



The Trend Is Your Friend!

a performative and interactive artistic experiment

Sylvia Eckermann and Gerald Nestler

Sound Peter Szely



MedienKunstLabor | Kunsthaus Graz

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MedienKunstLabor | KUNSTHAUS GRAZ

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by **Sylvia Eckermann** and **Gerald Nestler**
Sound by **Peter Szely**

Exhibition

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Director: **Winfried Ritsch** | Curator: **Mirjana Peitler**

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THE TREND IS YOUR FRIEND!

a performative and interactive artistic experiment

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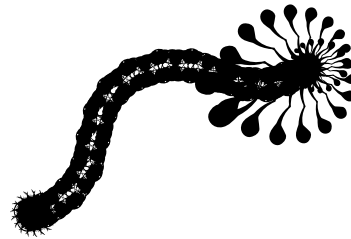
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The MedienKunstLabor

Winfried Ritsch

The MedienKunstLabor

In cooperation with the Institute for Electronic Music and Acoustics (IEM)

Intention

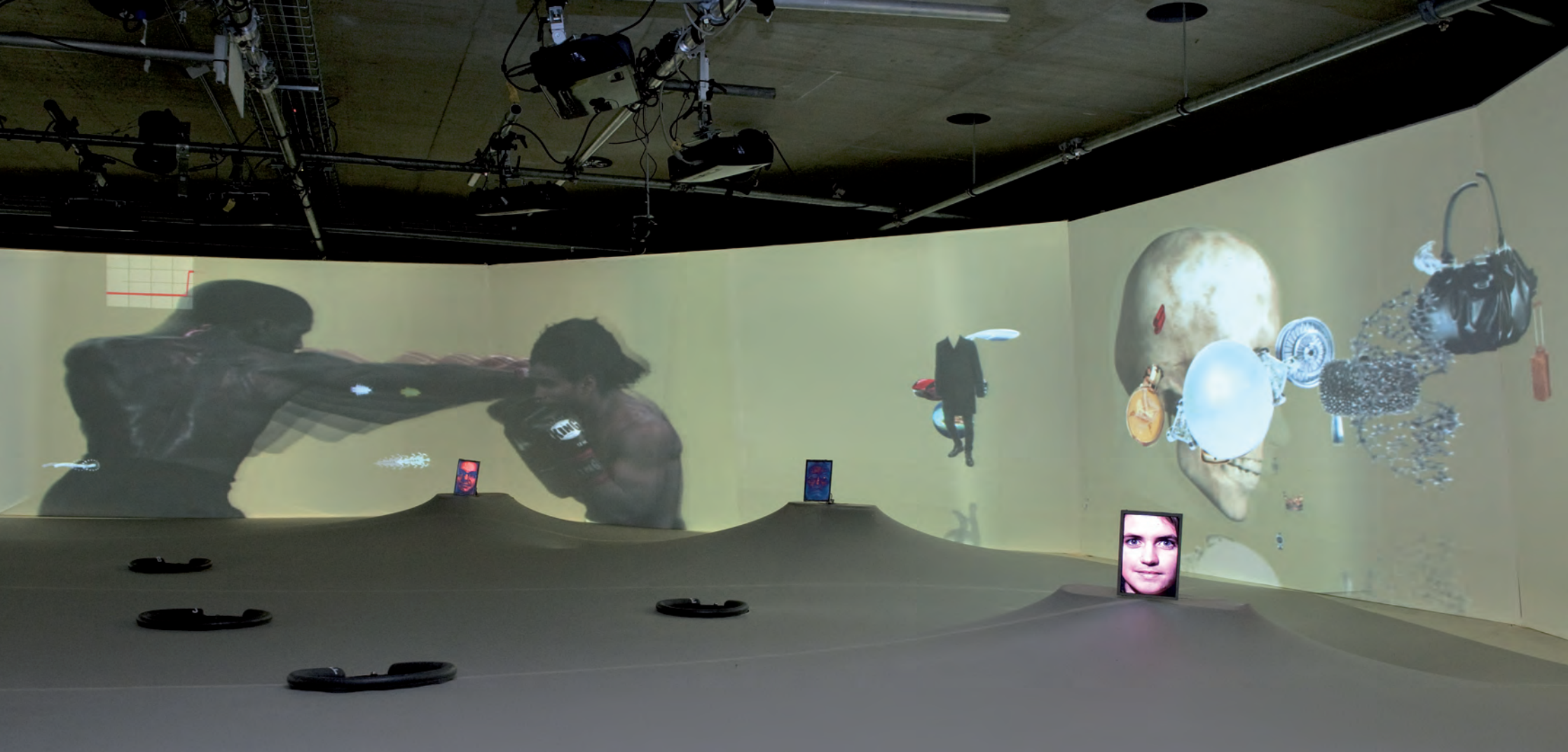
The MedienKunstLabor (MKL) is an art institution inside the Kunsthau Graz. It focuses on combining art, science and research by carrying out art projects that connect these fields. The MKL art space is exclusively set up for the purpose and implements state-of-the-art technologies from the university sector for the production of artworks. The three pillars of art, science and research constitute the basic framework for this dialogue. In this regard, the intermediate spaces that are opened up by communication are particularly interesting. The MKL activities are based on a close cooperation between the participating university institutions and the Kunsthau Graz.

As other European institutions on the same lines, the MKL aims to be a place for the realisation of artistic projects that critically examine contemporary culture, which is geared towards commercial and global factors. Particular emphasis is placed on cybernetically oriented media art, and includes its further development in selected projects. Installations and environments are means to express different strategies of the use of technologies. They also involve the audience in the work and demonstrate creative ways of dealing with new media.

Strategy

Media art has become an important aspect of our culture. Its latest developments take place mainly in the field of the "digital arts". Algorithms and computer technologies are an integral part of this trend and scientific findings exert a stronger influence than related artistic fields. The work of laboratories, research centres and universities is the driving force of new, trend-setting media art projects, and it is therefore important to strive towards close cooperation with these institutions.

The integration of technologies into the production and realisation of artworks requires suitable places in which works of media art can be tested and implemented. The MedienKunstLabor is such a meeting place; it is a place of system integration, an interface between research, science and art; and most importantly, a place of implementing new works: a "Space for Media Art Projects."



Implementation

A unique technical environment which facilitates if not demands new concepts of media art has been created to live up to these aspirations. Nevertheless, the focus is on the artistic content.

Core technologies at the MKL are seamless projections in space and on real objects; virtual acoustic spaces in which abstract worlds of sound are spatialised; as well as

state-of-the-art contactless tracking technologies for interaction. The next steps will include robotics, network art and communication technologies.

The aim is to merge the real space and the virtual technologies and thus turn the MedienKunstLabor into a media-art-machine. This will be realised in installations, workshops and festivals, and in close cooperation with the local scene and art institutions.

The Trend Is Your Friend!

Sylvia Eckermann

The Trend is your Friend! is an artistic and experimental translation of the market as a model that increasingly interferes with our social environment. The installation takes a close look at economic trends that relate to finance, commodities, fashion, media, consumption and many other spheres of life.

TIYF! is a machine that is constructed from visuals and sound, and is triggered by robots as well as human agents. The work questions the economic world and the market place as the persistently environment that surrounds us. How can we influence this environment and what is our role in the “game”?

The machine we created is an independent system; human beings don't necessarily have to get involved in order to keep it running. The visitors can choose between the options of observing and enjoying the audiovisual presentation or participating actively. In this case, they – in the true sense of the word – slip into the role of traders or dealers trying to force the market movement in their favour. Thus, they participate in the formation of trends without being in the position to manipulate the system on their own.

The Installation

To find out and engage in this experiment, we are invited to participate: We enter the interactive installation (by sticking our heads through the architectural membrane from below) and are immersed in a virtual world. We see digital video scenarios around us (270° projection) that represent the assets of a market game in which we trade by ordering with our heads as joysticks. We sell or buy aesthetic and social values and we bet capital on the scenarios/assets' performances and appearances. All our trades flow into a software that is based on a market model.

Our mutual activities instantly result in market prices which translate into visual and acoustic alterations of the respective scenario. What happens around us is the result of our collective, but not necessarily shared behaviours and desires. Not only do we influence, but also move markets, and thus create, inflate and deflate trends. If the majority of players get too hyped up in one direction, we see a bubble burst.

Robot traders are the “market makers” on this artistic simulation of a trading floor. They ensure activity and at the same time create a “real-world scenario.” Their random behaviours prevent the market from being manipulated by potential joint actions of human traders.



Inside this world, we ‘invest’ capital, win or lose ‘money’ and we see exactly how much we trade on each asset. Even when we leave this world, the game isn’t over: Our successors inherit our capital. When our trading position is not filled, inflation slowly decreases the capital’s value.

The Body and Mind Split

Stretched horizontally across the exhibition space, an inserted ceiling forms a second level. It resembles an exchange chart unfolding into 3D-space. This membrane separates the real from the virtual space of the exhibition. The lower section, “the real space”, is visible from the outside: The passers-by see headless people whose body movements relate to “another” reality – the immersive virtuality of the exchange floor.

