



Domesticity's Last Supper

Virtual Reality in the Domestic Interior

Alexandra Bicheler

Graduation Thesis Project
Alexandra Bicheler

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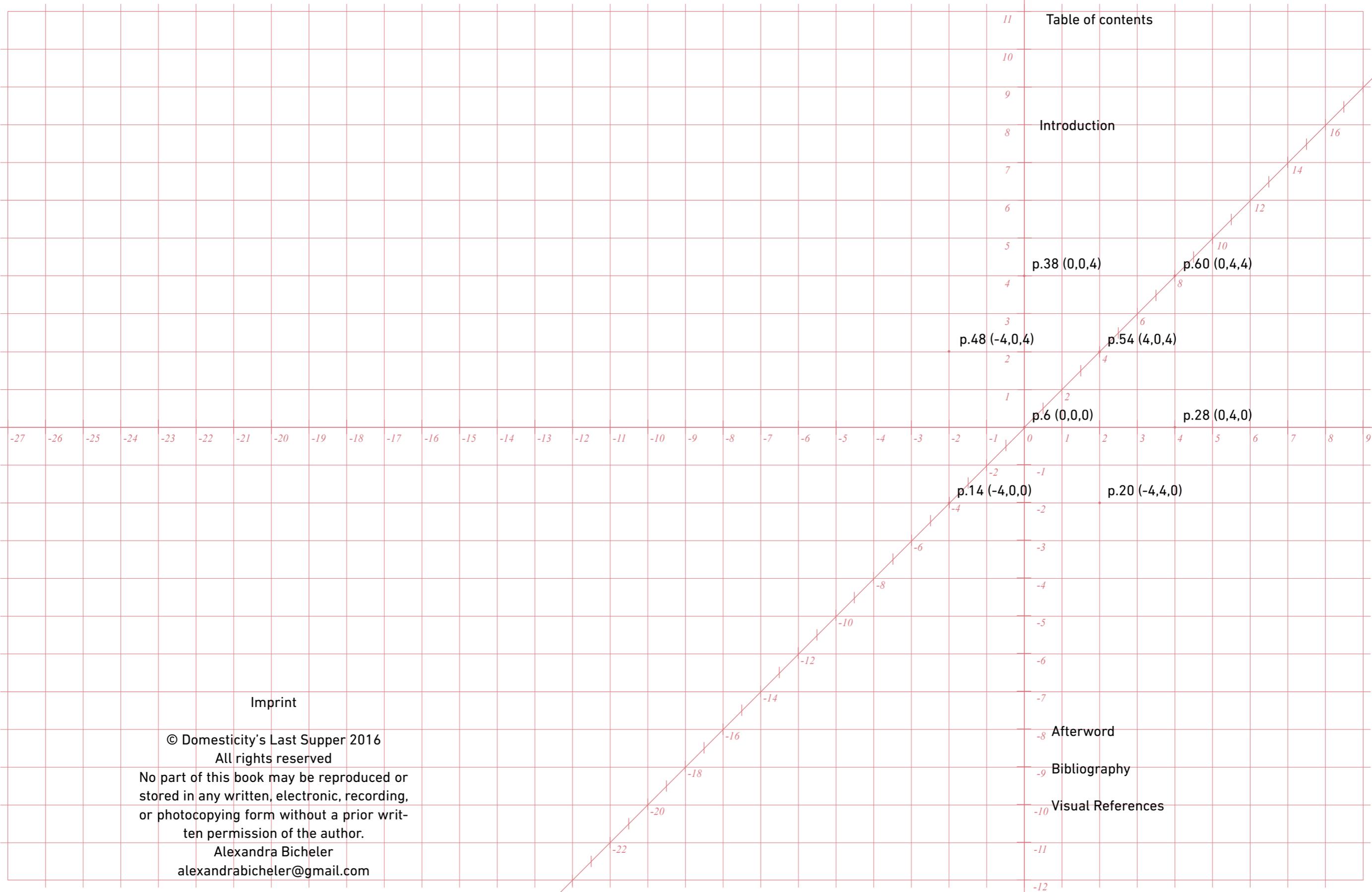
Virtual Reality in the Domestic Interior

Master of Interior Architecture & Retail Design

Piet Zwart Institute
Willem de Kooning Academy - Rotterdam University

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Imprint

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Afterword

Bibliography

Visual References

This master thesis developed out of the curiosity to research a possible future scenario for the domestic interior. I was asking myself, what could it be? Which technological advancements will lead to which forms and functions, and how will we adapt to it? I was starting my research, and found soon that under the shallow surface of my interest for the future lies something more meaningful to me: The question of what the domestic interior really is – now.

I want to start with an anecdote from my childhood. I remember quite clearly that very first moment I asked myself, why is the cup called a cup? It is especially about the word 'Becher', which is German, meaning cup. At this moment I realised all of a sudden, that the word sounds very odd, in a way very inelegant, and I didn't see the name reflected in its function – I thought. Ever since this moment reoccurred, and always when I heard the word 'Becher', an image appeared in my mind, my own hands holding a green plastic cup with a purple strip on its lid. I was then thinking about its shape, its use and, of course, its strange name again with the aim to finally understand this thing. Now, years later, this well-known moment happened to me again. This time I realised, that the green cup is an object that existed once, in my childhood, and accompanied all the strawberry picking and forest trips, and was some simple Tupperware product. This time I was also sitting in front of my computer, and with the green cup hovering in my mind I typed the words in. The German word 'Becher' originates from Greek 'bikos' and simply means earthen vessel, or jar.

One might think I was disappointed about such an austere explanation. But I was felicitous. All of a sudden the whole odd thing became tangible and made sense: an object that was shaped to keep something. This simple disclosure released all the weird pressure of what this object actually is. But also, before I fully 'understood' the object,

I already span a whole imaginary story around it, which ever since accompanied the word 'Becher'. And furthermore it already proved well its function: although imagined, it kept my memories well without losing a drop.

This said, the domestic interior itself is a highly complex space. It is where our daily lives take place, where we eat and sleep, work and relax. It is where we find shelter from the elements, and where we can shut ourselves off from the pulsating outside world. The domestic interior is a physical instance which reflects a rich image of our personality. It is an agglomeration of objects, which all willingly or unwillingly have their anchored place within the space. It is, as Gaston Bachelard once wrote "our own corner of the world" (Bachelard, 1968).

This thesis is about imagination and poetics, and about analysis and efficiency. About the past, the present and the future and about parallel worlds and their visitors. It is about emotions, the senses and atmosphere, and about technology and standardization. It is about materiality, immateriality and mixed reality: In this thesis I will analyse the reality of the domestic interior by juxtaposing virtual reality and rationality.

How real is the domestic interior? Or, what is real in the domestic interior and what is not? And what is it, that is 'real', and what is it, that is not 'real'? Is something declared as 'real' which is simply declared as being physically present, or 'tangibilized' in some other form, for instance words printed? But what if something is not 'real', is it fake? And how does a 'fake' then justify its presence in reality? Does 'real' mean being authentic, in terms of having true values inherent? And are those values manifested within the object – or are they applied?

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The Grid

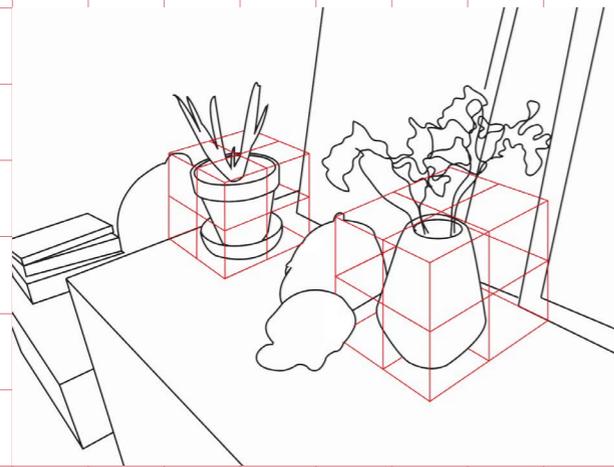


Figure 1 : Topography of geometric objects with grid-cube around

When I wake up in the morning, I immediately see my room through a red grid. But I don't mean that the first thing which comes to my mind, when I'm still half unconscious, is to imagine my room covered in a grid. No, I literally see through it as I open my eyes and the light falls onto my retina, projecting an upside down image onto the canvas of my eyeball. 'Retina' originates from Latin 'rete' meaning 'net', and in German we call it 'Netzhaut' – 'net skin'. I check the time on my iPhone, Apple Retina display – what?! Ah yes, right, pixels, a grid, high resolution surface...

Then I get up, still trying to discard the remaining fragments of my dream, remove the blanket and set one foot on the cold floor: reality. The other foot, I'm standing upright on a fixed position in my room. My eyes are slowly getting used to the dim light condition, and I can draw a line from where I stand to the spot where I need to go to pull up the blinds and open the window.

Turning around again, my room changed into a crisp space, a little world itself with a topography of different geometric objects: mostly rectangular shapes, but sometimes also rounded, or mixed, irregular geometries. Those objects have all been produced, and therefore measured, to achieve the right scale, to fit the right proportions, to fit into a standardized system. But what does the right scale, and the right proportions, determine?

Looking at those objects, I'm tempted to imagine around each of them a cube which is itself divided into centimetres, millimetres... Something which I learned at school, to describe the real proportions and scale of an object in numbers: this is five by five metres, this six by seven by eight centimetres, and this one has an average of ten millimetres, hence fits into a square which is itself ten by ten millimetres. If I draw horizontals and verticals within this frame, each spacing the same distance, I receive a pattern of squares all equally sized, a multitude of orthogonal lines: I receive a grid (see figure 1). So, where should I start to introduce the grid?

