Limits to Subjectivity in Aesthetic Judgments of Architecture

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Abstract

Modern day aesthetics aspires to the status of science. As such, the subjectivity that has been traditionally connected to all matters of aesthetic judgement and the whole notion of "taste" is brought into question as one cannot conceive a science without objective results. The debate is ongoing as to whether we can talk of the notion of beautiful as absolute or we should refrain to the more palpable notions of proportionate, harmonious, pleasing, adequate or even functional instead. From the philosopher's point of view, attempting to define an absolute notion of beautiful, regardless of the individual, the cultural context and the age is almost futile. There is no argument that, to some extent, something that is beautiful for some people might be ugly for others but more and more researchers postulate that there actually is something that transcends the boundaries of culture and geography and that some beautiful objects are accepted as such instinctively, even by those not belonging to the same cultural group. The main problem therefore is to define the limits between what is beautiful to some and what is beautiful (or at least pleasing) to most, if not all. Obviously this is not an easy task and this paper does not purport to achieve it but it does attempt to prove that such limits actually exist, that they are defined not by cultural context (as they are cultural universals by definition) but by the very laws of pattern in nature, patterns that we instinctively recognize as beautiful because they are a mixture of order and variety, of algorithm and diversity. The Latin adage "de gustibus non disputandum" itself is actually no more than a recognition of a dead end when neither of the two can convince the other of his arguments in favour or against an object as being considered beautiful and they "agree to disagree". It only follows a debate between the two where they actually question each other's taste in the first place.

Rezumat

Estetica de astăzi aspiră la statutul de ştiinţă. Ca atare, subiectivitatea asociată în mod tradiţional cu toate aspectele judecăţii de valori şi chiar noţiunea de "bun gust" sunt puse sub semnul întrebării deoarece nicio ştiinţă nu ar accepta lipsa obiectivităţii în studiile sale. Există o dezbatere tot mai aprinsă dacă putem să vorbim despre frumosul absolut sau ar trebui să ne rezumăm la noţiuni mai concrete cum ar fi bine proporţionat, armonios, plăcut, adecvat sau chiar funcţional. Din punctul de vedere al filosofului, a încerca să defineşti noţiunea de frumos absolut indiferent de preferinţele individuale, de contextul cultural sau istoric este sortit eşecului. Indiscutabil, ceva ce unora li s-ar părea frumos, altora li s-ar putea părea urât dar tot mai mulţi cercetători afirmă că există totuşi elemente care transcend graniţele culturale şi spaţiale şi că există obiecte acceptate ca frumoase chiar şi de cei care nu aparţin culturii care le-a creat. Principala problemă este astfel să definim limitele dintre ceea ce este frumos doar pentru unii şi ceea ce este frumos (sau cel puţin

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plăcut) pentru cei mai mulţi dacă nu pentru toţi. Desigur, acest articol nu pretinde să găsească aceste limite ci doar să indice că ele ar exista şi ar fi definite nu de contextul cultural (fiind nişte universale culturale) ci de legile naturii care guvernează apariţia formelor şi modelelor la plante şi animale, modele pe care le considerăm intuitiv frumoase deoarece ele rezultă ca o mixtură între ordine şi varietate, între algoritm şi diversitate. Dictonul latin "de gustibus non disputandum" este şi el fals, este doar recunoaşterea de către unul dintre interlocutori a inutilităţii continuării unui discurs care are ca scop convingerea celuilalt de faptul că un obiect ar fi fost frumos sau urât. Discuţia este de multe ori una aprinsă, iar când argumentele nu sunt convingătoare pentru a schimba opinia celuilalt, cei doi sunt de acord să rămână cu părerile lor.

Keywords: architecture, aesthetics, subjectivity, taste, beauty.

1. Introduction

By talking about aesthetics, we inevitably talk about beauty and taste. But what exactly is beauty? It is certainly one of those notions that we operate with instinctively, we all know what we mean but it is somewhat hard to define, just like art, for example. The more you try to define it, the more inconclusive it is and counterexamples emerge.

