SENSORY INTENSIFICATION
IN
ARCHITECTURE
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Introduction

The objective of this book is to understand the issues involved with creating a building that stimulates the senses and offers physical challenges. Whenever visiting installation art that deals intensively with your senses, I wondered why this discipline doesn’t really enter the realm of architecture. Through this book I want to bring out the qualities of being in a space where your senses are provoked. Not in the temporary way of the installation, but with the resistance and connection with society that architecture can have.

The book consists of three essays: ‘Architecture of Formal Aesthetics’, ‘Space Body Mind’ and ‘The Narrative’. The first essay has the function of a more elaborate introduction on why sensory intensification is topic relevant to research. This is done by explaining the role and nature of the image and deprivation of sensory involvement, in modern life. The essay ‘Space Body Mind’ forms the hart of the book. It explains three of the main concepts in environmental psychology and philosophy of perception and it defines three themes present in that field of research to form an inspirational basis to develop a building around. The last essay, ‘The Narrative’, is an idea for a method to translate the ideas gained from ‘Space Body Mind’ into built form. This method is based on the importance of language in perception.

What persists during this research is that what is vital for the senses is the mental aspect and that it strongly relates to language and the intellect.
Architecture of Formal Aesthetics

This first of three essays is not so much a complete argument in itself as it is a more elaborate kind of introduction to the following two essays. Calling this an elaborate introduction has its reasons; the essay doesn’t have a conclusion and it addresses multiple issues in a brief manner. It raises questions on the issues to be discussed in the other essays. Next to this it will reveal some of my bias towards the topic of sensory intensification in architecture, for no piece of writing is ever fully objective.

The topic ‘sensory intensification’ is chosen, partly because currently I see around me what I call ‘architecture of formal aesthetics’. This phenomenon consists of the increased interest in images and a decreased interest in the sensory qualities of an object. Therefore they will be approached through two main threads of thought called ‘The Hegemony of the Image’ and ‘Deprivation of the Senses’.

With this short essay I will explain the properties of the image and some of the effects it can have. Most mentionable is the detachment from the subject, the loss of soul and the contrast between the static of the image and the movement required for architecture. Next to this I will stress the importance and profoundness of especially haptic and kinesthetic experiences. These are notions with a more long lasting effect and, if you are aware of them, can be very powerful tools for architectural design.
Hegemony of the Image

The hegemony of the image¹ is not solely a property of architecture, so at times references to other professions dealing with a similar condition will be made. Also the phenomenon in itself will not be not approached in a uniform way, instead several of the most important causes and effects are addressed without claiming completeness. These causes and effects can roughly be categorized as the static, detachment and familiarity.

Static

The first and most understandable property of the image is its static character. The image is fixed in time and position. The property of the image as fixed in time means it always is a representation of the past, or a promise of the future. It also means that you cannot choose the perspective and relate different spaces to each other. Even when using virtual spherical images that allow you to change the direction of your view, there is not the possibility to take a step forward to acquire a different perspective.

The problem of the static is not bound to the image; it is an issue in architecture since the Renaissance. The static eye of the subject became the essence of representation, influencing not only the representation of architecture but at the same time the conception of it.² The static eye as an issue is also recognized by Steven Holl: “Perception of architecture entails manifold relations of three fields; the foreground, middle ground and distant view are united in one experience as we observe and reflect while occupying a space. Merging of these fields of space bracket very different perceptions. In the intertwining

¹ The term ‘Hegemony of the Image’ is mostly used by Walter Benjamin, Theordor Adorno and Guy Debord
² Diana Agrest, Representation as articulation between theory and practice in Stan Allen, Practice: Architecture, Technique and Representation (Amsterdam: G+B Arts International, 2000) p.165

of the larger space with its forms and proportions and the smaller scale of materials and details lies architecture’s power to exhilarate. Such phenomenal territory cannot be indicated in plan/section methods. Photography can only present one field clearly, excluding changes in space and time.”

There is little to add to this, not only does Holl rightfully address the problem of photography but also that of traditional representation in plans and sections.

**Detachment**

Visual stimuli always act from a certain distance, so in a sense they are detached from your body. Nevertheless usually one can still pick up on properties concerning surface information. The surface contains information about usability, haptic qualities and the production of the object. Think for instance of the brush strokes in a painting. When you look at a painting from a distance you see the image or depiction, this is the first layer of meaning. The brush strokes provide essential information on the painting technique used, adding a second layer. The cracks in the paint give information on the age of the painting. In this sense the visual can provide a much richer array of information than merely the image. Supporting this are the thoughts of Edward Hall about the act of mass reproduction: “To understand art properly one has to view it many times and enter into a discourse with the artist through his work. To do this there should be no intermediaries, because one needs to be able to perceive everything. This rules out reproduction.”

The image, being a reproduction misses the necessary layers of information that would make it a complete work. Next to this the act of reproduction as something primarily visual is interesting; it acts a sign for the real object. You can at one moment look at the sign and recognize the real object later on when you see it in real life, or communicate the qualities of the image for educational purposes. In this sense the reproduction is very useful, but one should be very aware of the limitations of it, or as Walter Benjamin said in The Age of Mechanical Reproduction: “That which withers in the age of mechanical reproduction is the aura of the work of art. […] By making
many copies it substitutes a plurality of copies for a unique existence.”5
Reproductions can never fully represent the original object and can even seriously affect the relationship between the work of art and its representation. With some of the most famous works of art their representations have even become the reality and the original work has just become a symbol in its history.

Familiarity

Whilst this chapter has a rather negative look on our culture of the image, there are good reasons for it to be as it is. The first argument on this is a continuation on reproduction. The image is very suited to be easily reproduced and in large numbers. Mass reproduction makes it possible for phenomena to be brought to all people and for as long as we want. This in its turn makes it possible for us to share these phenomena, forming partly the basis of each culture. Despite this positive property Steven Holl approaches this aspect from a different perspective: “Easily grasped images are the signature of today’s culture of consumer architecture. Subtle experiences of perception as well as intellectual intensity are overshadowed by familiarity. A resistance to commercialism and repetition is not only necessary; it is essential to a culture of architecture.”6
Whilst this isn’t a very sophisticated argumentation on the why, Holl does use the word familiarity in this context. Familiarity is a sign of reluctance in society to explore the unknown, to do effort to acquire it and to actually get involved in the unfamiliar. The question is whether this pattern of familiarity can be changed or even broken by architecture and

in specific by sensory intensification. Next to this property of familiarity to generate a certain amount of passiveness it is also related to comfort, two terms closely related but with a very different connotation. The conclusion then probably must be that familiarity is not necessarily positive or negative, but rather something to be conscious of in the process of designing.
Deprivation of the Experience

The increased importance of the image, as addressed in the previous chapter implies that something else has received less attention. This is what has become known as sensory deprivation. However, many critics have recognized this shift in attention over the last decades and some even believe that slowly a tendency in the other direction has emerged. Ashley Montagu formulates it as: “We in the Western world are beginning to discover our neglected senses. This growing awareness represents something of an overdue insurgency against the painful deprivation of sensory experience we have suffered in our technologized world.” Montagu addresses the issue at hand, but obviously this has no value for understanding the issue. To do this I will briefly look at the different kinds and effects of experience deprivation. Roughly one can recognize sensory deprivation, kinesthetic deprivation and haptic deprivation. Since this distinction between different kinds of bodily experience is being made, I’ll shortly discuss their differences and why this distinction is necessary. Kinesthesia refers to an ability to react on a physical environment, the haptic refers to skin as the limitation of our body, the senses refer to organs as entities. All these have different properties regarding emotional value, position in society and how we have lost the contact with them.

Sensory Deprivation

When taking the strategy to approach the senses as purely organs, we recognize the nose, ears, mouth and eyes. I will shortly address their individual parts in modern perception. Despite giving a critique on the role of the image in current representation, I recognize the importance and sensitivity of the eye in regard to registering information about a physical environment, which for instance can be translated


B) George Trakas, Sword Bridge (Thiers, France, 1989)
in kinesthetic knowledge. In the field of architecture the role of taste, and thus the mouth, is not of much interest, not diminishing its powerful effect on the mood it can evoke. Hearing is a very interesting sense in relation to architecture, because it has a spatial quality. The reverberation time says something about the shape and size of a space. The tone gives information about the softness and structure of the materials. In this regard it is quite astonishing that many modern theatres are having problems with acoustics, somehow the knowledge about what properties give the wanted effect has either got lost or is ignored.

