and doors 9 feet high is *not* human in scale, whereas the Empire State Building, with its attractive and welcoming shops and entries *is.*
9. Spatial boundaries should usually consist of structured space. Structured space uses positive space and definite boundaries routinely, whereas de-structured space should flow freely, allowing relatively free movement.

De-structured space

10. De-structured space should be naturalistic, in the sense that it should appear to *just happen to be* a certain way. This takes a high level of artfulness to achieve, and usually takes a sort of willing disbelief on the part of the user or viewer. It requires a willing subjective stance.

11. De-structured space can often split into a frame and a free element. In Figure 4, the pergola is a neutral frame for the free foliage. In Figure 5, the gridded façade recedes behind both the reflections in it and the pseudo-random shades and lights behind it. In Figure 16, the neutral grids of shoji and wood structure provide a strong contrast with the natural landscape beyond. This neutrality withdraws a building or other work from aesthetic contention with nature. It is in this sense modest – as long as the viewer or visitor maintains the requisite refined aesthetic stance.
12. De-structured space should provide physical and psychological comfort. It is not based on the space of arid desert or vast tundra. It is based on the space of welcoming habitat – with water, shade, and safe repose. It should not be cold, astringent, threatening, or psychologically raw.
13. De-structured space should often give structured space breathing room, by inserting little naturalistic gaps. Small Japanese gardens are famous for creating a natural feeling despite spatial constraints. But the effect can also be used inside buildings. As originally built, John Portman's Westin Peachtree Plaza used an indoor pond essentially to pry open the space within its lobby, so that the lobby seemed to be floating in de-structured space.
14. People should be given the option to avoid de-structured space in urbanism, architecture, and in public interiors. These forms of built de-structured space are rarely appreciated by the general public, even though they get used to them. While designers can shift their mental stance to appreciate built de-structured space, the public rarely can.

Education

15. Structured space is generally created using simple but rich rules, and these rules should be promulgated to benefit designers who have been so steeped in de-

structured space as to be incompetent to produce structured space. Designers need to be able to default to structured space.

16. De-structured space is difficult to master. The success rate is abysmal. Therefore, it should only be deployed by people who know how to do it.

Conclusion

De-structured space and structured space are two different ways of composing space, generally aligned with modernism and traditional design, respectively. They are not quite opposites of each other, but are very different from each other. De-structured space can feel aloof and open, while structured space is contained and expresses care. These two types of space can be combined if one is a foil for the other. Generally, de-structured space should be used in rural places or where it doesn't impinge on the urban realm. It should also go back to its roots, so to speak, in the pastoral landscape – to impart a feeling of repose and comfort. Structured space should be used in the urban realm, and anywhere that multiple buildings and other works have to be unified into a whole. It should be the first choice for the public, who are rarely prepared to adopt the subjective posture necessary to appreciate de-structured space. If we understand these two separate qualities, we may be able to create better design.

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