For sure, beauty has been the ideal of aesthetics, just like good has always been the ideal of ethics and truth the ideal of logics. These three branches of philosophy coincide with Kant's writings - *Critique of Pure Reason*, *Critique of Practical Reason* and *Critique of Judgement*. Of these three, the latter deals for the first time with the concept of aesthetic judgement and tries to define it somewhere between the totally subjective outcome of *agreeable* (to the senses) and the totally objective outcome of *good* (from the moral standpoint, there is only good or bad, regardless of the subject). Therefore, the notions of beautiful and sublime, though subjective in nature, would always feel like universal, like all others ought to feel the same about them, like they are common sense. The difference between the two would be that sublime is awe-inspiring and even frightful, though not necessarily intended to be so. For example man's work was always thought to strive for beauty whereas nature would be ideally sublime. For Kant, the aesthetic judgement is based on the "free play" between the cognitive powers of imagination and understanding [1].

Indeed, beauty is hard to define because the perception of what is beautiful seems to have changed a lot during the ages. Nowadays, even the objectivity of moral facts is called into action as what seems morally viable to a cannibalistic society in the Pacific is certainly unacceptable to us, but that is a different matter.

As far as beauty is concerned, there has never been a strong opinion regarding its objectivity across the ages and cultures of the world. A Japanese Geisha or Sumo warrior, while they have been idealized in their specific cultural context, don't strike us as particularly beautiful nowadays, just like Rubens ideal of beauty in women seems outdated. However, we can still regard Rubens' paintings as beautiful, just like Bach's music and that is particularly intriguing. In fact most of the things deemed beautiful seem to have withstood the test of time while most principles of beauty have sooner or later been disproven.

This difference between what is the ideal of beauty now and what is still thought to as beautiful across the ages is actually the difference between the fields of architectural theory and aesthetics. The first deals with "recipes" of beauty and most architectural movements have adhered to such recipes, starting from Vitruvius and the Ancient Orders, until the Renaissance and Corbusier's principles [2:4]. But what strikes us is that it is not that recipe that makes the building particularly

beautiful, despite the instinctive belief it does. That is why we can call the Parthenon, Nôtre Damme of Paris and Falling Water House beautiful even though their recipes totally differ. That only means that beauty resides somewhere else and that is what concerns us more here.

2. Aspects of beauty. Nature. Harmony and chaos

So it is a fact that cultures all across the world develop these ideals of beauty and they attempt to justify them sometimes morally, sometimes even scientifically but it is the diversity of cultures that leads us to believe that there is no single (or simple) answer to the question of what beautiful should be like, nor should we attempt to think so deterministically. Nor is there an easy recipe to develop beautiful things and therefore we should not attempt to create beauty that way.

It seems the creation of beauty falls under what Kant called the Faculty of Genius and is in some ways the exact opposite of the judgement of beauty that is merely an analysis of the object [3:189].

So, in returning from the abstract to the palpable, what would be some characteristics common to beautiful things and how can that be illustrated in architecture?

First of all, all cultures regard nature as the source of all beauty. Nature is, as stated before, sublime, awe-inspiring like a thunderstorm or the rough seas or a volcano that are frightful and point to the fact that man is but a very small entity in himself. But nature is also serene and pleasing to the senses, it also gives comfort to man and inspires him in his artistic endeavours, in other words it is *harmonious*. Man has always copied nature in what ancient Greek philosophers called a *mimesis* effort.

But why would nature be thought to as beautiful? Is it perhaps by force of habit that we have come to idealize it? Isn't this the reason that most people tend to choose pictures depicting a mixture of grassy and tree like vegetation rather than dense forests or inhospitable deserts? Perhaps, but this is only one possible answer. The other lies in the way we interpret the sensory information we perceive around us and we will return to that later on.

For now let us concentrate on what aspects of nature we find to be the sources of beauty. First of all, as mentioned before, nature is harmonious. A cherry flower will resemble all other cherry flowers in shape, colour and size, thus creating a harmonious composition with all others. Obviously this signifies that nature obeys a set of rules that defines all cherry flowers even before they bloom, scripted in the DNA. These rules or algorithms are found all over nature, from plant phenology to bird singing and are the reason we can understand nature easier. Our brain uses this resemblance to code the information and we can actually simplify the scene by instinctively associating the silhouette of the blossoming cherry tree with the close-up of a detailed cherry flower and it gives us the notion of scale.

For practical reasons, our brain sees all cherry flowers as the same at the macro level but the beauty is that, when closing in, we can actually see very clearly that all flowers differ. This provides enough information for the composition to be interesting even on a closer look. There is only a maximum amount of information our brain can take in, so the flowers resemble themselves at a distance where one is more focused on the number and type of trees, but the flowers are never the same because there is also a minimal amount of information our brain needs in order to deem a scene worthy of our interest. Anything shorter than that and we immediately deem it as boring.

