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Proceedings of the
Twelfth Fuschl Conversation

G. Chroust, C. Hofer, C. Hoyer
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Fuschl 2004: The 12th Fuschl Conversation, April 2004

On April 18, 2004 23 systems scientists from 10 countries (see “ List of Participants of Fuschl 2004”) assembled in the restaurant of the Seehotel Schlick on Lake Fuschl, near Salzburg (Austria), for the 12th Fuschl Conversation (see “Conversations, why, what and how?). A first pleasant was the completely re-furbished rooms at Hotel Schlick.

These proceedings present a record of the process and the outcome of this 12th Fuschl Conversation. A short version was already published in the IFSR Newsletter vol. 22, No. 1. They contain the reports of the five teams which made up Fuschl 2004. Additionally some additional papers, related to the team’s discussion, are included.

On Sunday, April 18 the Fuschl Conversation started in the late afternoon. Gordon Dyer explained some details of the Conversation and Christian Hofer pointed out some technical details. Both the set-up and the remained as it was in the previous years.

Starting on Monday morning the team discussions (‘the Learning Phase of the Conversation’) went on until Thursday evening. On Monday and Tuesday evening we had a plenary session where the groups reported on their initial progress.

For Wednesday afternoon a special treat had been organized: We had booked a bus to bring the whole group to Salzburg, giving the participants a few hours to enjoy this lovely city.



Fig. 1 - Kumkum Prasad admiring Salzburg



Fig. 2 - Gordon Dyer, Anthoneta Doncheva, Gerhard Chroust

The dinner also was taken in Salzburg in a very nice, typical quaint restaurant with excellent food. The bus then brought everyone back to our hotel.

Thursday evening - the last evening – traditionally was devoted to singing, a custom which goes back at least until 1994. It brought out diverse talents of the participants: more than one of the otherwise serene participants suddenly came into the limelight as a show master, entertainer or singer.

Friday morning was used for final reports by the individual teams and by discussion in the plenary. The Conversation ended Friday at noon, as usual.

In retrospect there were several highlights in the Conversation. One highlight definitely were the dinners served at Hotel Schlick. The hotel is famous for its fish dishes, with fish right out of the Lake Fuschl. And every evening we were able to enjoy a different fish from Lake Fuschl, differently prepared, too, by Mr. Idinger. It was a gastronomic delicatessen.

Looking back at the scientific side of the Conversation we noticed that an unusual large percentage of potential and even registered participants were not able to come for various last minute reasons.



Fig. 3 -Günther Ossimitz



Fig. 4 - Mrs. Idinger, our host, and Gordon Dyer

Especially **Team 1** was hit by a steak of bad luck. The originally designated team leader could not come and his stand-in fell severely ill just a few days before the start of the conversation. Angela Espinoza took it on her, to stand in as a team leader for team 1 – and she did a bravado job at that. She was the only one who had taken part in the Agora-team in Fuschl 2002. But the new ideas brought in by the newcomers made for lively discussion, challenging some of the basic assumptions and gauging the ideas on an (assumed) life example.

Team 2 (led by Arne Collen) continued essentially with the theme from past years with the goal of deepening the understanding of bettering, particularly the relation between designing systems and globalization. Based on two overarching questions (What are the implications of globalization in designing systems? What are the implications of designing systems on globalization?) various considerations of this dynamics were discussed intensively during the conversation.

Also **Team 3** (led by Søren Brier) suffered from early and late cancellations. Only Søren remained from Fuschl 2002, but based on early warnings a new team was established based on previous co-operation. The last minute arrival of a good research colleague added more breadth to the group's knowledge base.

The team made tremendous progress based on and on previous cooperation of team members and by building on the 2002 results, which were known to some of the group members. Thus a continuation in knowledge production was possible in spite of the change in members of the group.

The group then enjoyed a spontaneous creative synergy and an informal dynamic way of sharing knowledge and taking responsibility of different specialized functions in mutual respect. They felt great enthusiasm about the result accomplished that was clearly beyond what they could have done individually

Team 4 (led by Gary Metcalf and Charles Francois) was able to rely on three continuing members who had participated in both previous conversations in which the topic was initiated (2000 and 2002.) The three new members added both depth and variety, allowing the team to reach an unexpected level of understanding about active participation in social systems. Having participants with both depth of understanding about systems, and with life experiences in a variety of realms (professionally and geographically) seemed important to the progress that was made.

Team 5 (led by Gordon Dyer) had equal problems with membership. Two expected new members of the group had to drop out at the last minute having both contributed the preparation phase. In one case this was due to personal illness ;in the other due to illness of their Head of Department which necessitated them being required to remain home to provide cover. Two new members were recruited at very short notice from Kingston University, UK. In the event one of these arrived late due to a severe cold. It is somewhat surprising that the Group was able to make some good progress, which it did. This was because the late comers were able to bring some new thinking to the Y3K topic relating to their own specialities.

The details of the outcome are presented in the individual team reports included in these proceedings.

It remains the pleasant task to thank on behalf of the IFSR and of all participants in the Fuschl Conversation 2004.

- foremost Gordon Dyer for his guidance and
- the other team leaders.
- And we should not forget one of the most important person – Christian Hofer who organised and provided the logistics and the infrastructure of this event.
- Special thanks to Günther Ossimitz for providing beautiful the pictures of the Fuschl Conversation 2004 (see <http://www.uni-klu.ac.at/~gossimit/ifs/fuschl2004fotos/>)

Gerhard Chroust
Organising Chairperson and
Secretary Treasure of the IFSR

Conversations, why, what and how?

The origin of Conversations dates back into the year 1982. In 1982 several systems scientists, led by the late Bela H. Banathy were dissatisfied with the classical, conventional style of conferences: An individual writes a paper, has 20 minutes to present it and then 10 minutes of questions. After that the conference is virtually over for the individual. Clearly, this format is not the most effective way to progress in the exchange and development of subtle ideas on pressing major issues. This was the starting point for the Fuschl Conversations: They picked a small hotel on the shore of Lake Fuschl where they held their first Conversation. The procedure was later refined and followed on many occasions. By now some 50 Conversations must have taken place all over the world.

To a scientist the experience during the week in the Fuschl Conversation is quite different from other scientific events. It is in the form of a *conversation*. Bela Banathy defined a conversation as follows:

A Conversation is

- *a collectively guided disciplined inquiry,*
- *an exploration of issues of social/societal significance,*
- *engaged by scholarly practitioners in self-organized teams,*
- *who select a theme for their conversation,*

this is initiated in the course of a preparation phase that leads to an intensive learning phase.
[From Be. Banathy's Presentation to the ISI Conversation on Social Systems Design, Asilomarconference, Asilomar, California, November 1996]

For the Fuschl Conversations (as organised these days) four major phases can be distinguished:

Forming Phase: A Conference Leader plus 4 to 5 further team leaders are selected by the Fuschl Committee. This choice is based on leadership in previous Fuschl Conversations, on the topics at hand and by consensus with the other team leaders. By publishing a call for papers and by word of mouths potential participants are encouraged to submit a very short input paper (1 – 4 pages), indicating a direction for the Conversation, the individual potential contribution to the Conversation and some related trigger questions for their team to start the Conversation. From the applications the participants are selected, taking into account the quality of the input paper but also geographic and ethnic distribution of participants. Unfortunately due to limitations in space and funding only teams of four to 6 participants can be accomplished.

Preparation Phase: In the preparation phase the teams work together mostly via e-mail in order to refine the topics toward a set of agreed upon trigger questions for their conversation. Based on the interaction with their team the Team Leaders prepare a short summary of key ideas from the input papers, including the selection of a coherent range of trigger questions from the suggested ones. This draft summary is sent to members of the team inviting their comment and/or endorsement. The final version is an important part of the conversation process. It is the collective effort of preparation and will hopefully provide a firm basis on which the team's conversation (learning phase) at Fuschl can proceed.