The nose, or the olfactory sense, is regarded as the sense with the most emotional effects. Everyone can acknowledge that a certain sent can bring you back to just about every significant event in your past with the same scent. The olfactory sense is also still quite frequently used in a commercial sense in architecture, most of the time artificially and in a quite blunt way referring to cliché a sent like ‘pine forest’. The scent of materials however is hardly ever present any more, being either covered by paint or compensated by an artificial smell.

**Kinesthetic Deprivation**

Kinesthetic deprivation is a less straightforward notion. Nevertheless I consider it to be highly important, as a more profound elaboration of the critique on the hegemony of image. This is despite, maybe even because, kinesthetic deprivation being less known and recognized as an issue.

In my apprehension of this issue I will address other issues not strictly belonging to the term, in this sense kinesthetic deprivation is a symbol or catalyst for a bigger issue of self-awareness and self-confrontation in society. To understand the term I'll start with a dictionary definition, kinesthesia is understood as; “A sense mediated by end organs that lie in the muscles, tendons, and joints and are stimulated by bodily movements and tensions.”

So it is quite a technical device, which can be improved by learning and needs maintenance. Strictly speaking kinesthesia is not sensory because it doesn't directly give a bodily emotion, however, it can affect the senses and our experience
of space.

This notion of kinesthesia is relevant for this essay, because the comfort increasing tools we have developed over time, allowed us to use our ‘kinesthetic device’ much less diverse and frequently. These comfort-increasing tools are for instance cars, air-conditioning, and elevators. Also the way cities are designed has changed, something heavily criticized by Edward Hall in his book ‘The Hidden Dimension’: “Our urban spaces provide little excitement or visual variation and virtually no opportunity to build a kinesthetic repertoire of spatial experiences. It would appear that many people are kinesthetically deprived and even cramped.”

9 Not only does the city contain too little moments of kinesthetic stimulation like Hall addresses, we are also totally unaware of the possibilities to attract, stop or speed up people as far as city planning goes. Next to this we seriously underestimate our own bodily capabilities, because there is never a moment where we are seriously challenged to explore them.

George Trakas is a highly relevant artist regarding this matter. He is using his knowledge of kinesthesia to create awareness with the visitor. His installations are sequences of different materials, angles, slopes, and widths, he (re-) activates knowledge within man about how to move. Trakas relates this knowledge of movement to behaviour in order to create orchestrated routes. These routes are an alternation of moments creating awareness or challenge, guiding and testing you at the same time. Sally Yard, the most active writer about Trakas, also recognizes the relevance of his work in our time: “In an era when much of life is experienced statically, watching transmitted information on violence, prowess and crisis, the visitor to Trakas’ site travels a site physically.”

10 This statement incorporates elements of the static and detaching properties of the image as well as the outcry for physical involvement as a

8 Websters’ Third International Dictionary (Springfield (MA), G&C Merriam, 1971)
10 Sally Yard, George Trakas: Constructions, Wallpieces, Drawings (La Jolla (CA): Quint Krichman Projects, 1992) p.8
requirement for a more engaged relationship to the world.

Haptic Deprivation

The word haptic has little relevance in our present language. We seem unaware of the vast range of capabilities the skin has, the fact that in fact every sense is based on having a kind of skin and the incredible sensitivity it can have. One of the advocates for a more elaborate understanding of the skin and its haptic properties is Ashley Montagu: “[The skin] is the oldest and the most sensitive of our organs, our first medium of communication, and our most efficient protector […]. Even the transparent cornea of the eye is overlain by a layer of modified skin […]. Touch is the parent of our eyes, ears, nose and mouth. It is the sense which became differentiated into the others, a fact that seems to be recognized in the age-old evaluation of touch as ‘the mother of the senses.’”

I took this full quote to show the extent of theory behind the importance of the skin. Whether the skin is really the ‘mother of the senses’ is beside the issue, what is significant here is that all the senses can be seen as somehow making use of some type of skin as a receptor. This makes touching a sense at least equally sensitive and accordingly probably also equally important compared to the other senses.

To relate this to the critique I use a statement on the image from Juhani Pallasmaa’s ‘Hapticity and Time’ article: “The architecture of the eye detaches and controls, whereas haptic architecture engages and unites. Tactile sensibility replaces distancing visual imagery by enhanced materiality, nearness and intimacy.” The haptic is here fully recognized by Pallasmaa as a layer of meaning, a layer with a more sustainable character and able to unleash more profound emotions than the layer of the image alone. The general matter however is that the haptic has been completely been discarded over time. Surfaces, or materials if you like, are primarily judged on how easy it is to clean them, what color they have, that they don’t age, or whether they can be prefabricated to fit into a standard.
Space Body Mind

This second essay forms the actual backbone of the whole research on sensory intensification in architecture. To understand the senses, one has to understand the relationship of man to the world. Thus I've investigated in this essay the processes relevant to this relationship. The essay is split up in two parts, concepts and themes. The ‘Relevant concepts’ paragraph is an exploration of the most relevant terms, focused on the biological side of perception. ‘Themes in the Psychology of Architecture’ is dealing with the more mental side of perception, exploring how it affects us.

C) Carlo Scarpa, Brion Tomb (Treviso, Italy 1969-1978)
Relevant Concepts

In this section I will present three concepts that I have encountered when doing research in the field of environmental psychology and philosophy of perception: Hapticity, Kinesthesia and Synaesthesia. These concepts are used extensively throughout literature about perception, but the definitions given in that literature hint at a lack of consensus and true understanding of their full meaning. I have dealt with the concepts separately to explain the full breath of their relation to other topics in perception and to the whole of human perception.

Hapticity

Generally the existence of the haptic system is not mentioned very often in considerations for a more sensitive architecture. This is despite it’s close relation to touch and thus the apprehension of objects in close proximity. Authors on the subject choose to write about kinesthesia when perceiving environments in a physical manner. When it does get mentioned, the haptic is often described as being something similar to the act of touching. In this case touching is understood as the moment that surface of the skin and the surface of an object meet. However the haptic requires a more refined understanding, first there is the issue of dimensionality as Gibson understands it: “[...] the haptic system can yield information about solid objects in three dimensions, whereas ‘touch’, in the narrow sense of cutaneous impressions, has been supposed to be capable of yielding information only about patterns on the skin in two dimensions.”1 Gibson is very clear about seeing the haptic as a three-dimensional understanding of the environment. This third dimension in


D) Steven Holl, Door Pull of the Giada Showroom (New York, 1987)
its turn implies that movement is an important factor in the haptic act. Gabriel Robles-de-la-Torre is an expert on interfaces and as such dealing with human responses to touch and its ability to explore objects by touch: “[...] the word haptic [in experimental psychology and physiology] refers to the ability to experience the environment through active exploration, typically with our hands, as when palpating an object to gauge its shape and material properties. This is commonly called active or haptic touch, in which cutaneous and kinesthetic capabilities have important roles.”

Robles-de-la-Torre refers to the haptic as performing an act when exploring something; it requires movement of limbs, muscles and skin. In this sense touch and kinesthesia are moments or parts of a bigger haptic performance. To be complete this performance can, according to Gibson, be classified in subsystems named cutaneous touch, haptic touch, dynamic touching, touch-temperature, and touch-pain.

Of these systems kinesthesia is only one manner of cutaneous touch, but is such a complex and important phenomenon that it will be dealt with separately.

To close of this section, I state here the conclusion by Gibson on the Haptic: “The sense of touch in the everyday meaning of the term turns out to be an extremely elaborate and powerful perceptual system but not a sense in either the physiological or the introspective meaning of the term. Nor is it a clearly definable group of senses with just so many nerves and corresponding qualities of sensation.”

The complexity as mentioned by Gibson is so great that the term haptic in a sense becomes a quite academic one. It is covering such a wide range of phenomena that it is hardly usable when describing a certain experience, one has to always become more precise to really explain what is happening.

4 Idem

Kinesthesia

Kinesthesia\(^3\) is a word that is used quite often without a definition being offered, this despite the complexity of the concept. It doesn’t consist of a single organ or has any other physical expression. One understands kinesthesia in a subconscious way without being able to explain it. Everybody actually experiences it at any moment of the day and because of this, you don’t know how life is possible without it, so its existence and meaning is rarely questioned or recognized.