This points out to the fact that we enjoy the order of harmony but we dislike the excess of uniformity and monotony. Nature is nowhere uniform or monotonous and these are only the effects

of oversimplification and are the attributes of man. As Boethius defined it in the Middle Ages, harmony is "a unified concordance of sounds dissimilar in themselves" [4:21].

We understand symmetry but we prefer variation in the form of imperfect symmetry. Symmetry is not perfection but the oversimplified version of imperfect symmetry as found in nature. Indeed, no tree is perfectly symmetric and not even man is symmetric but only gives the illusion of symmetry. It is this variation that ensures our interest in nature. If all trees were the same, landscape would be pretty boring.

Nature does not obey strict geometric rules, like the way we construct our buildings after a predefined blueprint. Instead, nature has a flexible set of rules, allowing for adaptation and survival. If a solitary tree grows on a flat plain, it is more likely for it to grow straight, whereas if it grows on a mountain slope or among other trees, it will likely twist in order to achieve better illumination for its leaves. And these rules are far more interesting for the eye than oversimplified geometric designs.

True, there are proportions in nature, like the golden rule or the golden angle of $137,5^o$ that is found in leaves and seeds and ensures they benefit from most sunlight but these rules vary if the context requires and, due to their "irrationality" like in the case of the golden angle, ensure that no stems actually overlap each other. The geometry, although very simply generated, is very complex to look at but also quite uniform and thus beautiful. Also it is very interesting to note that the golden angle ensured the best disposition of seeds in the case of the sunflower, with minimal overall space needed for maximum distance among all seeds (fig. 2 below). Note the spirals generated in consecutive Fibonacci numbers in this case 34 in one way and 21 in the other.
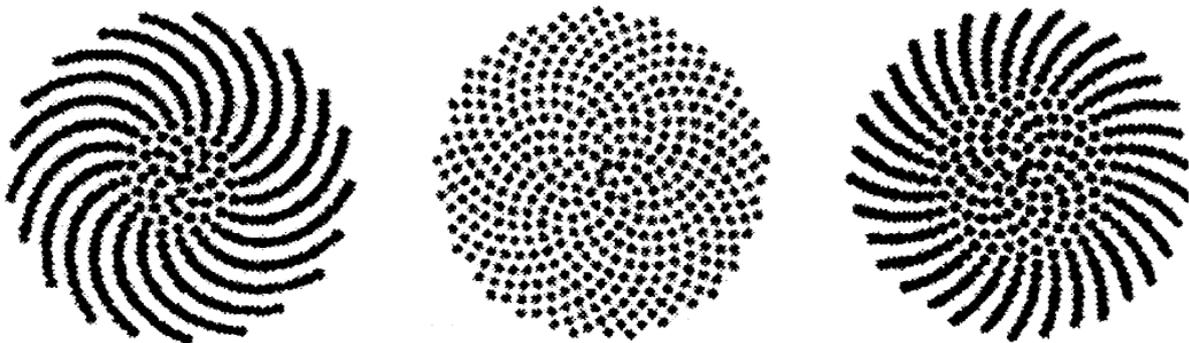
Figures 1-3. Computer simulation of seed disposition in sunflowers. 1 - $137,3^o$,   2 - $137,5^o$,   3 - $137,6^o$

Also, nature follows the rule of fractals where shapes are generated by self-resemblance. The part is similar to the whole would be the main rule of fractal geometry. Fractal shapes found in nature vary from fern leaves to trees and mountains and from snail shells to human kidneys and lungs. These self organizing patterns are, as mathematician Ron Eglash puts it, "robust algorithms found in the human brain, Google search engine [...] the ethical power of democracy, but also in some bad things, like the HIV virus, capitalism and communism" [5:197]

But nature also seems chaotic at times. Weather is, by definition unpredictable. However there is no reason to believe that clouds form without a reasonable cause. In fact it is quite the opposite, they clearly obey the rules that govern our atmosphere but those rules allow for huge differences in effects for minor differences in causes. It is what Edward Lorenz has called *the butterfly effect* where, theoretically, a butterfly flapping its wings above the Indian Ocean could cause a massive hurricane above the Pacific two weeks later.