Learning Phase - the Conversation. This is the face-to-face high interaction part of the Conversation. At the on-set of the Conversation in Fuschl the teams review their agenda and choose specific triggering questions that guide their conversation. At the end of each day, the teams report on their progress. The team members follow their course of Conversation, performing their discussions, and finally prepare an initial document of the outcome of their conversation. On Friday morning the teams present their findings in plenary to all participants

Dissemination Phase:

It is the duty of scientist and the explicit wish of the IFSR that the outcome of the Conversations be disseminated to a wider audience. This will be done by publishing a preliminary report in the IFSR Newsletter and by later by issuing proceedings of the Conversation as a Technical Report of the Institute for Systems Engineering and Automaton of the Kepler University Linz. Besides the Team Report, Members of a team may, with the consent of the Team Leader, also add individual papers, either expanding the team's topic or supplying additional views.

Fuschl – 24 years of history

The first Fuschl conversation was held in 1982 in Fuschl, a beautiful, romantic little Austrian village on a small lake (Lake Fuschl) near Salzburg in the lovely Salzkammergut, Austria, (see www.fuschlseeregion.com/de/orte/fuschl.shtml). today a major tourist attraction It is surrounded by mountains of approx. 1600m height, In summer it is beaming with life and tourists, in April its is quiet and sleepy, a good place to speak, to listen and not to be disturbed by hectic, sightseeing tourists.

The Fuschl Conversations are traditionally held in the week following the European Meeting on Cybernetics and Systems Research (EMCSR) which takes place every even year starting with the Tuesday after Easter and continues through Friday of that week.

Traditionally the Fuschl Conversation starts on the first Sunday after Easter in the late afternoon and continues through Friday lunch. The event is almost fully sponsored by the IFSR, asking only a token contribution from the participants.

Since 1982 some 50 Fuschl-style Conversations, with some variations, have been performed, in many parts of the world and various alternative methods derived from it.



Fig. 5 - Gordon Dyer with our hostess, Ms. Idinger

List of Participants of Fuschl 2004

Heiner Benking	D
Soeren Brier	DK
Gerhard Chroust	AT
Arne Collen	US
Anthoanet Doncheva	BLG
Gordon Dyer	UK
Angela Espinosa	COL
Charles Francois	ARG
Christian Fuchs	AT
Petros Gelepthis	GR
Ernesto Grun	ARG
Günther Hamza,	AT
David Hawk,	USA
Christian Hofer	AT
Wolfgang Hofkirchner	AT
Yoshihide Horiuchi	JP
David Ing	USA
Farah Lenser	D
Gary Metcalf	US
Marilyn Metcalf	US
Günther Ossimitz	AT
Kumkum Prasad	UK
Gottfried Stockinger	AT



**Team 1:
New Agoras for the 21st Century-
Conscious Self-Guided Evolution**

Team Coordinator:
Angela Espinoza (COL/UK)

Team Members:
Heiner Benking (D)
Gerhard Chroust (AT)
Günter Hamza (AT)



*Gerhard Chroust, Angela Espinoza,
Günter Hamza, Heiner Benking*

Team Report: Building a New Agora

Abstract

The objective of this report is summarize the considerations and results from the team discussions held at the Fuschl 2004 Conversation on 'New Agora', in continuation of the discussions held at the Fuschl 2002 Conversation. The team used a fictitious city 'New Athens' in order to evaluate the concepts and to structure a process for establishing and enacting (multiple) Agoras. The report discusses the feasibility and efficiency of establishing Agoras as a means to support the public participation process. It reviews methods which help to structure and sort out issues by focusing on relationships by involving the local experts and stakeholders. Central relevant issues could be social, ecological and economic Development and integration of a region and the analysis of its relationship to other sectors in view of local, regional and global interactions and interdependencies.

The Paper presents a details description of a process to establish a network of Agoras as a means o solving local problems in a global contexts, using bottom-up participatory methods to include and motivate the people involved.

Background: The Agora Discussion at Fuschl 2002

During the Fuschl 2002 conversation 2003 [Chroust, 2003a], the members of the Agora team of Fuschl 2002 mostly constructed common ground by discussing their understanding of the New Agora idea, from their own research and cultural traditions. A history of The Agora Project was then provided, and vigorous discussion followed, covering such major themes as the meaning of conscious evolution, Banathy's evolutionary design methodology, and other similar transformation and design methodologies.

The team challenged Banathy's assumption that we can design a better world, and the discussion led to the conclusion that we do not design a new society but create it through our actions. The group was comfortable with following Bohm's contention that in order to change society, people must become more connected to their inner essence, and added the need for sharing the issues and contexts across scales in order to agree on the broader frames of references we witness in times of globalisation and cyberculture, see [Benking 94]. The team agreed also that the "Problematique" is increasingly complex and needs to be seen across sectors and scales, see [Christakis, 2005] with his review of the predicament of Mankind.

In the guided evolution of society, inquiring communities, or local Agoras, engage in evolutionary systems design as a way to envision a tentative ideal vision of the future. This vision entails creating a coherent model of a future society in all its dimensions, including spiritual, cultural, political, economic, and social. Evolutionary systems designers also consider historical processes and consider the change of values over time. The deepest level of societal change implies also changing values. Innovative societies are those that are able to change their values. Thus, the purpose of inquiring communities formed along the lines of the New Agoras Project should be to transcend their existing assumptions and seek to create a new ideal vision of future society.

The conversation then evolved into an exercise to design our own teamwork using the suggested Evolutionary Systems Design method. It involved agreeing on purpose, values, services and clients, functions and actions to follow.

The discussion around purpose involved the recognition that many organizations throughout the world are engaged in similar activities. Therefore, the New Agoras Project should not only focus on "creating" New Agoras but also on discovering and linking existing types of institutions, communities and organizations developing actions in a context coherent with this basic definition.

From this understanding, the group defined its purpose, as:

"Creating a community that collects and promotes the experiences of existing communities or organizations that have been successful in developing participative dialogue for achieving meaningful and valuable results and progress toward a better society, within the context of (a) making available the best of each local agora's knowledge, wisdom, and consciousness, and (b) moving toward becoming a steward system that links to the best of systems thinking ideas."

The services that it would offer as:

- Developing an Internet supported knowledge base on the linked Agoras' experience.

- Facilitating the learning process from Agoras by making available methods and tools for supporting conscious evolutionary design.
- Facilitating knowledge sharing and learning among interested communities or institutions.

The following initial set of functions would be performed by the steward agora as a team.

- Develop an Internet based Knowledge Base on the Agora's Experiences and Learning
- Support the Learning Process in Agoras with Useful Methods and Tools
- Facilitate Knowledge Sharing and Learning by Interested Communities or Institutions.

After the Fuschl Conversation 2002 some of the team expanded the above ideas, in terms of understanding Agora like organisations and the example of the ICA organisation was suggested and analysed as compared with the Agora's purpose [Espinosa & Umpleby, 2003] [Benking et al. 2004] [Lenser & Benking, 2004]. The 2003 ISSS Conference in Crete on the Agoras of the 21st Century contributed with many experiences and theoretical proposals to enrich this discussion. [Bausch, 2003] [Bausch, 2004]

A particular emphasis was been given to the potential of the cybernetic approach to further develop the original idea of the Agoras [Espinosa, 2003] [Espinosa, 2004].

The Fuschl 2004 Conversation on “New Agoras”

In the 2004 Fuschl Conversation, we engaged in the process of reviewing what has been done before and of challenging our understanding of the New Agora project. After a fruitful day on presentations from each participant, this time coming from both academic and business backgrounds, we agreed to experiment an ad-hoc methodology, to compliment what is being agreed in the systemic community, with some practical thinking, on implementation challenges for an Agora to operate.

In order to have some tangible environment we considered the hypothetical situation that the mayor of “New Athens” a fictitious city – has hired the team for the rest of the week to design the implementation stage of the New Agora's project. The assumption was that the team was to present him with a proposal for “Building a New Agora” as the basis for future decision making. The team assumed that there was enough budget to finance a sizeable Agora project. The following report shows the summary of the considerations, designed procedures, and agreements.