The visitors enter the installation by slipping underneath the architecture to find an opening in the membrane. They stick their heads through and become part of the media-architectural environment – “the virtual space”. Their heads become “joysticks”, and with this interface as well as their voices they communicate in the world of *TIYF*!

Anonymisation

12 players can participate at the same time. 7 are human, while the other 5 are robots. The robots’ main tasks are to serve as market makers and to allow for a real world situation that can’t be manipulated by human players.

Interaction

Each visitor’s head movements are tracked. Each is assigned a virtual insect. When the trader looks around, the insect follows his eye movements. When the trader looks straight and gazes at the screen, the insect turns into an info display which shows the following information: Name, capital and asset shares of the user as well as bid and ask prices for the selected asset.

Asset Selection

The scenario/asset the user looks at is automatically selected when the user shouts, “buy” or “sell”. The selected asset is also indicated on the info display.

Price Determination

The system works like an open outcry trading floor, except that the frequency of shouts decides the price – the more often the user shouts “buy” or “sell”, the higher the ask, the lower the bid, respectively.



Trend and Bubble – Boom and Bust-Phases

A trend is created when a critical mass of traders share and execute trades on the same preference. The more this preference is accepted, the higher the probability that the trend formation develops into a bubble that ends in a subsequent market crash. When a bubble appears, the respective scenario starts to extend across the whole projection screen, minimising the other asset worlds in size. The sound and visuals of the bubble overlap and dominate the whole trading floor. After the crash, the scenarios again appear trisected, with the slump in the market showing a clip that corresponds in position and market value. A next round in the boom-and-bust-cycle has started.

The Scenarios | Assets

A 270° projection screen of 20 by 2 metres shows the virtual “trading floor”. It comprises of three different scenarios that also represent the assets of our trading game. The scenarios are derived and created from videos, images, 3D environments, texts and sound. They constitute a set of value preferences that the visitors are invited to choose from by trading in line with their personal inclinations and motives. The audiovisual content of each scenario is composed of 25 video clips – in total 75 discrete asset content clips of 30 seconds each. Both ends (“poles”) of each sequence (Clips 1+25) correspond to market crash situations. A bar chart in the upper corner of each projection field shows the history of trades already processed.

The following brief description of the clips gives the complete content including the poles. In reality, though, when the visitors enter they find a specific clip at some point of the spectrum for each scenario. A successive development of the markets is just as unlikely as in a real market; the video content appears more or less volatile. Only in the case of a trend forming, a clear direction is more likely to appear.

Scenario 1 UTOPIA

As applies to all three scenarios, the traders’ buy/sell actions affect this “tableau vivant” – the appearance of a heterogeneous group of people and their environment. Clip 1 shows the members of the group naked in a primordial, jungle-like landscape reminiscent of traditional depictions of Eden or Paradise. Purchasing shares results in a gradual shift towards a more modern, civilised demeanour and surrounding. At the other end, at Clip 25, the scenario shows a modern utopia with a postmodern downtown and suburbia ‘lurking’ in the background. Everyone is well-dressed.

Scenario 2 **COMBAT**

Two people fight. The video image, rich in detail, depicts the procedures of this show-down. The more the trades tend to a buying behaviour, the more brutal, hectic and wilder the fight. When a trend develops into a bubble, the fighters stop focussing their aggression against each other; the bubble bursts into a reaction against the visitors. A selling behaviour, however, slows the fight down; clip by clip, it resembles a dance, a cautious and delicate interaction. When the trading reaches the other end at Clip 1, the fighters show signs of friendship and social intelligence. The bubble bursts into friendliness and joy.

Scenario 3 **VALUE**

At the centre of the field of view, a rotating head appears that changes form and texture according to the current value and price. Artefacts surround the head: They seem far away, somewhat remote and revolve around themselves at one pole. The head is formless, a liquid mass without attraction. The bubble shows what seems to be plankton inside a liquid void. The more the scenario tends to the other pole, the more the head's attraction builds up and the artefacts start to orbit the skull. The gravitational power draws the artefacts – we are now able to distinguish luxury items and brands – increasingly into its own rotation, ultimately absorbing each one of them. Step by step, the liquid form becomes head-shaped and changes its appearance and texture. The bubble bursts into a golden head that rotates so fast that it seems to stand still.

The Market Model

The Trend Is Your Friend! examines the behaviours of different actors under artistic and game theoretical aspects. The game tests the players' reactions towards risk, appreciation in value, courage, and indifference. The participants trade with an asymmetrical standard endowment of money and shares. The market model is based on the "double auction" (as formulated by Nobel Laureate Vernon Smith in 1962). In a given time frame of 30 seconds, the traders can emit buy or sell orders. The system allocates the market price from the lowest ask price and the highest bid price. The traders are allowed to trade one share in each period. After clearing the transactions, the portfolios and accounts are updated. Subsequently, the status of the world is determined for the period, and the traders receive a dividend. A new trading period starts. Thus, prices and trade develop and a chart is traced based on the trades.

(For more information on the market model, please see the text by Wolfgang Höchtl, pp.40)



TIYF! sound architecture

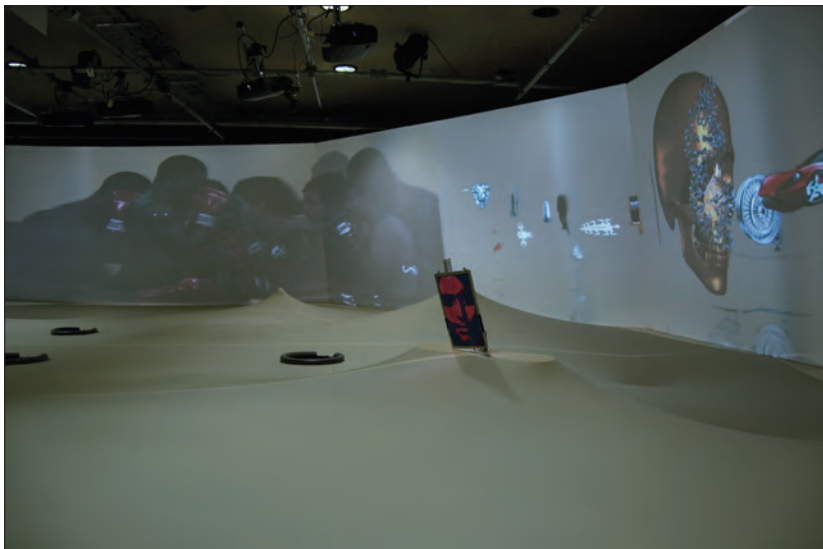
Peter Szely

The sound architecture of *TIYF!* is geared towards the visual level of the game. The division of the three markets on the projection surface, namely UTOPIA to the left, COMBAT in the middle and VALUE to the right, also has its counterpart in acoustic space. The three projections, each of which is divided into 25 levels, can be heard in space as 25 4-channel pieces of the three themes for each projection. The loudspeakers or audio points of the individual worlds of sound are chosen in such a way that the respective world of sound takes up an area in front of the projection screen, and the different areas overlap and form a whole.

The sound constantly changes in accordance with the changes in the course of the game. The buy and sell decisions of the players direct the current of sound and new sound impressions are constantly created. The sound architecture thickens and an ever more massive current of sound rains down on the players.

Bubble sounds

If a bubble forms, the respective world expands and leaves its assigned audio points. The other worlds of sound are suppressed and become quieter and quieter until they can no longer be heard, while the world that forms the bubble gets louder and louder.



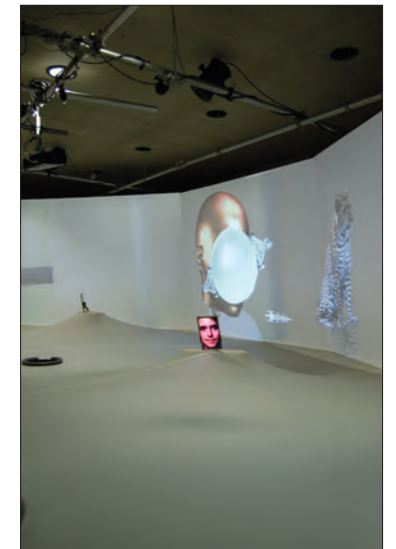
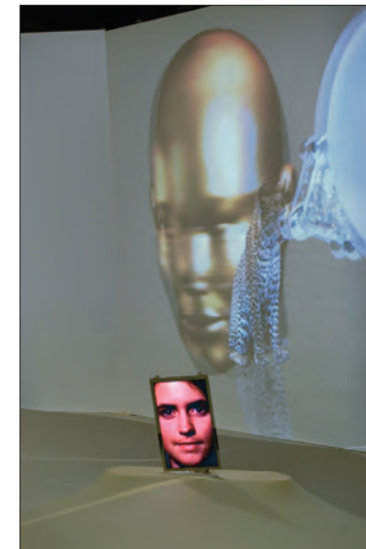
It takes possession of all the loudspeakers and fills the room. The bubble bursts, and all the projections and the sound architecture regain their places.

