re:place 2007, 2nd International Conference on the Histories of Media, Art, Science and Technology. Berlin, november 15 -18, 2007. Panel 3: **Histories of Abstraction**, 16. november 2007.
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Histories of Abstraction

Laura Marks
Arianna Borrelli
Amir Alexander
Paul Thomas

Moderation:
Sean Cubitt

In Panel 3 of re:place 2007, entitled ***Histories of Abstraction***, the four lecturers offered brilliant and sophisticated studies on seemingly quite different subjects. On the basis of the titles alone, like: *„Artificial Life from Classical Islamic Art to New Media via 17th Century Holland"* (**Laura Marks**), *„The Media Perspective in the Study of Scientific Abstraction"* (**Arianna Borrelli**), *„Death in Paris: When Mathematics became Art"* (**Amir Alexander**) and *„Constructed Infinite Smallness"* (**Paul Thomas**), the visitor was given an idea of the complexity and the diversity of the highly specialized and elaborated insights. To communicate a brief sketch of their underlying research, each lecturer had to deal with the usual time limitation of 20 minutes which everyone kept under the moderation of **Sean Cubitt** (in his enjoyable and convenient intelligent and subtle humorous way) with a high professional approach. Therefore, the auditor was confronted with a quite complex situation: artificially compressed content, the various approaches of every lecturer and all together embedded in the general idea of the conference: to discuss the *histories of media, art, science and technology*, what should mean, not only confronting different histories, but, for sure, through confrontation and comparison searching for enlightning connections, to clarify subtle differences and shared structures for broader insights related to so popular ideas like *interdisciplinarity*, *discourse* or *interaction*. But how can we give these terms meaning, confronted with the seemingly high separated topics and languages (of media, art, science and technology) used by the different fields of research and the lecturers with their various backgrounds? How can we avoid a simple accumulation of brilliant, but – if not comparable without a general frame – therefore somehow authistic research issues? My general aim of this review is therefore and related to my impression of the sometimes quite confused general discussions (not the mostly exemplary good structured presentations itself!) to make a proposal for a specific view on the realms of media, art, science and technology, and trying to post an idea of a possible general frame for fruitful discussion. I will refer to the Philosophy of **Nelson Goodman**, which is based on a radical *nominalism, constructivism, relativism* and *cognitivism*. Goodman shows that both, the arts and the sciences, are „Ways of Worldmaking" [1] which rather construct worlds than finding them (without refering to any idea of a general underlying truth). The creation of various worlds is enabled by the use of symbol systems of numerous kind. In fact, without using any kind of symbol system, no meaning could be communicated, or better, there would be even no meaning at all, therefore no *worlds*. An important point is thereby, that the general idea of defining a symbol system is a conceivable *broad* one. A symbol could be linguistic, musical, pictorial, diagrammatic, or *whatever* – in virtue of belonging to a symbol system of a certain kind. Any understanding (in a broad sense) of a symbol system (like mathematics, dance, gestures, ...) or to distinguish and compare them is a cognitive process. One of the basic points of Goodman's *„Approach to a Theory of Symbols"* [2] is his solution to look at the ways of ***reference*** the various symbols could be assigned to. Characteristic for Goodman in its simplicity, therefore elegance – aligned with astonishing manifold consequences – is his starting point by a simple pair of reference: *denotation* and *exemplification*. Denotation is the relation between a „label" such as „John F. Kennedy" or „The 34th President of the United States" and what it labels. Exemplification requires possession, the sort of reference typical, for instance, of tailors swatches. In addition to possession, however, which of course is not a form of symbolization, exemplification requires that the exemplifying symbol *refers* back to the label or predicate that denotes it. Hence, exemplification is „*possession plus reference*" (Goodman, 1976). The next point Goodman makes is, that expression can be understood as „metaphorical exemplification". Features of one realm are transfered to another and therefore different realms like structure and emotion, color and sound, static and dynamic or any other can be connected in meaningful ways. The point for our discussion is here at the first step, that through the idea of exemplification especially the so called „abstract arts" can be understood in a very fruitful way. Notions like e.g. „this abstract structure expresses sadness" are no longer problematic. In fact, anything could express everything, but that would not mean at all something like „anything goes", because any expression must fit closely to a symbol system in use. To create any working system and to understand the routes of reference is hard work. Especially the arts with their complex ways of reference that essentially can't be interpreted to