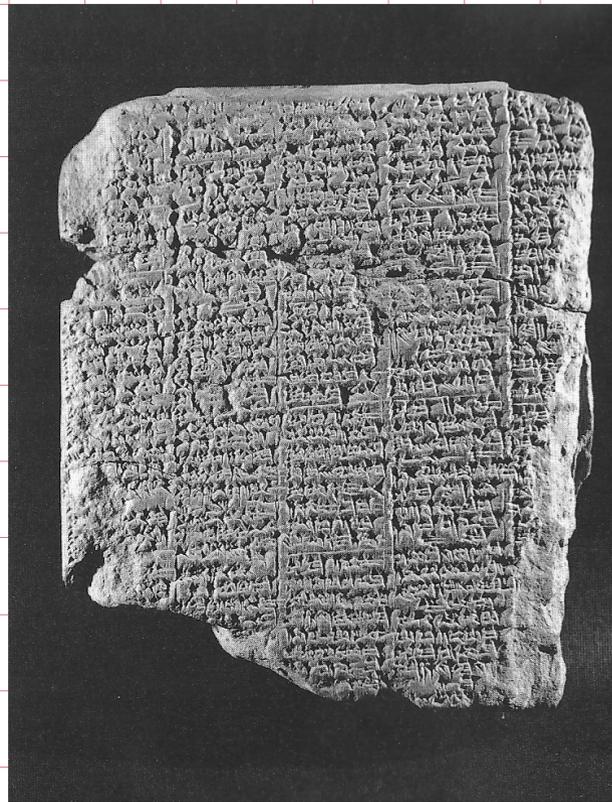


Figure 2: Codex Hammurabi: The grid structures pictographs and society



Figure 3: The ancient city of Priene moulded into the landscape

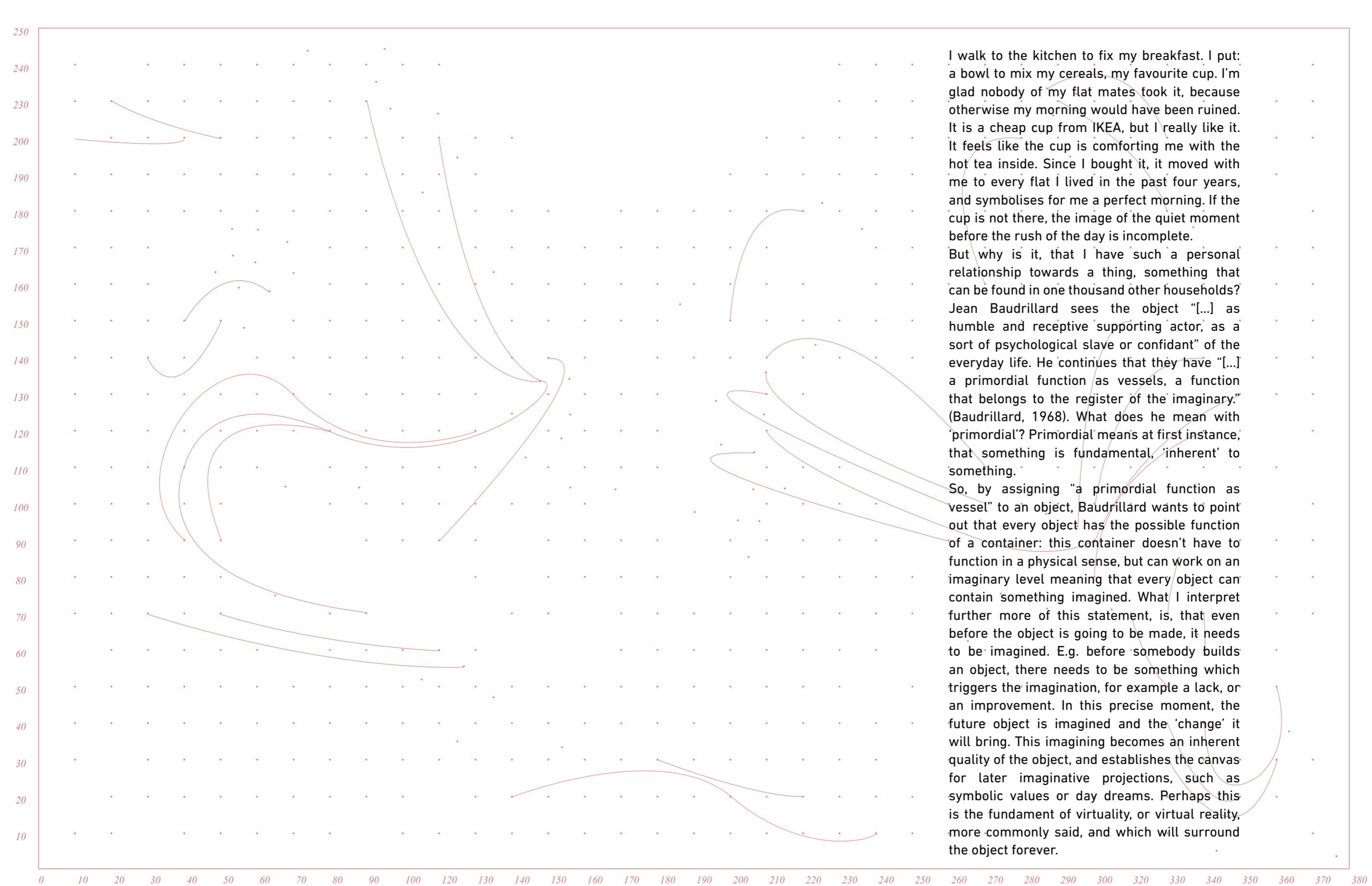
From the writings of Hannah B. Higgins I conclude three different “types” of the grid. The first type is the passive grid which came to be accidentally in ancient Mesopotamia, around 9000 BCE. Somebody had the idea to shape mud into a rectangular shape, let it dry by sun and, together with other pieces, stack them on top of each other. This was the prototype of the brick, and consequently the physical appearance of the grid, congealed between the modules. It wasn't until six thousand years later, through the invention of cuneiform script that the grid was awakened and deliberately turned visible to structure pictographic ancient tables - and society by fixing the first civic regulations into the mouldable clay.

The second type of grid is the harmonic, if not even 'spiritual'. Although already applied as city grid (“gridiron”) in ancient Egypt and India, by its arrival in ancient Greece the orthogonal lines of the grid were blended with the Greek's mystification of geometry. In this context it is important to mention, that the Greeks were not only seeking to explain natural phenomena by mathematical equations or proportion theories, but they were also living in harmony with such “rational” concepts. The same goes for the application of the gridiron, which wasn't only to structure urban zones for social purposes but to achieve a unity between city, topography and natural phenomena. Instead of superimposing the grid structure on the natural topography, the Greeks were melding grid and landscape as in the ancient city of Priene (see figure 3).

The Roman empire eventually rationalised the grid, a third type. Recycling knowledge from ancient Mesopotamia (the brick) and Greece (proportion theories), the Romans hybridized for example the brick: Architect Vitruv combined Polykleitos' canon of proportions with the dimensions of the brick. One brick was now the size of a palm or a foot, the grid became a measurable dimension based on human proportions (Vitruvius, Dewar, Howe, Rowland, 1999). The grid plan was also applied to Roman cities, but turned into a mere

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The Symbolic Image

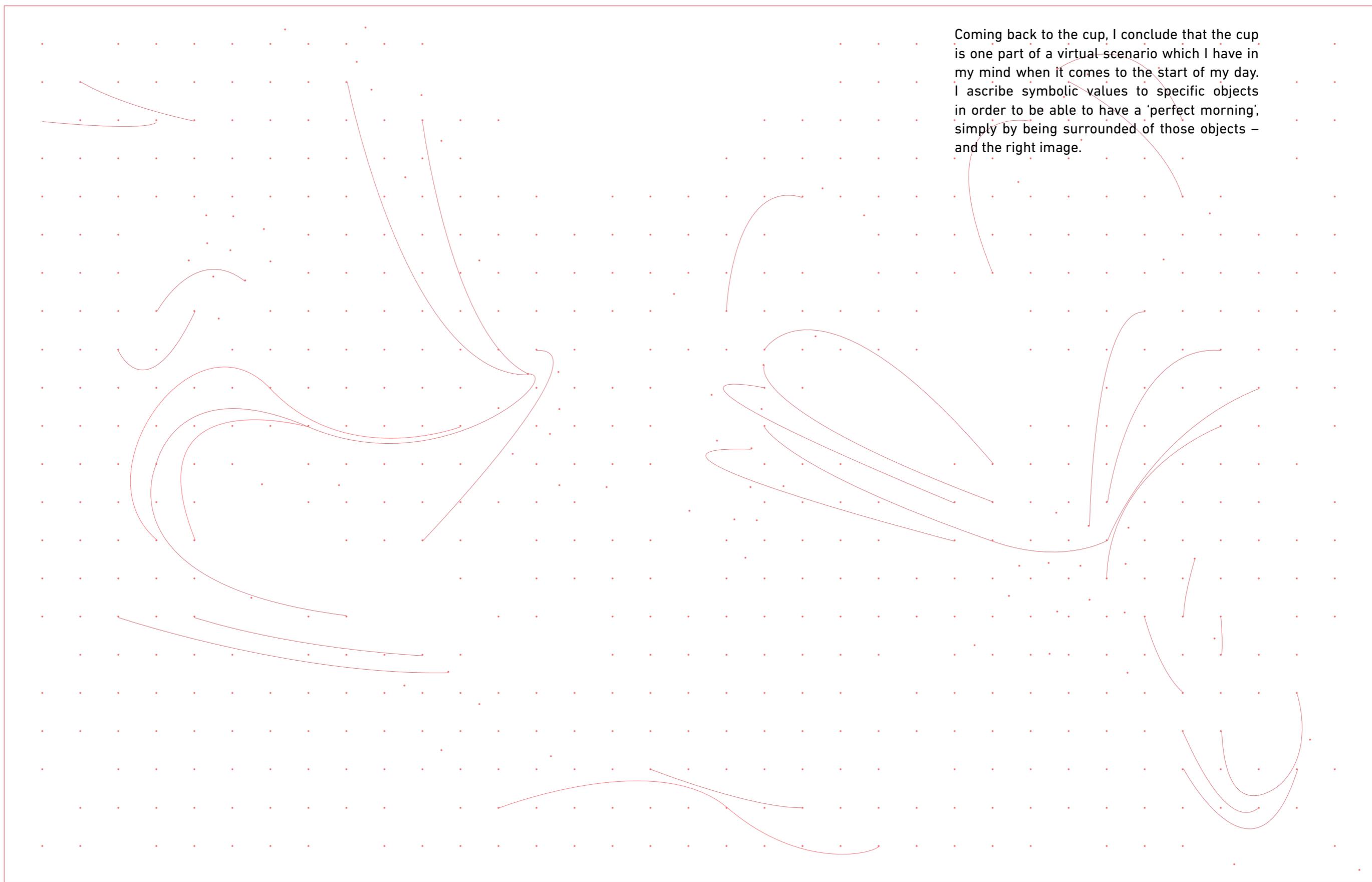


I walk to the kitchen to fix my breakfast. I put: a bowl to mix my cereals, my favourite cup. I'm glad nobody of my flat mates took it, because otherwise my morning would have been ruined. It is a cheap cup from IKEA, but I really like it. It feels like the cup is comforting me with the hot tea inside. Since I bought it, it moved with me to every flat I lived in the past four years, and symbolises for me a perfect morning. If the cup is not there, the image of the quiet moment before the rush of the day is incomplete.