This is the basis for chaos theory which, surprisingly, is not about chaos but about seemingly

chaotic effects. These effects are unpredictable because the variations in effect are a lot higher than the variation in causes. On a larger scale, nature seems chaotic but, as we know and instinctively understand, there would be no reason for nature to not obey some specific rules in the way it turned out to be. It is just that because the rules are so complex and the effects so varying that we could not predict beforehand how nature would develop. And that is another fascinating aspect of nature for us and a reason for its complex aspect.

This is why no two mountains look alike and why we love to go hiking more than just one time. This is also another aspect of nature that we try to emulate in our works of art - namely the complexity that derives from seemingly simple rules.

So harmony is a fine balance between order and variation, between sameness and uniqueness, between simple and complex. In music for example, as Peter Smith noted, "in the tonic chord of G-major there is a significant level of clash between the wave profiles of the notes, but the rate of overlap or synchronisation exceeds the rate of clash, so order succeeds in outweighing complexity. In this one chord is played out the archetypal battle between order and anarchy" [4:21].

To sum up, it seems that, regardless of culture, people would embrace a composition featuring this apparent battle between order and complexity, in which order has the upper hand and turns out tryumphant but not by destroying the complexity but by showing it has a higher purpose.

3. Architectural aspects

As Allen Carson states, any movement away from pristine nature takes one into the world of landscapes, countrysides, farmsteads, and beyond. Any movement away from pure art brings one to architecture, industrial design, commercial art, and all the varied applied arts [6:134].

Nature can provide inspiration in both function and aesthetic forms that architects should use as a basis for their plans [7], but it is clear that art differs from nature and that natural and artistic beauty are two very different things. Man cannot influence nature without it turning into anthropic landscape.

Furthermore, architecture cannot be judged with the same measure as all other arts. That is not to say architecture is inferior to them, although many philosophers have stressed that point of view, Schopenhauer and Hegel to name but a few. But, as Roger Scruton postulates, architecture is proof that a general theory of aesthetics, applied to all arts, is very hard to undertake if not doomed to failure right from the beginning. The features distinguishing architecture from all other arts, are, according to him: *function*, a highly *localized quality* or context, the *technique* employed and the fact that architecture is by definition a *public art* [2:5-19].

To him, architecture is primarily a vernacular art, it exists mainly as a process of arrangement in which every normal man may participate, and indeed does participate, to the extent that he builds, decorates or arranges his rooms [2:16]. I would further add that architecture sometimes does not have a definitive end form like a painting or a sculpture but may evolve throughout its lifetime, according to the needs of its inhabitants. It is also true that our perception evolves but, in the case of architecture, its form does too. In a way it is, and needs to be, just as flexible as nature that constantly adapts. This is precisely why poor quality architecture ages bad and is abandoned.

As another parallel to nature, in historical cities, most buildings adhere to the same aesthetic principles for obvious reasons (of historical and cultural context, building material tradition etc.). This is similar to the cherry flowers resembling themselves and gives an atmosphere of unity to the

city landscape overall. In the apparent chaos that is the urban tissue, this is a coherent factor, apparent even from aerial views.

The closer we "zoom in", though, we find out that no two buildings look alike and that the composition is marked by a struggle between the factors of unity (perceived beforehand) and those of complexity, residing mostly in the degree of detail of each building, in the disposition of windows, sometimes in the colour of the facades, in a word - in the personality of the owners.

For this reason historical city centres are so appealing to us even centuries later, because they explicit the same rules that govern nature's beauty: namely a conflict between cohesion, order and sameness, on one side and diversity, complexity and uniqueness on the other, with order taking the lead but only by a small measure, ensuring a continuous dialogue between the two opposing forces.

If we take the silhouette of Amsterdam, for example, we can quite easily discern a few rules of composition that are encountered repeatedly in most historical buildings namely: narrow frontage and deep plan, gables facing the streets, embellishment of gables to establish individuality and a high ratio of window to wall [4:41]. These rules make the composition aesthetically pleasing to the eye. Since most buildings date from different periods and architectural styles, the overall image is complex to the brink of chaotic. But the entropy level is kept in check by the factors of unity which ensure that the overall image is coherent and indeed aesthetically appealing.

It was perhaps considered a stroke of luck but, only recently have developers come to understand that the urban silhouette of Amsterdam is not so easily replicable by modern architects. Indeed experiments such as the Borneo-Sporenburg development have proved either that too much liberty exerted by independent architects leads to too much chaos in composition and the result fails to be coherent enough or, on the contrary, too many specifications lead to monotonous solutions, repeating the same exact solution over and over again [4:42-47].

