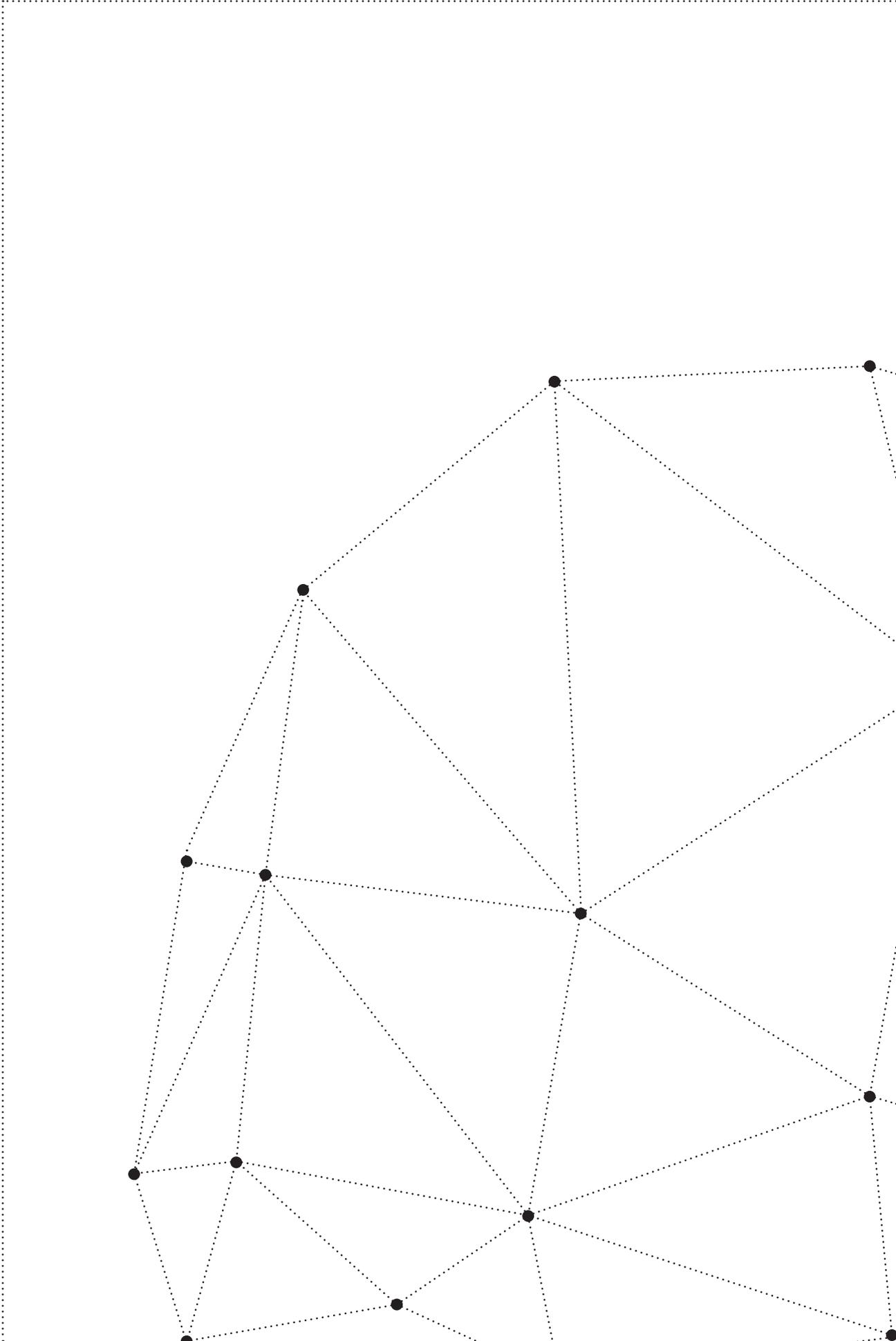


Andrés Villa Torres, Master of Arts in Contemporary Arts Practice, HKB, 2017



Renounce humanity: beyond narcissism

Edition

Zurich, Mexico City and Berlin, January - March 2017

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Program

Master of Arts in Contemporary Arts Practice

Institution

Hochschule der Künste Bern, Berner Fachhochschule

Print

Digital Print

Font Baskerville

Paper interior BIO TOP 3 extra, 80g/m³, FSC 100% TCF/ cover fabriano 240g/m³

Web

andresvillatorres.work/macap_thesis

Font Roboto Slab

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Acknowledgements

This work was done under the supervision of Ulrich Loock, to whom I would like to thank for his always direct, constructive and careful revisions and continuous advice.

I would also like to thank to the whole Contemporary Arts Practice Team, for their support, valuable insights and openness in all stages of the courses. Specially to Andi Schoon, Tine Melzer, Anselm Stalder, Cathy Van Eck, Michael Harenberg and Iris Frauchiger.

I want to say thanks to my colleague and friend, Eugen Danzinger for his collaboration throughout 2015 and 2016, during conceiving, conceptualizing and developing *NarcissUs*.

Finally I want to thank my family, for being there as humans and friends, to listen, to talk and to open the minds and the spirits of so many around them.



Introduction

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The Mirror Stage, Emergence and Genesis of the I

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and Recursion

Context

Technology, Video Art, Computer Art, Algorithmic Art:

Dan Graham, Andreas Köller, Jordan Wolfson, Peter Weibel, Cécile B. Evans,

Bruce Nauman, Heather Dewey-Hagborg

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Abstract

The following work is concerned with the age of narcissism, individualism and the decay of the human and the social, exacerbated by the practices that technology, digitalisation and the internet have brought along. Personalisation beyond boundaries, endless freedom of speech, ubiquity of information, opinion and participation, and the cult for the future, progress, productivity, automatisisation and the machine. This is a review of the concept of individuation and its dissolution. It is a review of new paradigms from the process of loss of the so called “humanity” viewed not as consequence of technology or social evolution, rather as an contingent property of existence.

Keywords:

assemblage theory, mirror stage, emergence, agency, machine learning, artificial intelligence, object oriented ontology, social dynamics



Introduction

The following work is concerned with the age of narcissism, individualism and the decay of the social, exacerbated by the practices that technology, digitalisation and the internet have brought along. Personalisation beyond boundaries, endless freedom of speech, ubiquity of information, opinion and participation, and the cult for the future, the progress, productivity, automatisisation and the machine.

It starts with a brief reflection of the history of humanity, in order to have an overview of the evolution from the idea of the individual. The individual will be described as an organism which detaches itself from society and the species. Under that scope the individual is referred as an entity which is fully dependent of a bigger system, which is society or the collective. The introductory overview aims to situate the art of work “narcissus: machine learning from machine“ as an analogy of the process of emergence of individuals in society.

It follows with the description of “NarcissUs: machine learning from machine learning from machine learning from machine...”, which is a mixed-reality art installation that presents an analogy of the process of auto-recognition from an individual in front of the mirror. This simulation is rather an illustration of the process of self-awareness which invites to reflect on deeper topics such as artificial intelligence and autonomous systems.

According to the notion of the mirror-stage introduced by Lacan, the “I” consolidates after the organism is able to recognise itself. It is during this interaction between the subject and its own projection inside a noisy medium, that an iterative process arises, which is recognised as the genesis of the I, and as the moment when the loop of auto-recognition, auto-construction and progressive alienation of the individual starts.

The installation NarcissUs is an attempt to represent this. At the same time it is a critical and artistic approach towards the development of narcissistic machines in the age of individualism and the born of post-humanist currents such as object oriented ontology. The main goal is to unfold the emergent behaviours that can arise through the learning process from artificial organisms in digital and in mixed reality environments.

NarcissUs is a metaphor from the mirror-stage and the moment of self recognition, which is recognised by Lacan as an essential act of intelligence. The installation is founded on Lacan's theory, which suggests that it is the act of recognition of the fragmented body as a unified image in the mirror reflection, the one which originates in the subject's mind the idea of the I.

Thus the installation does take into account the role of the externalisation of the own body as a milestone in the human ontology (construction of reality), the development of



Figure 0: "NarcissUs: machine learning from machine learning from machine learning from machine...", Andrés Villa Torres and Eugen Danzinger, 2016

Introduction

intelligence as we understand it and the construction of the modern thinking. In that sense NarcissUs is not an intend of developing an A.I. but to illustrate through a mechanical and a digital feedback loop the redundancy inherent to the human thinking.

Moreover the work unfolds ideas present in different schools of thought from philosophy, psychology and social sciences, such as individuation, assemblage theory and object oriented ontology.

Finally it concludes exploring how the transformation and loss of the social and the collective in relation to technology and art. In contrast to technophobe views, this work intends to stand neutral and proposes that the transition to the dehumanisation and the annihilation of the individual it is rather an inherent process of adaptation of the human species, which has been occurring for thousands of years before computers and machines even existed.

Nevertheless the process has been suffering an acceleration, which has been foreseen by pioneers on the topic such as Gilles Lipovetsky. This fast happening changes on the relations that we as humans have with the world are perhaps overpassing our capability to adapt, not only physical but rather in more profound ways that exceed our comprehension. These emerged processes urge for new points of view from reality and new positioning of the modern thinking and the values in relation to future artistic and phylosophical work.

“Destiny without necessity, freedom without memory, existence without choice, causality without destiny” [1]

[1] *Reinterpretation of words from Gilles Deleuze, The Logic of Sense, 1969.*



Figure 1: "NarcissUs: machine learning from machine learning from machine learning from machine...", Andrés Villa Torres and Eugen Danzinger, 2016

Artwork

NarcissUs, an installation

When we enter the exhibition room where NarcissUs is exhibited, we encounter a space which transmits a feeling of not being alone inside. In the center of the room, a set of familiar objects are ordered in a redundant arrangement. A display is looking at another display. A moving mirror points towards an LCD display. Inside that display a virtual model of a face seems to be erratically animated. On the other hand a squared mirror of more or less the same proportions seems to be alive.

The mirror is framed and it rotates on its own axis. Sometimes it stands still parallel to the display. Sometimes it stands still in awkward angles from which the virtual face of NarcissUs becomes visible. The sudden its presence is doubled in space. As if it was looking at us through the mirror and through the display. Sometimes it starts moving again as if it got distracted.

Between the two elements there is a clearly perceivable relation. Nevertheless the exact mechanism behind both is not fully visible. Sometimes it seems as if the mirror was triggering the face movements. Sometimes it is the other way around. It feels as if the displayed face would be triggering the mirror rotations and making them more nervous.

Behind this relationship there is a simple truth. A mimicking algorithm runs inside a computer, which is connected to some electronics. The constructed closed circuit provokes reciprocal reactions on both sides. The latency between the input and the output plus the noises from reality are the causes of a shift between the actions and reactions of both elements. The animated face and the moving mirror seem to be coordinated but they will almost never stand still and presumably will never fall on the same state.

A certain notion of agency emerges from the relationship between the mirror and the 3D model of the face. The behaviour of both seems to be autonomous and self generating. Nothing else but electricity and their presence seems to be necessary in order to keep doing what they do, for the eternity perhaps. To follow each other in a continuous sequence which doesn't seem to have an end. They track each other and they search each other through the room together. A conversation between them takes place.

Together the mirror and the display affect the space. They both exist inside the material

and the digital realities, bouncing between one and all the others. They send signals which move back and forward through both spaces. At the same time they engage the people standing in any corner of the installation room to observe their behaviour and sometimes to participate of it, and in parallel they don't need them around.