To start this section on kinesthesia I’ll present a very understandable part of it. In Stan Allen’s book on representation in architecture, Diana Agrest makes a case for about a broader kind of representation: “Other senses beyond the limits of the visual and the spatial, such as audition, and metonymically the entire body through time, rhythm, movement, and speed become relevant as part of representation. Speed, a dimension inseparable now from space-time, is perceived with the entire body and in particular through the vestibular, a sixth sense that, named after the inner ear, accounts for balance, motion sickness, dizziness, and vertigo.\(^6\)

This addresses issues similar to those I am dealing with, by questioning the role of the visual in architectural representation. Agrest calls the vestibular the sixth sense, this implies either a hierarchy making the vestibular the most important after the five classic senses, or that there are only six senses disregarding the ability to sense heat and pain. The truth is that the sensory world is much richer. Addressing only the vestibular as worthwhile to consider when representing today’s urban conditions is incomplete. I will now show through the thoughts of James Gibson in his book ‘The Senses Considered as Perceptual Systems’, that the vestibular is only a part of a wide range of kinesthetic abilities.

James Gibson is probably the person who has written the most about kinesthesia from an environmental psychologist approach, he expressed his discontent with the casual usage of the term, explaining that kinesthesia is not a sensory device. “The arguments of Charles Bell, who conceived it in 1826,
should probably be interpreted in terms of what we now call re-entrant of reafferent input, or feedback, not in terms of a separate department of senses. To speak of the sense of kinesthesia, therefore, as the textbooks do, is merely to cover up ignorance and lump together facts that need to be kept distinct.” Why then do I talk about the concept of kinesthetics in discussing sensory intensification. The answer is firstly that kinesthesia is a frequently recurring term in both environmental psychology and philosophy of perception. Secondly the fact that people mistake kinesthesia for something sensory means that despite being different there are at least superficial similarities.

Kinesthesia is dependent on outside circumstances, causing a physical reaction after processing kinesthetic feedback in the brain. This abstract description of the process is something revealing some of the similarities with sensory experience. Senses receive stimulation from outside and process this into a brain signal causing emotion. The notion of an outside influencing the brain inside thus can be seen as similar. The difference is that senses are extremely subjective and connected to emotions. Kinesthesia on the other hand is objective, almost mathematically influencing physical movements.

Having established kinesthesia as being a physical and reactive phenomenon, I will increase the understanding of the term by providing the definition provided by Gibson: “The discrimination of body movement from non-movement is too important for the organism for it to have been wholly entrusted to any single group of receptors. There are many kinds of movement that need to be registered. Articular, vestibular, cutaneous, visual. In all these perceptions the sensory quality arising from the receptor type is difficult to detect, but the information is

5 Kinesthesia is quite similar to Proprioception, which is: a sensory receptor that is located deep in the tissues and that functions in response to changes of physical tension or chemical condition within the body proper, Websters Third International Dictionary (Springfield (MA), G&C Merriam, 1971)
6 Diana Agrest, Representation as articulation between theory and practice in Stan Allen, Practice: Architecture, Technique and Representation (Amsterdam: G+B Arts International, 2000)
perfectly clear.” Next to the properties already mentioned this definition stresses that kinesthesia is about bodily movements. This is what makes it relevant to architecture, because as established before architecture requires movement in order to be properly perceived. This movement is not limited to walking, but can also be head-movement or movement of the eyes. To explain the ideas I have about kinesthetic and the importance to recognize it when designing, I refer back to Edward Hall’s ideas on the lack of number and variety kinesthetic experiences in modern urban environments. What is relevant here is not only the critique on urban environments as they are, but the role and importance Hall gives to kinesthetic considerations. The fact that according to Hall people can get kinesthetically deprived and cramped\textsuperscript{9} refers to kinesthesia as ability. It is something everybody does, but the sophistication of this ability can apparently vary due to differences in experience and environment.

An interesting practice dealing with this is ‘parkour’\textsuperscript{10}, an urban sport that emerged some years ago. This sport uses the urban environment as its playground. The goal is to move as fluent as possible over a trajectory through the city, going over or through over the elements and buildings one encounters in the city instead of around them. Despite it doesn’t needing any equipment or specific location, parkour has not been able to claim its place in the array of urban sports in many countries, particularly in the Netherlands. It is very likely that this is, next to the high degree of difficulty, also the result of the very little variation present in present day urban environment, especially in Dutch cities. Nevertheless, for instance in London there is still a quite active group of people involved in practicing parkour, especially on the geometrically diverse embankment of the Thames. Next to this, the actual existence of parkour proves the inner need of people to test the limits of their physical abilities. Providing an environment with more consideration on this phenomenon could be a very valuable addition to architectural practice. A more historical approach to design with many kinesthetic considerations can be found in the theories about the Japanese gardens. What appears to be common in the design
of Japanese gardens is that they are very much conceived from a movement perspective. Edward Hall has studied the Japanese garden in relation to cultures and how the deal with space: “[…] stretching visual space by exaggerating kinesthetic involvement […] to watch his step as he picks his way along irregularly stepstones […] At each rock he must pause and look down to see where to step next. Even the neck muscles are deliberately brought into play.” The Japanese designer seems to take in account the influences of the direct environment, even to the scale of the surface, on human perception of space as a result of kinesthetic properties of man.

**Synaesthesia**

Synaesthesia is a phenomenon present in discussions about environmental psychology, philosophy of perception and art. Aristotle believed it to be a device connecting all the senses, which later on was developed by others into what we know as a ‘sensus communis’. The proof for the phenomenon is often given by a large quantity of examples; largely this is because synaesthesia cannot be explained fully through natural science. However, the research apparently is done so convincing that the existence or nature of the phenomenon is rarely questioned.

I will start with the definition given by art historian Ernst Gombrich, I do this because the fact that an art historian is concerned with this phenomenon shows some its relevance across a range of professions. Gombrich defines synaesthesia as: “The splashing over of impressions from one sense modality to another.” The choice of words is interesting; splashing seems to refer to a quite casual act, slightly artistic

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10 Also known as ‘free-running’
12 Gernot Böhme, *On Synaesthésiae* in Daidalos 41 pp26-36 p31
13 Gernot Böhme, *On Synaesthésiae* in Daidalos 41 pp26-36 p.31
and not very precise. The word impression is indicative of Gombrich seeing perception as a subjective act. Referring to the senses as modalities implies a separation of the senses, however connected by synaesthesia. As a whole the formulation of Gombrich is very much based on imagining synaesthesia as a physical act that is not very precise.

In contrast it is interesting to look at the definition given by psychologist Charles E. Osgood: “the use of descriptions from one sense modality for sensations from a different one.”

Osgood’s definition is almost the same as the one provided by Gombrich, the only significant difference is that the term ‘descriptions’ replaces ‘splashing over.’ The use of descriptions refers to language as the medium to cross sense modalities. This in contrast to ‘splashing over,’ which doesn’t say anything about what medium is responsible for synaesthesia, only that possibly it is not very accurate. Despite this being the only significant difference it is very important for some other properties of synaesthesia. The use of descriptions, or the involvement of language has as a consequence that miscommunication occurs more easily, it brings along more cultural implications and it opens up an important argument for representing sensory feelings through language.

To become a bit more concrete I now refer to somewhat more empirical findings about the phenomenon by Joy Malnar and Frank Vodvarka in their book ‘Sensory Design’: “Studies indicate that colors have been identified in conjunction with temperature, weight, smell, sound, and even taste.” This is a clear indication that the research on synaesthesia is largely empirical. Also it becomes clear that descriptions can also happen in colors, which you can also see as language since every color has a name, but is nevertheless expanding synaesthesia as more than just having language as a sense modality-crossing medium.

Malnar and Vodvarka continue: “Collectively, such experiences are referred to as synaesthesia, the involuntary physical experience of a cross-modal association.” One noteworthy word here is ‘involuntary’, this implies that there is no choice but to make these associations when having an experience. The other interesting difference with previous definitions is the addition of the specification physical to the experience.
However, if I understand it correctly, this physical aspect is not to be understood as bodily in the senses of muscles, but rather as internal stimuli. “[…] the stimulation of one sensory modality reliably causes an involuntary perception in another modality. Such percepts are, moreover, durable, discrete, stable, and memorable.” 18 Here the involuntary is stressed again, but along with that the positive side to it is shown. Synaesthesia becomes an integral part to life giving a sustainable meaning to experience.