The three worlds also differ in terms of sound:

UTOPIA is formed of ambient sounds, from the paradisiacal state of being naked surrounded by nature to today's urban metropolis. The crickets chirp and the birds sing. This spectrum of sound slowly changes. Vacuum cleaners or a construction site can be heard, someone is practising piano, a train roars by and finally sirens wail. Then one can make out the dull drone of street traffic and an airplane thunders overhead.

COMBAT is a beat that comes from the physicality of fighting. It clatters and cracks and kickboxers come into view like dancers. It begins with a single beat and then condenses into rhythms and beat structures until a rhythmical sound remains at standstill.

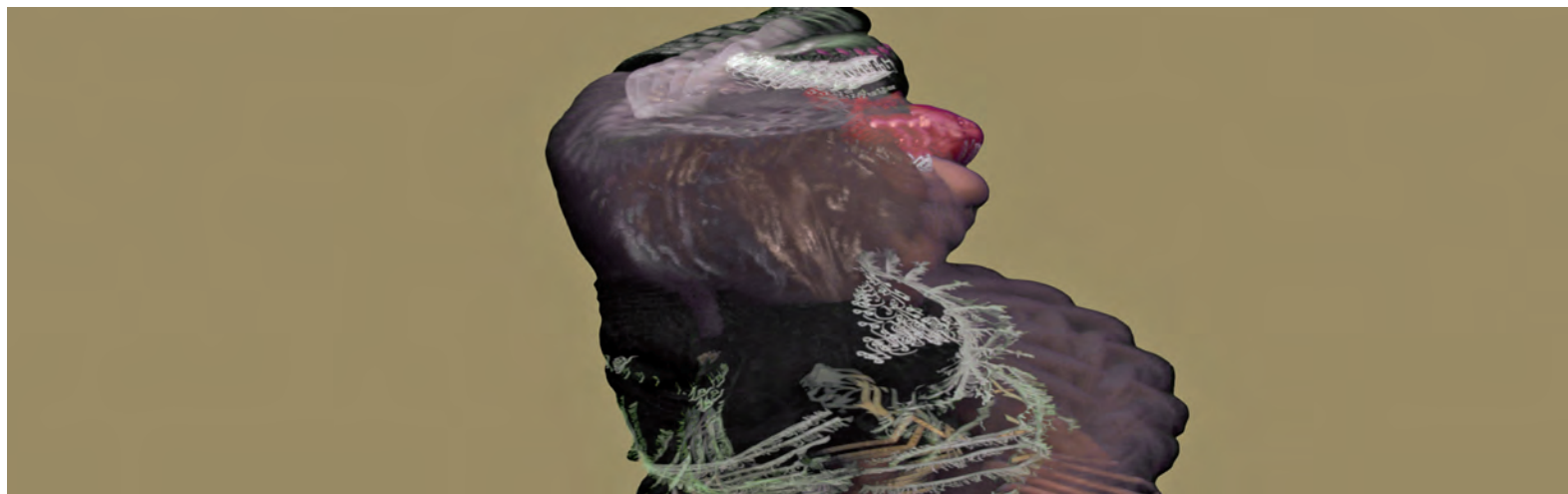
VALUE is formed by the abstract sounds of synthesizers. The field of sound constantly grows and increases in intensity and the cellular primordial soupy haze turns into a human head that ends as a solidified golden mask. The sound revolves around its own axis and fills the room palpably as a buzzing chord.



Scenario | Asset **VALUE**
Sylvia Eckermann, digital video,
screenshots, 2009



Scenario | Asset **COMBAT**
Sylvia Eckermann, digital video,
screenshots, 2009



Scenario | Asset **UTOPIA**
Sylvia Eckermann, digital video,
screenshots, 2009





Rendering economisation

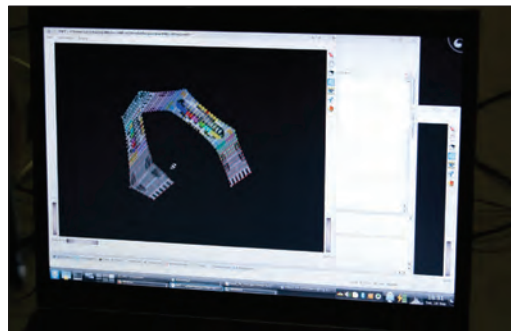
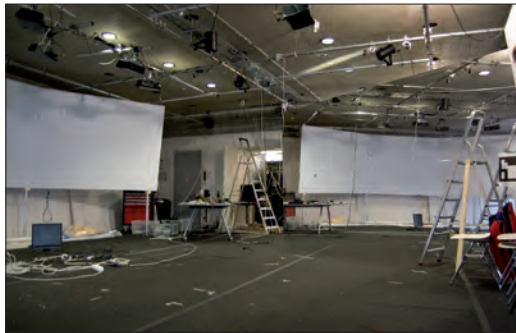
Gerald Nestler

*Men and women wanted for hazardous journey. Sweet'n sour, short seconds of complete darkness, constant danger. Safe returns doubtful, honor and recognition ambiguous. Large wages, even in case of ill success.**

Cognitive things

This paraphrase of an ad¹ that Ernest H. Shackleton placed in the *Times* to attract compatriots for an Antarctic mission at the dawn of the 20th century summarises in brief what the occupation of a trader in financial markets might suggest today. Risk, uncertainty, venture, ambition, even speculative recklessness are on one side of the coin, on the other we find a global network in which space and time converge, 'hyperlinked' institutions, enormous sums of – mostly virtual – money, luxury life-styles, and the infamous bonuses that currently are reigning tabloids as well as quality papers. There seems to be a disparity between the explorative spirit of a discoverer of Shackleton's stature and the craft of the heroes and heroines of information capitalism. Even to many of their advocates, what radiates from the "Masters of the Universe" – as Tom Wolfe called them in his 1987 novel *The Bonfire of the Vanities* – is not so much the apollonic light of an Age of Enlightenment. Rather, one might assume, it has been absorbed and turned it into expertise in twilights. What both professions share, though, is a profound involvement and understanding of uncertainty and risk. Not only metaphorically do the lives, existences and futures of many depend on the considerations and decisions of these "venture-faring" individuals.

When we think about men and women – as the paraphrase asks us to – images of individual people come to our mind. In our memory they occupy spaces that are vague and impalpable, and at the same time real and personal; they might be inspired by friends, lovers, parents, acquaintances or even fictional characters, all with a peculiar subjective individuality that is a distinct wholeness in which we sympathise with the odd flaw, too. Since the ad was published, in the history of the 20th century however, the individual has travelled a rather volatile path. In the ad it resembles a hero of a novel – it is not by chance that the individual has formed in the era of fiction in the 18th and 19th centuries – these encounters have included robots, cyborgs, artificial intelligence, cybernetic agents, corporate bodies and recently things, animals, gender awareness, organisational systems, and swarm intelligence. This inconsistent list is by no means complete. It illustrates, though, that the individual is not a separate entity but a field, a power, a resource. It attracts more and more attention and this might even lead to a kind of dissolution. Today, we face a revolution in the concept of the person and the self.





As early as 1975, Foucault in his lectures at the Collège de France stated that “power passes through the individuals it has constituted.”² The former conceptual divide between entities had lost its paradigmatic function. It became clear that we exist in networks and links formed by agency as well as dependency. From political science to consumer research, a seemingly endless amount of different approaches have been tried out take advantage of this new paradigm but also to emphasise the threat it poses to many. It is therefore of vital importance for political lobbyists and economic entrepreneurs to produce knowledge as well as devise strategies to exert influence not only on the concept but on the actual bearers themselves. Here is where the largest profits and the widest influence can be gained, especially if a scheme runs unrecognized.

Building on works like Arjun Appaduraj’s “The social life of things”³ or more recently Bruno Latour’s, John Law’s and Michael Callon’s “actor-network-theory” that examines, in very brief words, the transient relation between human and not-human actors, approaches have been elaborated in which agency of things and humans is investigated as interrelated. As Koray Caliskan and Michel Callon put it: “Instead of being driven by forces which are above or beyond them, subjectified agents are actively engaged with the very cognitive and material devices that enable them to participate as economic subjects [...] the goal is to understand how complex and hybrid social configurations are perpetually being constructed through the conjoined contributions of circulating material entities, as well as competent agents engaged in valuation practises.”⁴ Economisation tends to be the focal point of a potential and critical new reading of the individual and society in (what I termed) “Econosociety.”

The individual and the thing as value determining and consuming agents has become a rewarding field of research, examination and economisation. From membership cards to nation-wide surveys, data mining collects any conceivable information to accumulate what might be of advantage and helps to solve the riddle of erratic consumer behaviour. Here, trends come into play. They allow for a density of information and massive “cooperation” and include the ‘side effect’ that they run by self-gratification. With trend analysis, a look ahead into the future is facilitated and the risk inherent is minimised for the merchant, the politician, the agent and who else is trying to profit from the behaviour of his or her ‘fellow agent.’ Trend followers take less risk than trend anticipators but both try to gain access to a specific economies of scale in the mass design, fabrication, and labelling of individuality – which is, as we have learnt, not restricted to humans. The form of individuality that is ‘applied’ can be described as a set of gestures, behaviours, attributes and articulations that is easily understood and identified by everyone.