Agoras – past and present

"The Agoras of the City States of the Classical Greeks were public spheres where democracy was lived by privileged citizens who made collective decisions about issues affecting their daily lives, their community and state“.

Reconsidering the idea of Agora in today's society has a certain attraction and nostalgia. It is often seen as a means to achieve a brighter and more democratic future. The Agora is used as a metaphor for social action contexts (public spheres or arenas) for collective decision-making, and a forum of democratic discourse. Reconsidering the idea of the Agora also needs to address the inclusion of the whole population, the confrontation of the growing complexity and interaction of sectors across scales. Although the Agora-'dream' has started some 20 to 30 years ago, there has been little demonstrable success [Espinosa & Umpleby, 03]. In today's global world ("Global Village") a classical face-to-face Agora alone is not sufficient and/or not feasible.

A New Agora has to take into account the changed situation of today's society as compared to Greece:

- In Athens - 2500 years ago - only a minority of all people were citizens and thus entitled to voice their opinion in their Agora,
- Women, foreigners, slaves etc. were not counted into the number of stakeholders and this did not have (or need?) a direct representation in the Agora,
- Most problems were rather local, with the exception of declaration of war, state treaties and similar singular events,
- Problems discussed in the Agora needed a common decision but after the decision the handling of the consequences was rather straightforward,

- Resulting sub-problems usually could be handled in a rather modular, independent fashion without intensive interdependency and collaboration.
- The consequences of decisions could usually be foreseen and understood.

Today the situation has changed:

- Stakeholders are numerous and dislocated.
- A global interaction of causes and effects exists.
- Problems are too complex and interleaved to be addressed by 'common sense' only
- Deep knowledge is required.
- Common frames of references and belonging do not seem to exist [Benking, 2003] and so the need to address the "bigger picture" seems indispensable, Benking, 2004]

WHAT is a New Agora?

We understand a New Agora as “a group of people co-present (physically or virtually) on an on-going basis, which share a purpose on social improvement and sustainability and have the will to progress towards an ideal future society which they (or their descendants) would inhabit” (Espinosa & Umpleby, 03). They do it by:

- Developing a meaningful dialog, including all the stakeholders, making decisions and bringing them into action
- Democratic decision making: Decision spaces are open to everybody affected by the decisions
- Self-organising and self-controlling mechanism operating, supported by facilitators.
- Using systemic approaches to understand society and conscious evolution
- Recognising being embedded in higher organisational and political levels and developing an evolving awareness on global goals and constraints. [Benking, 2004]

As a consequence an Agora is not a rigid, disciplinary based, or hierarchical social structure like traditional political systems or traditional meetings by experts or scientists. It is supposed to be a subsuming and resonating whole.

WHY should we consider a New Agora?

The New Agora Project is designed to make a real difference if compared to traditional democratic organizations in the following aspects:

- It creates a democratic decision making and a follow-up context.
- It shows an example of a new idea of people-based government.
- It offers an information and communication technology supported context for democratic decisions.
- It uses the best of systemic methodologies and approaches to:
 - Reach agreements on main local issues.
 - Communicate between people and government.
 - Create pressures to government to act accordingly to people's main concerns.
- It offers creative social communication mechanisms to handle complexity.
- It allows emergence of social awareness of sustainability of the community.
- It empowers people to have the proper knowledge to make public decisions.
- It offers people access to methodologies to reorganize the community to implement the citizens in fact-finding and to assure a continuous learning process. and
- The population will be involved to change the topics.

In most prevailing international policymaking and implementation practices (i.e. those implementing Agenda 21 on local and national levels) the problems are already prioritised by influences from outside (i.e. World Bank, sponsors) but this priorities often do not correspond to the problems of the people.

The hypothesis we hold here is that a more democratic design of local/national strategies like the one proposed here will improve people's involvement and commitment. A central concept seems to be the combination of a dialogue and a decision culture, as exemplified by an experiment at the ISSS 2003 in Crete, [Bausch, 2003]

HOW can we build a New Agora

Given the assumption about New Athens the required organization needs to be able to handle the complexity of the whole city for participatory decision-making in deciding main actions to be taken for sustainable development. The Steward Agora will contribute by offering systemic methodologies and tools to facilitate emergence of such an organization and progressive consolidation with a larger number of related communities and institutions.

The following section presents the preliminary analysis we made of the organizational context of New Athens, to develop the New Agora Project. It is developed as a learning exercise among the team to progress ideas on implementation challenges for New Agoras.

Organizational Context

The starting points were several assumptions and concepts (Fig. 1).

- We assume that the city has a geographical and political distribution in districts and sub-districts. To some extent this will give an initial structure to the distribution of the Agoras.
- We envision a multitude of Agoras. They will cover in a matrix fashion geographic, thematic and localized interests of the stakeholders.
- Individual Agoras will concern themselves with the solution of some rather tangible and well-defined problem, which are related to their district or sub-district (see Figure No. 1).

A central **Steering Committee** will be institutionalized by the political leader(s), e.g. the Mayor. The Steering Committee will be the over-all supervisory element and will establish the main communication platform between the members of the various Agoras. They will communicate people's views to the political authorities. Members of the Steering Committee should:

- Be recognized representatives of problem situation, committed to the Agora's purpose, with high social and political competence, ability to choose the proper people and form a network,
- Make sure that people representing all sectors of the population attend the Agora call (including Humanitarian NGOs, Ethnic minorities, Children, the disabled and so on),
- Coordinate the Agora's process at each stage, including the constitution of the Stewards Group and the communication mechanisms for making an Open Call for each Agora public event,
- Get and coordinate required physical and technological infrastructure for on-going operation of the Agoras,
- For each Agora a **Steward Group** will be established, in charge of facilitating the process with proper systemic methodologies and tools and proper information and communication technologies. We assume that there is a set of persons ("Candidate Stewards") available to be nominated for a specific Steward Group.

Candidate for Steward Groups should:

- Have proper knowledge on systemic approaches to facilitate the process, as well as facilitation skills, knowledge of local culture and knowledge on the required technological support,
- Support an Agora in the decision making process,
- Find the required group of experts to build up the supporting Knowledge Base for decision-making,
- Facilitate the required training to leverage knowledge of the steering committee members and build up links to other expert Knowledge Bases/ Agoras.

- Outside the Agoras there will additionally be an “**Expert group**” helping in the issues debated, facilitating people’s acquisition of expertise and helping to access outside information, e.g. from data bases. Members of the Expert teams should:
 - Research available sources of information describing the state of the art of current knowledge in main issues related to the Agora’s
 - Develop the Knowledge Base required to support public decision-making in the relevant issues.

The Process

Briefly, the process for setting up a New Agora will include the following stages (See Figure No. 2). To start-up the process, the city authority selects the members of the Steering Committee on the city level (Fig. 1), following selection criteria suggested before.

Once appointed, the Steering Committee selects a Group of Candidate Stewards required for building individual Steward Groups to facilitate the individual Agoras processes. As a supportive measure Candidate Steward will be trained in the necessary methods, rules and technology required within all Agoras.

Collecting Problems and Issues

Given the current structure of large cities, the number of people and the complexity of the relationships involved, we envision that Agora’s membership will be on a voluntary basis. The goal in the first Agora meeting will be collective choice of main problems affecting sustainability of the different areas of the city. An alternative seems to be the selection of representative stakeholders as done for example in Germany with the "Planungszelle". [Dienel 2000, 2002] [Schmid, 2004]. The pro's and con's of such new decision and mediation bodies should be carefully evaluated as part of the process. We see many alternative feasible ways to include and involve Stakeholders, but focus in this paper more on the general process and the assessment of problems, issues, actions, options, strategies [UIA, 1994]

The Steering Committee will make an open call using main media (TV, radio, internet), at that stage some people willing to contribute and to cooperate in the discussion (stakeholder) will identify themselves. According to the structure of the city, several Agoras will be operating in parallel, each one having the required facilitation and technical support. The result of this work will be agreements on main problems considered to be relevant to discuss and monitor for sustainable development of each location (i.e. sub-district). For example in a sub-district people may agree on main relevant issues as: Traffic, Health, Pollution, Water supply, Violence, Old Industry dying, Waste disposal, Education, Disaster (emergency) provisions.