But why is it, that I have such a personal relationship towards a thing, something that can be found in one thousand other households? Jean Baudrillard sees the object "[...]" as humble and receptive supporting actor, as a sort of psychological slave or confidant" of the everyday life. He continues that they have "[...] a primordial function as vessels, a function that belongs to the register of the imaginary." (Baudrillard, 1968). What does he mean with 'primordial'? Primordial means at first instance, that something is fundamental, 'inherent' to something.

So, by assigning "a primordial function as vessel" to an object, Baudrillard wants to point out that every object has the possible function of a container: this container doesn't have to function in a physical sense, but can work on an imaginary level meaning that every object can contain something imagined. What I interpret further more of this statement, is, that even before the object is going to be made, it needs to be imagined. E.g. before somebody builds an object, there needs to be something which triggers the imagination, for example a lack, or an improvement. In this precise moment, the future object is imagined and the 'change' it will bring. This imagining becomes an inherent quality of the object, and establishes the canvas for later imaginative projections, such as symbolic values or day dreams. Perhaps this is the fundament of virtuality, or virtual reality, more commonly said, and which will surround the object forever.

Coming back to the cup, I conclude that the cup is one part of a virtual scenario which I have in my mind when it comes to the start of my day. I ascribe symbolic values to specific objects in order to be able to have a 'perfect morning', simply by being surrounded of those objects – and the right image.



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The Representation of Reality

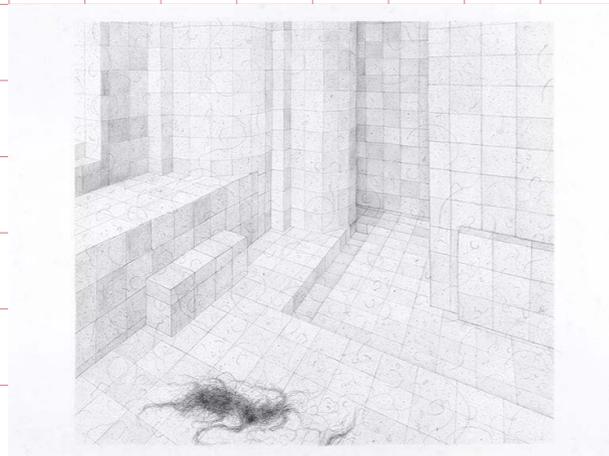


Figure 5: Adriana Varejão 'The Wicked' (2009)



Figure 6: Jean-Pierre Reynaud 'Maison' (1969 - 1993)

The knife I picked wasn't cutting well and so the juice of the grapefruit spread everywhere. I transfer the fruit to my bowl, wipe the countertop and the perfectly applied tiles in the back so they are unblemished again: full stop. It seems like the application of tiles always ends in some obsession, the obsession of the perfect 'pattern'. Although tiles might be applied shifted or more freely according to an irregular shape, in the end they tend to create a pattern which is overruling the 'whole' surface – and which emphasizes every irregularity. In her "Sauna Series" Adriana Varejão illustrates the "formal perfection" of tiled bathing spaces, yet the abandoned images show irregularities: Traces of the human body (Lucarelli, 2015).

The artist Jean-Pierre Reynaud shared this obsession with the grid as well, and created out of white tiles and black seams "[...] an absolute space, controlled by a regular grid, and at the same time to cover it with a material which is part of the collective memory, as the mass-produced and humble tiles are recurrent in most people's houses. A simple serial device is destined here to control a complex space." (Fabrizi, 2015).

The space, more specifically its three-dimensionality of floor – walls – ceiling, gains "absoluteness" through the sharp black grid lines pointing into the distance of the space, emphasizing every edge and corner, the space becomes 'absolutely real'. Visualising the geometric reality of the space to such an extent, everything which doesn't follow the same aesthetics becomes overemphasized and unreal, and hence loses its camouflaging capability as the ordinary. Every 'ordinary' object, like plants, carpets or glasses appear in contrast artificial, unreal and in a way ironic (see figure 6).

Interesting here is, that it's a reverse effect: the grid, which usually operates in the background, especially in terms of spatial structures, and which helps to design an aesthetic result, turns here into the aesthetic result. To put it in other words: a tool to represent reality becomes the reality: We see the space through the grid, it

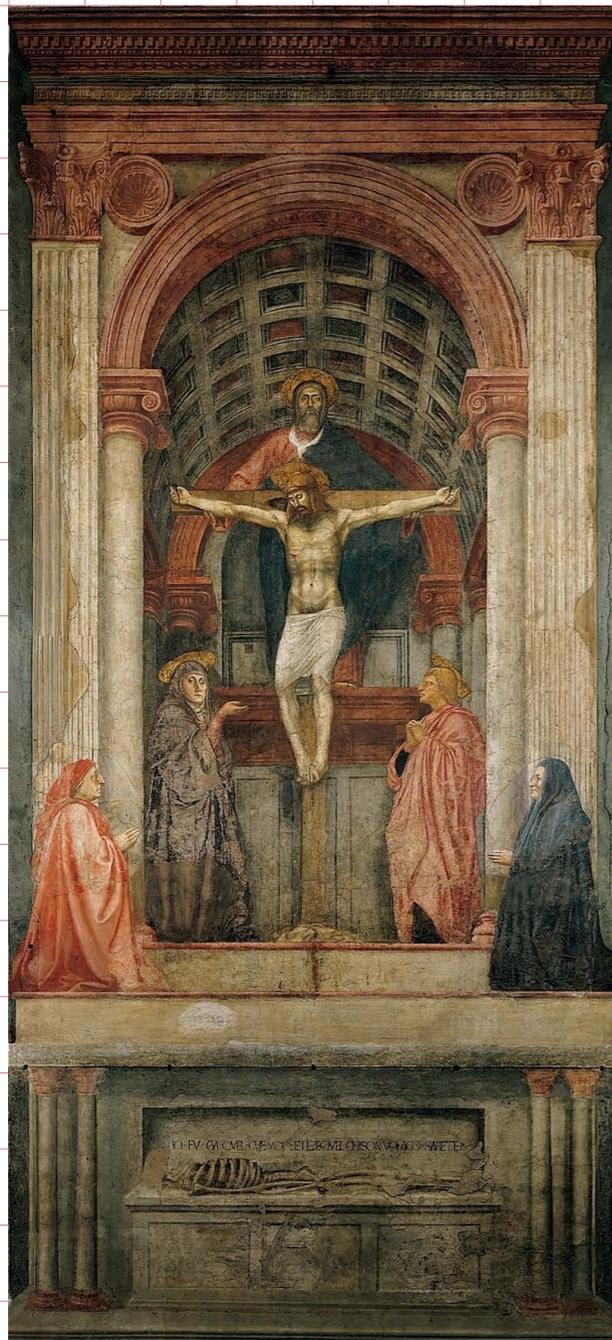


Figure 7 : Masaccio's fresco *Holy Trinity* (1425) is known as the first fully developed linear perspective

becomes hyper-real. And this will link me to the meticulous scholars of the Renaissance: During the medieval times, the live of western civilization was dominated by Christian dogmatism and symbolism which led to stagnation and fading of the ancient motivation to explain the world in scientific and analytical terms (Encyclopedia Britannica, 2016). In the Renaissance these early values were revitalized plus a new form of humanism was developed. I consider da Vinci's *Vitruvian Man* (1490) as one very concise example to illustrate this shift of perception visually: derived from Vitruvian architecture theory, the human being as being the measure of itself, is drawn in the exact centre of a square, and a circle around. The human being as conscious subject is back in focus. More striking to me is, that with the Renaissance all of a sudden the flat bodies of medieval paintings curve, buckle and stretch. But not only this, the whole depicting world seems to shake – and within the next moment an almost realistically looking human portrayal pops up: In an almost realistically looking space. Certainly influenced by the shift towards the human being as a central element, an individual being, the scholars of the new age developed the linear perspective with the grid at its base. This drawing technique changes the flat canvas into an illusionistic three dimensional space, which draws the viewer visually inwards. The grid is used here as a structural tool in order to represent reality more realistically, and visible “traces” in the paintings of the grid, such as a coffered ceiling, reinforce the effect dramatically (see figure 7). Such paintings were used to be large and had their focal point positioned on the eyelevel of the observer. Like this, the painting turned into a quiet realistic looking additional space. Turning into a tool to make the representation of reality more realistic, the grid did not remain “software” that was applied and then concealed by paint. It literally turned into a tool, physical hardware, like Albrecht Dürer's woodcut

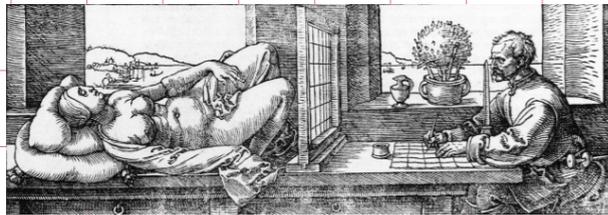


Figure 8: Looking through the grid: A draughtsman depicting a nude by the help of a gridded screen

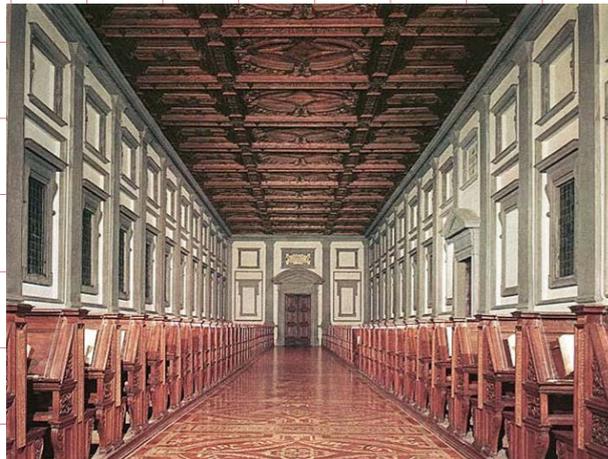


Figure 9: Linear perspective emphasizing the absoluteness of the space



Figure 10: Jan Dibbets: *Perspective Corrections - My Studio II* (1969)

Draughtsman Drawing a Recumbent Woman (1525) illustrates. The image shows a man depicting a lying nude by looking through a frame partitioned into squares between the artist and the lying woman (see figure 8). By all accounts people started to look at the world through the grid (Balsom, 2016):

The Laurentian Library of Michelangelo seems to be one early example of using the dramaturgic effect of the grid and the linear perspective to intensify and stage space itself. Entering the huge vestibule of the library with its enormous staircase, the visitor is lured into the long and narrow reading room which appears almost infinite in depth through the seemingly forever receding windows, frames, floor tiles and clad wood ceiling: structured by the grid the reality of the space is dramatically doubled through the perspectival overemphasis.