Aim of this review: proposal for a general frame of discussion

1
Nelson Goodman:
Ways of Worldmaking.
Hackett Publishing Company, 1978

2
Nelson Goodman:
Languages of Art,
An Approach to a Theory of Symbols.
Hackett Publishing Company, 1976

an end require therefore *endless care*. For sure, a review can not offer a detailed explanation of Goodman's Philosophy. Therefore I've got to reduce my points by introducing only two further important ideas he offers, and than relate my points to some selected statements of the lectures, to prove their use in detail and to give concluding an idea of their general value. The arts and the sciences use both arbitrary symbol systems and by constructing meaning through them they work both substantive in a *creative* way and process. Both do offer new insights in various realms that couldn't be drawn before, or even stronger, they can also construct new realms of investigation and inquiry, or in fact: *they create new worlds*. My last, but also very important point is, that any symbol can change its meaning according to its application in different symbol systems. For example „O" might be used as the first letter of the phrase „Oh, how enlightning" or as the miraculous number „O" that might again be used fruitfully and pragmatically in mathematical operations or also in metaphysical discussions as a symbol for the great „Nothing" or whatever ... :-O ... :-) ... *as u see* ... so, I'll use the „eyes" of the presented „emoticons" (what did they express?) to introduce my examples, taken from the lectures: The order, amount and elaborateness of each example I choose won't include for sure no statement about the presentations in the sense of a value critique. This is not at all my approach. My general approach is to discuss topics related to epistemological clarifications and insights, not to asses anything or anyone (shall that be the job of critiques with their faint praise). I think aim of such a review shouldn't also be a summarizing of the main content of the presented lectures. One can find that in the reader to the conference or on **www.mediaarthistory.org** elaborated by the lecturers themselve in a way I couldn't add anything better. Before I go into the examples I want to stress one point to avoid a general missunderstanding: my aim is absolutely not to reduce the variety of phenomena, approaches or research results.The opposite is the case. I am just trying to make a humble proposal for formulating a possible general frame for discussion to create a space for sharing experiences. Because we definitely ain't got no common ground or truth to refer to, without a formulated fruitful frame, in fact a real discussion won't be possible and *that* would provoke a reduction of sharing and beeing aware of the beauty and complexity of our worlds.

Laura Marks invited the audience to take part in her fascinating, suggestive and not at last charming journey through ages and form. Related to pure historical concepts, her considerations about *„Artificial Life from Classical Islamic Art to New Media via 17th Century Holland"* might be in danger of beeing attacked as argumenting too general and constructed, or rejecting canonic views on certain iconographic interpretations. Her central example, Thomas Keyser's Portrait of Constantijn Huyghens (1627), a work that relies on Islamic abstraction, in a prominently featured carpet, was indeed source for a critique from the audience. Her very strong claim, that *the nonfigurative patterns of Islamic art have an algorithmic liveliness that prefigures artificial life* and that *the implicit life and movement of abstraction attracted Western artists to Islamic images,* was challenged by the obviously broad accepted comment, that the forms seen on the carpet rather represented God, because it has been said at that time that „God is in the Details". In fact, *both approaches are right*, seen from a broader view of a general symbol theory. There is no problem by saying, the detailed carpet represents God, if he was ment to be there. But one might also see, that the „uncanny" forms of the carpet, because defying categorization, exemplify shapes, that metaphorically refer to algorhytmic structures and therefore to „the living, performative qualities of computer-based art". As Laura Marks said, the carpets are not only signs of wealth but also – regardless of the ideologies they hold – inspiration of something that can't be depicted (what God again has been said to). As Goodman shows, the paths or „routes" of reference can be of many different sorts, and indeed symbols may combine in „chains of reference" to give rise to instances of *complex reference.*

Arianna Borrelli offered a fascinating lecture on *„The media perspective in the study of scientific abstraction".* Her impressively accurate look on scientific abstraction revealed manifold insights from outstanding clarity. One important point she made in the beginning, was to stress the misconception of the separation between content and the symbols, tools, methods, and instruments that are used to *create* content. In her lecture paper she writes: *„One might be tempted to distinguish between tools to produce knowledge on the one side, and symbolic forms to store it on the other. In fact, though, each of the elements listed above* („material objects, actions and phenomena of almost any kind, symbolic and linguistic codes - each with its own rules - codified descriptions, pictorial and non-pictorial images, numbers, moving displays, tables, standardized procedures - and more")

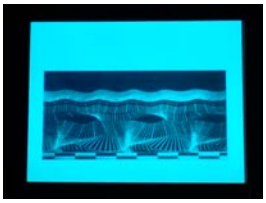
can play the role both of a symbol and of a tool, often at the same time. The „abstract concept" dissolves between production and storage, and it is therefore very important to pay attention to the all elements taking part in both processes, and also to shifts and mixtures between one element and the other." And, subtitled *Construction as reflection: „Instruments do not only contribute as tools to the production of new scientific ideas: they can also come to be regarded as an embodiment of pre-existing concepts - „pre-existing", though, in another form."* So she showed precisely that we've got to look closely at the *„Entanglement between the material and the symbolic "*. Like in the arts (that's my comment) therefore also in the sciences material, method, experiment and actual performed experience with also all their sensual aspects play a constitutional role. Especially the sensual aspect might surprise the advocacy of a strict separation of the arts and the sciences. Arianna Borrelli rejects that separation when she writes on *Mathematics, the senses and mathematical apparatuses: „Not only quantities, but in general mathematical objects are not usually considered as something which can be bodily experienced - and experienced in a number of different ways. However, mathematical statements have to be learned, communicated and employed through sensory and bodily experience, and these bodily aspects of mathematics can make a great difference as to how mathematical statements and their implications are conceived."* From the view of a general symbol theory all her considerations are for sure not *„trivial*" or digressive as she might have expected to find some preconceptions in the audience. Far from it, Arianna Borrelli offered a rich and constitutive contribution to the attempt of crossing established boarders between the arts and the sciences.