Identify, Clarify and Modularize Problems

Experts will identify, clarify and modularize an initial raw set of problems from the Agenda 21 database. These experts will try to trim these problems down to ‘agora-size (i.e. apportion these problems with respect to a size manageability by an Agora, geographic applicability, perhaps demographic applicability), utilizing the Agenda 21 as a yardstick, source of information and conceptualization and the problem Collections of the Encyclopedia of World Problems and Human Potential [UIA, 1994].

Call for a first Agora-event

Using available media, the population will be informed about the establishment of specific Agoras, organization and events, The Steward Group will be inviting people believed to be stake holders to participate (it will be necessary to negotiate with the required institutions availability of proper physical and technological infrastructure for the event).

They make sure that stakeholders (including representative for all groups of civil society) have a voice in the event. Also, that everybody attending has access to the required basic information: a summary

of a trimmed down, local Agenda 21 goals, as well as main diagnostic points and relevant information explaining them).

Enacting an Agora

During the enactment of the Agora, e.g. performed like an Open House event, the Steward Group apply the agreed system methodology to facilitate the collection of information on main issues considered relevant problems (the most important and urgent ones). Problems that the people suggest should constitute the agenda for progressing towards a more sustainable community. We recommend at this point a mix of methods ranging from structured and mediated to open designs, which address the situations, objectives and expectations best [Benking, et al., 2002] [Judge, 1994] [Judge, 1998]. This includes voting and physical or electronic wall papers to facilitate people's input and negotiation of suggestions on multiple and complex issues.

After each meeting, the Steward Group would contact the group of experts in the issues agreed and ask them to contribute with relevant information to build up the supportive Knowledge Data Base.

We expect there will be several meetings of an Agora to a specific topic, since the discussions cannot be performed in one session alone. If the Agora is called again, the Steward Group will choose and use appropriate methods and tools for facilitating this stage of the process. For example, a Syntegration workshop [Espinosa, 2003] might be considered part of the agora process (probably with a smaller more selected group), to integrate, prioritize and expand people's suggestions.

Feedback to authorities

By the end of this stage, there will be a democratically agreed set of proposed solutions that will be related back to the authorities for implementation. More work into the complexity of this task still needs to be done and proper complexity management tools will need careful design and sensible implementation in order to honor the social fabric.

Monitoring Stage

As a next stage the Agoras will be monitoring the process and results in the implementation of agreed actions by the government. For this purpose the Stewards Community will develop and implement specific monitoring systems based on people observations of both process and results. Once more, systemic approaches will contribute to the systems design and implementation and open forums and democratic mechanisms for summarizing people's views will be in place.

Iteration of agora discussions

By the end of the process a new learning cycle will start so that people will again review their priorities to solve sustainability issues and will agree on preferred directions for designing solutions, through the Agoras process.

Key issues in the Process

The following issues we considered as critical for implementation of the ideas described before:

- The list of identified key problems is published and people are invited to join a specific Agora to help solving the problem,
- A special invitation goes out to all those who have identified themselves already as persons interested in participation,
- Based on the response, a appropriate type of Agora is decided by the Steward Committee, considering the number of persons responding, their geographic distribution, their abilities to discuss among themselves (language and ethnic considerations, handicapped, etc.), preferences (internet vs. face-to-face). As a result one or more, parallel Agoras' are set up, either with identical problem definitions or variations/sub-problems of the original problem,

- The Stewards help and moderate with respect to the process of enactment, communication, and management of cultural diversity,
- The Stewards establish access to the Knowledge Base (if help is needed) and establish access to experts,
- The Stewards cross-communicate with the parallel Agoras and other Agoras which are working in related problems or in next-higher level problems,
- The Agoras find some solutions which are related – by the Stewards - to the Steering Committee to be implemented by the responsible decision makers,
- The members of the Agora reconvene at meaningful intervals to check on the progress and the appropriate implementation of the suggested solutions,
- The Agora dissolves when the problem is sufficiently solved,
- The Stewards Group and the Steering Committee would then produce a filtered problem catalogue that would be feedback to appropriate authorities.

Conclusions

By developing this design exercise, we learnt a lot about the complexities and challenges of implementing a New Agora in a larger context. The exercise, as a preliminary stage in the Conversation process, it opened the way for clarification on many issues about the sort of methodologies and tools that will be required at each stage of development of a New Agora.

Deep questions regarding the design of a new Agora emerge at both the philosophical, the political scientific and technological levels. At the philosophical level there is always the question of the nature of the intervention and systemic approaches offer important clues. In particular we can understand the idea of democracy in Maturana's terms, the ideas of viability of societies in Beer's terms, and the idea of social change and conscious evolution of society in Bohm's terms to open the path for an undoubtedly fruitful conversation. At the political level, it is clear that having the political support for implementation of the idea is a pre-requisite for the Agora project. Understanding the ideas of democracy implied in this model, there is clearly further need for facilitating the learning process which leading and participating in this kind of experience will imply, including main stakeholders having influence at the political arena.

At the technical level, much more development of this initial exercise will be required to clarify the nature of the complexity management tools required to support the process (i.e. systemic methodologies to support each stage and knowledge repositories). No doubt there are enough systemic tools available for this purpose but the Steward Group of the New Agora project will need to critically assess each one before suggesting it for the process.