Just as in Jean-Pierre Reynaud's "Maison", the space gains absoluteness through the exposure of the grid, which is now awakened of its age long slumber. The grid becomes domesticated, and propels the widespread of illusionistic "devices" such as the trompe l'œil and the Dutch perspective box. The fascination for the illusion of reality remains until today. The artist Jan Dibbets deploys the methodology of linear perspective in order to stage picture-like scenes by arranging objects or other physical interventions in space. The results of his *Perspective Corrections* are illusionistic images of decontextualized objects which are hovering above or in front the existing space.

Interesting is, to perceive the illusionistic effect, the grid needs to be distorted or reconfigured in order to create depth or a seemingly real shape. Doesn't this detail point towards the assertion, that to perceive something as real, the grid needs to be distorted?...

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The Virtual Interior



Figure 11: The designers of the online store *Present & Correct* made it to their obsession to collect and arranging stationary



Figure 12: One of the many desk-variations found on *Pinterest*. "Vintage blow-up"

Being late already, I stack my dishes into the dish washer, finish my morning routine and finally find myself standing in front of my desk. I look at it, its untidy. I quickly put everything into order, I'm glad most of the things are rectangular, and I create a suitable spot for each piece. Two minutes later I sit on my desk, open the laptop, push the flowers a bit more left so they don't hang into my screen, and start working.

Honestly, it doesn't take me long to interrupt. Messages on my phone, and on my computer screen I already opened five hundred tabs that "I want to read later". Slightly annoyed, I open one of the tabs, "Pinterest", and enter the search term "desk". I scroll through uncountable images of fancy tables which do everything but resemble a "traditional" desk. The multitude of objects and materials is breath taking. What is even more interesting is, that most of those objects undergo a certain notion of misuse. I think: is this rustic wooden table top on black metal stands convenient to work on? What precious secrets are hidden in the pastel-coloured octagonal caskets? Why are the pictures of a disposable camera fitted into a 'polaroid' frame? And why is all this 'vintage blow-up' when in the centre sits enthroned a silvery, slender and seductive computer, like the ever so long awaited visitor from another star, or, the future?

The weird thing is, why do those objects need to represent such aesthetics? With the arrival of the industrialisation and mass production, the object wasn't crafted by human hands anymore, but instead by a machine. The object now lacked being a unique item, which was produced by some age old knowledge and mastery of technique through human hands. Not only uniqueness, but also the virtue of imagination which comes by making began to totter: the new objects produced were numb replica of each other.

Dozens of new and shiny objects are the result, which all look the same, have the same proportions... And which all stand beaded like a Roman army ready to conquer our homes:



Figure 13: The Chicago Stone: Ancient tablets regulated early trade

 A page from an early ledger book with a grid. The page is titled "SHEET NO. 1" and "ACCOUNT NO. 101". It contains handwritten entries in a ledger format with columns for DATE, ITEMS, Debits, and Credits.

DATE	ITEMS	Debits	DATE	ITEMS	Credits
Nov 12	Spk from S. M. Alth	168 70	Nov 12	Draft to Barton 75	59 75
13	" " Royal 71	173 50	15	Bal.	272 45
		332 20			332 20
13	Bal.	272 45	20	Draft to Barton 75	16 65
20	Spk from Royal 71	154 20	21	Bal.	266
		426 65			426 65
20	Bal.	266 00	27	Draft to Barton 75	16 85
27	Spk from Royal 71	110 20			277 75
		376 20			376 20
27	Bal.	266 00	Dec 4	Draft to Barton 75	166 20
Dec 4	Spk from Royal 71	126 30			266 00
		20			266 00
		363 00			363 00
Dec 4	Bal.	266 00	11	Draft to Barton 75	12 20
		266 00			333 00
11	Spk from Royal 71	116 70			333 00
		383 00			383 00
11	Bal.	266 00	18	Draft to Barton 76	127 05
18	Spk from Royal 71	20	18	Spk from Royal 71	34 60
		286 00			252 75
		286 00			252 75
18	Bal.	266 00	20	Draft to Barton 76	18 10
20	Spk from Royal 71	20			184 10
		286 00			286 00

Figure 14: First versions of the ledger book appeared in the beginning 13th Century in Italy

The grid executes its power by structuring modern society: objects, which are a valuable good of trade have always been measured in order to determine an exchange value, a term coined by Karl Marx which defines an object's market value: "We have seen that when commodities are in the relation of exchange, their exchange-value manifests itself as something totally independent of their use-value. But if we abstract from their use-value, there remains their value, as has just been defined. The common factor in the exchange relation, or in the exchange-value of the commodity, is therefore its value." (Marx, 1894). What I want to point out is, that ever since trade emerged, an objects value was measured rationally in terms of its size or weight in order to define its exchange value. As society grew bigger and trade more complex, regulations fixed standards in order to avoid bad deals: this was the main reason why ancient tablets emerged. And soon after exchanges started to become tracked, the result is the ledger book.

In order to measure size there needed to be relative values, which used to be the human being in ancient times until the Industrial Revolution. This changed in 1875 by the Treaty of the Metre which defines a regulated standardized system of metrics (Safra, 2007). To define height, width and depth we use either centimetres or inch – but drawn on a sheet of paper they both create the same pattern: the x, y, z-coordinates form together a three dimensional grid work which can measure nearly everything relative to the measuring system applied.

At this time the predominant shape of the square also propelled the development of the box, which standardized the irregular packaging methods of former times. This development was initially driven by the transport of goods from manufacturer to merchant to consumer, to achieve a more convenient and efficient method of distributing commodities (Higgins, 2009). The box is so to say a direct results of the three-dimensional coordinate system and



Figure 15: General grocery store selling boxed items

started to fill shelves and cupboards.

The interesting thing is, that this way the original shape of many products gets concealed, it's actual shape unknown or flattened as image outside of the box. I assert this technology, among other things, led to the distortion between sold commodity and real content - and triggered the imagination of what lies enclosed in the opacity of the box, and probably "commodified" the joy of unwrapping. It comes to no surprise, that the symbol of a gift is in our society represented as box wrapped with a ribbon.

I'm thinking of my last shopping trip: for no specific reasons, the pieces I bought were carefully wrapped into tissue paper which was glued with a sticker representing the company's CI. Then the pieces were carefully transferred into a nice paper bag, with textile ribbons as handles, all very slow and contemplative. At home I was unwrapping the pieces again, probably even more carefully, as if the tissue paper was hissing at me: "Be careful! They are precious and fragile!". But in fact I bought some mass produced items which are neither of outstanding quality, nor are they carefully crafted. The mute standardized object turned into the "commodified authentic", the term coined by Elizabeth Outka describing the merchant's strategy to sell us symbolic value alongside the cheaply produced raw object.

Looking again at the online pin board "Pinterest" - which is more likely an online mood board - the displayed images not only drip with the aura of authenticity, but also of romantic "fake-nostalgia" which comes included in the concept of the "commodified authentic": "Stranded between an outmoded past and a rapidly modernizing future, consumers were drawn to the commodified authentic's ability to weave temporal fragments together, sustaining the contradiction between modern imperatives and nostalgic longing while at least temporarily satisfying both." (Outka, 2009). This, Elizabeth Outka writes about the English population of the beginning 20th century. But I think, her concept is as actual today as it



Figure 16: The “commodified authentic” works best amongst other objects of the same aesthetics

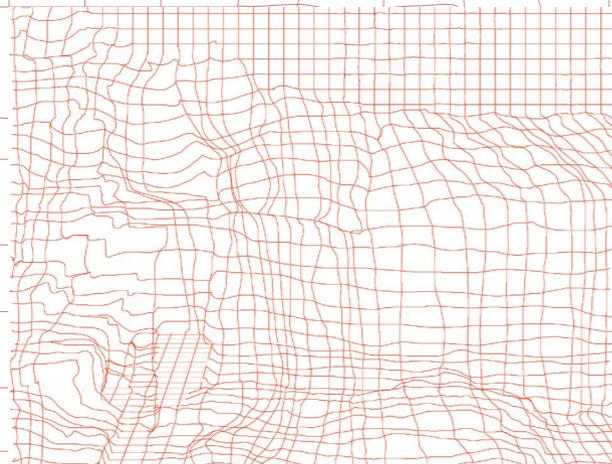


Figure 17: Through atmospheric perception the regular grid gets distorted

was back then. We need a mixture of the past and the future to orientate, navigate and locate in the present.

The undeniable virtual value of the object comes in close alliance with the standardized object. Yet the “commodified authentic” forces another effect upon us: Unison. In order to bridge the gap between the inanimate object and conscious human being, one object isn’t enough. To unfold its full potential, the object has to be placed amongst other objects within a scope of aesthetical values applied to stage the effect of individuality and authenticity, and to create a homogenous image of synergetic aesthetics (Outka, 2009).

Although we know that mainly everything we put into our homes nowadays exists many other times in other households, we still identify with those objects. As mentioned earlier, today objects, emancipated of their function, are “empty vessels” which need to be extended through added value. Symbolic values are our personal relation to the inanimate object which turn it alive: and make it ‘real’, ‘perceivable’ for ourselves. With the creation of images consisting of nostalgia, romanticism and craftsmanship, we create a physical ‘trompe l’oeil’ which helps us to escape into our reality, which is our home and the way we see it: an abstract symbolic image which distorts the rational reality of the grid. The world we experience beyond the physical reality is indeed virtual and only exists as an illusion in our imagination: it is almost there.

As I already indicated in the previous chapter, the virtual effect of illusionistic perspective “devices” have a distortion of the regular grid at their base. A similar phenomenon I discovered within the abstract image of our interiors: Thinking of the atmosphere of my home and its symbolic value, I blind out its rational dimension. When I dive into the poetic dimension of my domestic interior, the grid doesn’t apply as structural tool anymore, it gets distorted by the unmeasurable dimension of atmosphere and the “correct” geometry becomes irrelevant (see figure 17).

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The Digital Virtual



Figure 20: Representation of digital space in the movie *Matrix* (1999)

Furthermore, the grid is used once more to represent a reality: the digital image, visible through square shaped pixels put into array as a so called "bit map" (map!), creates the window to a virtual world behind the screen. Stop. Isn't this the same principle of Renaissance perspective paintings?! Only that this time the image is flat, no constructed depth – and still, it is more real to us than the Renaissance painting. Although we are both times confronted with a virtual image, there is one crucial alteration in regards of the digital image: it enables to communicate with the virtual world which lies behind the screen, a third space 'mapped out over material space' (Bailey, 2013). The digital image blurs any space-time dimension, which gives us the impression to really speak to a person, although we're just two pears connected through... yes, through what?