So far I have established that there is some phenomenon responsible for the transfer of sensory information across different senses. However, it is not yet clear how it affects us. To investigate this I will turn to the ideas of German psychologists Wilhelm Wundt and Hermann Schmitz. Wundt helped developing the synaesthesia from the rather obscure ‘sensus communis’ towards an independent scientific research topic. Philosopher Gernot Böhme wrote in an article on synaesthesia about Wundt: “Wundt claimed that synaesthesiae derive from the relationship between the different senses and ‘feelings’”. 19 Heinrich Wölfflin in his ‘Prolegomena to a Psychology of Architecture’ was interested in exactly this relationship between perception and the feelings caused by it. As a part of this prolegomena he commented on Wundt from the viewpoint of the feelings that result from sensations. He to uses examples

17 Joy M. Malnar, Frank Vodvarka, *Sensory Design* (Minneapolis (MN), University of Minnesota Press, 2004) p.221
18 Joy M. Malnar, Frank Vodvarka, *Sensory Design* (Minneapolis (MN), University of Minnesota Press, 2004) p.221
19 Gernot Böhme, *On Synaeshtesiae* in Daidalos 41 pp.26-36 p.32
to strengthen the argument for the existence of synaesthesia, although he doesn’t use that term. For example Wölfflin states: “Our language regularly uses the word ‘faint’ both for color tones lacking brilliance and for physical fatigue. Likewise, we speak of warm and cold lines: the warm lines of a woodcut, for example, and the cold lines of a steel engraving. These in turn are oppositions that correspond to the pressure sensations of hard and soft.”

It is interesting that Wölfflin mentions physical fatigue in relationship with synaesthesia and feelings, because Schmitz uses physical fatigue felt through sound to explain that synaesthesia can be that powerful that it can actually cause pain. This is an important connection towards the issues discussed in paragraph ‘The Animation of Objects’ and ‘Breathing in Architecture’. The object doesn’t just remain a distant object, but enters our physical realm. With this, one could make a connection between synaesthesia and the phenomenological view on perception, the idea of an object entering your body and thus your ‘system’ of perception means that the object you encounter changes your view on your future perceptions. This cannot be separated from the dialogue with the surrounds phenomenology talks about. The idea that phenomenological thinking can be found in the way Schmitz understands synaesthesia could find its root in Schmitz’ engagement with the ideas of Merleau-Ponty.

Finally at the end of this section I want to stress the importance of this phenomenon in the discussion of the perception and senses once again. In order to do this I turn to Schmitz again, who states that: “the synaesthetic characters are of more fundamental importance for perception than ‘the supposed acts or sensations of seeing, hearing, etc.’"
21 To support this, Kerstin Andermann wrote a book with the title ‘Spielräume der Erfahrung. Kritik der transzendentalen Konstitution bei Merleau-Ponty, Deleuze und Schmitz’
22 Gernot Böhme, *On Synaesthesiae* in Daidalos 41 pp26-36 p.35
Themes in the Psychology of Architecture

I’ve identified three main themes in the psychology of architecture to be suitable to be applied in architectural design. The ‘Discourse of Learning’, ‘Subject Object Relationship’, and ‘Animating Objects’. To a certain extent these themes contain involvement of the concepts dealt with before; synaesthesia, the haptic and kinesthesia. Most importantly these themes are what is most relevant to us at the moment we are sensing our surroundings, and in specific architecture.
Discourse of learning

When discussing the terms kinesthesia and synaesthesia I have already touched upon the importance of the process of learning. These abilities heavily rely on the amount of experiences [erfahrungen] and their quality. What has also become clear is the complexity of the phenomena. This implies that there is a long trajectory of sophistication is possible in the way we experience and apprehend our environment. Our capabilities are often linked to cultural circumstances, if this is valid then this is in itself a reason to believe that these capabilities are not fixed. The idea that culture is largely responsible for how we behave, move, etcetera, is generally accepted. This by no means implies that it is easy to change anything in the way we perceive or move after we have learned something as a child. But there is more possible than we know, or make ourselves believe.

In order to show this I will refer mostly to perceptual psychologist James Gibson and architectural psychologist David Canter. This already implies that learning is just a mental act, however the information where we derive our lessons from is perceived through our senses. This piece of text will not explain every aspect there is to know about the act learning, this would simply be too much. I will rather focus on the importance and joys of learning, learning as a sign of flexibility of man's capacities and the role of environment on learning.

I will start the actual argument with a very positive and inspirational statement by Gibson: “[…] the extent to which perception depends on experience or learning in the theory of information pickup, is this: it does so to an unlimited extent when the information available to the perceiver is unlimited.”23 This shows two things. First there is the notion that perception is a dynamic phenomenon, thus changeable over time and to different extents. Secondly there is the idea that perception can be heavily influenced by environmental properties. This second argument is of course of an architectural nature. One can derive from this that to create a more diverse built environment is beneficial to the sophistication of perception. Interesting in this regard is that against popular belief this
process of sophistication can go on for the larger part of one’s life as claimed by Gibson: “The eyes and ears are not fixed capacity instruments, like cameras and microphones, with which the brain can see and hear. Looking and listening continue to improve with experience. Higher-order variables can still be discovered, even in old age. Getting information to the receptors becomes troublesome when the lens of the eye and the bones of the ear lose their youthful flexibility, but higher-order variables in light and sound can still be discovered by the artist and musician.”24 Whilst the outer boundaries of the range of perception can become less with age, the capacity for recognizing more precisely within this range can nevertheless increase. I want to add some very common examples of phenomenon we most of the time dislike at first but start to appreciate or even love after a while. For instance we say we learn to find somebody beautiful, to learn to like the taste of sprouts, and to learn to listen to classical music. These rather common examples quickly show the property of the senses to improve and refine themselves over the years if exposed to different environments. To make sure this mode of learning is rightfully understood Gibson states that: “It is not an accrual of associations, and attaching of responses, or an accumulation of memories. Perceptual learning has been conceived as a process of “enrichment”, whereas it might better be conceived as one of “differentiation”.25 Where differentiation as Gibson understands it is “the detection of distinctive features and the abstraction of general properties.”26 Rejection of the word enrichment in the context of learning might seem strange. What Gibson means is that it is not so much that suddenly our organs can shift their boundaries of reception, but rather that we know how to recognize more precisely within the same boundary of reception. To repeat this notion, but most importantly to give it a more substantial backing, I use this quote by Andrew Lyons: “[...] as we grow older, our perceptual development is

24 Idem p.269
25 Idem p.269
26 Idem p.270
characterized by gradual differentiation [...]”27

As already mentioned, refining the senses asks for certain conditions in the environment. Of these conditions differentiation or irregularity seems to be quite important. There are several benefits to irregularity to distinct. David Canter mentions the first and most simple one in ‘Psychology for Architects’; in this book he writes about his research on the tendency of people to maintain certain behaviour even if the context has changed. He has concluded that: “The more regular the pattern of reinforcement the more quickly will the behaviour cease once the reinforcement is stopped”28 One can derive from this that when people learn to do something outside of a pattern, that they are more likely to bring in practice the lesson on their own. Now to not misunderstand this it is important to stress that when talking about a leaving a pattern or creating irregularity that only the arrangement of things changes. Canter states that people “will respond to them [buildings] on the basis of the learned patterns”29, but that “no matter how new the particular form produced the chances are that people will have learned responses that will enable them to deal with the building, or that they will be able to develop them.”30 He is advocating with this to not be reluctant to produce new and more diverse environments, but that one should apply knowledge about the basic signs people recognize.

The second condition is the presence of a reinforcer. To properly deal with this term I will first explain what is generally understood as a primary and what as a secondary reinforcer.

29 Idem p.57
30 Idem p.57

Primary reinforcers include basic needs like food and water, but also sensory stimulation. Secondary reinforcers are mostly judgements from other people or material concerns. Canter takes this rather dubious system of distinction of reinforcers to question whether art can be seen as a reinforcer: “an intriguing definition of art is to define it as something which has reinforcing properties (in other words we will learn to repeat the experience of it) but for which no specific function can be found. This of course raises many problems but one interesting possibility is that a building, or part of a building, may be rewarding in its own right (i.e. without reference to ‘more primary’ reinforcers). If these reinforcing aspects of buildings could be isolated then the possibility of using buildings as an integral part of the learning process would be very great indeed.”

Canter in this argument opens many interesting issues. Art can be a reinforcer, so it is able to influence behaviour by provoking repetition of the experience of it. This act of reinforcing, thus introducing the lessons of an art experience in ones own life, can be seen as a function. Because Canter identifies it as a function he is able to see a building as having this property and because of this not having to contain another function. Despite not agreeing with the necessity of assigning a defined function to a (part of a) building, I share the belief in learning capabilities of objects and the importance of it.

When discussing the topic of learning one cannot ignore the issue the rational or the empirical. The question whether something is learned or already present in our genes, also called innate, is a fundamental issue for those involved in understanding how people come to their abilities. The fact that it is fundamental as an issue of discussion already indicates that it is a topic too big to actively discuss here, therefore I will present only a short outline to understand the most common approaches to this issue. First there is the empiricist approach, heavily based on learning: “The empiricist approach is based on the proposition that the perception of shape is a complex experience derived from an array of simpler psychological sensations, and that both sensations and the resulting experience result from learning about the ways in
which particular physical properties are characteristically interrelated."