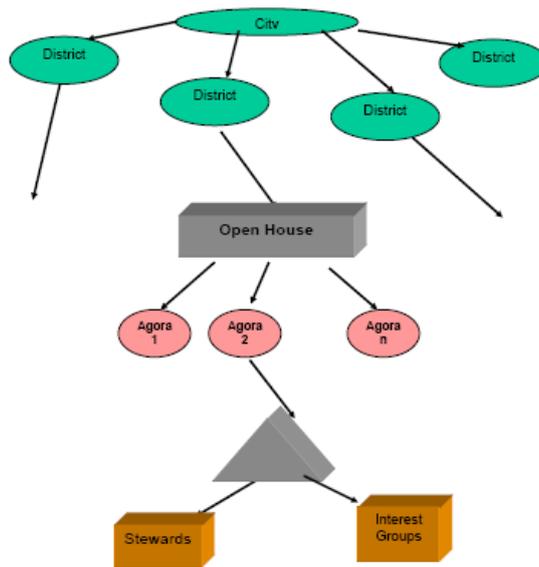


Fig. 1 Organization of Agoras in New Athens

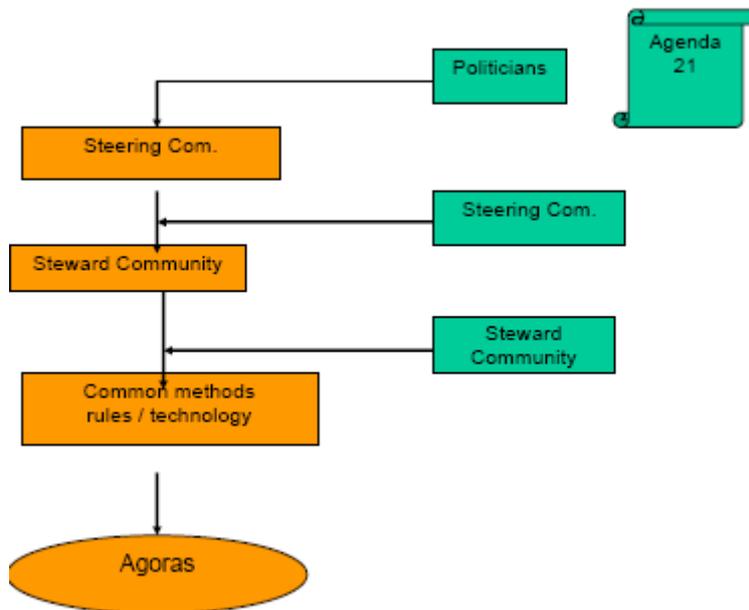


Fig. 2: Support of New Agoras

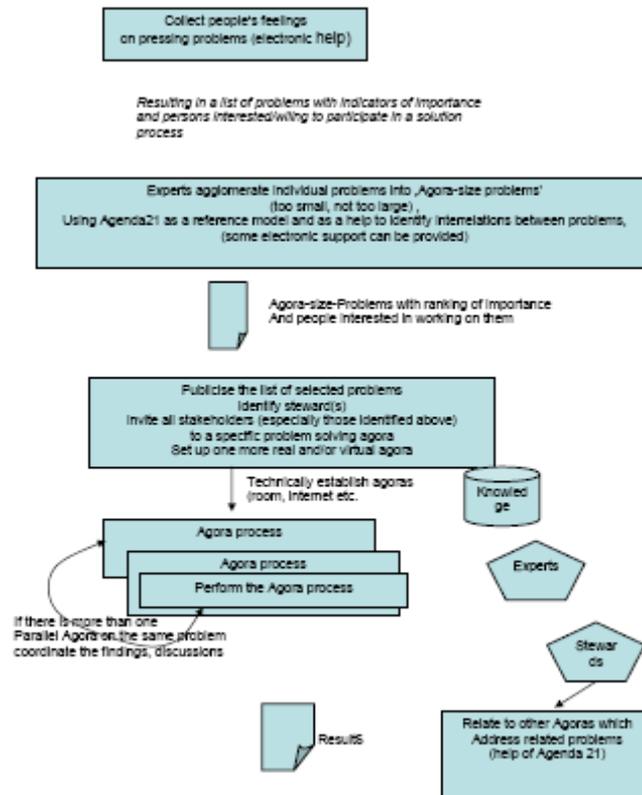


Fig. 3: Building an Agora System

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Angela Espinosa: The Global Agora Project Some Questions From A Cybernetic Viwepoint

Different systemic approaches and methodologies offer the required support for design and implementation of the Global Agoras Project. This paper suggests that Organizational Cybernetics offers theoretical and methodological support for self-organizing communities seeking to contribute to the conscious evolution of society. It argues that tools like the Viable Systems Model (VSM) and Team Syntegrity (TS) enable social networks to create a shared language, reach democratic agreements and develop knowledge networks. All these are purposes of an Agora. It concludes with some questions to improve our understanding of the Global Agora's Project.

Keywords: organizational cybernetics, Agora, evolutionary learning communities, learning society, democratic agreements

Reviewing the idea of New Agoras

Banathys "Evolutionary Social Systems" approach, is an approach for supporting democratic agreements and organizational forms that might contribute to a self-guided evolutionary process. Team One at the Fuschl 2002's Conversation, discussed again Banathy's idea of the New Agoras, as a small group of individuals who are interested in creating an image of the "ideal" future society, which they would like to inhabit, by using a systemic based design methodology to create the image. (Banathy, 2000)¹ We suggested that different systemic methodologies might also contribute to this purpose.

It was agreed that a new society can not be designed, but be created through actions. We were comfortable with the idea that we all know communities and organisations that are vivid examples of this Agora's ideal. It was agreed that it's worth identifying them and learning from their learning, rather than only "designing" new Agoras. (Espinosa et al, 2002)

Some members of the Fuschl team, have developed this argument - that there are many organizations acting like Agoras or ELCs - in the last ISSS Conference, "Agoras in the Global Village", in Crete, July 2003. The Institute of Cultural Affairs approach and experiences in the last 25 years were examined and compared with the New Agoras Project. It was also suggested, that a range of other systemic approaches and methodologies may potentially support the New Agora's idea. We concluded that the New Agoras is an idea that may prove to be a very significant development within the system sciences, but there still seems to be a gap between goals and actions. To prevent confusion, perhaps either the vision or the strategy needs to be modified. (Espinosa & Umpleby, 2003)

We have also suggested that approaches like the Evolutionary Systems Design, proposed by Laszlov & Laszlov might contribute to developing the original definition of an Agora, by understanding them as evolutionary learning communities (ELC), or "communities that strive toward sustainable pathways for evolutionary development, in synergistic interaction with their milieu, through individual and collective processes of evolutionary learning"... "A *global and sustainable learning society* would result at the macro-level from co-evolution of ELCs". (Laszlov & Laszlov, 2003).

In both Banathy's and Laszlov's images of the Agoras or ELCs, ideally, the community would have a steward group, which brings well-developed skills for building the Agora or the communities and conducting social systems design. In the New Agora's Project, within this top level, there should be a systemic structure intended to support dialogue in the public sphere. It should offer the technological systems and tools required to facilitate large-scale development, consensus, and action planning.

Opening our understanding of an Agora, as an organisation or community (i.e. a ELC) would help us to identify such communities and organisations that are already operating with similar goals. At this recent ISSS Conference, there were several examples of these kinds of communities, non-governmental organizations and institutions that have progressed in this direction, by using other

¹ (It should be noted that in the context of this paper the term "Agoras" refers to both the small group of visionaries and representatives from the communities they are designing.)

systemic approaches which have also proved useful for them in the development of these type of ideas. (Anissa, 03)

We also recently proposed that the language and tools of organisational cybernetics, in particular VSM and Team Syntegrity, can support ELC or Agora type organisations, in this wider way of understanding them. We presented Team Syntegrity as a tool for creating a democratic learning context and presented some experiences from using it over the last ten years in similar type of organisations. (Espinosa, 2004)

An Agora or ELC would benefit from using the Viable System Model (VSM) as a meta-language to talk about viability and adaptation in social organizations and businesses and to root new distinctions in the communication practices of an organized social group to better understand its main tasks and organizational arrangements. Main issues on learning organisations and conscious evolution from this viewpoint include:

- A sustainable community must be a viable organization developing organisational consciousness and acting coherently in its main public decisions.
- Organizational learning is improved by creating the required learning context that favors proper management of complexity, at each organizational level and among different recursive levels. Learning, understood as an increased action capacity in a certain domain, at both the individual and organization levels, is the key to the sustainability of organizational transformations.
- Sustainable learning communities “learn to learn”; and as a consequence, they generate and sustain deep social change, as a self-conscious process. An innovative organisation may become conscious of its own limitations and produce positive social change by changing its traditional values, attitudes and behaviors. It is in this tension between freedom and self-control that viability emerges and adaptation happens. (Beer, 1974)
- A social change process should assure development of effective communication skills for the organization members, in order to help them to reach sustainable agreements at every level of the organization. The way of supporting active learners and structuring these learning teams will impact the organizational learning outcomes significantly.

Using these cybernetic language and understanding, we can compliment or expand previous definitions of ELCs or Agoras, aiming at evolutionary development:

- First of all, we won't ignore the tension between local freedom and organizational constraints imposed by the enclosing organizations, tension that has always been central in developing democracies.
- A critical variable in developing truly autonomous and responsible behaviors from the people involved in evolutionary development type of conversations is the way strategic decision spaces operate.
- Social awareness results from the way community or institutions addressed and shared their tensions; for instance when they are negotiating their own development core values, goals and related investment resources. Democratic decision mechanisms should be in place, supported with proper tools for managing the complexity of the interactions.

Both the New Agora's Project and the Evolutionary Systems Design Approach are aware of the need for proper design of supportive tools for making strategic decisions or for agreeing on strategic issues in complex social groups. Beer's work suggests that deep societal change will require development of self-regulated learning communities.

Beer developed a language, the VSM that helps to understand the idea of self-regulating learning communities. (Beer, 81, 83, 88). Also a methodology, Team Syntegrity as a complementary tool to the VSM to design truly democratic spaces for public decisions; he suggested a structure of “infosets”, to operate as a self-regulated network in a truly democratic learning context (Beer, 94).