The display is a cage which serves as the container to a virtual existence. It is in a sense a door to another level of reality. It is a prison to an entity which seems to be disoriented and trying to break free. The camera is the perception. It is the eyes of the Narcissus and

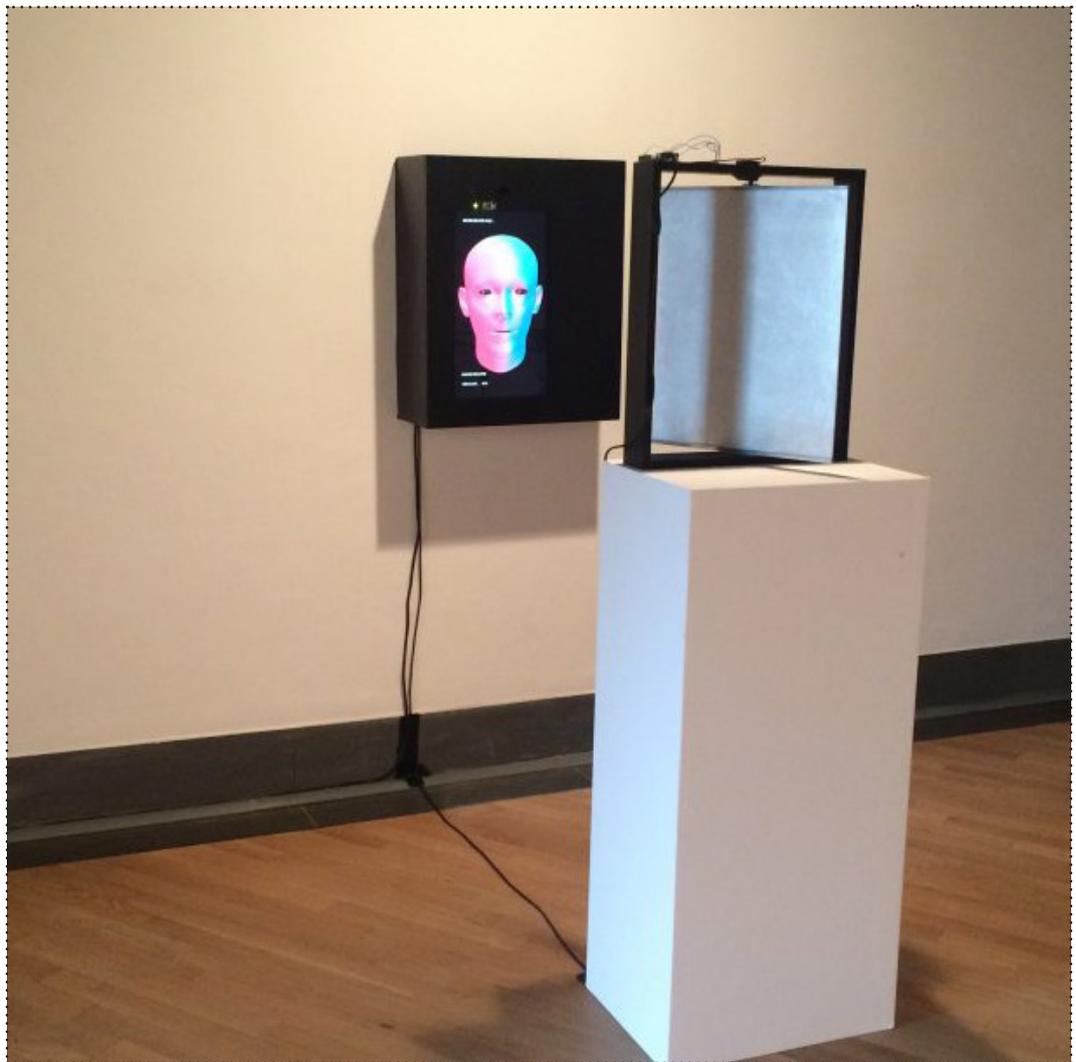


Figure 2: "NarcissUs " as installed at GAMeC, Bergamo, Italy, July 2016

Artwork

NarcissUs, an installation

the connection between the incorporeal to the material environment. It is the key to the embodied strategy from the moving mirror which helps the organism to comprehend and abstract the surrounding reality. The mirror is a door. It is reactive matter which connects the digital layer to the physical world. It breaks through the flatness of the screen and introduces noises in the perspective, which consequently affect the reactions of this NarcissUs.

The model of a face is the representation of the utterly outer layer of existence. It is the skin over the muscles and the muscles over the bones of an organism which is made out of polygons. A being whose three dimensionality is merely an illusion. It is that which resembles matter, space and motion. It is that which resembles expression and character. It is that which resembles will and autonomy. It is that which comes closer to humanity. In that sense the face is the representation of that which is understood as the individual. The entity who detaches itself from the totality of reality. The one who is able of abstracting itself from the whole, and split its own existence from the rest. The one who is trapped in the process of auto acknowledgement and self-interaction from which it won't get easy to scape. Thus the individual emerges. Thus the individual is not pre-given and neither its existence is a gift of the universe. Existence is awareness of the existence and it is on the same hand the ability of abstracting reality during the process of interaction of an organism with its environment. It is the perpetual deception implicit in the looping senses and the mirrored images. It is an helicoidal growth deep towards the ultimate state of alienation in the sense of pure isolation of the self.



Artwork

Assemblages, the whole and the “I”

The installation Narcissus as a whole is an experimental setup. It intends to facilitate the emergence of a presence, which not depends on anything else but itself, its own memory and time. Narcissus is therefore a machine which should resemble an autonomous circuit motivated by change and repetition. An erratic and mechanical existence which is trapped in an artificial cage, which is not able to break through and see beyond it.

NarcissUs is not an A. I. [2] in its strict definition. Even though there is machine learning involved, as well as memory, memory replacement, generative behaviour and behaviour repetition, the system behind the Narcissus machine lacks of concrete tasks, therefore there are not given problems to be solved. NarcissUs is rather an evolving feedback loop, a machine capable of emergent behaviour and individuation through time.

The term “individuation” describes the ways in which a thing can be identified and distinguished from the rest of the other things in the world. In *Difference and Repetition* Gilles Deleuze approaches the “genesis of itself” as the singular and the unrepeatable character of things:

Gilles Deleuze

... to repeat is to behave in a certain manner, but in relation to something unique or singular which has no equal or equivalent...

.... they repeat an ‘unrepeatable’. they do not add a second an a third time to the first, but carry the first time to the ‘nth’ power. With respect to this power, repetition interiorises and thereby reverses itself... it is not Federation Day which commemorates or represents the fall of the Bastille, but the fall of the Bastille which celebrates and repeats in advance all the future Federation Days

Manuel De Landa follows the ideas from Deleuze and brings them further. In his *New Philosophy of Society* he re-introduces the concept of assemblage as a wider theory, and defines them as collections of heterogenous components that can only be understood and

[2] A. I. stands for Artificial Intelligence, which in computer science is understood as the cognitive functions mimicked by the machine, and which are associated to those observed in human minds such as learning and problem solving. As the field of A. I. intelligence advances more and more problems get solved while new paradigms arise further and the definition and understanding of it is an ongoing contemporary matter.

analysed as such and are not to be reduced to any of their parts for their understanding. Assemblages are synonyms of a whole or “wholes” which are characterised by relations of exteriority. DeLanda explains the differences between relations of interiority of those of exteriority, pointing at the necessity to abandon the first model in order to explain a reality where emergence is feasible. Thus that we must abandon the conception of the world and society as organisms, where both are compared to a human body, where all its parts are dependant on one another and all parts work together to promote the proper function of the whole. Under this conception, the existence of any of the parts without their relations between one another is not possible. Things have no independent existence away from their intrinsic relations. DeLanda however argues that things do exist independent of these interactions with one another and therefore he remarks the importance of taking into account two inherent factors of all entities, which also need to be clearly understood and differentiated from each other. On the one hand properties and on the other capacities. While properties are not inherent to the existence but rather local results and observations from the interactions between entities, capacities are potentials possessed by the entity, regardless of whether these are practiced or not.

The snow turns into water because the sun shines and melts it down. If the sun wouldn't shine and the snow would never turn into water, it wouldn't mean that the snow is not able to, or that the sun cannot shine, instead this property and the potential would remain occluded to any observer but still would be there. The water boils because it is heated up. If it isn't heated it won't boil nevertheless the water's potential of changing its state is intrinsic to its existence.

DeLanda thus proposes a world and a society conception based on relations of exteriority and assemblages. Assemblages are described as collections of entities which are interrelated and whose existence is independent from one another. Even though an assemblage can only be understood, analysed and explained through the interactions of its parts and cannot be reduced to any of its parts for its understanding. In that sense the parts of an assemblage keep a relation of exteriority which is irreducible. This does not exclude one to exist without the other, rather each of the parts of an assemblage is able to persist outside the collection and by entering another one, its properties would change in the same way its potentials will unveil and the assemblage left behind would move forward to a new set of

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Assemblages, the whole and the "I"

things and interrelations from the parts remaining.

This conception from DeLanda, which derives from the concept of Assemblage introduced previously by Deleuze and Guattari, explains emergence and emergent phenomena, and removes the mysticism behind those, by explaining them as the point where the unknown properties from unknown assemblages are observed and only then the hidden potential of things can be revealed.

In consequence DeLanda defends that the world is populated with individual entities at each of the infinite levels of scale. Assemblages exist as well at each of the infinite levels of scale and their relations are merely local and contingent depending on the set of entities which composes them. He claims as follow, that:

M. DeLanda

Each entity and each existence is the contingent result of an individuation process

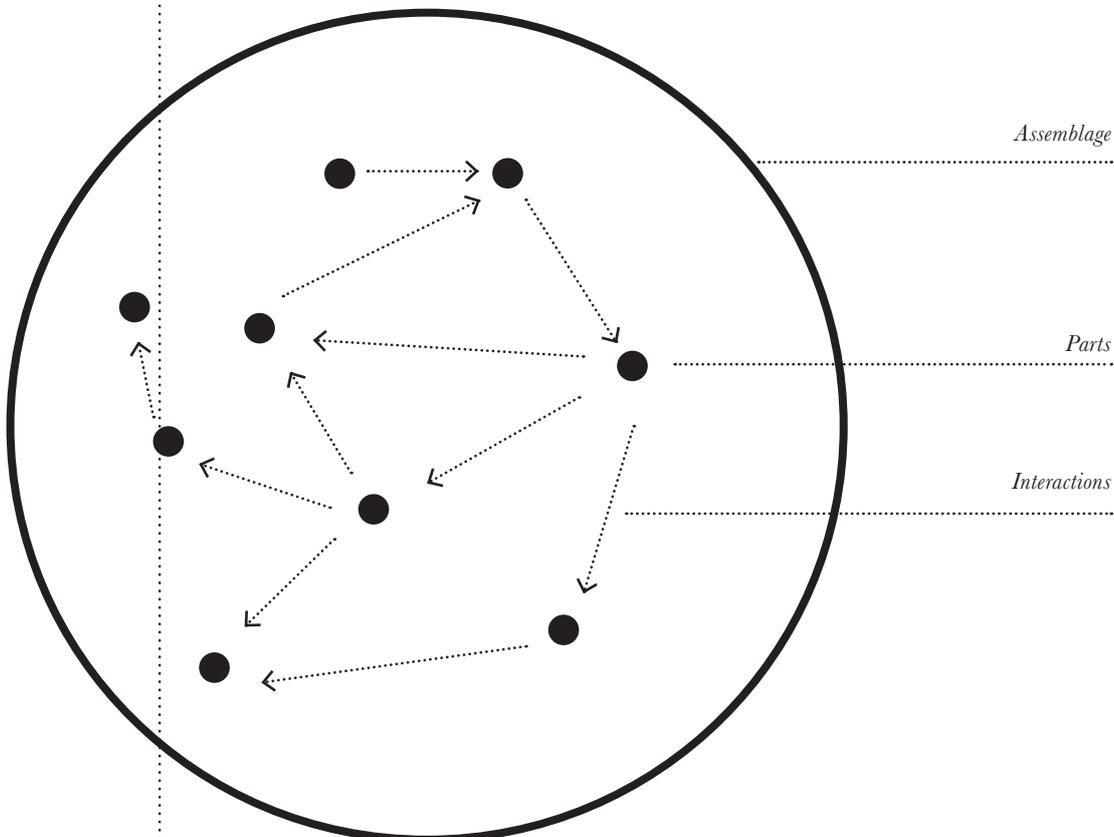


Figure 3: how each structure defined by the interaction of the parts, is a form of individuation

The contingent [3] process of individuation under DeLanda's scope can be therefore understood as the separation and distinction of the "individual" from the rest of the components of a whole by means of local and contingent differentiations. In this process there will be a clear delimitation between the "I" and the rest of the world. For DeLanda it is only a sum of all the "I"s that which composes the world and not the other way around. The world is rather populated and not delimiting.