As a trajectory to build the future and secure existence, these sets increasingly feed organisations rather than individual human beings as such. The individual becomes a product that spawns human derivatives based on a corporate underlying. People become future options on a market where they themselves sell and buy adapted modules of individualities. Divine immanence of yore is recoded to an immanence of a ‘mythical’ and omnipresent meta-self – the self is taken by the corporate brand. The individual in Shakelston’s ad is very much on sale today or rather re-evaluated for its virtue to corporate PR. On the other hand, we do not struggle with nature’s forces anymore, even the duality of subject and object begins to become transparent. In its agency, the individual is becoming a hybrid thing, a cognitive thing.

A recent airline campaign shown on video panels in London underground stations illustrates this nicely and actually with quite some charm: It is titled “Personality Allowed” and consists of short videos in which staff are portrayed behaving individually – in order to illustrate the carrier’s personality. “By letting the crew shine through the use of video footage, the digital executions really enable us to demonstrate the personality of the airline,” says Scott Carr, Air New Zealand General Manager, Europe.⁵ Of course, the individual “acts” are rather unspecific, and range from singing a song to mimicking a tiger and more. What becomes evident on one of the escalators in a London tube station – shines through as Mr. Carr says – is that only when individuality becomes generalised it is recognised and accepted. The individual human beings are the limbs of a larger corporate body that desperately seeks to gain access to the original resource. The corporation is the subject that speaks to us. Not always in such light-hearted fashion. Genuine individuality, however, might lead to exclusion just because it doesn’t fit into generic personality structures (although these could protect it and render it almost unassailable). Being exposed is actually a vital aspect of individuality. Those who answered Shakelston’s ad might well be able to tell us about it.

Certainly, society, communities, as well as other organisations in which people gather for specific purposes, not only commercial ones, very often meet enormous difficulties when individuality is lived out to an extreme by a person. As regards an airline, to keep to the example, who would volunteer to fly with a pilot who is in for an extra portion of real “Personality Allowed?” But apart from a bloated ego that restricts or even endangers others, the rule of systemic and legal organisations and entities that make use of the person seems itself an emergent trend formation that needs to be critically examined. When we talk about trends today, we talk about a development that is intrinsically economic, global and corporate. It is organisational and postmodern. It is second order cybernetic.

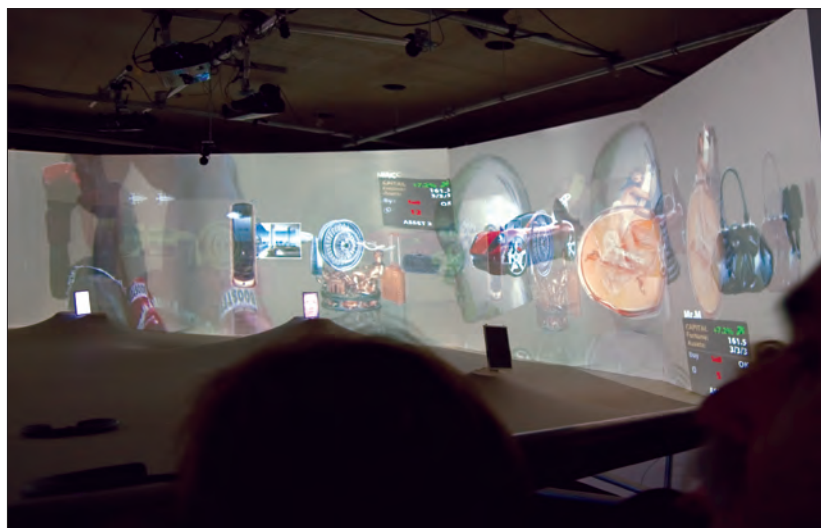


Under “laboratory conditions”, *TIYF!* therefore challenges notions of individuality and community. It raises questions that go beyond the tangible artistic array of (symbolic) values: To what extent do trends influence us as individual and subsequently as social beings? To what extent do we become part of an economization that promises profits and wealth and at the same time develops standards for our behaviour and inclusion? To what extent do individuals, who oppose trends and deviate from standard norms become socially marginalised and the actual losers in the game?

In the knowledge-based society that is emerging today, in which mathematical algorithms and probability theory are put into practise to squeeze profits from the very resource – the individual agents – we might ask if not the eponymous “friend” embodies an updated version of George Orwell’s infamous “Big Brother”?

Are we witnessing the fashioning of another control system – a subtle, shiny and complex surface that creates a new breed of derivative uniformity and denies us our very own unknown futures?

Or, does a “human derivativisation” hold a potential for trans-humanist agency in-between “circulation, transformation and valuation”⁶, as a new “re-public” where “individual things” entrust values not through representation but a more concrete yet contingent “touch”?



Art and research

As an artwork that deals with the relevance of trends in contemporary culture, *TIYF!* considers research questions of different fields not only conceptually but also in practice. The project takes a transdisciplinary approach and combines diverse knowledge systems in a single experimental setup. Fields from as wide as economics, game theory, mathematics, stochastics; programming, robotics, computer graphics and visualisation; cultural theory, sociology and art theory: conceptual and digital art as well as sound art, all have stakes in the successful realisation of *The Trend Is Your Friend!*

The project is not only an ambitious attempt to artistically visualise trends; but it allows visitors to actually participate in a serious game of understanding what happens to us when we trade, win or loose, catch a trend or stay out. What are our own value preferences and how much are they in sync with all the other players? The objects we consider are things in a broader sense. We don’t facilitate (virtual) consumer goods, or luxury items to bet on; the objects we are interested in are representations, classifications and exchanges of what we consider of value. This is the performative architecture of *TIYF!* It might resemble Bruno Latour’s “parliament of things:” Humans and things interact by negotiating with others – objects, human as well as robots that act human (if not we humans act like robots) – on scenarios that relate to value production inside a technological infrastructure. Scott Lash⁷ reads Latour and quotes him: “‘the human’, Latour continues, ‘is in the delegation itself, in the pass, in the sending, in the continuous exchange of forms.’ ‘Human nature is the set of its delegates and representatives, its figures and its messengers.’” The performative architecture of *TIYF!* allows for such a passing of our judgement, the weaving of a net of messages that result in actions. Here, human agency is not singular but a network of actions that develops further, not by majority decisions but by the matching of standardised objects of communication – bid and ask prices. Culture is not purely representative. Lash follows that “contemporary culture is thus a culture of movement. A culture of moving (quasi-) objects” and thus, again in the words of Latour himself, “we become engaged in ‘object tracking’”⁸.

TIYF! is a cognitive-techno-social machine in which “tracking” is made accessible to participation as well as observation. It is what art is to culture, so to speak. But in such a culture, art is also of another kind than a purely representative one. It could be argued that as a practice that creates methods and highlights tracking activities, it’s potential is in various forms of research and this is where artistic practice is most promising. The endless debates between form-driven or content-driven artworks, however, look extremely old-fashioned in this respect like simple reflections on consumer culture’s luxury boutique.

But of course, aesthetics will continue to play a pivotal role for art practice, and indeed for a practice that is performative and interactive. *TYF!* has certainly invested much work and attention into perceptible and communicable forms of beauty.

The freedom to meet the unknown, the unrecognized, and return with perceptions, possibilities, chances, propositions, or even hypotheses is the spirit of the laboratory. Within the artistic realm, the enclosed space of science becomes an open participatory lab. Regarding the critique that art cannot be compared to science because it does not know objective methods for knowledge production, reference might be made to Sarat Maharaj's reasoning in his text *Know-how and No-How: stopgap notes on "method" in visual art as knowledge production*: "What we lump together as 'science' is often a congeries of quite divergent activities, disciplines and domains, each with its own kit of objectives and logical procedures. We should be wary of treating them as if they added up to a monstrous monolith. In any event, many scientists themselves remain more than a pinch circumspect of philosophical attempts to sum up their activities with a single overarching methodological principle. We might do better to keep matters open, perhaps with a feel for the hodgepodge of methods, even muddle, that attends the lab workbench."⁹ There are no fixed, „axiomatic“ methods but rather fluctuating systems. The artwork's allure as a time-based laboratory is exactly in the inventive and experimental use of methods and its participatory approach. Restrictions are not drawn in the same narrow lines as in purely scientific operations. It shares more of Paul Feyerabend's rejection of method as a universal procedure, and his postulation of a methodological "anything goes" in knowledge development. Art sometimes is called the other of science; thus, both should be partners and collaborators. Art's capacity is exactly in the immersive consequence of artistic experience, its materialisation and corporeality, its being based in the participatory. When science and art as generic terms are distinguished as cultures of knowing and experiencing respectively, it needs to be said that they necessitate each other: We cannot know without experiencing and our experiences demand knowledge if we want to learn from them.