In sharp contrast with this is the Stimulus Response theory, which is a very rational theory: “S-R (Stimulus Response) theory (nativism), mainly in the person of Gibson, claims that the relationship provided by the environment and the received image is unfiltered. S-R assumes many, if not all, abilities to be innate. It is also known as the Direct theory."³³ At first this seems to not cohere with Gibson's ideas about learning, but the explanation that the basic properties of abilities are innate doesn’t necessarily mean that abilities cannot be refined over the course of gaining experience. Gestalt is considered to mediate between empiricism and S-R: “Two important conclusions reached by Gestalt are that perception comes from a field of interrelated data, rather than individual bits of information. Human perception structures its environment, rather than just reacting on it.³⁴ The biggest critique on Gestalt is that it rejects cultural difference and that it’s dealing with only two-dimensional constructs, making it a static understanding of things. Gestalt introduces an early idea of the subject engaging in a discourse with its environment. However the theory is based on a two-dimensional and static apprehension of environment, making it incomplete and unsuitable for architecture. Child psychologist Jean Piaget forms an interesting theory in reaction to Gestalt in the sense that he acknowledges some sort of an a-priori concept we project on the things we encounter, therewith engaging in some kind of dialogue with it: “the perception of space involves a gradual construction and certainly does not exist ready made at the outset of mental development” ³⁵ The subject directs

³¹ Idem p.61
³³ Joy M. Malnar, Frank Vodvarka, *Sensory Design* (Minneapolis (MN), University of Minnesota Press, 2004) p.50
³⁴ David Canter, *Psychology for Architects* (New York, John Wiley and Sons, 1974) p.34
perceptual activities, chooses points of centration, and relates objects to contexts. This theory of Piaget connects more to a phenomenological approach to perception. To continue with this an to emphasize the difference with the ideas of Gibson, I present a more complicated approach to learning, in contrast with the ideas of Gibson by Bell, Fisher and Ross. This approach includes notions about memory and thus associating different instances in time with each other: “In contrast to the Gibsonian approach, experience or learning plays a much larger role in conventional approaches to perception. Such perceptual learning requires memory of past experience and the capacity to associate present experiences with past ones. Memory and association of this sort imply in turn that cognitive processing is an integral part of environmental perception.”

Introducing the memory in the apprehension of perception requires the difference in perceptual philosophies to be addressed in order to understand that the memory and the properties assigned to it are highly important, even crucial, to the different discussions about perception.

All these definitions concentrate around the question whether the things we perceive, are perceived this way either because we are born this way or that we learn it during life. This can also be formulated as whether perceptions are influenced by memories or not. Fundamental is this discussion is the book ‘Matter and Memory’ by philosopher Henri Bergson. He is the one who first saw the issue of memory as a primary factor in human perception of the world: “[…] the body, placed between the objects which act upon it and those which it influences, is only a conductor, the office of which is to receive movements and to transmit them (when it does not arrest them) to certain motor mechanisms, determined if the action is reflex, chosen if the action is voluntary. Everything, then, must happen as if an independent memory gathered images as they successively occur along the course of time […]”

This thinking of a body mediating between the world and the mind forms a basis for me to further investigate how phenomenological thinking functions.
Subject object relationship

I will start this off with positioning James Gibson within this topic through a statement from Bell, Fisher and Loomis about Gibson’s ecological psychology: “According to Gibson, it is the ecological properties of environmental stimuli that are important in perception. In this case, ‘ecological’ implies reciprocal adjustments between individual, social, and physical environments. That is, Gibson does not ask, ‘What is in the head?’ but instead, ‘What setting is the head in?’”39 Gibson apparently makes a strict distinction between environment and perceiver. He recognizes the head being influenced by its surroundings, but regards this environment to be objective and static. In other words the relationship of the subject with the environment only has one direction.

In contrast to this there is the recognition that the relationship of the individual with its surroundings is subjective and dynamic.

In this sense I follow the theory of Jacob von Uexküll regarding what he calls ‘Umwelt’: “[…] “Whichever subject we might choose from the chain of animal beings, we will always find another Umwelt constructed around it, an Umwelt evincing everywhere traces of the subject, for every subject is the constructor of its own Umwelt.”40 The question arises if it is really relevant in the search of understanding the object subject relationship to understand every Umwelt or the idea that the world is formed by our perception? To answer this question the characteristics of the object subject relationship have to be investigated.

36 Joy M. Malnar, Frank Vodvarka, Sensory Design (Minneapolis (MN), University of Minnesota Press, 2004) p.49
38 Henri Bergson (1908) trans. By N.M. Paul and W.S. Palmer, Matter and Memory (Brooklyn (NY): Zone Books,, 2005) p.77
Following this it is inevitable to discuss phenomenology, as defined by Husserl and Merleau-Ponty. In general I will deal mostly with the thoughts of Merleau-Ponty, because his writing seems to be more easily applicable to art and architecture. I will mostly make use of the understanding of artists and art critics have of phenomenology as defined by Merleau-Ponty. Architecture critic Juhani Pallasmaa defines phenomenology as: “striving to depict phenomena appealing directly to the consciousness in its own dimension of consciousness. Phenomenology thus means examining a phenomenon of the consciousness in its own dimension of consciousness.”

This suggest that it is no longer possible to be emperical, no phenomenon can be fully judged outside of its domain of occurance.

To return to the subject of phenomenology, without letting things get needlessly complicated I will start with discussing an installation by Olafur Eliasson called ‘Seeing Yourself Sensing [2001]’. In this installation a large amount of vertical strips of mirror are placed next to each other on a window, spaced with their own width. As a result you get both the mirror image as the image behind the mirror presented to you, because your mind constructs a whole image from the different strips. Daniel Birnhaum says about it in an interview with Eliasson: “You can pretend, with a small syncope, that you see yourself seeing, but it’s very hard to be a subject, or rather very hard to be a self-reflecting subject. Either you look through, and then you’re a subject looking for something else, or you look at yourself, and you turn yourself into an object, a mirror image. Both pieces remind you of the fact that you’re an experiencing mind, that you’re a subject- you’re subject and object...” This text doesn’t need explanation of why it is relevant for this section. It deals exactly with one of the core arguments of phenomenology, the difficulty of understanding your own role in the image you construct of the world around you. Next to this there is the idea of activating the onlooker, it is virtually impossible to escape involvement. That the link with phenomenology is so clear is no coincidence, because Eliasson has been carefully studying Merleau-Ponty as demonstrated by the following quote from the interview with Birnhaum: “You’re not only a productive, phenomenologically active subject,
you’re also produced by the piece. You become that subject-object, that ambiguous space where, as Maurice Merleau-Ponty would say, everything takes place.”43 To translate and place this very directly into the phenomenological world of Merleau-Ponty: “Phenomenal reality is […] the result of sensory-emotional experience, suggesting an ongoing dialogue between human beings and the entities that surround us.”44 What Eliasson thus tries to accomplish with this installation is to place the subject actively within this ongoing dialogue. By doing this, the ever-present dialogue becomes expressed, intensified and refined.

One could say that the ‘lived body’ of Merleau-Ponty is being brought to life by Eliasson. This leads to the idea that: “The artistic dimension of a work of art does not lie in the actual physical thing; it exists only in the consciousness of the person experiencing it. Thus analysis of a work of art is at its most genuine introspection by the consciousness subjected to it. Its meaning lies not in its forms, but in the images transmitted by the forms and the emotional force that they carry. Form only affects our feelings through what it represents.”45 This is an argument for the transcendent qualities present in art. The actual object is an initiator of a whole realm of associated emotions.

Having dealt with phenomenology in relation to art, I will switch to architecture, in particular Steven Holl. Whilst the incorporation of phenomenological thinking seems to be mostly done in the field of the arts, it is actually a very fruitful way of thinking about architecture. Architecture in every

43 Idem p.19
44 Joy M. Malnar, Frank Vodvarka, Sensory Design (Minneapolis (MN), University of Minnesota Press, 2004) p.24
form or type is an experience, thus dealing with phenomena. “Phenomenology as a way of thinking and seeing becomes an agent for architectural conception. While phenomenology restores us to the importance of lived experience in authentic philosophy.”

In the same line of thinking, environment behavior researcher and architecture professor David Seamon, claims that phenomenology is the way to escape the problems of creating humane architecture we face today.

Now that we have established that phenomenological thinking is a possibility for creating a less formal and more humane architecture, the moment has come to find out what tools we have for connecting different phenomena, or situations, together.