Edgar Morin has a diverging view from the existence and the conformation of the individual and its reciprocal relations towards the "whole". He describes a paradigm of complexity and a critic to the theory of systems, in which a simplifying holism is invoked as an intend to oppose to reductionism. He asserts that:

... system theory has failed to lay its own foundation by elucidating the concept of system. The paradigm remains larval, atrophied and inchoate; system theory thus suffers from a fundamental defect: it tends to fall repeatedly into the reductive, simplificatory, mutilating and manipulative ruts from which it was supposed to have freed itself (and us along with it) ...

Edgar Morin

... the concept of system has always played a fundamental role in defining every set of relations among component parts that form a whole. The concept only becomes revolutionary, however, when, instead of completing the definition of things, bodies, and objects, it replaces the former definition of the thing or the object as something constituted of form and substance that is decomposable into primary elements, as something that can be neatly isolated in a neutral space, and as something subject solely to the external laws of "nature." From that moment on, the concept of system necessarily breaks with the classical ontology of the object. (As we shall see, the object conceived of by classical science is a mere cutaway drawing, an appearance, a construct-something both simplified and one-dimensional that mutilates and abstracts from a complex reality that is rooted both in physical as well as in psychocultural organisation). We are aware of the universal scope of the shift from the notion of object to the notion of system; however, what we have yet to grasp is the radical nature of this shift and the truly novel point of view it brings with it.

[3] Contingency or contingent event is defined as a situation in the future which being feasible it cannot be predicted with certainty.

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Assemblages, the whole and the “I”

He suggests that we should conceive systems not only in terms of a global unity but in terms of *unitas multiplex*. *Unitas multiplex* is a latin expression which in this context refers to the interrogation made by William Stern, about:

Edgar Morin

how from the manifold (multiplex) of attributes that make up an individual does its unity (unitas) emerge?

William Stern was a german-jewish psychologist from the end of the XIX and first half of the XX century, better known for his incursions in the fields of psychology of personality, intelligence and for coining the concept of the intelligence quotient (IQ). He was a humanist who as many others was forced to flee from Germany due to the nazi regime and ended up teaching at the University of Duke where he died from a heart infarct a few years later. His contributions about the individual are relevant since he was one of the firsts to stand up against the idea that an individual (human) can be reduced physically to a sum of atoms and psychologically to a bundle of perceptual capabilities and a mechanical coupling of the causal relationship of physical phenomena. He suggested that:

William Stern

rather psychological phenomena or experiences are those givens directly accessible to the own perception. In that through introspection the individual can assert them, “know” about them, they are “conscious”. In that they are only “given” to one, they are passive, not active, not directed to goals; they are simply there, expressible in certain qualities, grades, and connections through the own perception, coming, staying, and disappearing in temporal relations likewise recognisable introspectively.

To this point, Morin refers to *unitas multiplex* in order to explain that we should conceive systems not only in terms of global unity. That the whole is effectively a macro-unity but its parts are not fused together neither shall be confused. The parts have a multiplicity of existences and identities, one of them continues to belong to the individual existence and cannot be reduced to the whole, and the other(s) which are in common with the rest of the parts of the whole.

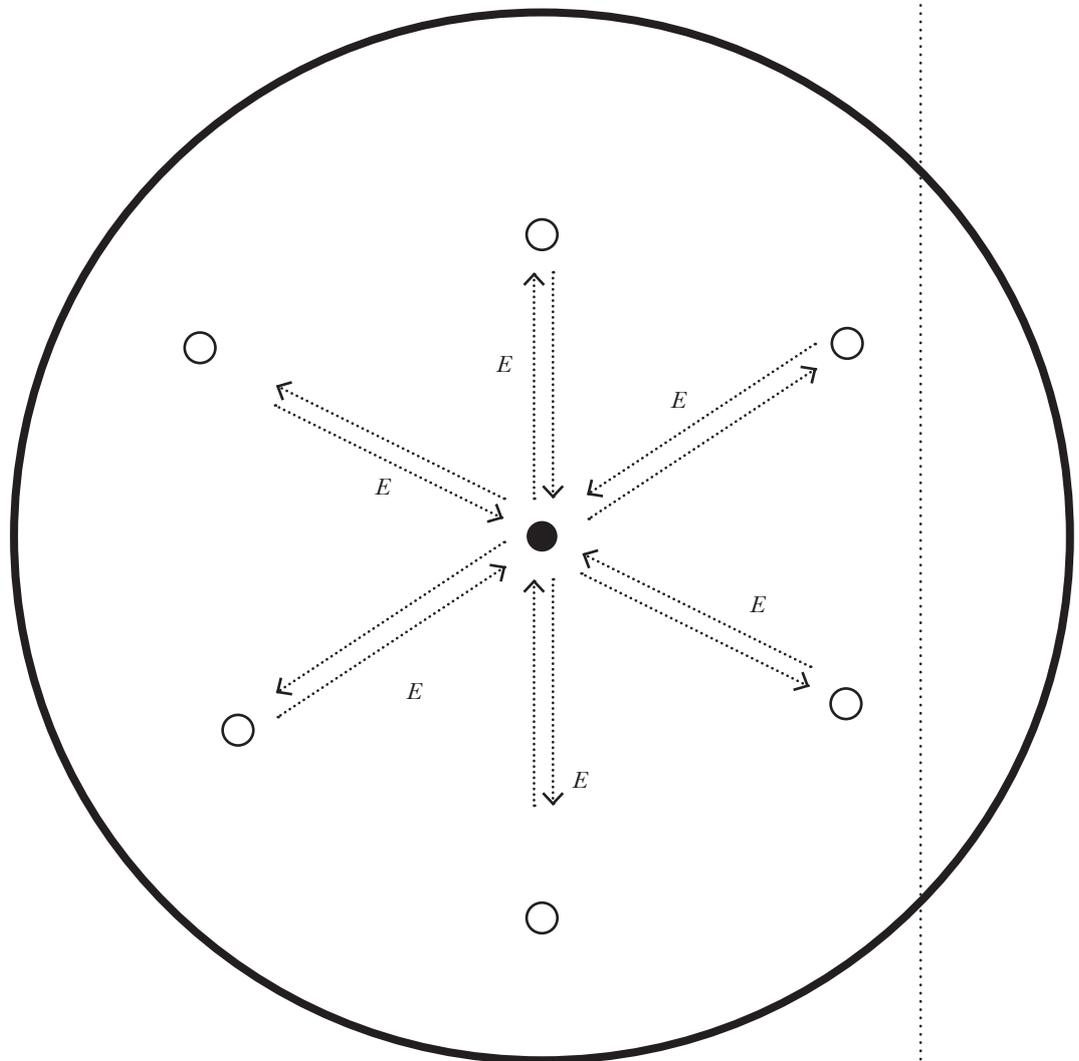


Figure 4: Representation of the concept of unitas multiplex, where the individuated entity has a multiplicity of existences correlated to its interactions with other entities

Each individuality has a multiplicity of bilateral existences directly related to its interactions with the otherness

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Assemblages, the whole and the “I”

These last conceptions present a common idea. Which it is still inconclusive and widely discussed. An entity has an existence inherent to itself and independent from the rest of the world. In addition to that an assemblage is a collection of entities which has a dependency to all its parts, therefor cannot be reduced to any of those in order to understand its behaviour, but should be analysed and studied as that, as a whole. Concurrently as Morin states what perhaps Stern suggested, besides its isolated existence an entity posses a multiplicity of individualities which depend to that extend to the interrelations that the same has with the rest of the population of a whole. Manuel DeLanda remarks that emergence is only possible thanks to the fact that assemblages are always heterogenous, meaning that a collection is never composed of one type of entity. Instead they are conformed by a variety of classes of entities which exist independent and in relations of exteriority with one another. Thus assemblages are collections of contingent interrelations which have a structure of their own that being fully depending on the parts they cannot be reduced to their parts. An assemblage seems to exist through the display of the properties of the sum of the interactions of the parts.

Edgar Morin in parallel formulates a framework of interrelations from the whole and the parts, which schematically displays the key concepts of being, existence and life, and he states that those should be understood as global emergent qualities:

Edgar Morin

...such concepts are not primary qualities, but real instances of emergence. Indeed being and existence are emergent from all processes containing feed-back loops. Life is a cluster of emergent qualities resulting from the process of interaction and organisation between the parts and the whole, a cluster which itself retroactively affects the parts, the interactions, and the partial and global processes that produced it. All of which yields the following complex explanatory principle: the phenomenal must not be reduced to the generative, nor the “superstructure” to the “infrastructure”. Rather, explanation should seek to understand the kind of process whose products or end-results bring about a return to the initial state. Such a process may be called recursive.

According to Edgar Morin, the looping relations between the whole and the parts, the one and the many, are those which enable emergent qualities. These should not be seen or analysed by their end results but understood as recursive processes and studied as such.

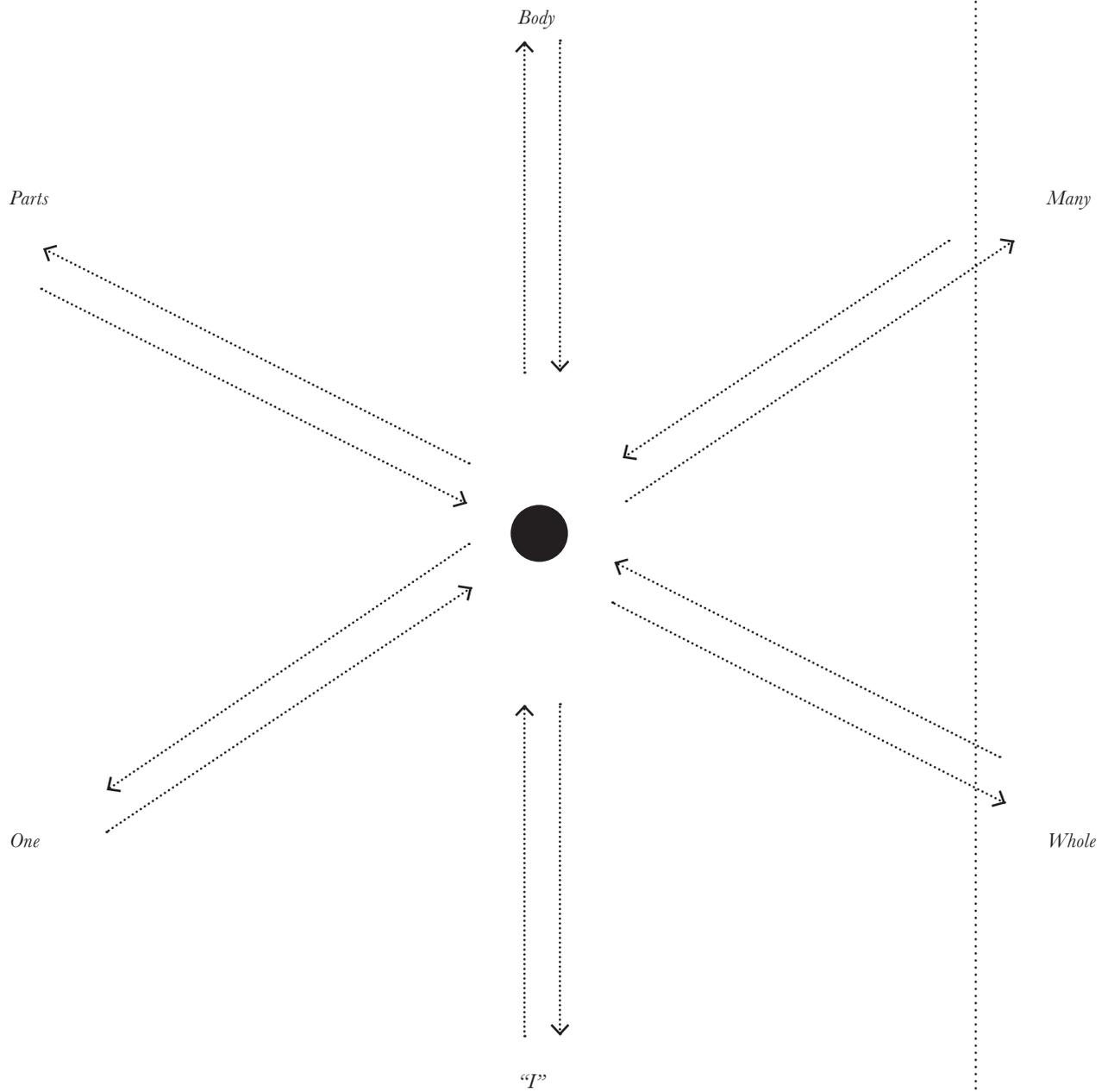


Figure 5: The feedback loops in the structures from reality, which are the base of complexity and emergence. This diagram is a reinterpretation of Morin's feedback loops.