In a world in which creativity, aesthetics, information, messaging, and flows lead the way; where expert systems and lay knowledge intertwine; in which culture is experienced and conceptualised beyond the purely human, art features as an open and accessible field for performative, interactive examination, and rendering – as a transdisciplinary laboratory. Knowledge production is changing today and artistic "tracking competence" in Latour's sense might prove prolific in this respect. *The Trend Is Your Friend!* is an endeavour in the sense of a renewed laboratory idea, where the public enters the discourse and participates in an experiment that was forged out of the mutual efforts of innovative minds from art, theory, and science, in order to render economisation.

Notes:

- * There is no evidence that Shackleton's ad was actually published. It is possibly a myth itself and therefore reflects on the 19th century idea of the individual as hero of a novel as opposed to the current daemonic individual¹⁰ incorporated in the corporate meta-self.
- 1 The original ad is as follows: "Men wanted for hazardous journey. Small wages, bitter cold, long months of complete darkness, constant danger. Safe returns doubtful. Honor and recognition in case of success."
- 2 Michel Foucault, *Society Must Be Defended*, translated by David Macey, New York, 2003, pp. 30
- 3 Arjun Appadurai, *The social life of things. Commodities in cultural perspective*, Cambridge University Press, 1989.
- 4 Koray Caliskan and Michel Callon, "Economisation, part 1: shifting attention from the economy towards processes of economization", in: *Economy and Society*, Vol. 38/3, August 2009, pp.389/390
- 5 See: <http://www.mad.co.uk/Main/News/Articles/599c83c7a34843e2b50b7c074190625f/Air-New-Zealand-campaign-goes-for-personality.html>
- 6 See above, Koray Caliskan and Michel Callon, p. 389
- 7 See <http://translate.eipcp.net/transversal/0107/lash/en#redir>
- 8 See above.
- 9 See <http://www.artandresearch.org.uk/v2n2/maharaj.html>
- 10 Daemon not in a religious sense but as in computer language: an auxiliary programme that runs in the background, not directly controlled by the user. See also T. Feuerstein, <http://daimon.myzel.net>

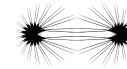
Remark on literature:

Due to a lack of space, this article cannot deliver a debate of the notions of the individual, the subject, and the self. For more information on the formation and interpretations of these concepts, see e.g. Gregory Bateson, *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology*, University Of Chicago Press, 1972; Viktor Frankl, *Man's search for meaning*, Washington Square Press, 1984; Gilles Deleuze, *Empiricism and Subjectivity: An Essay on Hume's Theory of Human Nature*, Columbia University Press, 1991; Anthony Giddens, *Modernity and self-identity: self and society in the late modern age*, Polity Press 1991; Charles Taylor, *Sources of the Self: The Making of the Modern Identity*, Harvard University Press, 1992; Antonio Damasio, *The feeling of what happens: body and emotion in the making of consciousness*, William Heinemann, 1999; or Richard Sorabji, *Self: Ancient and Modern Insights About Individuality, Life, and Death*, Oxford University Press, 2008



TIYF! Market Model

Wolfgang Höchtl



Markets

On a typical market on which an arbitrary good is exchanged, buyers and sellers interact face to face, check the offers, negotiate prices and finally, if agreement is reached, trade X for Y making both parties better off. In many instances, this unstructured way of finding mutually beneficial opportunities to trade may, however, either not be feasible or not efficient. The reasons for such shortcomings are numerous, such as narrowly constrained time and/or space, a large number of buyers and sellers, standardized products, transaction costs, etc. In such cases, markets have been given certain well-defined structures in terms of codified rules or informal norms of how and when bid and ask prices can be made, and how buyers and sellers are matched and prices determined. Stock exchanges and auctions, for example, are highly organized and institutionalized markets. Concerning the latter, from the well-known ascending first price auction to highly complex formats used to auction off spectrum licenses, there is a wide range of formats with certain common and differing properties. For economists, auctions are not only of importance because they are actually used to allocate goods, but also because they are proxies for the processes driving conventional, unstructured markets that are easily accessible for analysis due to their well-defined format.

Double Auction Markets

The double auction is a very simple, but highly competitive auction format that, when a commodity is traded, exhibits stable and rapid price formation towards the market clearing level, even if traders have only little information about the other market participants' reservation prices. It was made popular to simulate markets by 2002 Nobel Laureate Vernon Smith in the 1960s. In the auction, buyers and sellers simultaneously post bids resp. ask prices which are displayed in such a way that every trader is informed about all the other traders' bids. Each buyer is free to choose to accept any of the ask prices at any time just as each seller is free to accept any of the bid prices at any time. Traders are also free to alter their bids, albeit only in the direction more favourable to the other market side. If a posted price is accepted by either buyer or seller, the trade is executed and the buyer gets the offered good while the seller gets the price. This simple framework is used extensively as a basic institution in the experimental economic analysis of markets that can easily be extended and modified to study a wider set of market environments.

TIYF! Market

With the double auction protocol, commodities as well as assets can be traded. For the *TIYF!* installation, we have adopted the double auction framework to have different assets traded simultaneously by a number of robot traders and anyone inter-

ested in doing so. Thus, interaction in *TIYF!* is between a possibly quickly varying set of persons, and thus the focus is not on personal interaction and negotiating, but on fast paced anonymous trading.

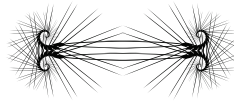
The world in which our market exists knows three states and three assets, each of which representing one of the states of the world. The assets are also connected to the three visuals displayed on screens around the traders. In the world, there is a numeraire good (money) that can be used to buy units of the assets. The wealth accumulated by the traders is also measured in units of the numeraire good. Time in the *TIYF!* world flows in periods. Depending on the state of the world, which is randomly determined in each period, each unit of an asset pays a certain dividend which is added to the account of the traders multiplied by the number of units of the asset the trader holds in this period. The dividend payments are measured in units of the numeraire good and information about the amount of the dividend payments and how the states of the world are determined is public. Initially the market starts with a certain number of shares for each asset allocated asymmetrically across the traders. The same is true for the numeraire good.

Trading in the periods takes place as follows:

Buyers and sellers specify the asset they want to trade and post the maximum price they are prepared to pay (bid) resp. the minimum price they are prepared to accept (ask) for a unit. Given that a seller actually owns the asset she or he wants to sell and a buyer owns at least as much of the numeraire good as she or he is bidding, each asset can be bought resp. sold in each period. The trade volume is restricted to one unit for each asset and period per trader.

In the three submarkets, the bids and asks are ranked from high to low resp. low to high. The highest bid is then matched with the lowest ask, the second highest bid with the second lowest ask etc.. Trading occurs for each matched pair of buyer and seller given the bid is not lower than the ask at the price of the arithmetic mean of bid and ask. This procedure produces a stable matching and maximizes gains from trading. After the trades are processed the traders' portfolios and numeraire good accounts are updated. The state of the world is then determined randomly, dividends paid accordingly and the accounts updated again.

The average of the prices of all shares of an asset sold in a period are taken as the asset's overall price in that period and the change of the asset price influences the progress of the visualisations related to the assets. The data of the *TIYF!* market (bids, asks, transactions, asset prices etc.) is, of course, logged by the software and accessible for scientific analysis.



Bubbles and crashes

In the experimental economics literature, double auction markets for assets yielding stochastic dividend payments traded for real money have been shown to typically exhibit a cyclical pattern of bubbles and crashes. A bubble is defined as high volume trading of the asset with prices detached from the underlying fundamental value. A crash is a rapid decrease in price following the boom phase on the market. Typically a bubble takes a couple of trading periods to build up from one period to the next. The price follows an upward trend that reinforces itself until a peak is reached. In the same way, these trends go the other way after a peak has been reached. Prices start to fall with increasing intensity in a downward trend that comes to a halt, mostly with a hard crash landing.

Asset trading experiments have been conducted with various modifications and variations. Among those were, for example, variations in the variance of the dividend payments, allowing short selling, ruling out the resale of acquired shares, the introduction of transaction fees or the participation of subjects with varying degrees of experience and knowledge in financial matters. Nevertheless, the boom-bust pattern has been shown to be extremely persistent, with actual experience in such trading experiments being the only reliable manipulation to eliminate it.