For this I will return towards the writing of Steven Holl: “Experience of phenomena – sensations in space and time as distinguished from the perception of objects – provides a “pre-theoretical” ground for architecture. Such perception is pre-logical i.e., it requires a suspension of a-priori through. Phenomenology, in dealing with questions of perception, encourages us to experience architecture by walking through it, touching it, listening to it.”

This connects well to conceiving architecture through a narrative in the sense that ‘walking through’ is essentially the same as constructing a story. However Holl is also referring to a pre-theoretical experience in reference to phenomena, possibly implying that an intellectual concept is not relevant to architecture.

My apprehension is that indeed the intellectual is not what is defining the quality of the individual phenomenon or experience. Rather the intellectual can provide a meaning to a series of phenomena, reinforcing the individual phenomenon.


G) Mies van der Rohe, German Pavilion (Barcelona, Spain, 1928)
The goal was not to reach a final conclusion on the understanding of the object subject relationship, but rather to sketch out all the factors involved and the breath and extend of this relationship. The complexity of understanding the object subject relationship, as opposed to the apparent simplicity of it, is the actual basis of fascination.

**Animating objects**

There have been several theories on understanding how we come to appreciate the objects surrounding us. Environmental psychologists Rachel and Stephen Kaplan have formulated six points to categorize the different factors in this appreciation. One of these is the points is ‘identifiability’, “or the degree of familiarity that enables the viewer to categorize the contents of a scene – the greater the identifiability, the greater the preference.”49 If I take this as a premise and also say that appreciation is indeed something we prefer most of the time, then it is worthwhile to investigate what we recognize in objects. In general we can identify objects with ourselves and with other objects/materials.

I will start with the identification with materials through an apprehension of this by Juhani Pallasmaa: “Materials and surfaces have a language of their own. Stone speaks of its distant geological origins, its durability and inherent symbolism of permanence; brick makes one think of earth and fire, gravity and the ageless traditions of construction; bronze evokes the extreme heat of its manufacture, the ancient processes of casting and the passage of time as measured in its patina. Woods speaks of its two existences and time scales; its first life as a growing tree and the second as a human artefact made by the caring hand of a carpenter or cabinetmaker. These are all materials and surfaces that speak pleasurably of time.”50

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I quote this full section, because I consider the way in which it is written highly significant. Pallasmaa not only states that materials get animated. Through his use of language he shows the interrelation of the way of conception, usage throughout history and ways of ageing of materials, connecting them with basic human emotions. Examples of this type of associative thinking regarding materials are numerous, but will add little to this argument. Therefore I will continue with a more complex type of identification, the one of ourselves with the objects we encounter.

In order to do this I will largely follow ‘Prolegomena to a Psychology of Architecture’ by Heinrich Wölfflin. To state the intention of this section quite clearly I will cite a piece from Geoffrey Scott’s ‘The Architecture of Humanism’: “because weight, pressure, and resistance are part of our habitual body experience, we unconsciously identify with these characteristics in the forms we see.”51 This is in full agreement with the arguments as put forward by Wölfflin in his ‘Prolegomena to a Psychology of Architecture’, where he remarks that: “Physical forms possess a character only because we ourselves possess a body”52 progressing to “human beings with a body that teaches us the nature of gravity, contraction, strength, and so on, we gather the experience that enables us to identify with the conditions of other forms.”53 Wölfflin continues with raising questions on how we physically react on the environment as a result of emotional feelings, introducing considerations on the tempo of breathing and other vicarious responses. The basic thought behind these considerations is: “Our own bodily organization is the form through which we apprehend everything physical.”54

To structure what his bodily organization actually is Wölfflin uses the opposition between matter and form. Whilst matter and form are inseparable in an object, however Wölfflin does separate them in an intellectual manner. Matter is regarded to be without will, giving in to any force laid upon it, like our body if we didn't have our muscles and skin. In this sense matter needs form, giving it structure. It goes even so far to say that form is the perfect potential state of matter. This argument
slowly evolves into the explanation of self-determination. Self-determination points towards an inner logic of form holding together matter. Wölfflin states that the greater the resistance overcome, the greater pleasure is to be achieved, supporting this with the example that the most developed organisms in nature are the most articulated and vice versa, making this the argument for a tectonically profound architecture: “Architecture reaches its culmination at that moment when the individual organs detach themselves from the undifferentiated mass and each member appears to function in accordance with its own purpose without affecting or being hampered by the body as a whole.”

Wölfflin is then breaking up this form, as a self-determinate phenomenon, in several characteristics: Regularity, Symmetry, Proportion and Harmony. Regularity is understood as “a uniform repetition of distinct yet similar parts”, however this uniform repetition shouldn’t be seen as a constant geometrical disposition of the similar parts. A symmetrical object, according to Wölfflin is something with a clear centre with the same material on either side. Symmetry is also a phenomenon he is able to directly connect to the human body, since this is largely symmetrical along the vertical axis; we also search for it in everything we encounter. He further tries to support this with the example of the discomfort of seeing someone with a missing limb, subscribing this to our search for symmetry. I consider this to be a simplification of the complex of other phenomena present when seeing someone with a missing limb, think of social issues or the problems we have with something not looking like we are used to.

52 Heinrich Wölfflin, Prolegomena to a Psychology of Architecture (1886) in: Harry F Mallgrave, Eleftherios Ikonomo, Empathy, Form and Space: Problems in German Aesthetics 1873-1893 (Santa Monica: Getty Center, 1994) p.151
53 Idem p.151
54 Heinrich Wölfflin, p.157
55 Idem, p.161
Continuing to proportion Wölfflin takes on a standpoint again quite strongly related to tectonics. He understands proportion as the relationship amongst different parts, where the parts of interest are force and load. This is in sharp contrast with looking at parts as building elements. Wölfflin says that the force and the load should have a relationship suited to the place they occur, calling this a ‘physical principle’. Following this, lower placed parts for instance should be wider than higher placed parts and so forth. Thus theories like the ‘golden section’ are rejected when searching for proportion in a three-dimensional situation, because they apply to a flattened image of architecture, which doesn’t reflect the perceived image of a building. This however doesn’t resolve whether a theory like the ‘plastic number’ is applicable for generating the right proportions, since it was conceived to work with three-dimensional situations and doesn’t have a fixed ratio.

Harmony is understood in the Kantian sense as a system. Kant understands system as “the unity of various parts under one idea.” Wölfflin claims that unity has no expression, this could imply that a lack of unity could allow for more expression. Since proportion does have a large potential for expression it is dealt with separately by Wölfflin. In short when something is wider than it is high, it is ungainly and relaxed. When it becomes even wider, it loses its energy and forcefulness. When something is higher it is solid, compact, elegant and forceful. When it is stretched further it becomes slim, unstable, restless and upward ascendant. If something is square it is bulky, heavy, contented, plain, good natured, stupid and immobile.

This section has dealt with the animation of objects largely through abstract physical and geometrical properties affecting the mind and body. With this I have arrived at the point to progress towards two sections called the ‘analogy with music’ and ‘breathing and architecture’. These form a different type of animation of objects, dealing with the animation of the ensemble of different elements. This type is rich and relevant enough to deserve a separate treatment.

Before I will continue with the section about the ‘Analogy with Music’, I will first return back Wölfflin, he asked himself three important questions when dealing with the animation of
objects. I have shown in this paragraph that the animation of the object is an act where some sort of relationship between subject and object is brought to light. The subject projects its own properties on its environment, possibly meaning that there is some kind of phenomenological thinking behind the animation of the object.

The questions Wölfflin asked himself were: “Is the bodily response a condition for the impression of a mood? Are the sensory feelings simply the result of a lively imagination? Do psychological and physical activities run parallel?” The first question doesn’t necessarily have much to do with phenomenology, it might indicate that things aren’t that simple. In other words that there is more than just bodily responses informing the mind directly and unaffected. The second and third do directly hint at the subjectivity of perception. However these questions somehow aren’t quite precise enough. Regarding sensory feelings and imagination for instance, one can never say that all sensory feelings are fully imaginative. Nevertheless recognizing a portion of imagination in all or some sensory feelings is seems reasonable. It also points towards the complexity of identifying the amount and role of imagination in sensory feelings. The question whether psychological and physical activities run parallel seems to be quite a trivial one, to be answered with yes. But how do they run parallel, and is parallel to be understood as alongside each other without touching? Rather I think this question should be understood is if there is a bi-directional relationship between psychological and physical activities.

So whilst the questions as put forth by Wölfflin aren’t complete they still, together with his ideas about the animation of objects, hint at issues that would easily fit within phenomenological thinking, as discussed in the previous section.