Amir Alexander presented a amazingly poetic and absorbing lecture entitled: *Death in Paris: When Mathematics became Art.* Opening by reading a poem, the young mathematician Evariste Galois penned down shortly before dying tragically on an empty Paris street ...

L'eternel cyprès m'environne;
Plus pale que la pale automne,
Je m'incline vers le tombeau.

The eternal cypresses surround me;
Paler than the pallor of autumn,
I bend towards the grave.

May I post Alexander's abstract to comment it afterwards: *„In the early decades of the 19th century, the science of mathematics underwent a transformation that has shaped its course to this day. From a field that studies the physical world around us, it became the study of sublime truths that lie beyond the reach of ordinary mortals. Mathematicians became those endowed with a special site into the alternate universe of mathematical perfection, who then return and report what they saw to the rest of us. This novel understanding of the field was epitomized in 1830s Paris by the tragic legends of two young mathematical geniuses Evariste Galois and Niels Henrik Abel. Both, according to legend, had tried to spread word of their discoveries in Paris, only to die poor and unacknowledged by their jaded contemporaries. Their mathematical heritage, however, will live on to eternity. The transformation of mathematics moved the field away from the natural sciences and into line with the fine arts. In that age of high romanticism, art, poetry, and music were also perceived as connecting humans to sublime experiences accessible only to a privileged few. It is no coincidence that the mythical biographies of mathematicians such as Galois and Abel closely parallel the legendary lives of poets, artists, and musicians of that romantic age."* From the view of a general symbol theory Amir's research can't be understood only as a historical phenomena, related to the area of high romanticism. For sure, the artist and the scientist should be seen as congenial *creators* of *„sublime truths"*. The concept of the scientific approach of pure finding and describing an underlaying reality of one world must give way to the fact of the scientist as a *constructor* of various worlds. As Galois did say*: „I have created a new, another world, out of nothing"*. If their insights must *lie beyond the reach of ordinary mortals* should be rather challenged as a problematic view than a fact.



Paul Thomas argued in his outstanding lecture: *Constructed Infinite Smallness* within a highly specialized realm, that shouldn't be and for sure must not be related to the approach of my review. Therefore, I'll only quote his elaborated abstract and conclude afterwards with some general words.

Our bodies penetrate the sofas upon which we sit, and the sofas penetrate our bodies. The motor bus rushes into the houses which it passes, and in their turn the houses throw themselves upon the motor bus and are blended with it.[1] This reference from the 1909 Technical Manifesto of Futurist Painting reflects how at the turn of the century imaging technologies presented by scientists such as Etienne-Jules Marey were making the invisible visible and directly influencing artistic practice. Artists now working in the area of Nanotechnology are recontextualising the invisible worlds revealed initially through Mareys chronophotographs. It has been nearly a century since the first Futurist manifesto was written and the context of a technologically mediated imagined world is as relevant now as it was then. For this reason this paper will suggest ways of re-examining the art historical interests of representing science. I wish to explore the genealogy of Nano imaging technologies by investigating the symbiotic relationship between imaging technologies such as an Atomic Force Microscope and arts evolution as a cornerstone of new media art history. Emergent imaging technologies are being used to explore the potential of a new spatial world order. However, these new technologies are generally based on an Old World order of spatiality. The basis for this paper resides in the Futurist artist Umberto Boccioni confrontation of Old World orders of spatiality via the representation the invisible made visible through science. I will reference the development of the microscope in the extension of vision and its relation to contemporary art practice. The larger social issues of the relationship of art to Nanotechnology will be clarified through a discussion of my current research which has been developed in collaboration with SymbioticA at the University of Western Australia and Curtin Universities Nano Research Institute (NRI). This current work is an extension of my spatial focus through the exploration of the space between at a Nano level. The research focuses my investigations on the molecular particles that exist at the point of transition between the skin and gold. The data gathered at an atomic level is investigated to present what is transferred at the point where the materials of skin and gold make contact. Working at a molecular level, Nano images offer new ways of exploring spatiality that, while acknowledging the pervasive presence of perspective systems, also deconstruct or even map new post-perspective spatialities. Therefore, this research explores and extends principles of visualising and perceiving infinite smallness through Atomic Force Microscopes in unanticipated ways.
[1] Technical Manifesto of Futurist Painting Umberto Boccioni, Carlo Carr, Luigi Russolo, Giacomo Balla, Gino Severini http://www.unknown.nu/futurism/techpaint.html

I am deeply grateful to each lecturer for the given insights and inspiration. Their friendly acceptance and response to my approach (connected with their immediate undertaking of handing me out their papers) means a lot to me and I would be very happy to have given some useful contributions within this review.