The digital virtual realm shoots our information, coded into binary digits, through some immaterial space. This immaterial space, which has no fixed appearance yet except for its symbolic representations, becomes an ever more realistic part of our lives. And not only realistic because we spend a lot of time online, no. Realistic, because our online activities manifest as offline products – materially and immaterially: The doorbell rings and the postman hands me a parcel from Amazon. Inside are books which I couldn't find in any of the almost extinct bookstores in the city. So, the visitor from the other star brings us presents: my online activity crystalizes as an offline manifestation in front of me, from image to object. "[...] Reality", Hito Steyerl writes, "now widely consists of images; or rather, of things, constellations, and processes formerly evident as images." (Steyerl, 2014). The artist Marc Dorf explores in his "Axiom & Simulation" series the alienation of physical reality in digital representation: "When the captured or calculated representation is compared to its real counterpart or source, often an arbitrary and disconnected relationship is created in which there is very little or no

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Diffusivity

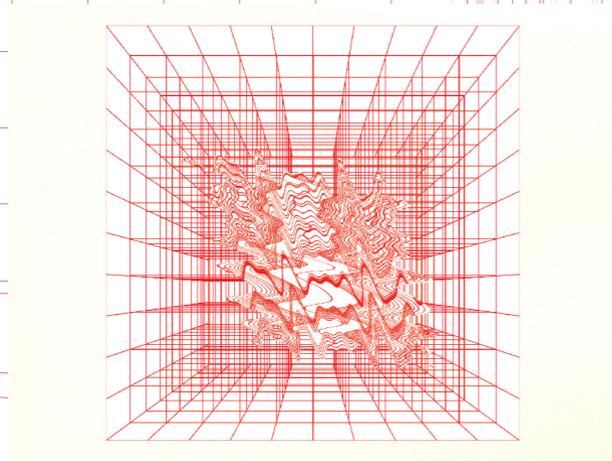


Figure 22: Sketch: *Diffusivity* (2016)

I left the books wrapped in the parcel on the table and leave for a while to do some house chores. I quickly vacuum the floor, then I clean out the coffee grounds of the Moccatiè in order to put new powder, turn on the gas and set it on the stove. I walk to the laundry machine to fill it and switch it on: I still have to think of those books. The coffee smell reminds me to return to the kitchen, I turn off the stove, pour some coffee and sit down in front of the books. I unwrap them: from image to object: I hold those books in my hands, turn them around, open them: looking like normal books to me, but something is wrong, something confuses me.

From the moment I ordered them I unconsciously started to imagine them, infused by its digital representation. And now the symbolic image intersects with the real representation of the book: Diffusivity. The neologism "diffusivity" emerged when I tried to describe the strange aura which appears once an object reveals its physical reality in contrast to its imaginative reality – the abstract symbolic image. There seems to be some irrational ambiguity inherent to the object, as if the object is torn between the two extremes: The physical world and the virtual realm, three-dimensionality against abstraction. In order to illustrate the Freudian concept of the trauma, Slavoj Žižek refers to symbolic space. He depicts symbolic space, which is a mental construct and is perceived as reality, as a perfectly gridded space with horizontals and verticals running parallel. By remembering an event which was formerly experienced, the virtual symbolic space becomes impacted by the reality of the event and bends, the result is a distortion of the "normally" experienced reality, the symbolic space (Žižek, 2003).

In the concept of diffusivity the object seems unsteady: I imagine it cocooned in a grid which constantly contracts. In one fraction for a second the three-dimensional volume of the physical object is perfectly covered in the grid – and in the next instance the grid buckles and stretches under the tension of the impacting virtual image.

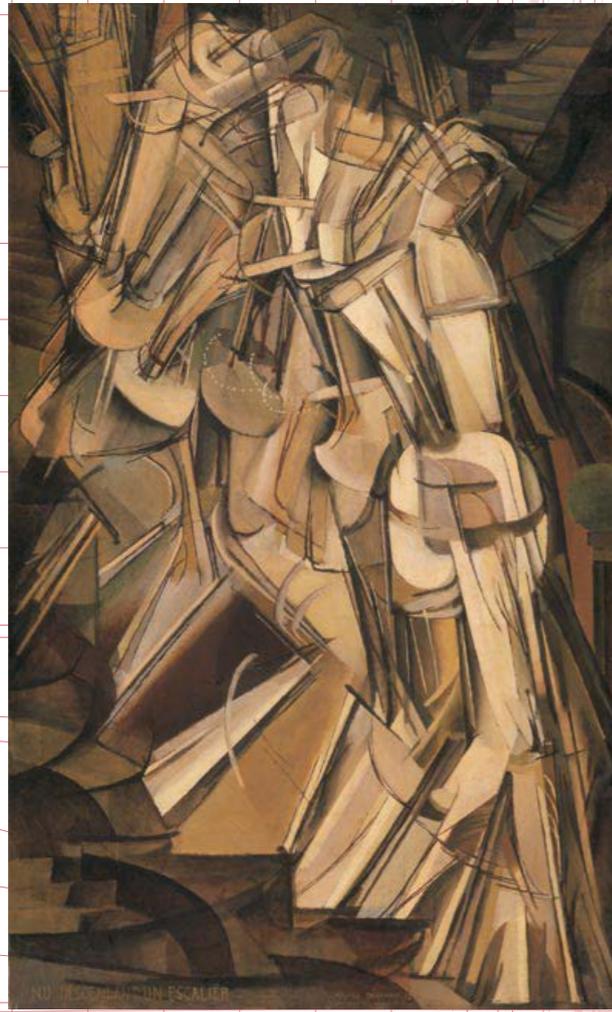


Figure 23: Marcel Duchamp *Nude descending A Staircase No.2* (1912)

The flickers like an atom blurring its sharp "outline": a diffuse object which is not clearly defined – virtually. Diffusivity illustrates the object ponder between physical rationality and symbolic mundanity, between material and immaterial, creating an atmospheric cloudiness around the object (fig).

I find beauty in the hybrid identity of the object, always remaining to one part a fragment of the virtual and immaterial realm, mystifying its total being. The instable condition of the grid expels its rational character, unveiling a poetic dimension of being uncertain not to know which reality to represent – image or object. It is almost like cubist paintings (see figure 24), which play with the representation of space-time and the perception of an object from within several perspectives in one image. Henri Bergson expressed this beautifully in the following quote, of which especially the second sentence inspired my concept of diffusivity: "Once in possession of the form of space, [the] mind uses it like a net with meshes that can be made and unmade at will, which, thrown over matter, divides it as the needs of our action demand. Thus the space of our geometry and the spatiality of things are mutually engendered by the reciprocal action and reaction of two terms that are essentially the same, but which move each in the direction inverse of the other." (Bergson, 1911)

4, 0, 4

Conclusion



Figure 24: Charles and Ray Eames: *Power of Ten* (1977)

I sit down on the sofa and look around: Everything what I see is real and unreal in itself. It seems as if every object has a dualistic character inherent. I can either perceive it rationally, analysing its physicality or simply referring to it as something functional. Each object and the space of our domestic interior itself can be covered in a consecutively numbered grid and become a cartesian representation of reality. On the contrary, I can experience objects and the domestic interior imaginative by assigning symbolic values to it, which result in a virtual alteration of 'object' and 'home'. The latter creates a rich and poetic image of our domestic interiors, the way we experience our homes as "real". Ultimately both concepts are projections in order to experience the "reality" of an object, or a whole environment.

It is like Slavoj Žižek's example how we perceive another person standing in front of us: Although we are confronted with the physically present person, we only deal with an 'abstract image', a 'virtual image' of that person, not with the physical reality of the person. We neglect body functions and things the like we don't want to think of (Žižek, 2003). The same we do with our domestic interior and the mass-produced objects, including technology as much as mundane objects: we see it in the light of the abstract image we project onto the object: The domestic interior is a virtual stage.

As much as we project an abstracted symbolic reality onto our environments, as much is the omnipresent grid a virtual projection. It is projected, deployed and applied in order to analyse and structure, to 'tame' immense dimensions such as the world or to put a poem in the right format. It reaches from nanoscale to universe as in Charles and Ray Eames' film *Power of Ten* (1977), it can be precise as much as universal, but eventually it is another abstract tool to explain reality.

The grid seems to be embodied in our thinking and long since turned into a symbol: A symbol for modernity, efficiency and structure.

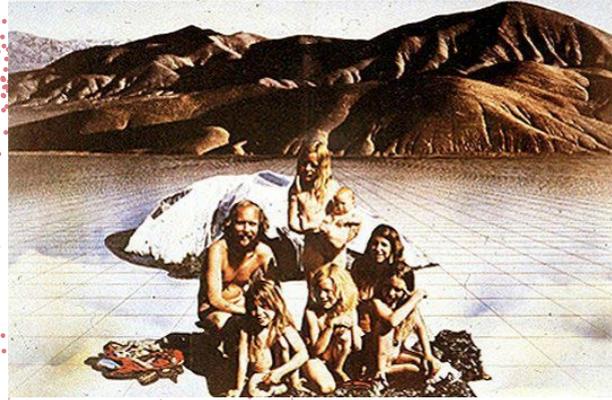


Figure 25: Superstudio: Superimposition and Serenity (1972)

As the psychologist Howard Gardner analysed, every form of human behaviour, more precisely intelligences which he terms "frames" of mind, is in the western society reflected in some form of a grid: being able to read a book and write, to orientate in space-time, to calculate, and even social behaviour can be expressed in grid structures. "It is through symbols and symbol systems that our present framework, rooted in the psychology of intelligences, can be effectively linked with the concerns of culture... Symbols pace the royal route from raw intelligences to finished cultures."

By implication, the grid as a rational and omnipresent "substance" of our society, has the same dualistic function inherent as any other mundane object: No matter if the grid is perceived as an unchecked force which flattens the world into a square pattern or as invisible structure between the lines of a poem: With its meticulous and diligent analysis of the world and its endeavour to leave nothing uncovered, the aesthetics of the grid bear their very own poetic dimension. It is this struggle between dominance and union, separation and community, precision and abstraction which inspires me.

And who else if not Superstudio did express the beautiful ambiguous character of the modern grid in its collages, which are today as much appealing than back in the Sixties? Although an exaggeration, superimposition and harmonic cohabitation seem inseparable in the atmosphere of Superstudio's image recreations at the MoMa exhibition *Italy: New Domestic Landscape in 1972*. And this is precisely what we experience ever day in our society - without noticing.