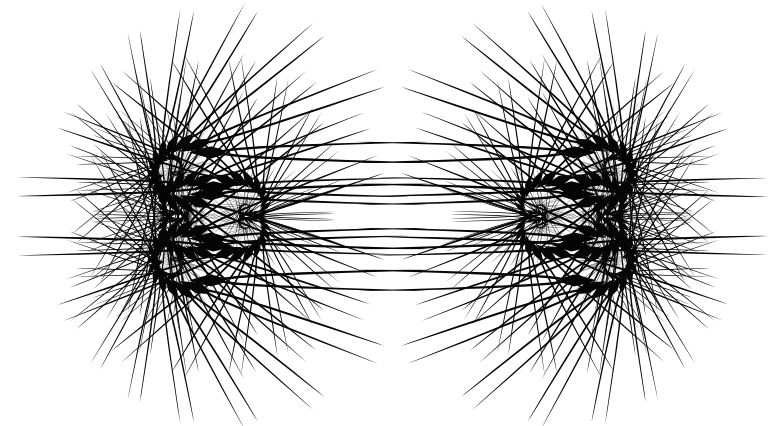
From a theoretical perspective, it is puzzling why trading and thus bubbles as the consequence of excessive trading happen at all in such markets. Different risk attitudes of the traders and suitable initial endowments can, of course, lead to welfare improving transactions as risk taking and risk adverse subjects can both improve their portfolios through exchange that leaves the risk takers with the more risky assets and the risk adverse subjects with the less risky ones. Apart from these transactions, trading can't possibly improve both parties involved as the asset has to be valued equally by all (rational) agents and thus there are no possible gains from trade. Nevertheless, participants in experimental double auction markets do trade and generate bubbles. A possible explanation is that trading is the only activity the experiment's participants can pursue and thus fighting boredom could outweigh the fear of a potential monetary loss incurred by irrational trading. Apart from the fighting boredom argument, two potential reasons can be found for trading: the first is that the participants are not rational and they just don't see that there can't be any gain from speculative trading. The second is that if they are rational, the necessary requirement of common knowledge of rationality may fail and traders believe that they can outsmart the others and gain on their expenses.

In contrast to standard economic laboratory experiments in which the participants are paid according to their actual performance and consequently are assumed to act to maximize their pay-offs, trading in *TIYF!* is embedded in a very different context.

It's not monetary incentives the traders face, but the ability to influence the *TIYF!* world that surrounds the person involved. Changing the prices for the assets by trading feeds back into the progress of the visualisations and, of course, it also influences the numeraire good account of the traders. The numeraire good accounts are displayed and used to rank the traders. Although no money is paid out in the end, a competitive notion of the persons involved might induce them to show off their trading skills represented by the score. Thus, a interdependence between the motives of trading to influence the visual dimension of *TIYF!* and trading for one's own ego is likely to arise creating a world which is driven by one of the most important ways of interaction between people, selling and buying on a market.

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- Smith, V., Suchanek G., Williams A.(19 88), "Bubbles, Crashes and Endogenous Expectations in Experimental Spot Asset Markets," *Econometrica*, 56, 1119-1151.





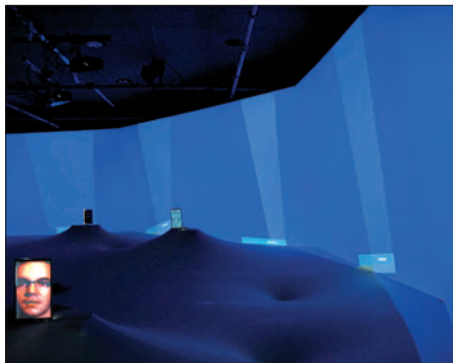


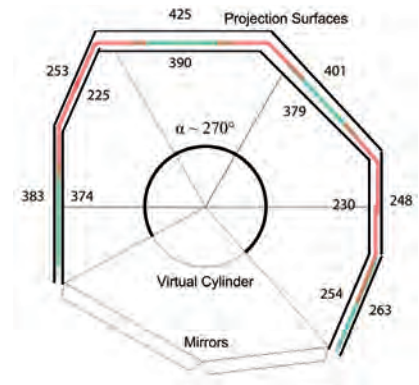
Photo of projection surfaces

Deskotheque Display System

Christian Pirschheim, Markus Murschitz,
Manuela Waldner, Univ.-Prof. Dieter Schmalstieg

Projection Environment

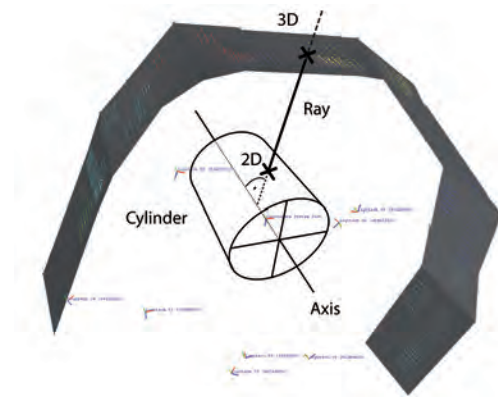
The multi-projector display of the *TIYF!* installation is located in a 10x10x3 meters (WxHxD) space. Six projection canvases have been constructed. Each canvas is tilted by 10 to 20 degrees towards the room center and seamlessly connected to its neighboring canvases. The resulting projection surface has a perimeter of almost 20 meters and features a roughly circular shape around the room centre thereby spreading an angle of approx. 270 degrees. The entire surface is lit by eight overlapping projectors. For the detection of the projected geometry, eight cameras are required. Projectors and cameras are all connected with a single PC.



Diagrams of
TIYF! projection setup

Surface-Adaptive Projection Displays

Media art installations are usually located indoors. Such spaces per se provide a large set of possible projection surfaces: walls, floor and ceiling. Naturally, additional surfaces can be created by design as it was done for *TIYF!* In order to provide a seamless projection display in such configurations, the challenge is: how to create perspectively correct and continuous images when multiple projections are pointed at irregular (e.g. non-planar) surfaces.



The Deskotheque¹ display system supports the deployment of multi-projector displays on multi-planar surfaces suited for configurations such as described above. We have developed a projector-camera system which enables the usage of consumer hardware for the construction of continuous displays. The parallel usage of cameras allows for observing and detecting distorted projection images. These vision-based calculations finally result in a virtual three-dimensional model of the projection display environment.



3D Display Model: Spatial Rendering and Interaction

This 3D display model is of value for several purposes.

Firstly, it is used for compensating projective distortions and illumination effects of overlapping projections. Our system manages the rendering of graphics content on multi-projector output displays. For that purpose, a vertically aligned virtual cylinder is inserted into the center of the 3D scene. The unreeled cylinder represents the 2D input image. The actual mapping takes place by parallel projection: from the center axis of the cylinder parallel rays run out which hit the cylinder surface (2D point) as well as the display geometry (3D point). For the compensation of color gradients in the overlapping projection areas, alpha masks are computed for each projector.

Secondly, the 3D model also serves as a base for the computation of spatial interactions between multiple users and the input and output periphery. By registering various coordinate systems (e.g. external tracking systems, spatial audio systems) within the 3D room model, the system enables artists and programmers to handle user actions with respect to their current position and orientation within the environment. In *TIYF!*, the users' lines of sight are intersected with the display geometry. The resulting 2D coordinates are used to place graphics content in the scene which is finally rendered in front of the users "eyes" on the projected display.

Software Framework

The Deskothèque framework is essentially composed of two software components: The first component is an interactive GUI application for the camera-based calibration of multi-projector displays. The outcome of the offline calibration is stored in XML format for later retrieval. The second component is the runtime library which is initialized with an existing XML data set and provides a programming interface for the OpenGL Pd/GEM² applications of the installation *TIYF!*

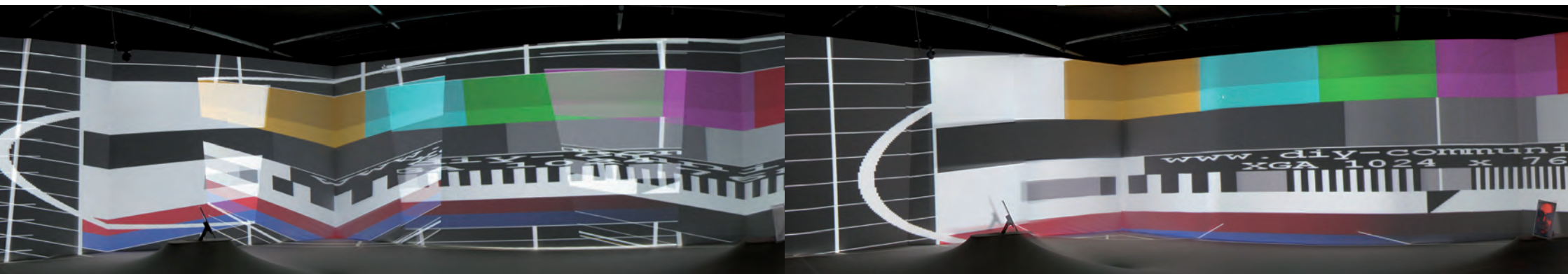
Acknowledgements and further reading

Deskothèque is an active research project executed at the TU Graz Institute for Computer Graphics and Vision (ICG). We would like to thank our partners Imagination GmbH and VRVis GmbH. For further information please refer to our project homepage at <http://studierstube.icg.tu-graz.ac.at/deskothèque/>.