This is obviously a recurrent theme in contemporary architecture where we see the architect or owner of the building striving to build a unique object that will represent them, a totally different notion than what was architecture until a hundred years ago when buildings adhered more to the cohesion of city-scape than to the vagaries of the builder (with a few notable exceptions, of course, like in the case of royal and noble estates or public buildings).

And, of course, the other big problem is the way we repetitively construct the same building as if it were a mass produced item, completely disregarding our natural "appetite" for uniqueness and complexity. First tendency assures a chaotic composition and the second one a monotonous one, both of them resulting in a poor quality space from aesthetic point of view (fig. 6, 7).

Figures 4, 5. Historical city-scapes of Amsterdam and Munster. In the first case, the degree of detail and complexity is just right; the second case sees post WW2 reconstruction with poor detailing and thus a monotonous overall effect.

Figures 6, 7. Two waterfronts from Borneo-Sporenburg development, Amsterdam.
The attempt to reiterate the historical urban tissue failed in both cases, firstly because all compositional rules other than the width of the facade were ignored, secondly because the same building was repeated five times with no variation in composition.

As we can see the aesthetic problems here come from the complexity of the aesthetic experience that we, as architects seem to fail to take into consideration. As Christopher Alexander summed it up, the inadequacy of many contemporary "design solutions" come from a combination of self-conscious aims with inadequate concepts. The unselfconscious design, on the other hand, is a product of evolution which responds to an unformulated cluster of desires and needs, an achievement unmediated by thought or reflection [2:28].

Whereas the vernacular designer had the whole baggage of experience of his ancestors, the contemporary architect always starts with a blank sheet of paper and is overwhelmed by the complexity of the task at hand. As Scruton sums it up: the study of design must provide us with better concepts - concepts which locate the true nexus of influences in the architectural problem [2:28].

So we have instinctively seen that an aesthetically pleasing architecture (from an objective point of view, dare I say) must be, like in nature, a mixture of order and complexity so as to be easily identifiable by the brain in terms of rules of composition but should, at the same time, be complex enough to arouse our interest, like a puzzle. Solving this puzzle is what gives all of us that joy that we call aesthetic delight. But these conclusions are more or less debatable without proof from some sort of scientific research, are mere opinions and nothing more, unless sustained by measurements and data.

4. The structure of the brain

In the second part of this article we postulated a first possible reason for our aesthetic pleasure with nature, namely the force of habit. The other argument, more scientifically based, lies deep within the structure of our most important aesthetic organ which is the brain. Neurobiology is employed nowadays by modern researchers to understand the intricacies of aesthetic judgements in a more scientific way than before. It is this relatively new field that will, hopefully, give us some of the needed proof for our findings in the previous chapter about architectural aesthetic delight.

The brain's structure is made of the two large hemispheres, connected with the *corpus callosum* and the underlying limbic system. The function of each of the parts of the brain was largely unknown until quite recently when M.R.I. studies have shed some light on the subject. The study of epileptic patients whose extreme treatment sometimes involved the severance of the *corpus callosum* made possible for the first time a thorough study of the two hemispheres so that we could understand the difference between them and how they respond to external stimuli [4:7,8].

Figure 8. Navon figure of letter S as formed by many letter F's.

As H. F. Mallgrave synthesises, the division of the two hemispheres includes: language and analytical skills [that n.n.] are to a large extent, although not exclusively, concentrated in the left hemisphere, whereas the processing of feelings, certain spatial skills, and the ability to grasp wholes tend to take place in the right. Many skills, such as the processing of sound, are carried out in both hemispheres, but music slightly more so on the right [8:132].

Differences between the two also included: the left brain tends to think in words, the right brain thinks directly in sensory images [9], the left brain thinks in series while the right one thinks in parallel and the left brain is more concerned about details while the right is mostly responsible for aprehending wholes. Beneath the two, the limbic system is responsible for most of our memories and emotions [4:8].

As such, in decoding an image such as the one in fig. 8, the right brain would immediatelly see the letter S as a whole while the left brain would see many letter F's. It is only by the combination of the two that we realize the navon figure contains both letters. It is a similar conundrum as not seeing the forest because of the trees.