0, 4, 4

Final Design
&
Design Research

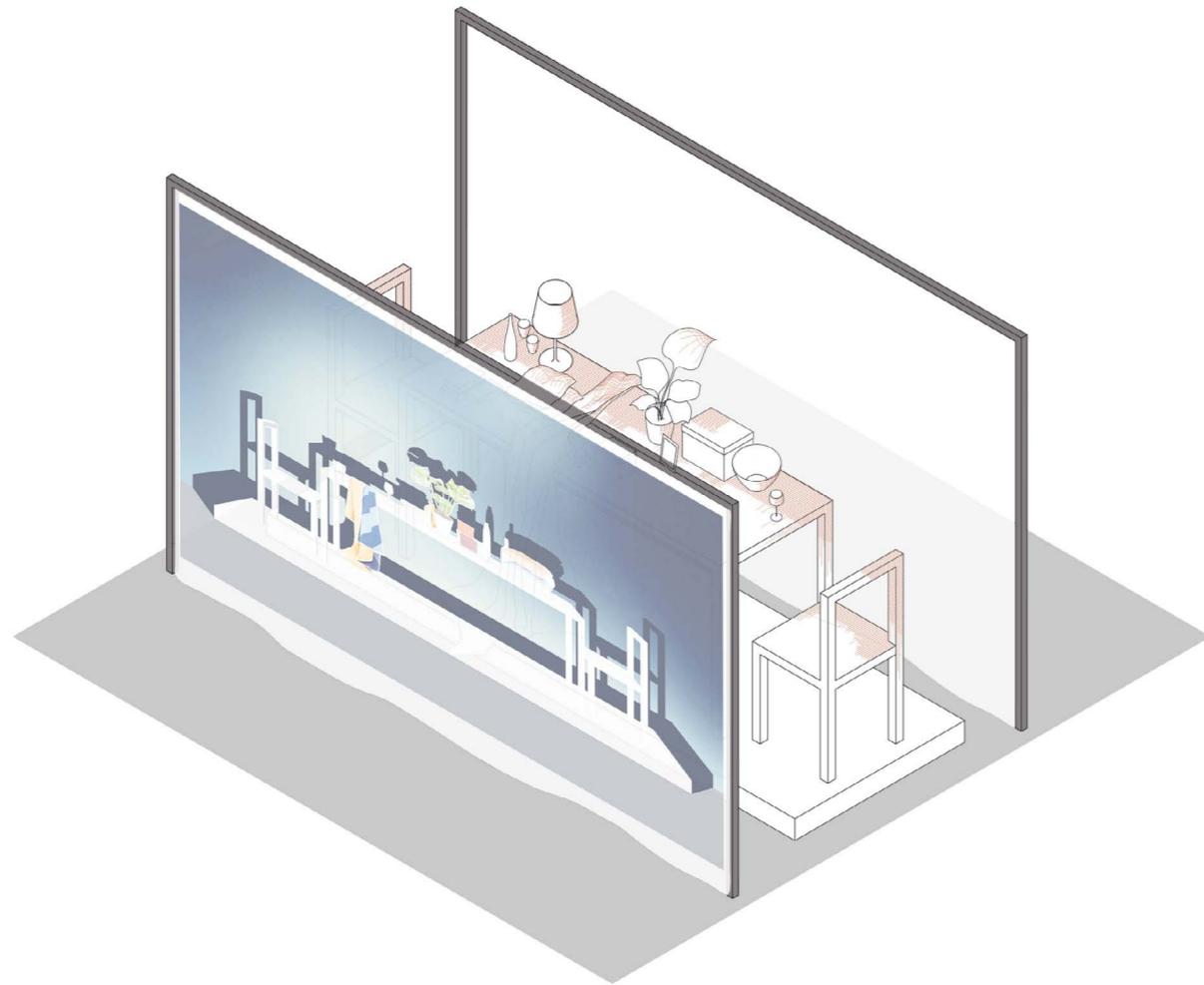


Figure 26: Visualisation Installation Domesticity's Last Supper (2016)

Final Design

The final design represents the domestic interior as a "virtual stage". It consists of two parts, film performance and installation, in which the abstract symbolic image and the rational grid are going to be juxtaposed. It illustrates the inherent duality of domestic objects, being both rational as well as poetic. The title Domesticity's Last Supper is inspired by da Vinci's fresco Last Supper (1498), and stands both for the use of the grid in order to represent reality as well as it shall illustrate the virtual dimension of the domestic interior. The focus of the installation is to unveil that both concepts of reality, rational and imaginative, are virtual projections. Objects and interiors are therefore "screens".

Set-up

The set-up of the installation Domesticity's Last Supper consists of a large and narrow pedestal on which at both ends two chairs are placed and in the centre a long table. On top of the table are various objects distributed which all relate to domesticity; e.g. vases, books, pillows, blankets and vice versa. The furniture is represented in archetypal shapes and white washed as well as the objects, in order to erase details and to create a homogenous image.

The domestic objects and furniture pieces are partly covered in a grid of red sewing thread. Applied on the backside, this will create the effect of a red "shadow" when being looked at from in front. A closer look at the objects shows small red numbers applied to the table where they stand: A subtle indication for the cartesian grid. The numbers are without any specific dimension, yet refer always to only one object. On the long sides of the pedestal, two large screens are installed. The screens are built as black metal frames and white-light fabric.



Figure 27: The project *Luminous Earth Grid* (1997) expresses a harmonic union with the landscape although being dominant

Film & Performance

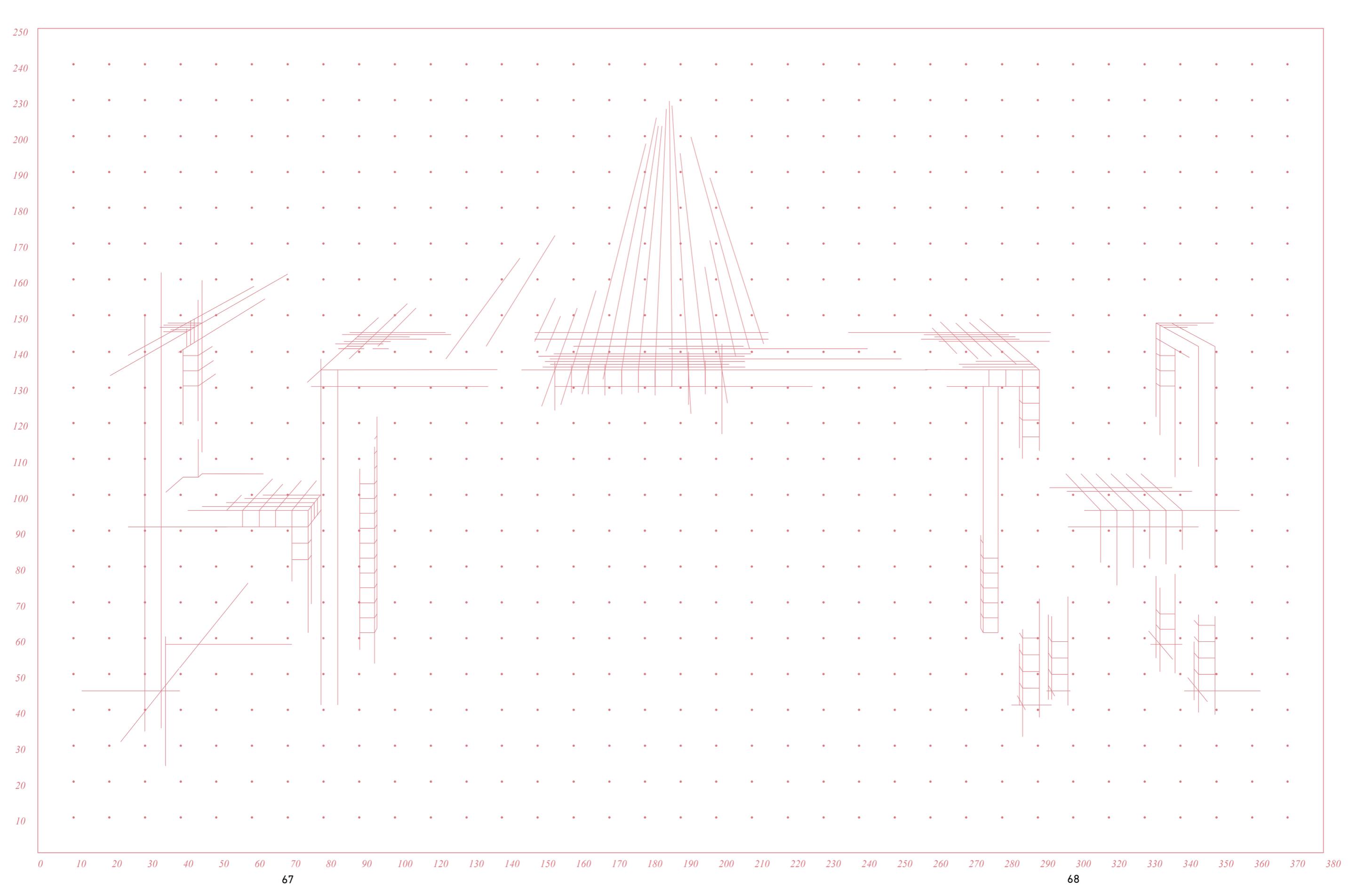
The performance starts by a short movie projection onto the front screen, the table set-up is concealed at the beginning. Onto the screen a realistic 1:1 projection of the set-up behind in linear perspective will appear, which shows the objects in their original appearance. Throughout the duration of the film, the image will only change subtly in perspective, creating a slightly fragmented image. The image is accompanied by soft light changes and sounds characteristic for the domestic environment, which can be related to the objects displayed. The viewer becomes lured into the feeling of the domestic interior: The virtual reality of domestic space. The sound will be quiet at the beginning, and then start to become more intense by the time: This is when the harmonic image will start to tremble and become distorted by a sudden intervention of the grid. Represented in red, it will first dominate the current perspective, but then the image becomes more fragmented and previous perspectives become emphasized as well. Eventually the grid will form a perfect symmetric pattern and force the screen to collapse. The installation behind reveals, the grid conquers the abstract symbolic image of the domestic interior. The grid projection will now cast the objects and the accompanying sound has fallen into a monotonous "beep". After a few more seconds the grid will start to fade and the white installation appears: The featureless object is represented as "empty vessel". Tiptoeing in the back, the red grid is trying to steal itself again into vision, unfolding its poetic dimension as a red shadow and demonstrating its ambivalent character of dominance and union.