Team Syntegrity may contribute to development of New Agoras, by creating the democratic learning context required to develop a shared understanding of an issue of particular interest for a team. It is likely to be of particular help for organizations like the New Agoras or an ELC, wanting to develop a shared view of their preferred values, purposes, action paths or desired futures. (Nittbaur, 2003) Beer said that in order to deal with global problems “the ideal situation would be to see a proliferation of self-organized mini-parliaments (or infosets) of world citizens, where Syntegrity is used to organize infosets as a total democracy” (White, 1994).

In order to properly implement the agreements of a Syntegration, in the context of a network of Agoras or ELCs, other systemic approaches might be used with it. Once more, the Viable System Model offers a language particularly useful for defining the structural and networking arrangements required for implementing the organization agreed social changes.

The Global Village and the development of democratic knowledge networks:

Challenges and open questions.

Following Laszlov & Laszlov's idea that a "*global and sustainable learning society*" would result at the macro-level from co-evolution of ELCs, and assuming that there are operating many organizations like ELCs, a question that follows is "how do we create the right context for these ELCs to co-evolve?".

The Global Village in the XXIst century is a technologically based networked society and also a virtual society. It requires the design of effective and democratic virtual learning networks. The available and forthcoming information and telecommunication technologies become part of the relevant variables transforming the same social structures that invented them. They also open up unexpected paths to social awareness. Self-regulated organizations like ELCs or the Agoras might operate as virtual organizations, and would require proper methodological and technological support.

There are technological and institutional infrastructures in the systemic community that contribute, at different levels to support the learning process of self-organized groups like the ELCs and the Agoras. They include methodologies and tools to properly handle information and knowledge at the required levels and issues. There are many examples of communities and organizations that have progressed in terms of agreeing on desired ideals or goals and developing them with the support of systemic methodologies and tools. By observing these experiences, some of them developed through learning networks, we may share the "learning about the learning" and assess the usefulness of certain systemic tools or methodologies in supporting these particular learning processes.

This learning if properly supported by networking and knowledge management tools will constitute a systemic supra-structure as the one required for coordinating the steward role, as suggested by Banathy and Laszlov and Laszlov among others. It will be in this context and with this way of understanding the Agoras that we find that there will be better ways for developing democratically this idea in the context of the Global Village. (Laslov & Laslov, 03)

This paper has introduced some elements of the language that the VSM offers that contribute to better understanding the main organizational challenges these kind of learning networks would be facing while developing social consciousness and improving communities' self-regulatory skills. It has supported the argument that the systemic community has many ways of contributing to the development of a steward community in the pursuit of a global sustainable learning society.

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Gerhard Chroust: Communication Gaps in Modern Agoras

1 The Agora, past and present

"The Agoras of the city states of the Classical Greeks were public spheres where true democracy was lived by citizens who made collective decisions about issues affecting their daily lives". Reconsidering the idea of Agora in today's society has a certain attraction and nostalgia. It is often seen as a means to achieve a brighter future for society and democracy. The Agora is taken as a metaphor for social action contexts (public spheres or arenas) supporting collective decision making: a forum of democratic discourse. Although the Agora-'dreams' have started some 20 to 30 years ago [Espinosa-03], there has been little demonstrable success. In today's global world ("Global Village" [Townsend-01] [Wellman-02] [Bangemann-94], however, a classical face-to-face Agora is not sufficient and/or not feasible. A New Agora has to take into account the changed situation of our society²:

- In Athens only a minority of all people were citizens and thus entitled to voice their opinion in their Agora. Women, foreigners, slaves etc. were not counted into the number of stake holders and thus did not need a direct representation in the Agora.
- Most problems were rather local, with the exception of war, state treaties and similar singular high-importance events. Some problems needed a common consensus and decision on the basic direction, e.g. large building projects, but from thereon could be handled in a rather modular, independent fashion without intensive collaboration. Decision making was mostly enough.

Typically larger societies where global collaborative work was needed where usually organized autocratically, e.g. Mesopotamia with its need of large-scale, cooperative, centrally controlled irrigation system [Freydank-79, p.75].

- The consequences of decisions could usually be foreseen by everybody present.

Today the situation has changed

- Stakeholders are numerous and dislocated and cannot easily attend face-to-face meetings in an ongoing fashion.
- Stakeholders are members of many different interest groups, and thus would be involved in many Agoras with multiple spheres of interest and conflict.
- A global interaction of causes and effects exists.
- Problems are too involved, complicated and interleaved to be resolved by 'common sense' without recourse to relevant information. Deep knowledge is required.
- Stakeholders in any problem are not necessarily co-located in one place
- Today more than simple decision making and interfacing is required: we need intensive *collaboration*.
- Time is at premium and lengthy discussions ('palavers'³) are not appreciated. The danger is that the active members in an Agora meeting are those which have spare, or more cynically formulated, whom society can spare for a "palaver".
- Many problems will affect many Agoras and it is necessary to come to an accord with these.

Thus the New Agoras if they ever reach out from from the academic discussions, must be based on a holistic understanding of the complex, interlinked, and global background and interrelations of problems evening affecting small local communities.

² cf. <http://www.hyperdictionary.com/>, http://www.greeklandscapes.com/greece/athens_Agora.htm

³ ("The West African Palaver tree

(say "puh-LAV-ur") is a place where village elders share extraordinary stories every day"[<http://www.cc.gatech.edu/elc/palaver/>] and "The palaver is a traditional African institution of debate and consensus whose democratic potential has been overshadowed by modern political systems" [http://www.unesco.org/courier/1999_05/uk/signes/txt2.htm])

2 The New Agora

Bela H. Banathy [Banathy-02], Alexis Christakis and the Institute for 21st Century Agoras have proposed different forms of New Agoras. At the Fuschl Conversation 2002 [Chroust-03a] the Steward Agora concept [Espinosa-03] was discussed in detail.

Agoras provide essentially a forum for a 'debating', but often only on the intellectual plane. The transfer from the intellectually accepted to its application is often not performed effectively, if at all. Today's complex problems can only be solved by cooperation and decision making of stake holders within the actual situation and not by delegating it to a discussion forum. It is essential to have access to as profound information as possible and one has to make sure that *all* stakeholders are heard and understood - even if they are not present. Classical Agoras (even in the 21th century) usually lack the immediate access to necessary information, forecasts, simulations etc. [Selvin-03] [Vertegaal-03]. The New Agoras must employ a new type of cooperation, based on *just-in-time and focussed knowledge* and on *intelligent and fair interaction with all stakeholders*. Agoras by necessity must encompass stake holders from many different classes, nationalities and geographic locations. Therefore we propose to include in the Agora-concept the following essential elements:

- Supporting the decision making process by efficiently and just-in-time available and accessible pro-active **Knowledge Repositories** consisting of human advisors and stored information.
- Providing communication and interaction with *all* stake holders, across **gaps and disparities** with respect to place, time, nationality, language and culture, level of information and education, physical abilities, ability to communicate or to interface [BMSoz-02], etc.
- Enabling Agoras to communicate among themselves on topics of common interests and divergence.

The needs for such a global decision making goes far beyond set-ups like a (pure) Steward Agora [Espinosa-03]. Current technology (communication technology, pervasive communication, fast data bases, artificial intelligence etc.) enables us to bridge most of the communication gaps. Face-to-face meetings will still be necessary, but their purpose will mainly establishing connectivity, consensus and trust and not problem solving. The requirements to bridge these gaps can be boiled down to the following needs:

- Virtually include stake holders who are physically not present in the Agora
- Incorporate adequately stake holders who for some reasons are not able to follow the decision process (understanding, education, background etc.)
- Establish reliable and permanent communication and consensus finding with other Agoras by providing a *network* of Agoras in a dynamic changing interrelation
- Enable access to information and best practices to solve problems, e.g. by establishing Knowledge Repositories, consisting of mechanical and human support.
- Retain, preserve and make accessible an Agora's newly acquired knowledge in the Knowledge Repository.