Artwork

NarcissUs, The Mirror Stage and the Genesis of the “I”

Author

I am the image and the mirror. I am the front and the back of all the things which shall never reveal to me. I am the consciousness which arises between the border of existence and the nowhere and which vanishes within the distant horizon. I am both, surrounded and isolated, observed and left alone. I am desire and the desired.

Jacques Lacan introduced the concept of the psychoanalytic theory known as the mirror stage. He proposed that human infants go through a phase in which an external image of the human body, triggers a response in the psyche of the individual. From this moment on a mental representation of the “I” is conformed. The individual will identify itself with the image, which serves as a pattern (Gestalt [4]) of the selfhood. Due to the lack of correspondence between the image of the unified body and the underdeveloped psyche of the infant, the imago [5] will derive and be established as an “ideal- I”.

The individual thus will struggle perpetually through her/his life to achieve that ideal. The mirror stage also establishes the ego and the concept of otherness in the individual. From that moment on the individual will elaborate itself as a social subject with particular characteristics dependent on the relations to the others.

[4] The German word Gestalt refers to the perception of a form whose meaning exceeds the totality of its components. A Gestalt is always greater than the sum of the parts. Gestalt psychology is founded on the observation that we do not comprehend our world as an assemblage of disparate elements, but as a pattern of meaningful forms. Our understanding of a “home”, for example, is derived from more than merely the materials and architectural plans that produce the physical “house.” A “face” is likewise more than a collection of identifiable parts. For Lacan, the imago with which the infant identifies in the mirror stage is a kind of Gestalt. The infant recognizes not only that it is a particular shape, but also grasps that this shape has a special--in fact transformative--significance.

[5] The Latin word imago simply means “image”, but it has acquired a number of powerful connotations over time. Christian theology refers to the “imago Dei”, the image of God in which human beings were created and with which they should strive to conform. Carl Gustav Jung introduced the term into psychology; for Jung, the individual forms a personality by identifying with imagos that emerge from the collective unconscious, a shared reservoir of mythical figures and scenarios. Lacan takes up the term to refer to the image the infant sees in the mirror (or the image of the caregiver) and with which the infant identifies. In the ah-ha experience that characterises the mirror stage, the infant grasps the connection between the image and its own existence.

The process of interaction between the image and the reflection in which a phenomenon of self-recognition emerges, hitherto known, has only been observed in living beings of a certain intelligence. Nevertheless there is no feasible proof to assert that other species are not able of self-recognition. Lacan studied widely the mirror stage and the infant behaviour. In a paper published at the Congress of Psychoanalysis in Zürich in 1949 he states:

this act, far from exhausting itself, as in the case of the monkey, once the image has been mastered and found empty, immediately rebounds in the case of the child in a series of gestures in which he experiences in play the relation between the movements assumed in the image and the reflected environment, and between the virtual complex and the reality it reduplicates the child's own body, and the persons and things around him.

Jacques Lacan



Figure 6: "Rhesus Moneky - red dot mirror test", Neng Gong and colleagues, 2015

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NarcissUs, The Mirror Stage and the Genesis of the “I”

It is believed that this act is a manifestation that denotes a higher degree of intelligence and perhaps of consciousness and although nowadays the idea that this is an exclusively human act has already been overthrown, the search and understanding of what is the consciousness and the “I”, when and how does it emerges, still remain the ground of great discrepancy. Even so, beyond the genesis of consciousness, the moment in which the individual boasts of his own existence through an external phenomenon connected with the physical world, her/his own psychic and material existence (in the case of the mirror through a visual phenomenon caused by the reflection of the body) is an indication of the organism’s ability to experience a complex mental process of abstraction from the world.

To my understanding this process of self-recognition is indicative of the organism’s ability to distinguish and separate at least three fundamental conditions that make up the construction of reality for the self-aware being:

The world is an envelope, alien and inaccessible to “the self”

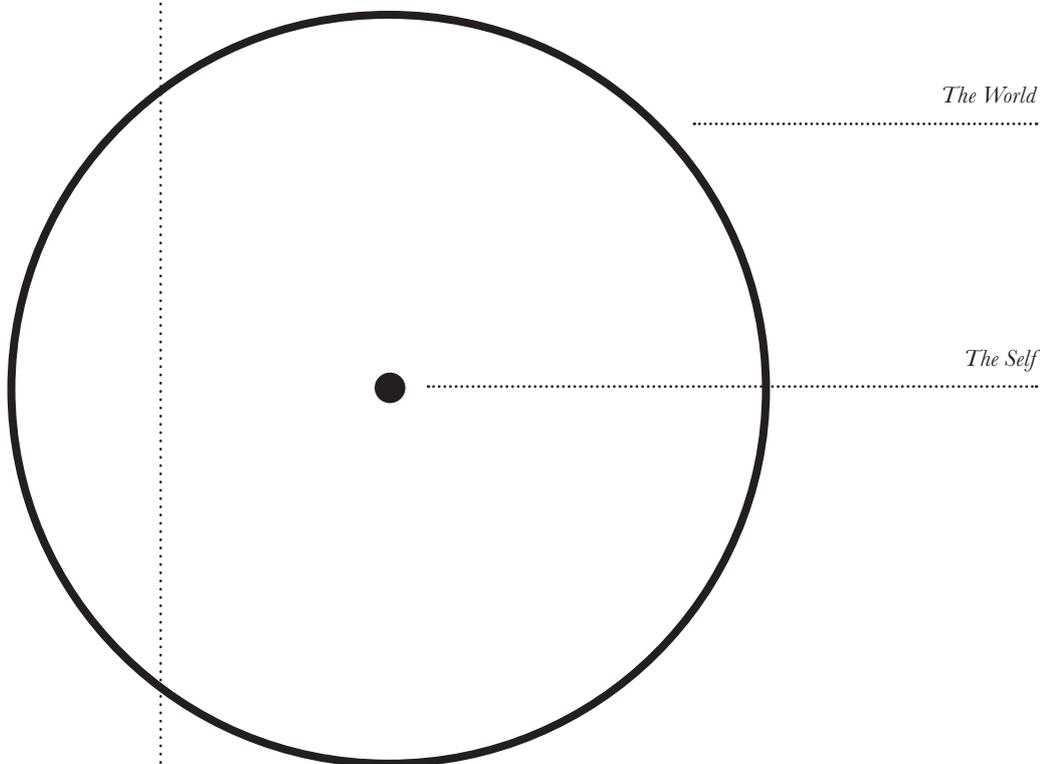


Figure 7. First: condition of the self - Isolation

The own body is an envelope, external to the self and partially co-dependent to its will.

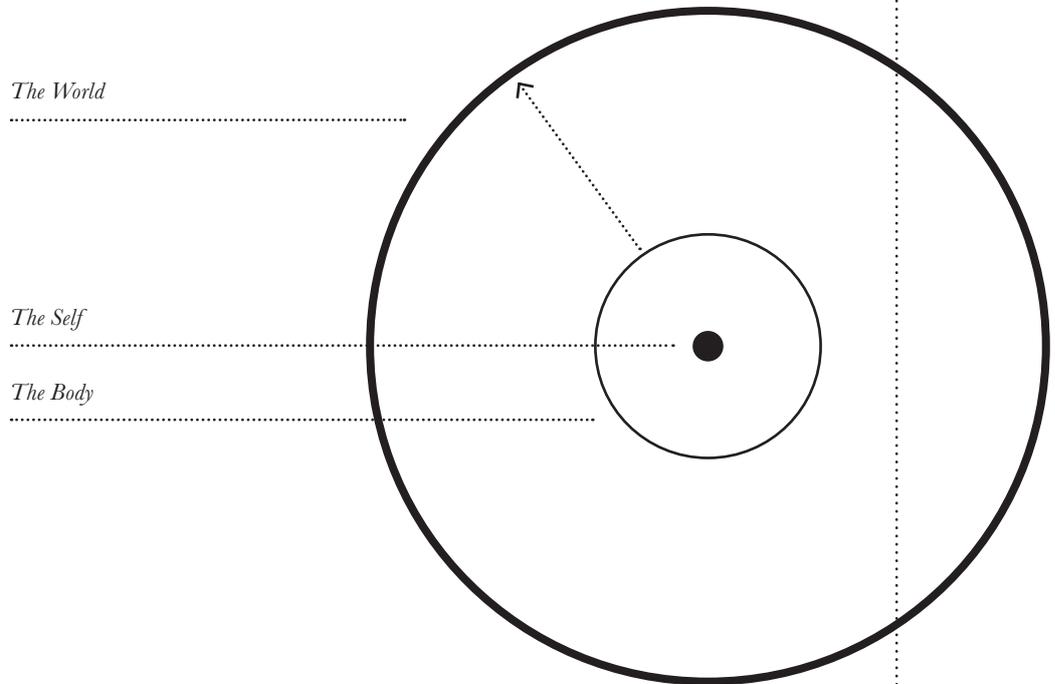


Figure 8. Second: condition of the body - Confinement

The "I" is the immaterial part of the existence and which derives from the relationship between the first two

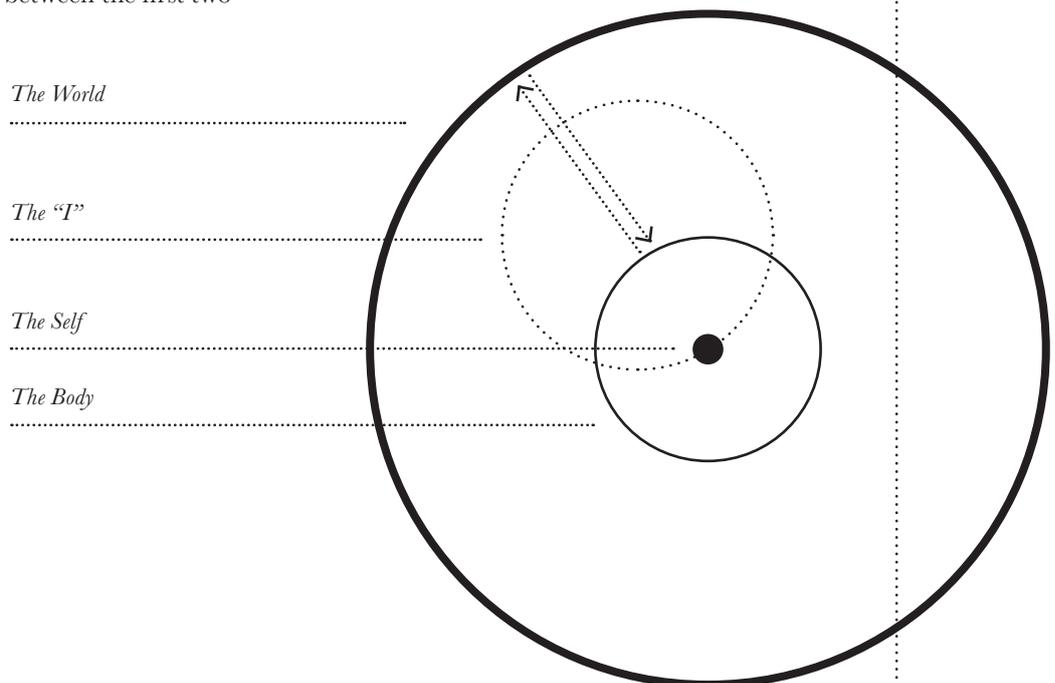


Figure 9. Third: Condition of the "I" - Transience

NarcissUs, The Mirror Stage and the Genesis of the “I”

Moreover, through this process it is assumed that the organism is capable, at the moment of recognising itself, to abstract from that experience the “self-image” and any other sensory icon linked with the existence of itself and its representation. However, it is proposed that these phenomena - the genesis of consciousness and the conformation of the self - are not discrete and fortuitous acts, but are a process of gradual construction that barely glimpsed, it begins to develop, through, on the the experience and memory of the individual, and through the feedback-loop between reality and the individual. It is thanks to time, phenomenal and spacial shift that the “I” can be consolidated, and it is thanks to the shift that it can never be completed.