56 Heinrich Wölfflin, Prolegomena to a Psychology of Architecture (1886) in: Harry F Mallgrave, Eleftherios Ikonomo, Empathy, Form and Space: Problems in German Aesthetics 1873-1893 (Santa Monica: Getty Center, 1994) p.166
57 Idem p.157
Analogy with Music

Discussing this theme I’m not only referring to direct analogies made to music when discussing architecture or the character of objects. Rather I am pointing towards the analogies made to music by authors when describing something, without making the analogy explicit, or even without the author realizing it himself. This last unconscious act is especially interesting because it is actually a form of synaesthesia. This section tries to show how music and shape have a strong synaesthetic relationship, so strong that music could be a worthwhile design tool.

I’ll illustrate this with a description of the routes of George Trakas by Sally Yard: Routes of the Hart orchestrates the viewer/ participant experience […] The journey lead from the domain of consciousness to the zone of the unconscious, suspending our literate and reactivating our preliterate spatio-temporal genes […].58 Vital in this sentence is the word orchestration. Yard uses it to explain that there is some sort control of the relationship between at least two phenomena in a certain sequence. The assumption that this is what Yard means by orchestration is because I automatically make a comparison to the control of a musical orchestra. The orchestra consists of several components, musicians, which get assigned a certain role in time in a piece of music. So orchestration as a verb is the putting together or control of multiple components in time with a particular role in a bigger whole. It is a compositional art.

Architecture historian Geoffrey Scott refers to music when describing the properties of Renaissance architecture: “[Renaissance] speaks by mass, space, line, coherence […] It makes them echo to the body’s music – its force and movement and repose. And the mind that is responsive to that harmony, it leads enchantingly among the measures of a dance in stone.”59 Scott uses the analogy with music explicit in his apprehension of Renaissance. He even expands this type of analogy with reference to harmony and dance, subjects connected to music. And when I speak of music as a sign of
the animation of objects, then the analogy with dance an even clearer sign one this phenomenon.

These are of course only two examples of these more or less subconscious references we make to music in relation to shape or rather arrangement, but the point has been made nevertheless. This is confirmed by the words of Wölfflin: “The idea that architecture is frozen music simply describes the common effect that both arts have on us. The rhythmic waves press in on us, take hold of us, and draw us into the beautiful motion; everything formless dissolves and for a few moments we enjoy the good fortune of being freed from gravity and the downward pull of matter.”

This takes the analogy a bit further in the sense that it provides the idea that music is a popular analogy because it frees objects from their physical restraints. Music is one of the most free forms of expression one can imagine, providing a utopian promise for physical objects of escaping gravity.

To explain something more about music in relation to architecture, I will address some characteristics of the ‘German Pavilion’ in Barcelona, by Mies van der Rohe. One has to only look very briefly at the floor plans of some of his buildings to see a big difference in the way walls and columns are placed on the smallest grid of the tiling. The German Pavilion is the only one where the walls are placed out of the system of the tiling and the columns do conform to it.

Because of these ‘irregularities’ the building seems to come to life. In contrast a building that is built exactly within the confines of a strict grid can become sterile, like a piece of music with merely a beat and no melody. In the German Pavilion there is a balance between elements in sync with the grid and the elements slightly out of sync. These out of sync elements become points of emphasis in a whole.

58 Sally Yard, George Trakas: Constructions, Wallpieces, Drawings (La Jolla (CA): Quint Krichman Projects, 1992) p.8
60 Heinrich Wölfflin, Prolegomena to a Psychology of Architecture (1886) in: Harry F Mallgrave, Eleftherios Ikonomo, Empathy, Form and Space: Problems in German Aesthetics 1873-1893 (Santa Monica: Getty Center, 1994) p.161
Similarly there is a play between being inside and outside, between closed and open. Except for the small bookshop there is no place where the building reaches a full enclosure, the actual space can never be really grasped. Like music one can experience it but not fixate it, the space has to be ‘played’ by moving through the building.

Breathing and Architecture

As an extension of the analogy of music in architecture I will deal with the idea of breathing in relation to architecture. I see breathing as an extension of music because of the presence of a rhythm in both phenomena. Additionally many music instruments make use of breathing, making the link even more obvious. When making a comparison between breathing and music, one can notice that what they have in common is tempo, intensity and maybe a certain tone. Music has quite some more refined characteristics like melody, multiplicity of instruments etcetera. However the act of breathing can have a much more powerful effect on us, relating even more directly to our inner emotional status. What further should be noted is that breathing is not an analogy for something else like music, but a possible physical result of external stimuli. To support this interesting argument I will present here the thoughts of Wölfflin on the matter. He is a strong advocate of the idea of a strong link between breathing and architecture through the psyche.

I will start of with breathing as a form of empathy: “The rhythm of breathing that we perceive in others is what is most easily transferred to us. We may remain impassive when viewing the physical pain of another person, but we are horrified to see someone suffocating, for we vicariously feel the agony. This fact is important, for breathing is the most direct organ of expression.”61 This understanding of empathy through breathing is important in relationship to architecture, because of the apparent emotional content that breathing can evoke. This happens through the act of projecting an event or object onto ourselves.

The next important aspect of breathing recognized by Wölfflin
is quite a difficult one. It is the relationship between breathing and eurythmy: “The posture of the body affects the circulation of the blood and the rhythm of breathing. Our consideration of conditions of balance thus leads us to what in architecture has been called serial regularity or ‘eurythmy’.”62 Eurythmy is a reference to harmonic balance in dance, music and architecture. This harmonic balance in a building should evoke a feeling of relaxation, thus slowing down the tempo of breathing. In contrast a building out of balance, in an apparent state of collapsing, causes an inner fear, combined with a more rapid tempo of breathing. 

From the issue of balance the step towards proportion in relation to breathing is a logical one. Wölfflin is very practical about this issue: “Of great interest is the relation of proportions to the rate of breathing. It cannot be doubted that very narrow proportions produce the impression of an almost breathless and hurried upward striving. Naturally, we immediately associate them with the idea of tightness, which makes it impossible for us to continue to breathe deeply with the necessary lateral expansion.”63 Proportion and breathing are linked in a very direct manner here by Wölfflin, like mentioned before verticality carries a certain restlessness, which is here directly linked to breathing tempo.

An elaboration on this is provided by Wölfflin’s statements about the link between volume and breathing: “[...] our respiration harmonizes with the expansive or narrow nature of the space. In the former case we are stimulated as if we ourselves were the supporting columns; in the latter case we breathe as deeply and fully as if our chest were as wide as the hall.”64 Whilst the argument of the proportional space might be largely connected to visual apprehension of a space and thus featuring a purely mental projection of confinement is expressed through breathing, the link with volume has more depth. The actual volume of a space is also apprehended through acoustical properties, this in its turn refers to Goethe who once remarked: “We ought to sense the effect of a beautiful room, even if we were led through it blindfolded, he was expressing the very same idea: that the architectural impression, far from being some kind of “reckoning of the eye.”65 This gives a hint towards a different understanding of
space, not only through the eye, but through the ears, the nose or the emotional content. Probably the most outstanding example of this is the Turbine Hall in the Tate Modern in London, in particular when it featured the ‘Weather Project’ by Olafur Eliasson. The Turbine Hall is so big that it feels more like an outside space. The most noticeable effect of this is that frequently people start lying down on the floor of the hall to relax. Of course this is also possible because of the smooth floor and the absence of an exhibition on that floor. Nevertheless the occurrence of the phenomenon can be largely contributed to the relaxation the space causes. At the time the ‘Weather Project’ was present in the hall, the number of people that started to lie down on the floor increased significantly as can be seen in pictures from that period. Because of the imitation of a setting sun in combination with a high degree of humidity made the space feel even more natural and relaxing. This example of the Turbine Hall, can also be seen as contradictory to the theories of Wölfflin, because what can seen as being decisive for this space is the scale of it, not the proportion. When one looks very carefully the Turbine Hall is very high and long compared to its width, this contradicts the theory that what is narrow causes a higher tempo of breathing, because of the calmness of the space. One could also argue that the proportions Wölfflin refers to are related to human beings and that the Turbine Hall is so big one doesn’t relate it back to human scale, positively or negatively.
62 Idem p.151
63 Idem p.173
64 Idem p.155
65 Idem p.155
The Narrative

This essay deals with the concept of the narrative and forms the formal conclusion of this research, hinting at possibilities for the design phase of a the project. It explains how a narrative can be a suitable strategy to design a building which consists out of moments of sensory intensification. It is also an elaboration on the issues covered in the paragraph on synaesthesia, it stresses the influence of language on perception.