3 Cooperation in a Technology-based Network of Agoras

Above needs strongly emphasize the need to support the New Agoras with high-level communication technology. In order to efficiently and effectively apply technology the following areas need close analysis:

- Classification of levels of cooperation (cf. section 3.1)
- Interrelation of cooperation levels and physical/chronological location (cf. section 3.2)
- Means to bridge the classical (physical) gaps: space and time (cf. section 3.3, Fig. 4)
- Investigation of disparities and resulting interrupts in cooperation (cf. section 3.3)

3.1 Levels of Cooperative Work

Several levels of increased intensity of cooperation can be distinguished (Fig. 1). Higher levels largely depend on services from lower levels. Depending on the level of cooperation, different intensity of matching between objects is achieved, for examples see Fig. 2.

Coexistence : Each partner acts independently with the exception that certain resources are shared and some arbitration mechanism prevents violation of boundaries.

Communication : The partners exchange messages and thus information. Certain conventions (protocols) are needed to make the information understood by the receiver.

Coordination : Agreement on organisational information and procedures is established.

Consens : Agreement on the decisions, activities, semantics of documents, etc. is achieved.

Collaboration : Objects (e.g. document) are created interactively together.

Fig. 1 models the 5 basic cooperation types, by showing two cooperation partners which have control/influence over some objects (e.g. documents). For each cooperation type the effects on these objects are indicated.

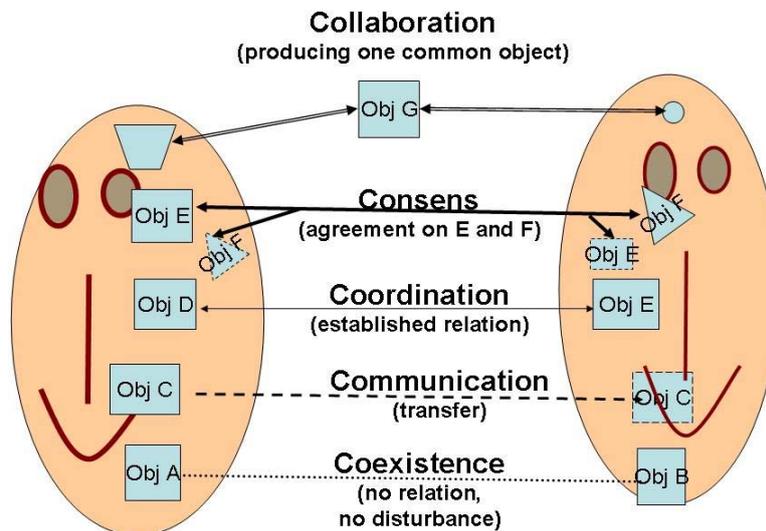


Fig. 1: Gaps, disparities and technological bridges

cooperation type	social life	computers	politics
coexistence	strong fences around garden and mutual respect	independent users in a time-sharing system	cold war, strong impenetrable borders
communication (e-mail)	letters,	e-mail	sending ambassadors
coordination	appointments, meetings	usage of web site names	voting agreements, job rotation
consens	marriage (division of heritage)	adoption of standards, decision of priorities	UNO resolutions , law making
collaboration	family, team play	collaborative editor	UNO peace corps

Fig. 2: Examples of cooperative work

3.2 Major Dimensions of Cooperation

The classical division according to the type of cooperation and with respect to time and place is shown in Fig. 3. It yields 45 different fields, each having different characteristics and often requiring different human and technological practices. Especially for gaps resulting from differences in location, many technological means have been invented, starting with smoke signals in the stone age to sophisticated virtual reality set-ups for tele-conferences etc. The same holds true for gaps with respect to the access/location of information. The internet provides nowadays instant access to a tremendous part of the available information world wide. While the 5 levels seem to be clearly separated, one has to recognise that this actually is a bootstrapping situation: Without a minimum of coordination, communication is not possible etc.

In addition further subdivisions have to be considered:

type of carrier/channel The type of the carrier/channel has influence on the type of cooperation. In a human interaction usually more than one carrier (channel) is involved.

directness Communication can be direct (between two or several partners) or it can be indirect via an intermediary. Although technically speaking a telephone line is also an indirection, we are only interested in intermediators which essentially modify the contents or characteristics of information, e.g. translating it into different cultures [Chroust-00g] or bridging time or space (memory devices, repositories, active answering services etc.)

multiplicity and direction Cooperation can be between two partners or between many (a letter versus a public address), it can be uni-directional, bi-directional (a letter versus a telephone conversation).

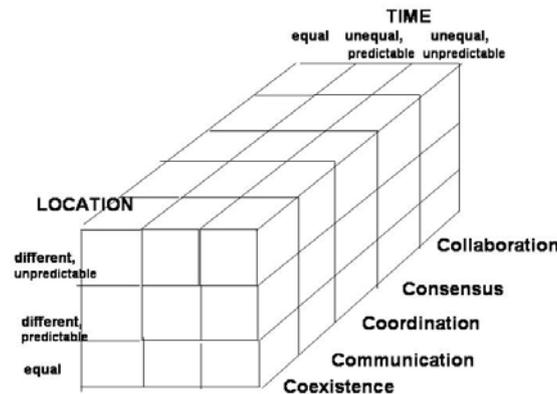


Fig. 3: The three major dimensions of cooperation

3.3 Communication Disparities, Gaps and Remedies

disparity/gap	technological remedy
spatial disparities (dislocated members)	audio and visual transmission, virtual reality, video conferences
temporal disparities (asynchronous cooperation)	storage, re-play, photo
different level of information and background	instant access to databases (internet)
technological dis ability (limited channel capacity, restrictions in receiving specific information)	user friendly interfaces, computer assistance, mechanical wizards, artificial intelligence
different physical ability to work collaboratively (impaired vision, hearing, ...) [BMSoz-02]	vision and hearing aids, PDAs
lack of expressive ability and interfacing ability (audio, visual, haptic, ...) [McCardle-74]	simplified interfaces, iconic tools, prototypes, virtual and augmented reality
lack of mental understanding (educational differences, different domain knowledge)	prompting systems, instant data base access [Chroust-00e] [Banerji-95]
cultural differences [Hampden-00] [Chroust-00g]	human ability and social competens, no realistic technical support

Fig. 4: Gaps, Disparities and technological means

Between cooperation partners multiple disparities exist, resulting in gaps in the cooperation [Chroust-96u]. In Fig. 4 we present some of the major gaps hampering cooperation and indicate technological means to overcome them

4 Technology transfer and Acceptance

Technology has provided us with ever more sophisticated means to bridge the disparities described in section 3.3, see [Chen-96] [Chroust-00e] [Groenbaek-02] [Holsapple-02] [Lyytinen-02] [Poupyrev-01] [Selvin-03] [Zhang-99],[Briggs-03][Burgess-00] [Cassel-00] [Chawathe-97] [GroupSystems-03] [Ishii-92] [Nunamaker-88] [Nunamaker-91] [Regenbrecht-02].

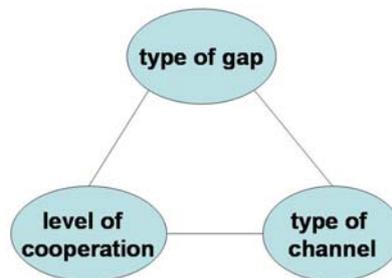


Fig. 5: Three dimension of the cooperation

The challenge is to structure a society in such a way that access to knowledge is welcomed, appreciated as support and not as a thread, and is providing sufficient support. This requires unobtrusiveness, non-disruptive access, and foremost trust in the integrity and freeness from manipulation of the available resources. This is the real challenge for social systems design, but it is largely a non-technical issue. Some initial considerations can be found in [Bill-97b] [Chroust-02d] [Enzenhofer-01] [Lewe-91b] [Petrovic-93]. Pillars for such a society are:

- trust in technology and technology providers
- reliability and usability of technology, including low cost of usage of technology
- synergy in (mostly technology mediated) cooperation
- a central position of Knowledge Repositories [Vertegaal-03]
- a well balanced mix between group collaboration (synergy and triggering creativity) and individual information collection (use of Knowledge Repository and individual 'heureka'-situations) mediated by high-technology means.