Thus it is assumed here and through the analogy of the moving mirror or unstable reflection presented in NarcissUs installation that the idea of the unitary being or the “I” as an individual maintains the following relations between the concepts of reality and of individual:

There is a direct relation between the recognition of the correspondence of a grouping or minor system of sensorial stimuli as a unit within a larger system of perceived stimuli as independent referents and outside the minor system.

The individual will be immersed in a perpetual and inescapable relationship between the existence of the body itself, the will of the individual, perception and environment. This relationship can be described as the correspondence between the sensory stimulus fragmented by the body and its senses and trapped as a minor system within a larger, external and enveloping system perceived as environment.

The individual will be subject to the interminable and cyclic conformation of the “I” through its interaction with the “image” itself or the sensorial stimulus that has its genesis at the moment in which the subject gives the leap of self-recognition . From this moment the individual becomes object of self-study and gradually and iteratively the idea of “I” and “consciousness” will always take a new form until the end of their conscious days.

From these three relations I have previously come to think and therefore I propose briefly here that the modern individual can be hardly anything other than an “assemblage” with narcissistic properties. At this moment of the human history it is difficult to find or even think of another form of human thought than that in which the subject first recognises itself, thinks itself and that from that frame of egocentric reference perceives the environment and supposes that reality is external to itself, which limits and determines it and therefore, that reality and the environment are antagonistic to its existence.

The relationship between the individual and the environment has not always been so. If the individual, being a fraction that proceeds from the social, has undergone through generations and mutations of the species a process of self-absorption and isolation.

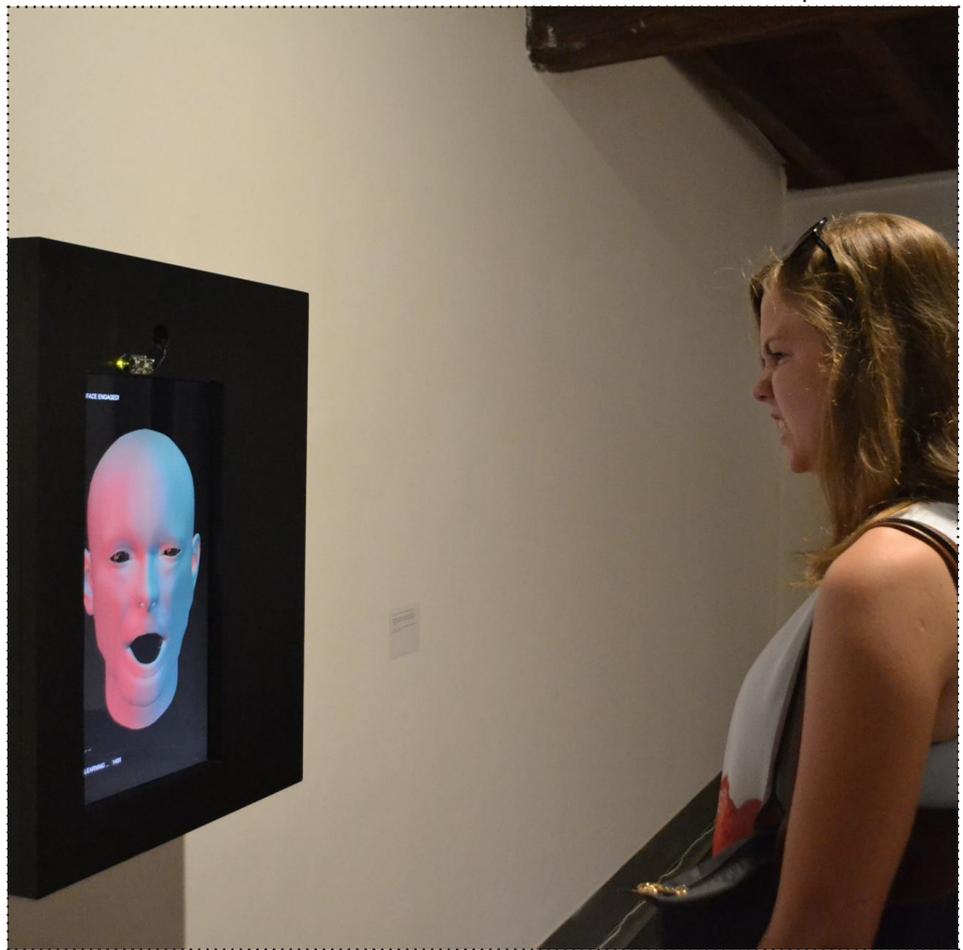


Figure 10. Visitor interacting with NarcissUs, GAMeC, July 2016

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Thus the level of narcissism of the contemporary human differs from that of other times, and thus the level or type of consciousness that the individual and the collective have achieved has mutated considerably throughout history. Hence the notion of intelligence cannot be stable. In this sense as an artistic and experimental installation NarcissUs seeks to:

Typify the process of alienation of the individual with its own auto-representation. In this case auto-image.

Simplify through a model, the generative process through which the organism develops a non-deterministic behaviour, and which consists, in the case of NarcissUs, of a learn-process and reproduction from facial expressions. This process is depicted by the installation as a reverberant sequence of observation, action, reaction and reproduction (intelligence as recursion).

Represent variability from the environment and the interaction with other beings, to which the organism is exposed and which highly influence the conformation of the I through the mirror process. Variability is a fundamental factor necessary for the emergence of any kind of apparent conscious behaviour. The organism is not sure if the image in question belongs to itself or to another organism, therefore the organism will act as far as it is capable, or look as it is capable, of identifying the link between its own will and the reaction on the visible image.

Argue to which extent it can be considered that a machine is able of intelligence, consciousness and self-awareness. Not as an issue from technological feasibility but as a matter of ontology. Is it possible for any “conscious” organism to perceive the “consciousness” of any other?

I conclude these by stating that Narcissus as an installation emerges as a set of properties, an assemblage, a behaviour of a whole, which cannot be reduced to any of its parts. In the same way I would like to assure that as a model of a complex set of interrelated things, each with diverse properties and potentials, NarcissUs is a metaphor of humanity, and its behaviour and process of discovery of behaviour. Therefore NarcissUs serves as a metaphoric feedback loop which has an inherent similitude to us, which awakes the attention, curiosity and empathy of the visitor.



Figure 11. NarcissUs at smaller scale interacting with itself, in Kasko, Wartek, Basel, March 2016

Artwork

Behind the work: randomness, machine learning, feedback loops, emergence and recursion

NarcissUs is an installation which uses mixed media, including algorithms and techniques for face recognition and face tracking. It integrates an algorithm for machine learning, a virtual 3D model with detailed muscular information and a video camera pointing at a motorised mirror, which is placed in front of the LCD screen where the facial image is displayed. The motorised mirror helps the camera to look at the reflected face or to look for faces in the surrounding space.

It is a machine-learning setup in a mixed media environment. It integrates elements within the virtual reality, such as a human-face model, with elements from the material reality such as a motorised mirror. This combination of elements opens a door to a third space composed by abstract elements and processes, which allow the emergence of perception-feedback loops.

On the virtual side an expression-able 3D Model of a human face is displayed on a screen and is provided with agency by connecting it to the reality through a camera and a facial-expression recognition algorithm. On the side of the material reality a mirror is placed in front of the camera and the display, where NarcissUs exists as an image. This reflective device is attached to a motor with the purpose of providing NarcissUs with the possibility of searching for faces in its surroundings. The rotation of the motor is regulated by the same algorithm in charge of facial expression recognition, meaning that the search will stop at the moment NarcissUs finds a face.

NarcissUs looks at itself and constantly intends to copy its own expressions, falling continuously in erratic or contingent states. NarcissUs learning process is driven by the necessity of reducing stress to the motor and to stand still. The learning engine is written in Java and it is based on the deep learning and reinforcement algorithms.

The human face model, the expression control and the basic decision algorithms are driven by Unity 3D Engine and are written in C# and JavaScript. FaceOSC is an open source algorithm based on Jason Saragih's Face Tracker Algorithm, which is in charge of the face tracking and expression recognition. An electronic Micro-controller known as Arduino is used to drive the motor which controls the mirror rotation through serial communication.

Technically it consists of a feedback loop between a computer generated portrait with detailed facial musculature, a camera, a motorised mirror, a face tracking algorithm and an evolving learning machine seeking for faces.

The system behind NarcissUs searches through the camera a face in the mirrored image or in the surroundings. When a face is recognised and engaged the system learns from it and evolves through expressive exchanges. If a face cannot be tracked, the system will use the motion of the mirror to help the camera to see beyond its frontal range of view.

The facial model is a detailed 3D scan of a real person. The scan was done with a 3D Infrared Camera and additional software was used in order to also reconstruct the corresponding musculature and topology of the scanned face. The reconstructed of the facial muscles is information which allows to handle certain control points of the 3D Mesh in order to manipulate the shape and the motion of the specific areas of the facial model. Variables such as mouth aperture, lip crunching, left eye blinking, left eye-brow lifting, and so on, can be parametric affected by an algorithm.

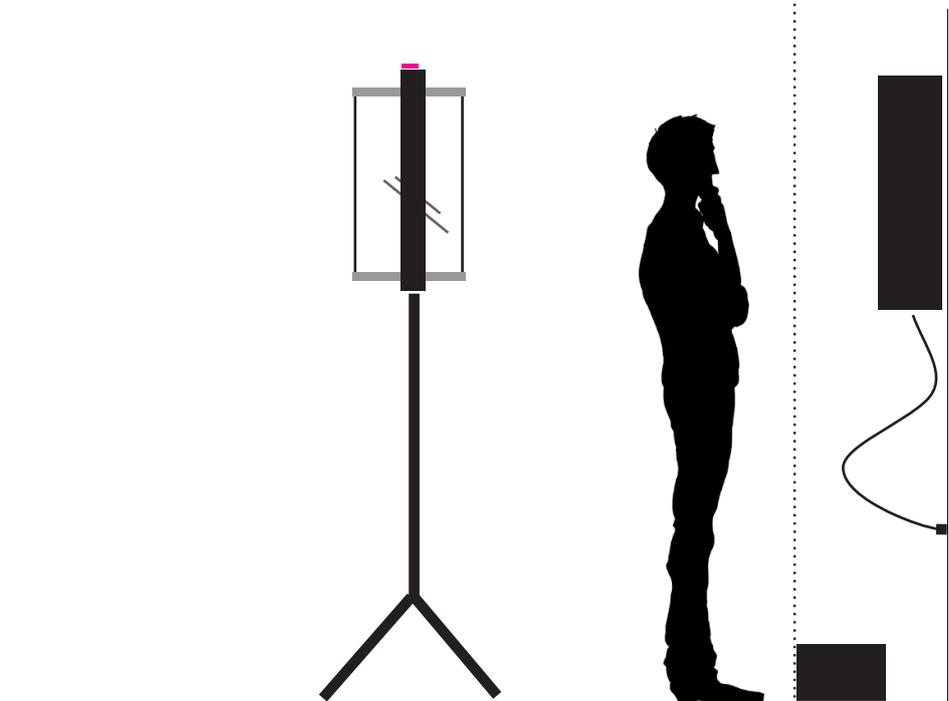


Figure 12. Technical Representation of NarcissUs as presented in 2016

Artwork

Behind the work: randomness, machine learning, feedback loops, emergence and recursion