Figure 28: Leonardo da Vinci *Last Supper* (1498)

Title

The long and narrow table stages domesticity as a symbolic image. The intervention of the grid discloses the virtual image and creates at first chaos, then settles and finally fades again. Through linear perspective, the staging effect becomes emphasized. The fresco *Last Supper* by Leonardo da Vinci illustrates the apocalyptic and chaotic atmosphere during Jesus' last supper and the announcement of one betrayer amongst them. The fresco is one example of early linear perspective and an illusionistic representation of reality: Although the situation is depicted realistically, the contents of the painting depict a symbolic projection.



X, Y, Z

The design research of this projected was accompanied and initially started by intuitive drawings which should capture "atmosphere" in a diagrammatic manner. In the following are some inspirational images from my research depicted which ultimately led to my final design.

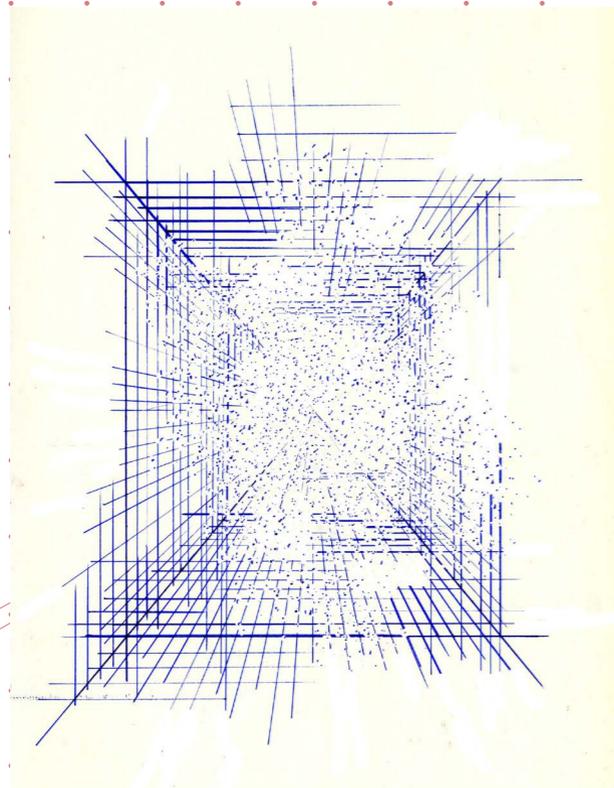
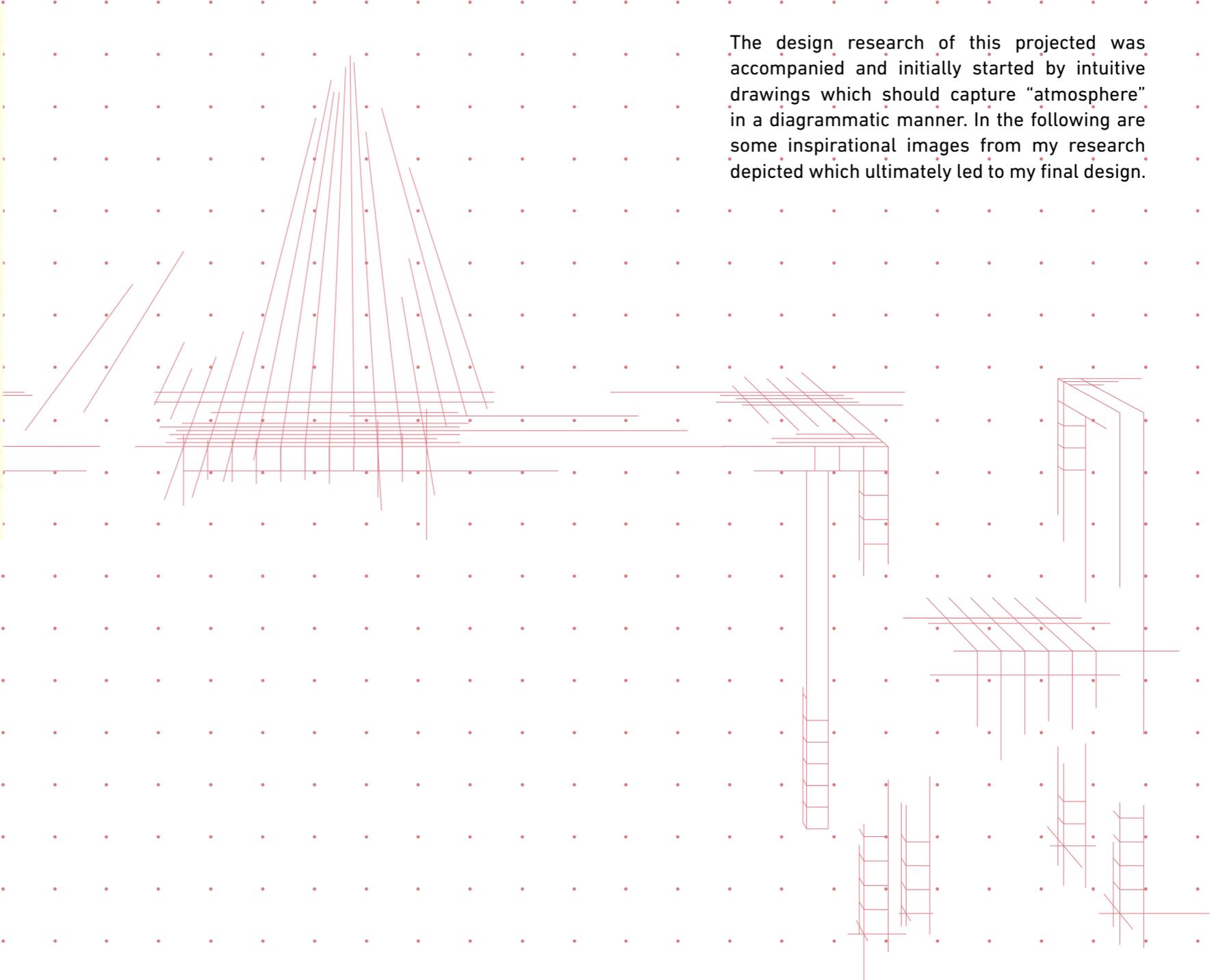


Figure 29: Sketch *Atmospheric Ephemerality within Space* (2016)



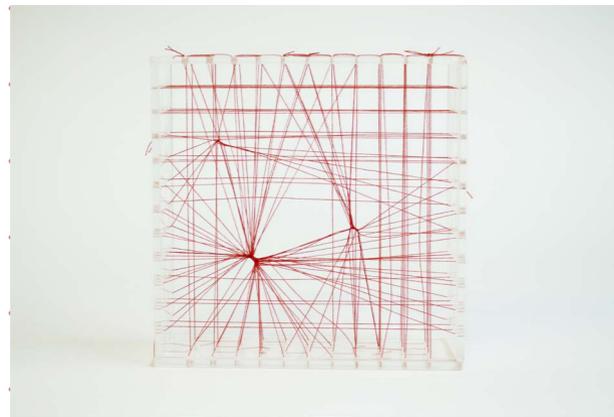


Figure 27: Model II Atmospheric Impact on Space (2016)

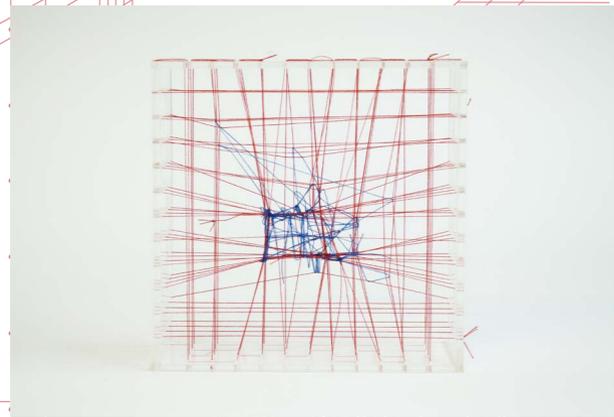


Figure 28: Model III Atmospheric Impact on Space (2016)

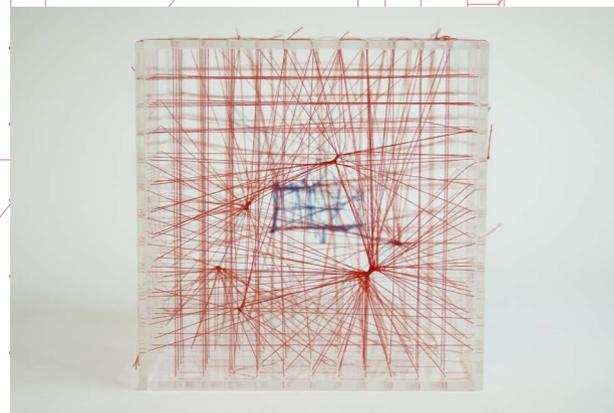


Figure 29: Models I, II & III: Atmospheric Impact on Space (2016)