Furthermore, it has been proven that aesthetically pleasing images must appeal to both hemispheres at the same time and sometimes even to the limbic system that is the seat of emotions. The limbic system is directly affected by bright colours and shiny objects, deriving pleasure from richness of colour and reflexions. Hundertwasser's architecture was deemed limbic for this very reason by Peter Smith [4:144,145].

As we can see, neurobiological findings only underline that an aesthetically delightful scene must adress all parts of our brain, have a certain degree of complexity that is however kept in check by rules of composition. The degree of detail should scale up with the object so that when we have a closer look, we encounter the same level of information as when we see the ensemble from a distance. This transcends all previous notions of style and representation and is more intuitive than explicit, that's what makes it harder to describe beforehand.

5. Testing for Results

Of course the best way to verify any such theory would be to put it to the test. There have been numerous tests along the years attempting to ascertain what is and what isn't aesthetically pleasing to people. I have taken the liberty to propose two such tests to the fifth year students at the Faculty of Architecture and Urban Planning in Cluj.

The first one was as simple as can be, I presented them with images of 41 different pairs of buildings and asked them to chose the one they like most out of the two. The 42nd and final question was to chose one of 10 different rectangles according to their proportion, among them the golden ratio rectangle. The difficult part was choosing the pairs so as not to compromise the results. Clearly, comparing a masterpiece of architecture with a communist block of flats would have very predictable results so I chose ArchDaily as the source for most images. I specifically looked for aesthetically pleasing images that featured both complexity and order as well as an increasing level of detail correlated with the scale of the object. For the counter-example I specifically looked for buildings that failed to exemplify these qualities, but still were depicted by ArchDaily to be notable examples of contemporary architecture. While not ideal in my opinion, these would be in no way considered ugly by most viewers, but either bland or chaotic, depending on the case.

Obviously the two examples would depict the same function and be preferably of similar size and context. I divided the pairs into several sections like housing, office buildings, schools, interiors etc. The students were offered no guidance in their choice so as not to compromise the test.

For the second test I offered my students paper images of six renown buildings like St. Paul's Cathedral in London, or Palazzo della Signioria in Florence but with a deleted tower of cupola and asked them to fill in the missing part as they saw fit. This second test was undertaken by fewer students so I felt the results were inconclusive. But the first test, although only 40 students participated, gave me the feeling it was a lot more pertinent so I will share some of the statistic results of it here.

First of all, 32 out of 40 students scored more than 75% correct answers (from my point of view, at least) at the test. The highest score was an impressive 95,23% judging by the fact that these were answered with no guidance beforehand. But what was even more interesting was the average. I made an average of all answers for all questions and it turned out that the average was actually more accurate than any of the students. If it were a vote, the 40 students would have answered correctly at 97,61% of the questions, that is 41 out of the 42 questions, including finding the golden ratio rectangle. There were only 5 questions were the average was lower than 60% in favour of one or the other answer and only in one case they missed the correct answer by 2,5% - a single vote out of 40. Judging by the fact that this was a small batch of participants, I believe that the more students would have taken it, the more accurate the results would have been.

Some sceptics might call into question that the results of the test would have been the same if a batch of students from a different cultural milieu would have undertook it, but this argument does not hold water as we experience the same general principles of composition all throughout the world. True, the nature of symbolic art and decoration differs and that makes all the cultures so diverse worldwide, but the underlying principle, as derived in fact from nature is the same everywhere.

6. Conclusions

It is therefore my belief that a theory of aesthetics based on objective factors is not something out of the ordinary. People actually prefer compositions that exhibit a clash of order and complexity at just

the right proportion. By addressing both hemispheres and the limbic system, such a composition would send surges of satisfaction to the viewer, with gratifying results like those of solving a puzzle or climbing a high mountain.

This pleasurable feeling has been called aesthetic delight and, of course, varies in intensity in individuals according to their cultural background, personality and mood but is definitely not triggered by the affiliation to a culture or another or to a specific time frame. It is the reason we understand works of art and architecture from ages past and we sometimes prefer them to contemporary works of art that strike us as inferior because they lack the right proportion of order and chaos or detail or perhaps scale.

In architecture, it has been shown that, in order to make a building interesting enough to visit up close, it must exhibit a layered detail level, where the close up shows entirely new aspects from the overall image, thus appealing to the left hemisphere of our brains through the use of patterns or accents. It is, if you will, our way of emulating nature by offering a spectacular image from afar, like the blossoming cherry tree, but nonetheless paying great attention to details up close like the delicate and ephemeral cherry flower.

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