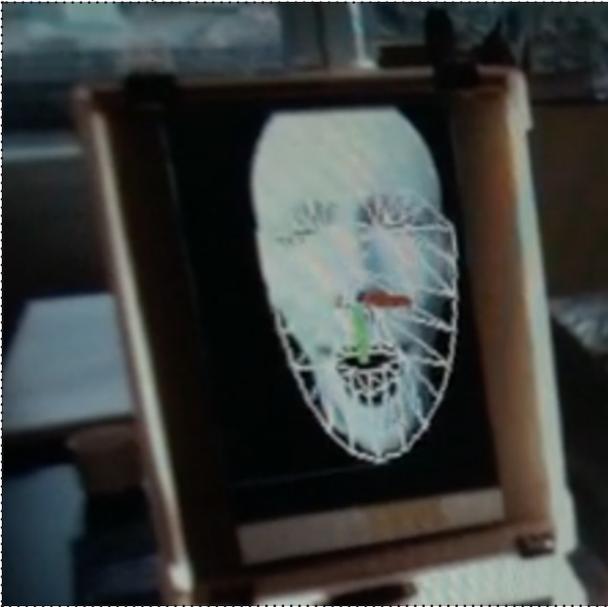


Figure 13. Face Tracking Algorithm “Face OSC” analysing low resolution image in real time captured video running in the background

On the tracking side *Open CV* [6] algorithms are used in order to allow narcissus to track faces and recognise specific gestures. A dedicated library and framework has been built by Kyle McDonald which is called FaceOSC. This library allows to track faces and reconstruct in real time a low resolution polygonal mesh of the tracked face consisting of over sixty points. The mesh is used as three dimensional set and from its analysis simplified data with numerical values such as eye openness, face rotation, and so on is generated. The tracked information is used in order to manipulate the parameters of the reconstructed facial musculature which finally allows NarcissUs to mimic facial expressions. NarcissUs can either track any real face in the real space or track its own face through the mirror located in front of the display and the camera. Additionally, the mirror is provided with rotation capabilities driven by a servo-motor which is at the same time connected to a micro controller which is regulated by the algorithm through serial communication. This allows the camera to see and look for faces through the reflected images in a range of 180°.

[6] CV stands for COMPUTER VISION. Open CV is an open source framework which is continuously updated by a community of computer scientists, programmers and media artists. It is a library or compilation of libraries available in multiple platforms and programming languages, which allows to make use of the state of the art algorithms for image tracking and image recognition, as well as machine learning.

Recursion as briefly introduced before through the interpretation from Morin's diagrams and ideas, is understood as the definition of a process in terms of its own derived processes or products. The concept of recursion is an abstraction of the repetition within repetition which is present in the world, in nature and in psychic and cognitive processes such as perception, language and thought.

In order to understand the purpose of the presented installation is necessary to grasp the role of the observer in the different levels in which the installation exists and behave. It is also important to remark the role that recurrence plays inside the physical system and the algorithmic structure that controls it.

The role from the visitor at the installation is as necessary as it is not. NarcissUs can mimic the gesture of any person standing in front of the camera or any person who get caught by the camera through the rotated reflected image visible through the mirror. Nevertheless the experience for the visitor variates considerably depending on which kind of participation she / he has over the installation.

It can be considered that they differentiate as passive, active and null modes of participation. Passive occurs when the visitor gets caught by the rotating mirror. Active participation occurs when the visitor disrupts between NarcissUs and its reflection and gets control over it. Null participation is when the visitor neither get tracked through the mirror nor stands in front of the camera, but only observes NarcissUs interact with itself.

The behaviour of NarcissUs also diverges and evolves differently depending on the acquired facial information it gets, either from the visitors irrupting in the environment or purely from its own reflected image. The first displays a faster growing behaviour curve towards richer and varied expressions while The second arouses a behaviour which smoothly grows from a quite to further more chaotic states.

Artwork

Behind the work: randomness, machine learning, feedback loops, emergence and recursion

The following diagram explains how the learning algorithm behind NarcissUs behaves. As it is an open system, which enables at each step of the program to integrate to the behaviour of the model any new information, under the condition that if a face is being tracked, the system will be enabled to increment the variability of tracked actions by means of a combination between the repeated gestures and de newly tracked and learned ones. Variability is also increased thanks to the shift in time between the crossing signals (mirror and face).

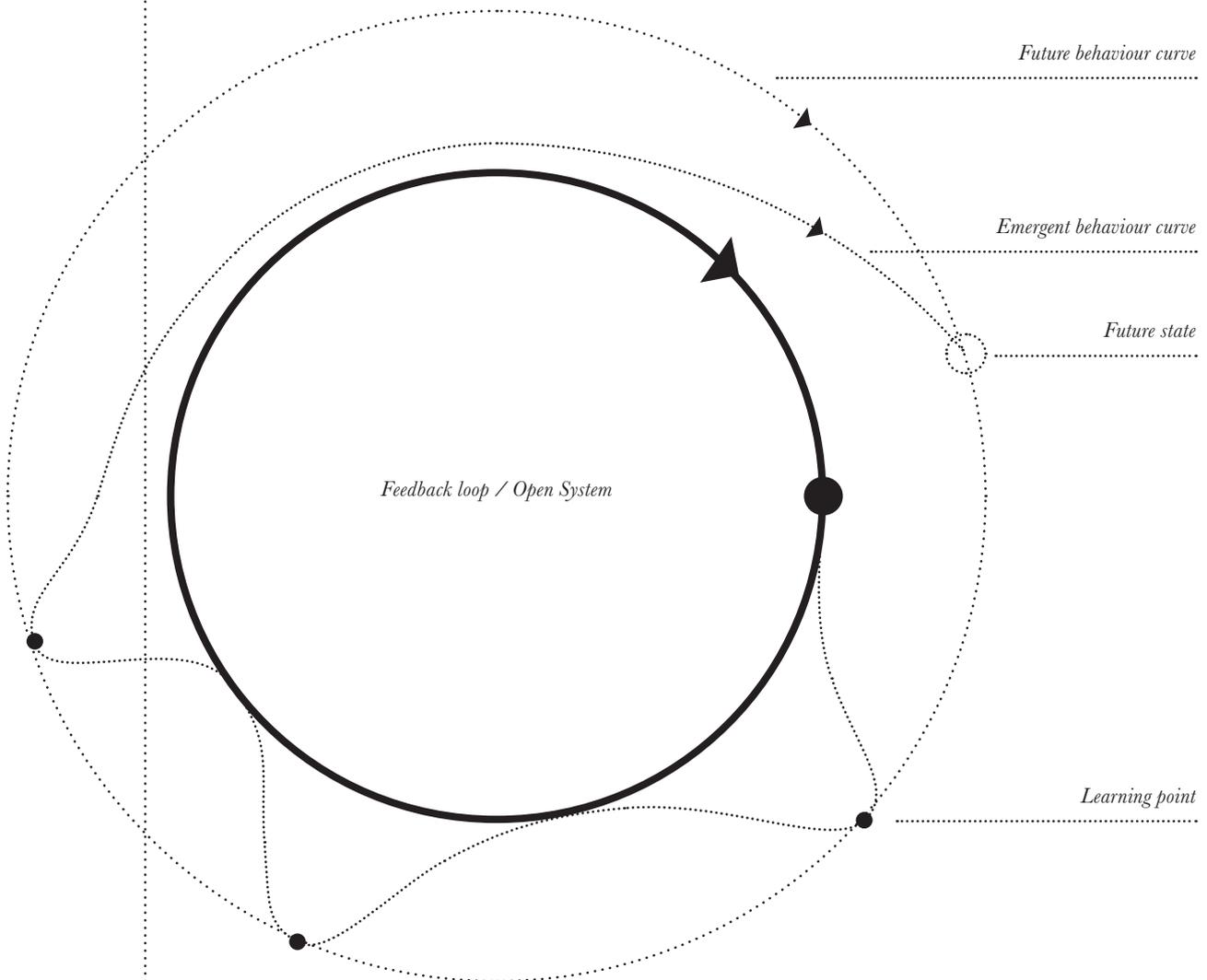


Figure 13. Learning process inside NarcissUs Algorithm and Physical Set Up

Anyhow, the topic of emergence is highly discussed. Some thinkers argue that emergence lacks of any philosophical value, due to a certain wrongly attributed mysticism. It is important to recognize and also recalling the ideas from DeLanda, that there is nothing mystical behind emergence. It is rather the interaction of entities within a whole, those which reveal the occluded potentials of things which end up enabling the emergence and in a way facilitate the individuation process, each time they manifest together.

Individuality therefore manifest transiently as stations in the processes and reactions on the path of becoming. Becoming is to get somewhere new, and to be trapped in a perpetual process of individuation and change.

NarcissUs and the Mirror are not fixed. N and M change through time, they are unique stations on the path of becoming

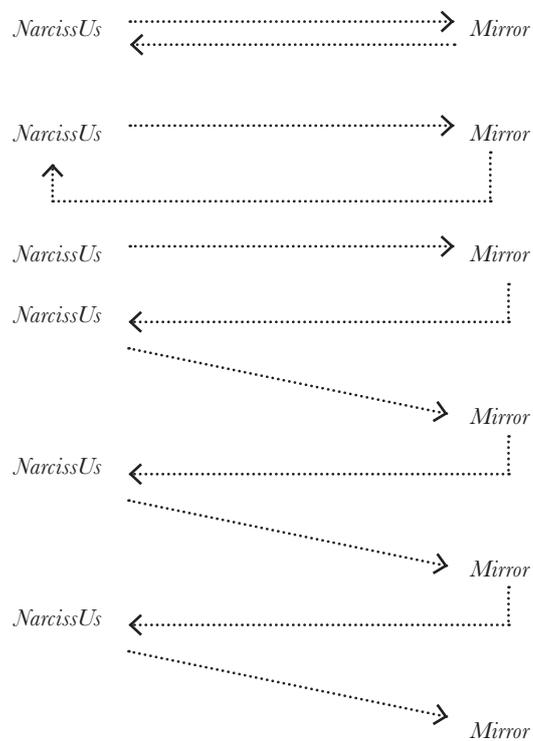


Figure 14. Explaining Individuation and Emergence behind NarcissUs

Artwork

Behind the work: randomness, machine learning, feedback loops, emergence and recursion

Randomness refers to the uncertainty of knowing how events will occur within patterns. At the same time it does mean that patterns are not infinite, but hardly constrained by all those things a pattern cannot be. How *real randomness* can be real when certain constraints are given? What is real randomness in the world? In the same way these two questions remain unsolvable I would like to point the similar interrogation in terms of emergence. How from providing a defined set of let us say two entities, which together build up a certain whole, can *real emergence* throw out results beyond the sum of the potentials of both? The truth is there cannot be emergence without unexpected results and unexpected states would not be feasible if emergence was not an inherent property of complexity.

Figure 15. The Mirror



Context

Technology, Video Art, Computer Art, Algorithmic Art

In order to have a wider overview of the contrasting effects that the concepts reviewed before, have in relation to art and technology, in the past, present and the coming future, a collection of works from some relevant contemporary artists are displayed next. The conjunction perhaps coincides with an on-growing philosophy school which will be also reviewed on the last pages of this work and which has been called by their pioneers object oriented ontology. Although OOO has been there for a while already, it is until the recent years that contemporary artists and curators have had related to it intentionally.

Dan Graham has brought along one of the first methodologies to break out of the paradigm of the mirror and the coupled image, by shifting through a time offset the effects of the mirroring in time, by making use of an extensive closed-circuit composed by two mirrors, two cameras and two displays. This setup allows the viewer not only to see herself from infinite points of view at the same time but to also experience the time offset.