Notes:

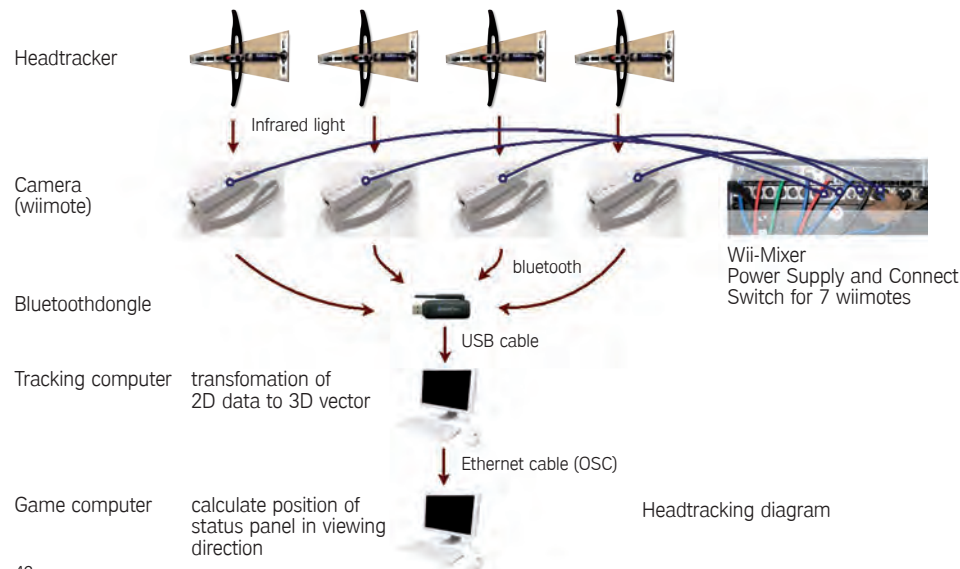
- 1 <http://studierstube.icg.tu-graz.ac.at/deskothèque>
- 2 <http://gem.iem.at/>

3D display model unwarped (previous page) and warped (below).





RoboHeads



RoboHeads and Head Tracking

Florian Krebs

RoboHeads

Robotic brokers are an important interaction device for the installation *The Trend Is Your Friend!* as they take part in the decision making on the market. They are symbols for an anonymous mass that is controlled by the huge market machinery and mechanically utters its bids.

Hardware

The hardware for each robot consists of a netbook PC (Acer Aspire One) for controlling the facial expression videos and head movements, a loudspeaker to articulate „buy“ and „sell,“ two servos Zebra ZS-S1113, and a controller board Motorduino (developed at the MedienKunstLabor by Ritch Gilbank) to manage the movements of the servos.

Control

The robot heads receive OSC (open sound control) messages from the game computer over the network. These messages convey the viewing direction and a trigger to start the buy, sell or idle actions. The motor controller was programmed over the arduino IDE and receive control signals from the Pure Data patch over USB.

Software

All the components are controlled by Pure Data patches. According to the OSC messages the corresponding videos are chosen and played by the library GEM, the sound is reproduced synchronously.

Headtracking

In the installation, visitors slip through an opening in the membrane that is stretched between the projection walls. As they become part of the architectural environment their heads turn into joysticks to navigate through the virtual world. Each player is assigned one specific insect that moves over the projection area in accordance with the head movements. An optical system tracks the viewing direction and sends the data to the game computer.

Functionality

Seven infrared camera remote controls (Nintendo Wii) are attached to the ceiling above the players heads. They are inexpensive and easily available in toy shops. The cameras have a resolution of 1024x768 pixels each, which is sufficient for our purpose. An integrated processor manages the image processing and sends the coordinate data of the four brightest spots via bluetooth to the tracking computer.

The players wear headbands, with three infrared light-emitting diodes fixed on top that communicate with the infrared cameras above the players heads. A library written for the realtime programming language Pure Data transforms the 2D-coordinates into a 3D-vector pointing at the viewing direction of the respective player/trader.



An Auditory Virtual Environment for the MKL

Winfried Ritsch and Reinhold Schienwald

Sound and music are recognized as spatial and sculptural phenomenon ever since the Renaissance, although only the currently available technologies of new media allow (beside the arbitrary 3-dimensional distribution of sound) the creation of whole sound-environments. An Auditory Virtual Environment (AVE) is a virtual environment (VE) that focuses on the auditory domain only. It sees itself independent from other modalities like vision and tactility. The **mkIAVE** project aims at a reference-implementation of an AVE for media art spaces. The assumption that every sound environment is defined by its boundary conditions, which can be understood as an enfolding vibrating membrane as the basic model of this AVE implementation. The enclosed room of the membrane is stimulating the desired sound field. Altering the conditions of this virtual membrane, means to change the whole physics of the room, which is feasible in real-time. The interest is no longer in moving sounds through a room, but to create virtual surrounding sound environments which can be modified dynamically. Room is experienced and defined through the behavior of the sound depending on the room conditions. In other words, you can imagine room and sound as the same thing: an environment in which room is defined through sound and vice versa. Such an environment can be thought of as a „breathing sculpture“ which is palpated by moving through it.

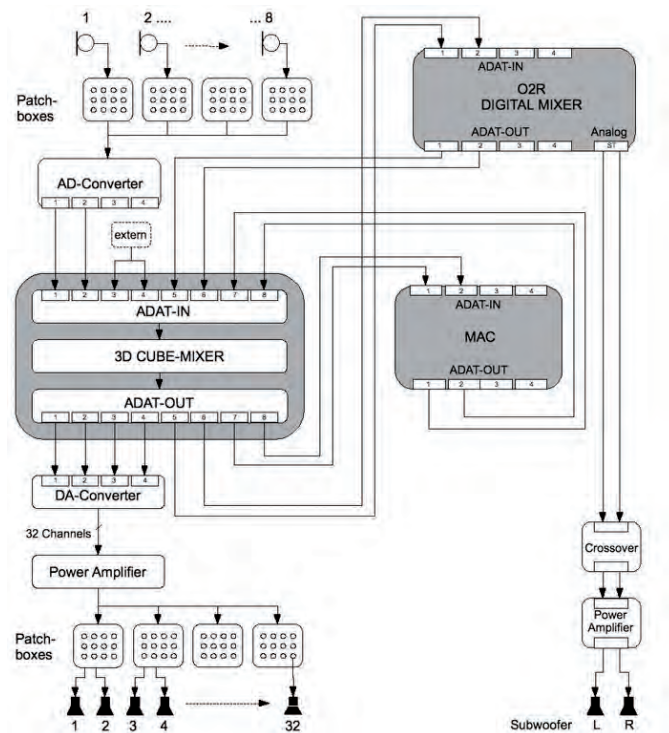
Virtual Rooms

Room-simulation algorithms create virtual rooms which are superposed to the real room. Using a bunch of microphones, room reflections of analogue sound sources are rebuilt in order to simulate virtual acoustic rooms. The latter could be the simulation of real and the invention of artificial rooms. This „room in room reverberation“ is used for dynamically changing the acoustic properties of the room.

Ambisonics

Higher Order Ambisonics (HOA) is used to implement the discussed features of the AVE. It is a series of techniques to record and replay a sound field. By means of encoding and decoding sound information on a number of channels, a 2- or 3-dimensional sound field can be presented. Ambisonics was mainly developed by Michael Gerzon and Peter Felgett in the early 1970s.

In contrast to more common playback systems such as Stereo or Dolby Surround, Ambisonics tries to resynthesize the represented sound field in mathematically correct terms. Therefore sounds that arrive from all directions are treated equally. All speakers are generally used to localise a sound in any directions. As a result the number of speakers is flexible. This portability of the format makes it easy to adapt an ambisonics-encoded signal to different loudspeaker settings. Thus a 3-dimensional sound field is already presented with four loudspeaker channels. Conventional formats even with 6 channels are only able to present a 2-dimensional sound field. The sound system installed in the MKL allows to operate HOA from first up to sixth order.





Media Art between Experiment and Production

Mirjana Peitler

The installation *The Trend Is Your Friend!* refers to its real function already in its subtitle “a performative and interactive artistic experiment.” It is a kind of intermediate stage in a more extensive process sustained by experiences on site and reflections on the specific production process, the outcome and results of which have not been predictable to date. What we witness here is a true artistic experiment, for the artists and their collaborators as well as for the MedienKunstLabor as an art institution as it is attempting to launch the experiment “media art”.

The concept of the MedienKunstLabor assumes that media art is an experiment and should be considered experimental in its practice. Thus, the art installation displayed here can almost be considered a technological-scientific-experimental set-up. But only “almost”, because the term experiment should not mislead anyone, since a scientific experiment is something completely different than an artistic one. A purely scientific experiment aims to verify a law, and tends towards repeatability and regularity. This means it excludes anything random and unpredictable, and thus it cannot be unique.



An artistic experiment, on the other hand, should allow one to experience something new and unpredictable, something that cannot be repeated. This also holds true for art. And particularly for media art which is created in laboratory situations: on the one hand, it adopts the concept of an experiment from



the scientific canon of methods, and, on the other hand, there is a new moment – the “unforeseeable”, which arises in the production process. In the spirit of Adorno’s *Aesthetic Theory*, the unforeseeable characteristics should be incorporated into the structure of the experiment, which is a test filtered through critical awareness. These unforeseeable “characteristics” mentioned here, however, are in no way limited to the subjective moments in a work of art. On the contrary, they are objective moments of the indefinite.