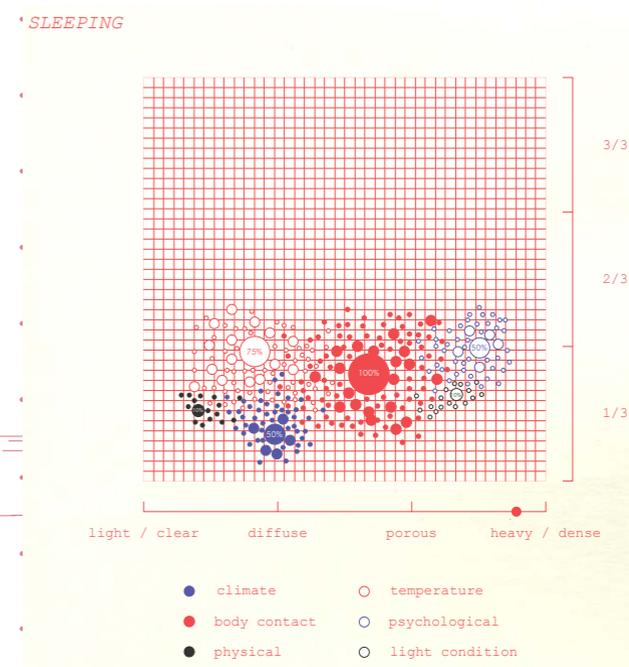
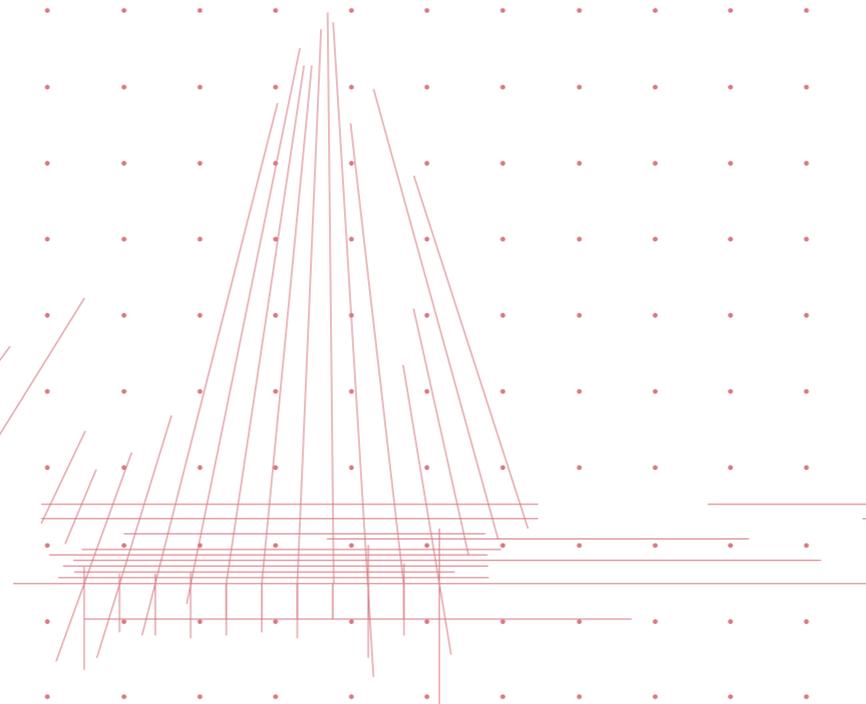
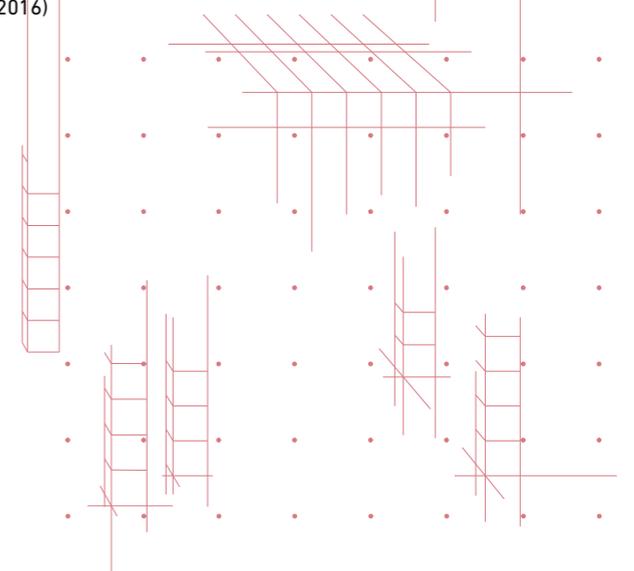


Figure 30: Diagrammatic research on atmosphere in the domestic interior (2016)



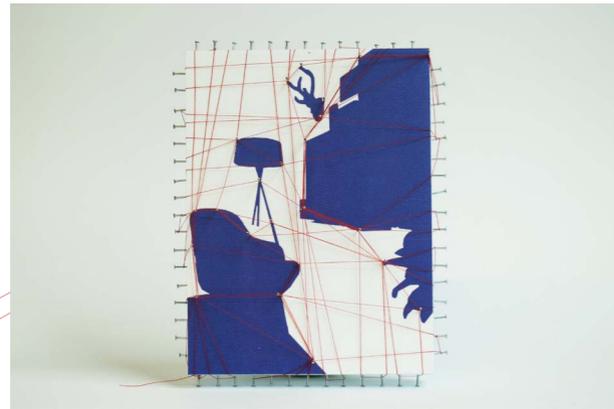


Figure 31: *Atmospheric Blow-up I* (2016)

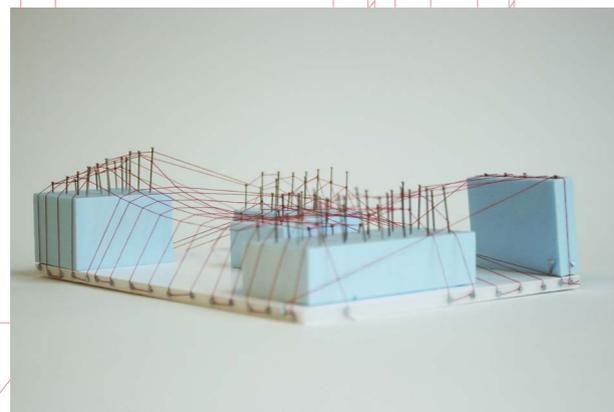


Figure 32: *Atmospheric Blow-up II* (2016)

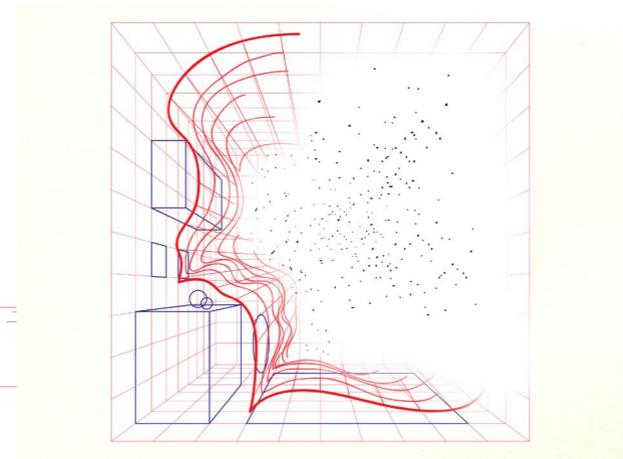
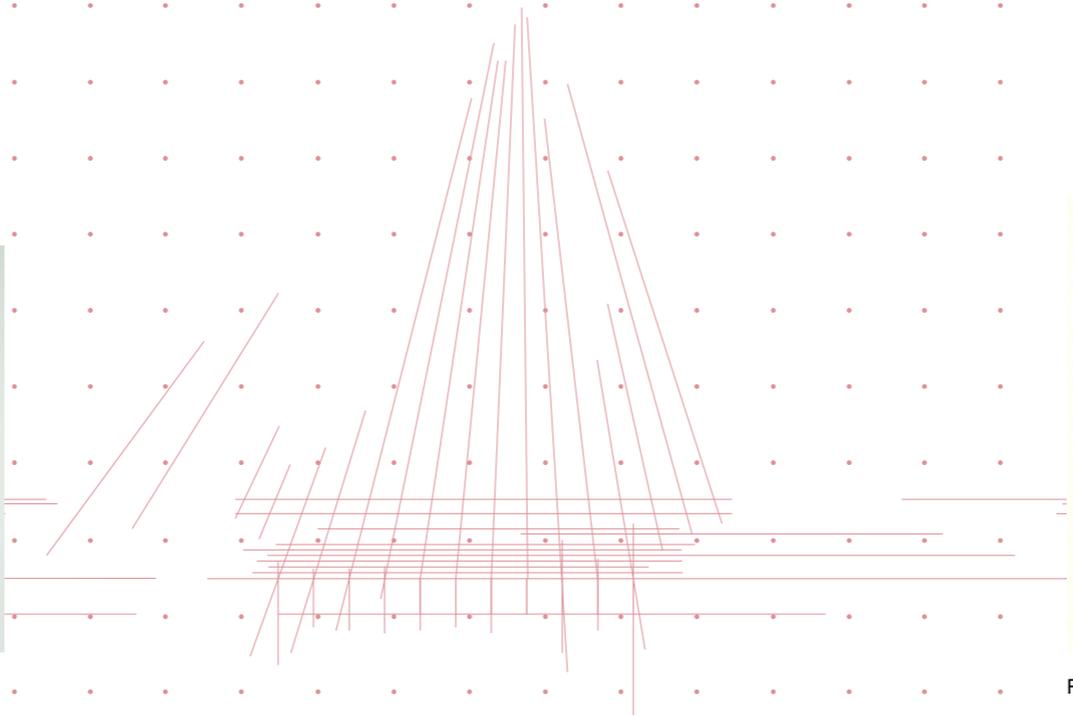


Figure 33: *Atmospheric Blow-up* causes "Diffusivity"

I want to thank all those who supported me during this master thesis. Thank you for your inspiration, time and advice. And I want to thank my family, for making it possible to be here and to help me through the tough times. Let's celebrate!

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Figure 18: Unknown (n.d.) Punched Metal card [image] Available at: < <http://homepage.cs.uiowa.edu/~jones/cards/collection/jaquard.jpg> > [Accessed on June 12 2016]

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Figure 28: da Vinci, L (1498) Last Supper [image] Available at: < [https://en.wikipedia.org/wiki/The_Last_Supper_\(Leonardo_da_Vinci\)#/media/File:%C3%9Altima_Cena_-_Da_Vinci_5.jpg](https://en.wikipedia.org/wiki/The_Last_Supper_(Leonardo_da_Vinci)#/media/File:%C3%9Altima_Cena_-_Da_Vinci_5.jpg) > [Accessed on 12 June 2016]

Figure 29: Bicheler, A (2016) Atmospheric Ephemerality within Space [drawing] in possession of: The author: Rotterdam

Figure 30: Bicheler, A (2016) Atmospheric Impact on Space I [scale model] in possession of: The author: Rotterdam

Figure 31: Bicheler, A (2016) Atmospheric Impact on Space II [scale model] in possession of: The author: Rotterdam

Figure 32: Bicheler, A (2016) Atmospheric Impact on Space: Models I,II and III [scale model] in possession of: The author: Rotterdam

Figure 33: Bicheler, A (2016) Diagrammatic Research on the Domestic Interior [drawing] in possession of: The author: Rotterdam

Figure 34: Bicheler, A (2016) Atmospheric Blow-up I [scale model] in possession of: The author: Rotterdam

Figure 35: Bicheler, A (2016) Atmospheric Blow-up II [scale model] in possession of: The author: Rotterdam

Figure 36: Bicheler, A (2016) Atmospheric Blow-up causes Diffusivity [drawing] in possession of: The author: Rotterdam

Background images

Introduction: Bicheler, A (2016) Coordinate System [illustration] in possession of: The author: Rotterdam

Chapter I: Bicheler, A (2016) The Grid [illustration] in possession of: The author: Rotterdam

Chapter II: Bicheler, A (2016) Gedankenstriche [illustration] in possession of: The author: Rotterdam

Chapter III: Bicheler, A (2016) Perspective [illustration] in possession of: The author: Rotterdam

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Chapter V: Bicheler, A (2016) Binary Code [illustration] in possession of: The author: Rotterdam

Chapter VI: Bicheler, A (2016) Diffusivity [illustration] in possession of: The author: Rotterdam

Chapter VII: Bicheler, A (2016) Concepts of Reality [illustration] in possession of: The author: Rotterdam

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