Figure 16. Opposing Mirrors and Video Monitors on Time Delay, Dan Graham, 1974

I had the chance to meet the artist Heather Dewey-Hagborg in Fukuoka, Japan in 2015, when I first brought NarcissUs to any type of Art show. By that time I was not aware of her work which afterwards left me profoundly inspired. The image below displays the 3D printed faces of real humans, as reconstructed by a genetic algorithm which the artist developed herself. The only pieces of data traces are coming from human rests which the artist collects through the streets of her hometown. The data is analysed and a likelihood algorithm helps to designate each of the facial approximations towards specific phenotypes of the person. This work is beyond words. It is as contemporary as futuristic and highly complex. At the same time it remains graspable as a collection of portraits and boxes which display the traces through which tracking of the genetic information was possible: chewing gums, hair, cigarette butts. The artist engages with topics as surveillance, genome, control, biopolitics, biology and computational arts.

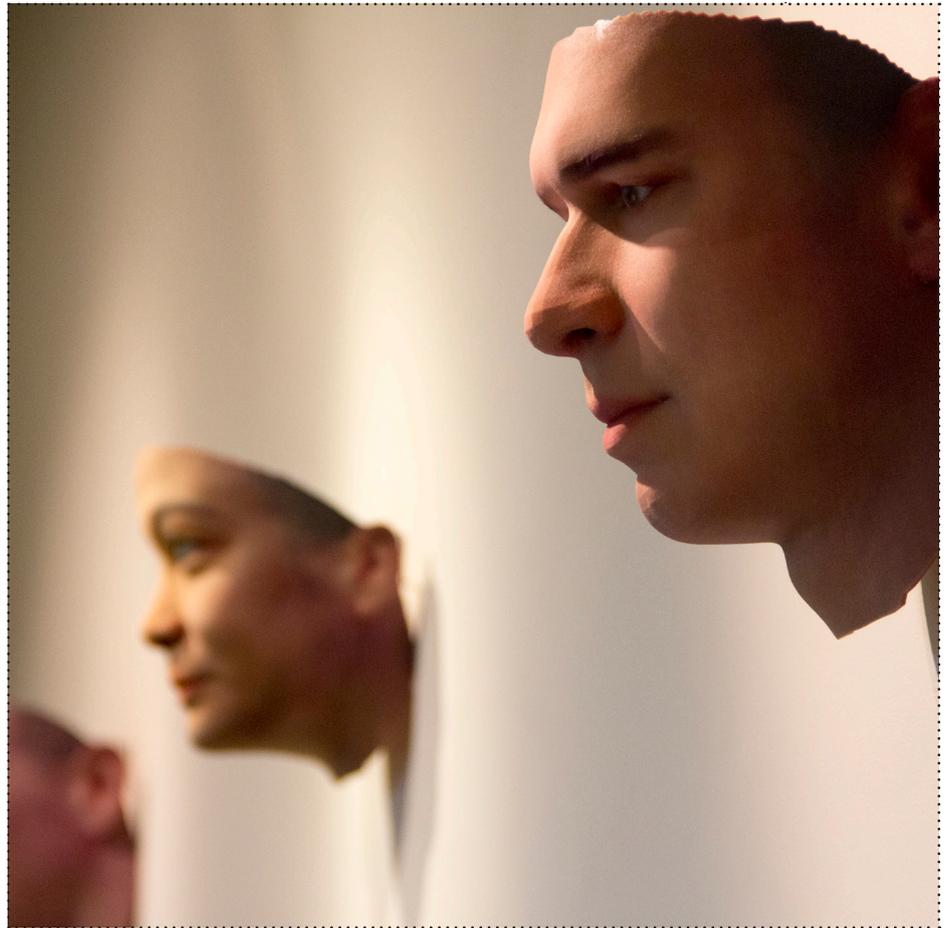


Figure 17. Stranger Visions, Heather Dewey-Hagborg, 2012-2013

Context

Technology, Video Art, Computer Art, Algorithmic Art



Figure 18. Live Taped Video Corridor, Bruce Nauman, 1970

In the live-taped video corridor, Bruce Nauman placed two monitors on top of each other at the end of a long and narrow corridor. On the lower monitor a video recording of the corridor is displayed. On the upper one a live stream of the corridor can be seen, from about the same position where the corridor starts but with a much higher perspective. When entering the corridor the person in place becomes visible on the monitor, and the closer the person gets, the smaller she/he becomes in the image. Of great impact, specially for that time is the presentation of a setup where the visitor is able to see her/himself from the back in real time, which provides the experience of a very uncommon dissociation of the body and the self-image.

Nowadays this perspective has become common due to the popularisation of video games, specially in younger generations. It is somehow remarkable how for instance the empathy developed through these type of technologies has already impacted the placing of the body and the self-image. More over, it has become a common practice in the recent years

since the introduction of smartphones, to relate the body experience to the video-captured memories that we share with others. We are getting more and more used to this shift of perspective and to this exteriorisation and dissociation of the experienced and the perceived.

Nevertheless it is remarkable that the installation from Nauman remains actual and has not lose its effect over the viewer, perhaps because it offers the dissociative factor in real time and because it does that through technologies which was available years behind these systems [ubiquitous closed circuits] have been democratised.

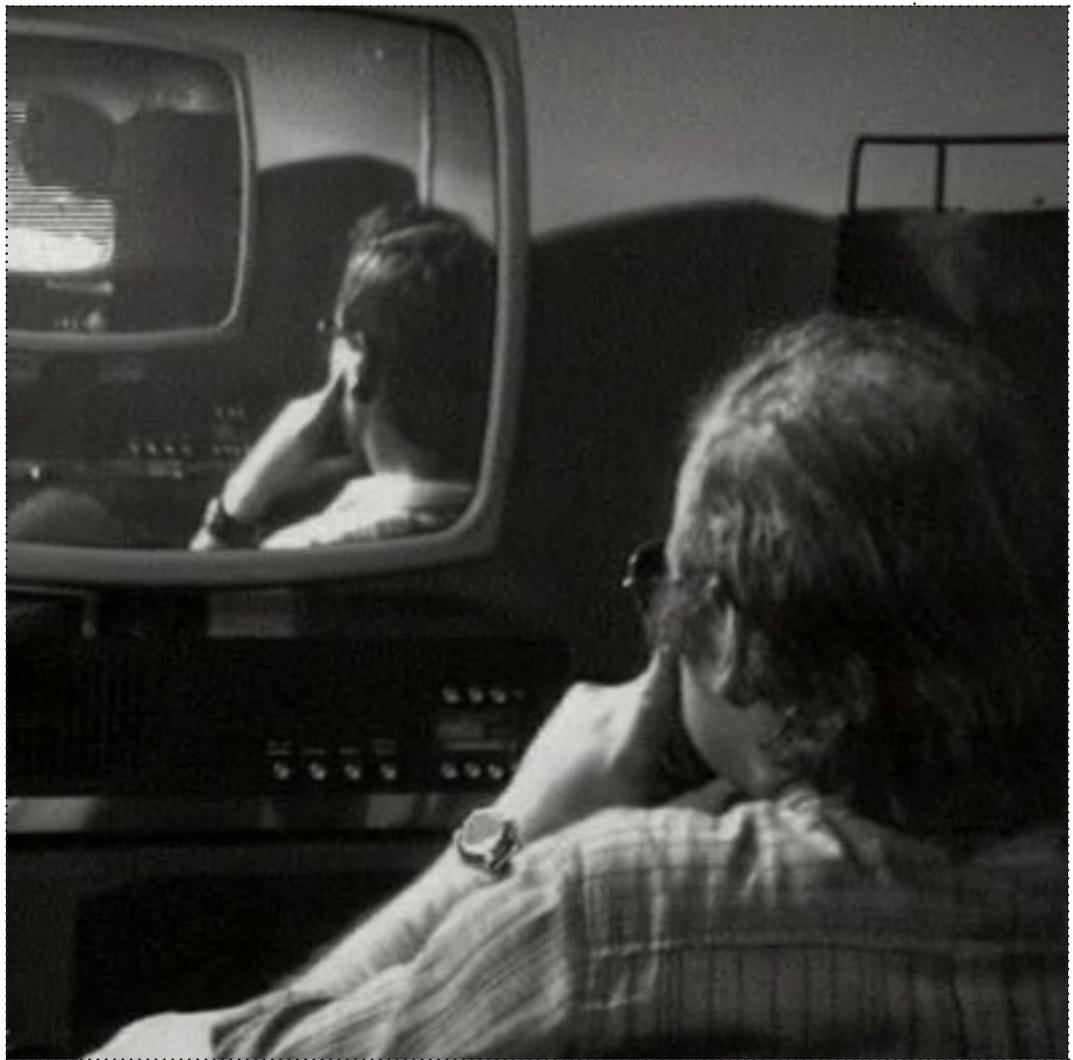


Figure 19. Endless Sandwich, Peter Weibel, 1972

Context

Technology, Video Art, Computer Art, Algorithmic Art

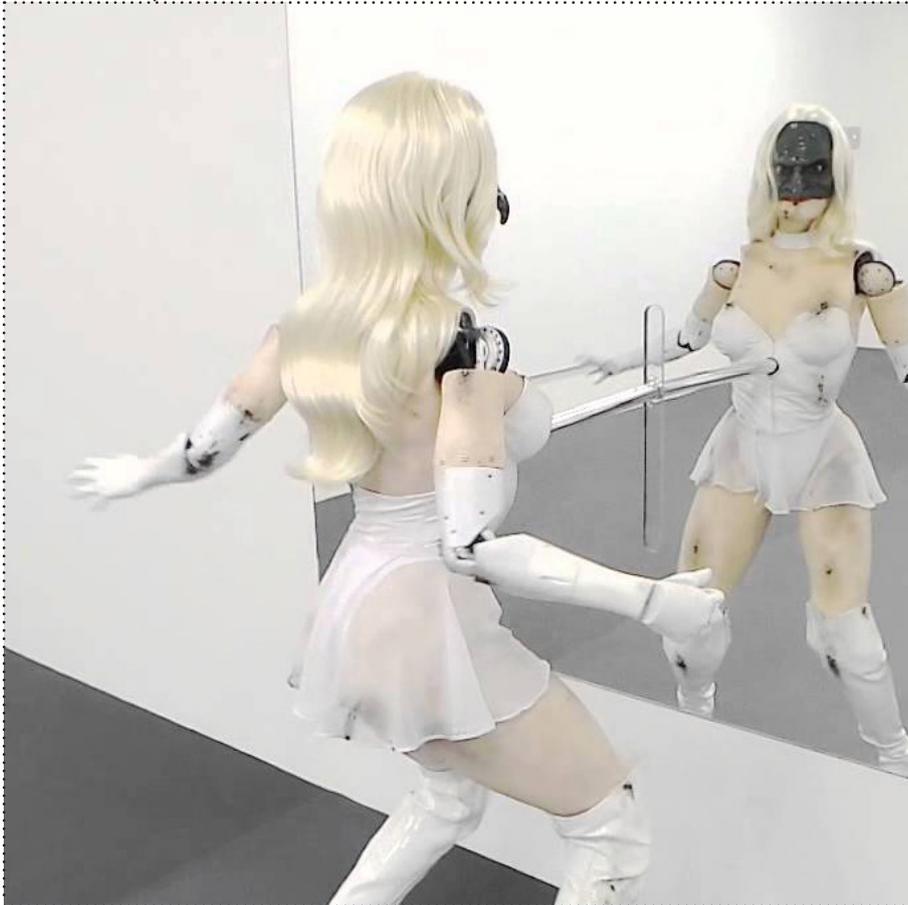


Figure 20. Female figure, Jordan Wolfson, 2014

Jordan Wolfson

I wasn't thinking at all about the future or the past while making this artwork. The look of it - that was economically how the robot had to look, with the materials available. It was about utility, it wasn't meant to be futuristic. It's part of reality, this thing exists, it just looks as it looks. Aesthetically, I was just going for a combination of textures, matte and shiny, and also physicality, so there's always a contrast.