Time, narrative, perception

I) Diagram of the lodge described by William Beckford, Drawing by A. Vidler

1 Wall
2 Woodpiles
3 Pyramidal entrance
4 Barnish hall
5 Antechamber and cottage
6 Room with the white cockatoo
7 Curtain
8 Main Salon
9 Aromatic fire and giant laver
10 Grant stair
11 Tribute and chapel

J) Claude Nicolas Ledoux, Drawing of the Entrance Bridge to the utopian city of Chaux (France, 1624)
The Narrative as a Concept

Whilst there are many claims that art in its essence doesn’t deal with the intellectual, this doesn’t mean that art should do without, or can’t benefit from, an a-priori concept to structure the different ingredients of a piece of art. In the case of architecture this potential benefit from an a-priori concept increases, because architecture always consists of multiple layers of meaning.

One of the advocates for understanding architecture in terms of united layers of meaning is Steven Holl: “[architecture is] An art of duration, crossing the abyss between ideas and orders of perception, between flow and place, it is a binding force. It bridges the yawning gap between the intellect and senses of sight, sound and touch, between the highest aspirations of thought and the body’s visceral and emotional desires. A multiplicity of times are fastened, a multitude of phenomena are fused, and a manifold intention is realized.”

Holl recognizes three levels of interest: the intellect, architecture and perception. Despite seeing architecture, the intellect and the senses as separate phenomena, he sees architecture as a connecting device. This makes the transition to developing architecture as a result of sensory devices arranged around an intellectual idea, a narrative, very logical.

An interesting example of the use of a narrative in architecture is described in Anthony Vidler’s book on 18th century architect Claude Nicolas Ledoux. Ledoux takes his friend, the English writer William Beckford, to an unknown place he has built for a society of free-masons. From Beckford’s description of this trip, Vidler derives a narrative: “But, as Beckford described this particular lodge, it is evident that Ledoux, the architect-initiate, had added another layer of symbolism to the ritual, confirmed by sequence of space leading to the final sanctum. From the dead landscape of woodpiles to the chapel, Ledoux had mirrored the entire history of civilization in architecture. The woodpiles, like some primitive village, were evidently symbolic of origins, the abandoned huts of early man; the hut-pyramid

marked an Egyptian stage; ‘the barnish hall’ seemed to signify the Middle-Ages, home of chivalry and magic, the cottage, of Rousseau-esque simplicity, no doubt referred to the eighteenth-century ideal of natural life and rustic morality; the cubic room with the white bird denoted the beginning of civilization, in a spiritual realm formed out of light in darkness, the sublime version of a new society. In Ledoux’s design, architecture formed the instrument for provoking appropriate states of mind along this ritual route, and its symbolic reification.”

The sequence of spaces tells the story of the development of architecture, and with that the history of man as far as we know it from a western perspective. Ledoux has taken the idea of a narrative as a sequence of spaces very literal. Every space has with its own character an individual role within the overall development. Besides this Ledoux has used very sense related means like smoke, water, fire and very intense light to express the character of each space.

Besides this story of the journey of Ledoux and Beckford, Ledoux has also made a plan for his ideal town called ‘Chaux’ using the idea of a narrative. “For Ledoux the device of the journey […] served a slightly different but related purpose. […] it operated as a unifying narrative form, recounted by a single voice, not that of the author or architect but of a fictional voyageur, […]” Ledoux thus imagines his architecture like one imagines a character moving through a film set. The intellectual content preceding the phase of architectural conception could then be described as a film script.

With this I’ve given an example of how to create coherence and meaning amongst a number of different spaces or installations with the use of a story. Following this I will explain how language is a suitable medium to conceive spaces or situations. In order to do this I will first return to synaesthetics. In short synaesthesia means that every sensory experience, whether perceived through the eyes, ears or nose can be connected through the use of words. A comparable act to doing this is

3 Idem p.342

K)Daniel Libeskind, Two Axes of the Jewish Museum (Berlin, Germany, 1999)
‘mimesis’, therefore I want to shortly address the similarities between synaesthesia and mimesis as Walter Benjamin understood it: “Human beings’ faculty for mimesis […] has two aspects: in its original sense it has to do with one’s faculty for comparing or identifying oneself with something else, as a child at play will identify with a baker or a footballer, or with a train or a donkey; in a weaker derivative form it can be seen in our faculty for discovering correspondences and similarities between things that are apparently different.”

The similarities with synaesthesia are striking; firstly the act of identifying is an associative one. Where association is the search for a way of comparing things that don’t belong to the same category or realm. Secondly mimesis also has to do with experience. Nevertheless, being different terms, there are differences between mimesis and synaesthesia. Mimesis as Benjamin understands it has got to do with comparing objects, whilst synaesthesia has got to do with the properties of things after perception. Although mimesis is not exclusively something done through language, Benjamin concludes, “[language] may be seen as the highest level of mimetic behaviour and the most complete archive of non-sensuous similarity: a medium into which the earlier powers of mimetic production and comprehension have passed without residue.”

The use of language as a mean for architectural conception has a consequence that a cultural dimension is introduced. Every language has different words and sentence constructions, hinting at differences spatial understanding. The importance and extend of the influence of language is fully recognized by Edward Hall in ‘The Hidden Dimension’:

“If one examines literature for structure rather than content it is possible to find things that will shed light on historical trends and shifts in sense modalities. There is no doubt in my mind but that such shifts are highly relevant to the type of environment that man finds most congenial at different times and for different cultures. […] To me at least the historical and cultural differences are quite obvious.”

The recognition of the cultural factor is not something necessarily obstructing making generalisations; it means that a certain input will not lead to a predefined output and that one has to be site-specific with the used narrative.
To stress the importance of language once more, I will quote David Canter: “This ability [of speech] to deal with conceptual representations without the actual presence of an object or a situation increases enormously man’s power to cope with his environment. Speech then, and the power to learn associations by means of it, requires a totally different orientation towards that behaviour in man, which might seem superficially to be analogous to territorial behaviour in animals.” Canter claims that the ability of man to develop from generation to generation as well as in one’s own lifetime is largely dependent on language.

One contemporary example has to be addressed when talking about a building developed around a multitude of stories, namely the Jewish Museum in Berlin by Daniel Libeskind. The museum was conceived around three ideas; the ‘Axis of Exile’, the ‘Axis of Death’ and the ‘Axis of Continuity’. These axes represent, according to Libeskind, certain characteristics of Jewish culture and history. The ‘Axis of Exile’ features an exhibition of Jewish people fleeing Germany, ending in the ‘Garden of Exile’. The ‘Axis of Death’ features remnants of the belongings of people dying in the holocaust, ending in the empty ‘Holocaust Tower’. The ‘Axis of Continuity’ features an exhibition on the Jews still present in Germany after World War II, ending in a staircase progressing into the general exhibition part on the three stories above ground. This clearly shows that a building can be developed around one or multiple story lines, expressing an intellectual message, involving your senses through built form.

Language is often overlooked when considering the senses, because it is something abstract, the representation of something else, that is considered to be real. But this ability to

represent something is a human capacity, one which is partly responsible for the difference between our perceptions and those of animals.

‘The Burrow’, an unfinished short story by Franz Kafka, is a piece of literature containing a lot of spatial and sensory descriptions in relation to emotions. One can construct a spatial image from the carefully chosen words of Kafka. The main character, in fact the only one in the story, is considered to be a humanized animal living underground cut off from the outside world, becoming slowly paranoid. “[...] for it was an almost inaudible whistling noise that wakened me. […] I must have silence in my passages. This noise, however, is a comparatively innocent one; I did not hear it at all when I first arrived, although it must certainly have been there; I must first feel quite at home before I could hear it; it is, so to speak, audible only to the ear of the householder.”8 Just this short piece of text shows three different thoughts derived from one sensory input. First there is the way in which Kafka describes the untraceable noise opens up a world of fantasy in the mind of the main character, something he elaborates on later on in the story. Secondly it shows that it takes time to become truly aware of every sensory stimulus present in a single environment. Thirdly there is the difficulty one has with places where you cannot control the stimuli you receive.

This writing style of Kafka causes one very simple sound to become a world in itself. With this I intend to show the rich possibilities of written text as a way of a second reality, opening up the associative qualities human beings have because of written text.

The idea is to simply let a voice describe a space, without the visitor actually seeing the space. This will construct a spatial world, which is different for everybody, revealing the individuality of the associations we all make through synaesthesia. After this the contact to the outside world as we know will be re-established through sound, scent, or sight. However the world will be presented through a filter or a framing making it less familiar.
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