At any rate, by strategically making use of the experiment, which is related to the category of the “new”, media art shows us something “original” – even though this is thought to be almost impossible in times of media simulation. Independently, the term experiment also leads us to a phrase of the French philosopher Jean François Lyotard on the role of art: “‘They should experiment and not only be modern.’ By saying this, we are already experimenting.” (transl. from: J.-F. Lyotard, *Philosophie und Malerei im Zeitalter ihres Experimentierens*, p. 77)

Although the intention of the MedienKunstLabor is principally to facilitate a laboratory situation that is process-related, experimental-reflective and networked – which basically reduces “traditional” exhibition formats to absurdity – we appreciate that art as part of a complex system still requires a more traditional reception. This system, however, only accepts a material “product”, at least usually, a so called “finished work of art.” Thus, the process, which started out as an experiment “condensed” into an (intermediate) result, which is presented in the MedienKunstLabor in the form of an interactive installation.

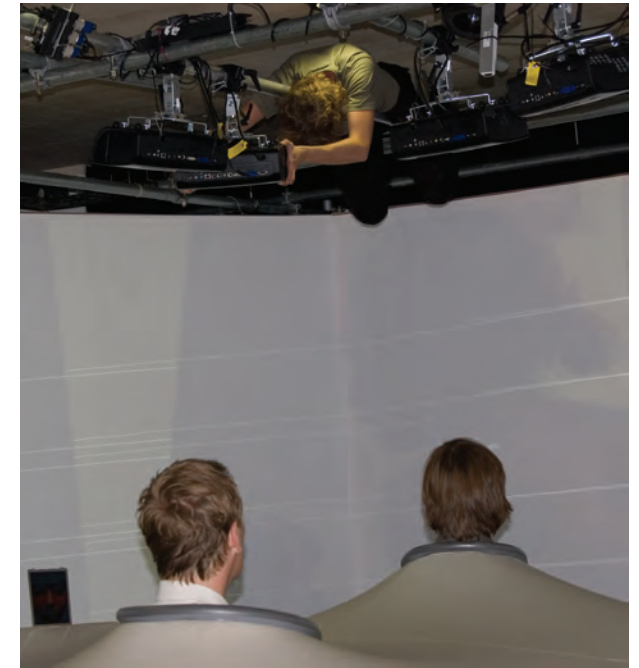
For the laboratory, the collaboration between the artists and the technicians turned into a reflective interim statement. It even resulted in a certain assessment of the current situation of media art production at the state-of-the-art level of technology to further existing problems of the reception of media art in general, which is still based on the canonized and traditional aesthetics of fine art.



Commentary

The installation *The Trend Is Your Friend!*, in which an exchange as the paradigmatic form of the market is simulated, symbolizes a sometimes apparently absurd situation: not only that we are to a large extent de facto dependent on these strange numerical notations of the share prices, Eckermann and Nestler also satirize the theological dimension of today's global turbo-capitalism. Namely, capitalism is religious and religion is capitalistic. The icons of capital themselves have in the meanwhile become religion. In short: The relations here are complex and confusing, apparently indifferent, upside down, chaotic, such that no orientation is possible. At the same time, the installation, by means of objects whirling around and sounds wandering about, shows the entropic state of today's relations – whether we take this to be simply a satire on our personal life situations, or as an entirely “sarcastic” commentary of the artists on the social, political, economic or even artistic status quo of the time. In this network of relations, in which objects whirl around as well as the sound sculptures by composer Peter Szely, mixed with spoken commands alternately of robots or of humans, the distinct relations of cause and effect lose their ambiguousness. There are no distinct causalities and mechanisms that tell us why the situation is the way it is. It is a play of chance and necessity. As system and chaos theory so aptly put it: everything fluctuates!

Sylvia Eckermann and Christina Romirer



Markus Murschitz on top

Previous page

Winfried Ritsch, Peter Szely and Johannes Zmölnig, Marius Schebella

Winfried Ritsch and Peter Szely

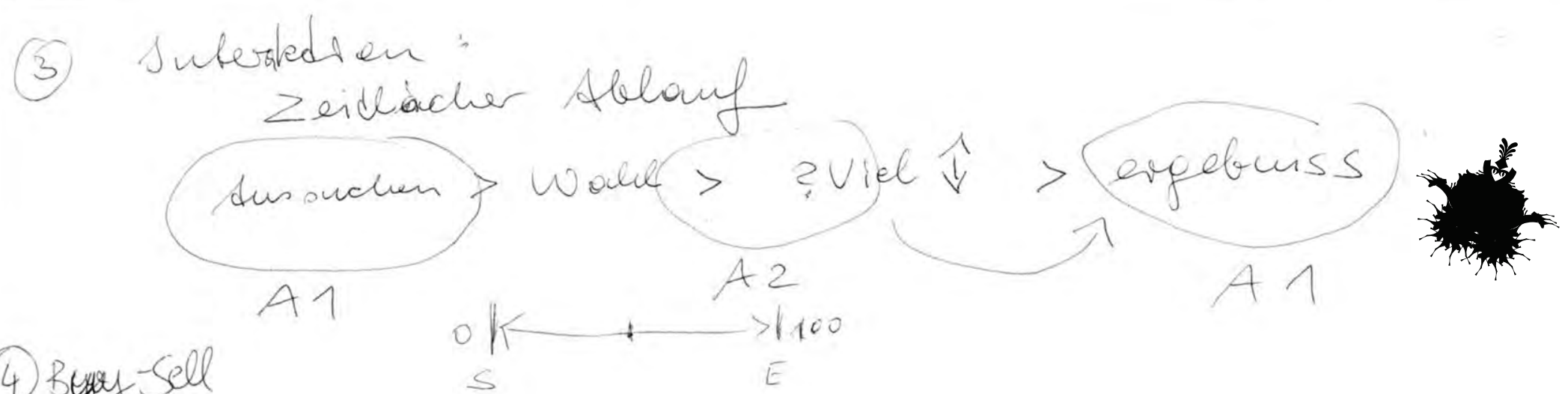




② 2.1 Pers. Infofeld.

> User > Insekt > Bewegung > Schwarm

> Stillstand > Insekt > Info board



④ Buy-Sell

Artists' biographies

Sylvia Eckermann sylvia-eckermann.net

lives and works in Vienna.

Eckermann has been working in the field of electronic arts since 1989. She creates complex multimedia worlds that the viewers experience in real as well as virtual space. She develops her artworks from concepts of spatiality to communicate immersive experiences that involve situations in which the viewers turn into actors-players inside an audio-visual environment. Interactive installations and media related artworks realized in e.g. Vienna, London, Mexico City, Helsinki, Norwich, London, Cairo, Beijing, Shanghai, Athens. Commissioned work for ISEA94 and ISEA04, EAST, Millennium Dome London, Cultural Capital of Europe Graz 2003. Serious Games for museums and schools. Sylvia Eckermann has pioneered in the field of artistic use of game engines in various game art installations. (synworld, ISEA, games-computerspiele von KünstlerInnen, GameArt, artgames, cyber@rt, medi@terra) Eckermann received Austrian Federal Artist in Residence grants for Beijing, China (2008), Chengdu, China (2005), London, GB (1999), Fujino, Japan (1996).

Gerald Nestler geraldnestler.net

works within a field of artistic research that encompasses different aspects of what he termed "Econociety" – a more and more global economy that is shaping our world today, particularly with respect to the changing roles and significance of the individual, society and community. After graduating from the Academy of fine arts Vienna (1992), he has been working and exhibiting internationally, often in collaboration with other artists, theoreticians, and scientists. He worked as a broker and trader (artistic field research, 1994-97). Nestler received an Austrian State Scholarship for Visual Art (2003) and Austrian Federal Artist in Residence grants for Beijing/Nanjing, CN (2008) and Krumau, CZ (2010). He published *Yx. fluid taxonomies-enlitened elevation-voided dimensions-human derivatives-vibrations in hyperreal econociety*, a catalogue/reader, Schlebruegge.Editors, Vienna (2007). In 2009 he edited two issues of Kunstforum International on art and economy, with Dieter Buchhart. He is a practice-based MRes/PhD candidate at the Centre for Research Architecture at Goldsmiths College, London.

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lives and works in Vienna.

Peter Szely works in the fields of (sound) installation, sound architecture, intermedia art, radio art, concerts, compositions, sound environments for theatre, performances as well as media and acoustic interventions in public space in China, Denmark, Germany, Italy, Japan, Mexico, The Netherlands, Norway, Austria, Poland, Portugal, Russia, Switzerland, Slovenia, The Czech Republic, USA. He studied Computer Music and Electronic Media at the University of Music and Performing Arts Vienna. Since September 2003 he has been hosting in collaboration with Georg Weckwerth „Tonspur - für einen öffentlichen Raum“, an ongoing series of sound works by prestigious international and Austrian participants at q21, Museumsquartier Vienna.

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