The artist Cécile B. Evans presents a video installation in 2014 which is a compilation of video footage and pictures extracted from the internet. She uses a narration from obscure voices, which characterises a conversation between artificial intelligences which is rather confusing. One of them is characterised by a 3D reenactment of the late Philip Seymour Hoffman, who in 2014 had recently died and as a result, a film company wanted to use a digital reconstruction of the actor in order to complete a movie in which he participated. Her work displays the loss of the real towards the totality of the internet, and the diverse effects of digitalisation in the mutation of culture.



Figure 21. Hyper Links or It didn't happen, Cécile B. Evans, 2014

Context

Technology, Video Art, Computer Art, Algorithmic Art



Figure 22. *Computers Falling in Love*, Andreas Koller, 2014

The artist explores the conversation between two computers sitting in front of each other with cameras looking at their displays and their displays pulsating in patterns. Depending on the camera properties the patterns change and evolve and they develop their own visual language. A conversation emerges which with time increases its intensity. The installation is presented in a set of three: a sad computer, two computers falling in love, and a computer falling in love with itself.

Andreas Koller

The question that started this project is “Can a computer feel?”, which I examined in several installation pieces. The first one are two computers facing each other, while another one utilises the same feedback principle using a phone and a laptop. Finally, the exhibition at MAK Vienna showed a whole group of computers falling in love in various ways.



Object oriented ontology is a school of thought initiated by Graham Harman. He suggests that the universe is composed exclusively by objects. That every kind of existence has a unique type of being, and this being is inscribed in an object that exists for itself, independent of the existence of any other object and therefore any observer or subject.

It is often spoken about a so called structure which regulates the organisation of such a universe, and it is explained as a democracy of objects. The last refers to the idea that all objects exist equally, but that not all objects equally exist. Meaning that the totality of the objects is not relevant for the whole, rather that depending on their interrelations existence is meaningful to one another, but their relative in-existence doesn't exclude them for being.

While this is of course a provocative point of view, specially in a time where an objective scientific method dominates most fields of science and philosophy, I'd like to refer back to that phrase in order to contribute to conceive a universe where a democracy of existence is feasible, and being such, a universe in which none of the entities can be seen as existing in function of others, therefore cannot be ordered hierarchical structures.

In an object oriented philosophy it is of special relevance the whole which humans play as non central anymore, but rather as a specific type of object among infinite others: animals, plants, stones, planets, words, stars, letters, images, boxes, information, bits, atoms.

All these "beings", things or objects which populate the Universe are equally existent and equally independent from any subject (observer).

Opposite to classical conceptions of the universe which even nowadays still predominate, an object oriented philosophy is a construct where the human and the role of the observer it is not existent anymore, therefore not necessary in order to allow the existence of a subjectless universe, populated with subjectless objects. A universe where each thing is contained and exists for itself.

How is a universe of things possible where no things are necessary in order for other things to exist? How in the subjectless world is the human psyche and existence fitting, and even possible?

Perhaps it is thanks to the relational model of indirect relations and translations and processes between objects, that we could explain the human culture as behaviour or process which derives from the interactions of things.

George Spencer-Brown presents the “laws of form”, which are a set of thoughts where the certain distinctions that emerge from observation are studied as the norms that have situated the modern conception of reality in a sort of encapsulated looping misconception. He points that the capacity of distinguishing, for instance one object from the other, delimits a space and a non-space. The marked and the unmarked.

This distinction indicates that what it is from that which is not. Therefore leaving the observer in the middle of a field where the non-space, the unmarked or the undefined is sealed as a blind-spot. And simultaneously, the distinguished itself becomes at the same time a blinded limited conception of what the thing is. In this way the construction of reality is populated further with “representations” rather than with the real understanding of reality.

“one can either observe the distinctions or use them, but never both at the same time, never use them and observe them... thus distinctions create a reality effect where the properties of the indicated seem to belong to the indicated rather than being effects of a distinction. As a consequence, we do not realise that other distinctions are possible.”

Levi R. Bryant

Therefore objects end up being not anymore objects, or autonomous substances existing by its own right but rather they are turned into vague representations of limited spaces of distinction. In consequence to this, things are seen and understood as simple vehicles for all the elements contained in human culture: contents, meanings, icons, signs, language and projections.

Object oriented philosophy proposes in contrast to place objects in the space of distinctions where subjects and culture are not excluded of existing, but treated as types of objects too. It becomes feasible in that sense to talk about nonhuman existences, and stop treating objects purely as vehicles for culture.

Beyond

OOO & Posthumanism

“ subjects are objects among objects, rather than constant points of reference ”

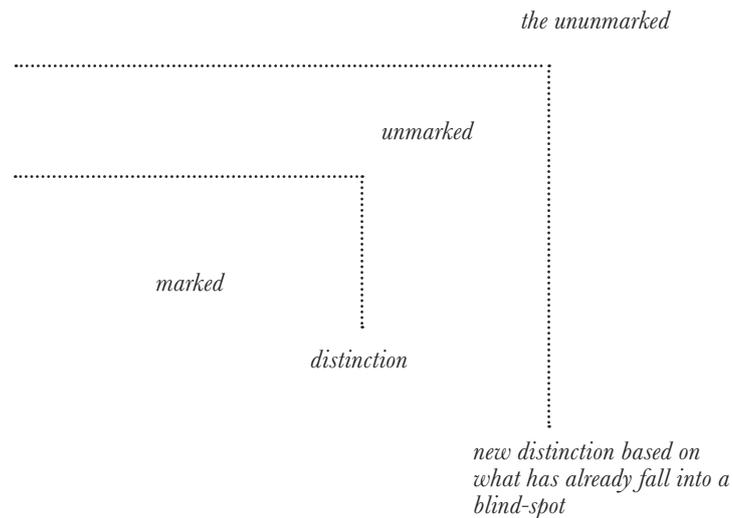


Figure 23. Representation of the distinctions between what we see and we don't see, and how what we don't see become recursively that what populates our representations in culture

OOO shifts from a dual ontology, where culture and nature are split, placing all entities on equal ontological footing. We arrive so at a state of a singular plane in which being is a varied population of all types of objects.

In order to do that, other conceptions such as epistemological realism and other realist philosophies must be rejected, by arguing that objects have no direct access to any other object, but that object rather translate each other and that every object maintains a complex of no-relational relations to another.

This is hard to conceive as something feasible, as well as in the abstract world as in the material. It is important to try to understand here the difference between diverse schools of thoughts which approach an object oriented ontology. While the anti-realists argue that there is a gap between humans and the reality, and that therefore reality is not accessible, a true object oriented ontology suggests that, being humans also objects, the gap is identified between every other being: the gap is identified between each one and another objects populating the universe, therefore the gap is understood as an ubiquitous feature of all beings.

I would like to conclude this short thesis, by reviewing the objectives of object oriented ontology. An OOO such as post-humanism intends to de-center human and the subject, and to refuse the reduction of agencies (objects) to simple vehicles (medium) for content and representation of the culture. It has the consign to explain and create a conception of reality independent to humans.

The last objectives become relevant and concern to any artist who would like to proceed with her/his enterprise as a contemporary, new media, future or whatever type of modern artistic practice. Since it is more than necessary to see that our society and its relation to the understanding of reality has been dramatically rearranged by the cultural practices from the last decades, and seem to be reaching zeniths where the shifts towards new paradigms of reality are happening faster than we can understand and write about.

Our relation to the world, to the otherness, with the nature, with the environment, with technology, with the machine and with the digital seems to be converging into a a funnel, were the traditional values and the role of the human are changing. While the world is dehumanising without us, we start to grasp that reality may not be about us and therefore, we must strive for understanding what is the true nature of our relation to existence is. To embrace the circumstantial, the ephemeral, the contingent and the idea that our access to the world, is at least through means of reason and language, per ontological definition limited. That things are, exist and will keep being without us, and that we as equally existing things, also exist without them.

Beyond

OOO & Posthumanism

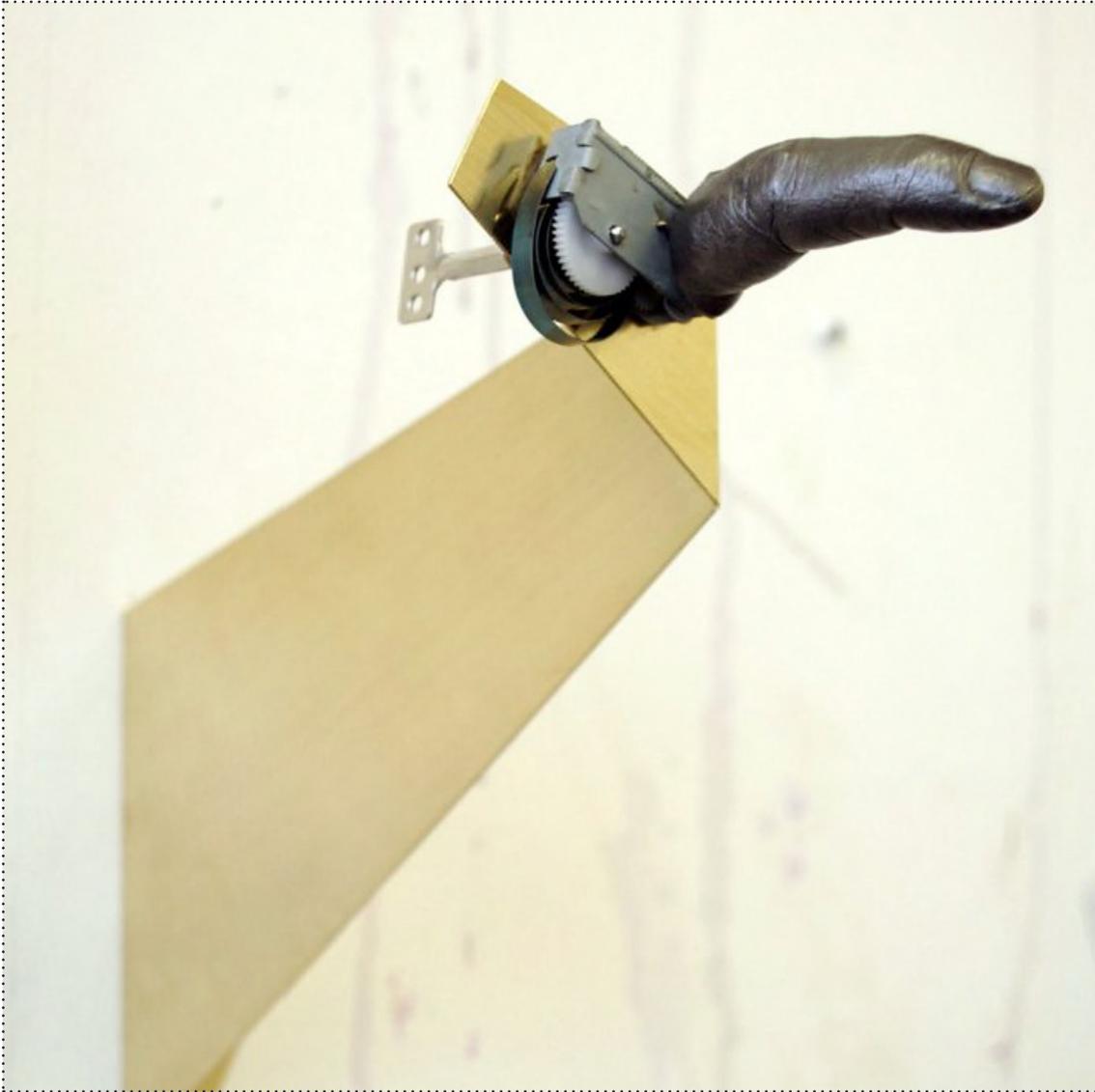


Figure 24. Neither Ready Nor Present To Hand, Cheryl Field, 2012



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To read xCoAx 2016 paper: <http://2016.xcoax.org/pdf/xcoax2016-Torres.pdf>