5 Summary

Augmenting the Agoras concept by including dislocated stake holders, by including incapable stake holders, by communicating with other related Agoras and by providing sufficient knowledge and expertise (Knowledge Repositories) to the individual Agoras promises a synergy between the demands for face-to-face meetings, the necessity to include all stake holders and to import considerable information, know-how and background into today's problem solving processes, especially in view of today's global and distributed challenges. Communication and the resulting information seems to be the key for this concept.

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Team 2: Designing Systems for Human Betterment

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Farah Lenser (D)



Christian Hofer, Farah Lenser, Arne Collen, Ernesto Grün

Team Report: Designing Systems for Human Betterment

1. Introduction

The report describes the team focus, call for participants, trigger questions reaped from a preliminary reading of individual input papers, and a synopsis of the conversation over the four days.

2. The Call to Conversation

Our team call for members for the 2004 Fuschl Conversation was distributed via email to the membership of prior conversations and potential new members. We had decided in 2002 to continue the focus that began in 1998: Designing systems for human betterment. Having discussed a range of topics on the theme in three conversations, we called for more attention to globalization in its relation to systems design, as it had come up as a sub-theme not well articulated in the previous team conversations. It seemed reasonable to pursue it for a main theme of this year, and we concurred it had growing appeal among the membership.

Our call consisted of the following statement: “The world promises to be a more holistic, interconnected, and interdependent global community of human beings. Whether we like it or not, we are entrusted from now on as the stewards of all life on the planet. Therefore, our concern for the design of systems of human betterment must be inclusive of the ecological, ethical, humane, and participatory dimensions in their broadest meanings. There are many encouraging as well as disturbing trends accompanying the globalization of humanity. This globalization seems inevitable. What does systems design mean in such a complex context? What does it mean to come to terms with a global community and a global ethics? How are we individually and collectively to cope and contribute to this inevitability? In what ways can we contribute to human betterment? What is betterment in this regard? Is globalization to be shaped by an ethics yet to be known and articulated? These were some of the trigger questions to prompt our team toward productive conversation to culminate our series of conversations on this theme. Our intention was to take up these and related questions, to answer them in terms of evidence we can provide in our experience and knowledge of systemic changes of everyday living relevant to globalizing trends. Our challenge was also to consider various designerly changes for betterment that may impact these trends.”

Our announcement brought several respondents together by email, from which five prospective participants responded with input papers that included the four authors who became our 2004 conversation team. Previous team reports (Collen *et al.*, 1998, 2000, 2002) were distributed by post to facilitate familiarity with our progress with the conversation theme prior to commencing our meeting, and they were utilized during our conversation over the four days.

3. Summary of Individual Input Papers and Trigger Questions

Our preliminary team members wrote individual input papers to help us consider a focus to begin our conversation. Arne Collen shared, via email in advance of our arrival, a brief commentary about the papers to prompt us to start our conversation.

Globalization was the central theme of Ernesto Grün’s paper. It served to contextualize the broader and more macro level background, in which we operate. Can we manage and sustain as humanity becomes a globalized society? Is this process for betterment? Nicholas Paritsis’s paper presented the conceptual and theoretical side of globalization, where Ernesto’s emphasis seemed more economic, legal, and political. Requisite variety and order underlie general process of evolution counterbalanced with devolution in the theme Nicholas described, and he used the term *anelixis* from the Greek language to capture the balance and interplay of two forces that relate well to the balance conveyed in Arne’s paper between betterment and detriment. Farah Lenser’s paper also brought an idea of balance in its focus on dialogue, in contrast to monologue. Human communication is a balance of talking and listening. The flows of content of our discourse imbue us with meaning that enable us to develop common meanings and shared understandings. The practical focus on the conduct of

dialogue found in Farah's paper and the practical focus on mundane situations and human actions found in Arne's paper counterbalance the theoretical constructs described in Nicholas's paper and intellectual discussion conveyed in Ernesto's paper. The set was rounded out by Christian Hofer's paper about the Internet in regard to human betterment. His paper proved important to anchoring the group in the practical, real, and technological base of everyday work life that has become very central in human pursuits of the better life.

From the set of team member input papers we generated several trigger questions: Does designing systems for human betterment have a requisite variety and order? What is the relation between dialogue and conversation? What can be done that brings effective balance of action and consequence for bettering? Is anelaxis also bettering? In what ways can dialogue work effectively to promote bettering? What is the relation between dialogue and anelaxis? What are the implications of anelaxis for bettering systems and the environment? What are the implications of dialogue for bettering systems and the environment? Does increasing variety and order mean a better life?

4. Our Conversation

4.1. Day 1

Having received the input papers of five out of seven prospective participants, we began with self-introductions of the four members of our team who were able to participate this year. Arne gave his recollections of what the group has accomplished in exploring its theme since its inception in 1998. Ernesto described his interest connecting his professional work in law with the group theme. He pointed to the ethical issue of designing systems for others. Farah conveyed her interest in dialog, group facilitation, and mediation with the group theme, particularly regarding the idea of bettering our world. Coming from computer science, economics and marketing, Christian expressed his interest in the Internet that is changing our lives in many ways relevant to our conversation theme.

After introducing ourselves, we began with noting how abstract the group work and reports have been, without any practical applications evidenced. For example, globalization is an abstract concept that only becomes real when we focus on one kind or aspect of it in everyday life. Globalization means omnipresence, such as the house sparrow. We noted examples like the diversity of peoples and shopping centers in every major city on earth. But as diversity (variety) increases the need to balance and manage the diversity by the imposition of more order also follows. Globalization is evidenced in the balance of variety and order. Replication (franchising) brings order to increasing variety prevalent at local levels. Farah noted the emigration of her ancestors to America. Christian noted the important comfort of being able to go to a place, such as Starbucks, in many places on earth and expect to buy the same cup of coffee and tea. But with the advantages of globalization also come disadvantages, for example, receiving unsolicited email, and browsing the Internet to get trapped in a web site. Another controversial area is the exportation of U.S. culture by means of global media distribution of movies and music to all countries.

We discussed positive and negative consequences of globalization. We have a choice in ways to participate that may better or worsen our world. Whose interest is being served? Is it better for one and worse for another? How can change be a win-win situation, for example when a large retail store comes into a small community full of small retail stores.

One outstanding example of globalization is certainly the Internet. It makes communication between peoples rapid. It makes immediately accessible a huge volume of information on any subject. Speed of communication of goods, services, ideas, and information has promoted the betterment side of globalization. Latency of response to any message that constitutes what we mean by communication, in contrast to only putting out information, has become shorter and shorter, and this we experience as bettering. At the same time, despite the benefits of shelter to control our exposure to the whims of daily weather conditions, we are spending more of our lives in artificial, in contrast to natural, settings, and this may be viewed as a worsening aspect of globalization. Also, more choices, for example television stations, appears as a betterment, but channel surfing, like the flash news reports, appear to be detriments, in that such surfing provides a superficial look and understanding of events. It seems we have more breadth with less depth. The pursuit concerns whether the balance is bettering. When we have few choices, we can get trapped in the limitations; when we have many choices, we get trapped in knowing which choice is the better one. What is the search strategy, selection criteria, and on what basis can one make a timely and effective choice? That is what is becoming bettering. Regarding the Internet, what information does one need to have to effectively know what one needs to

know? And once having it, can one do with it what one needs to do? The approach becomes more about the algorithm and search strategy to effectively get the information. For example, deleting spam via the content of subject lines is becoming a common strategy, in contrast to reading or printing all email after which the spam is deleted.

If everyone did something that would better the life of others, how better would the world be? But equally important is the complementary question that manifests the ethical issue. Does doing something to better the lives of others unintentionally lead to the detriment of others? For example, the cell phone has several advantages for its subscriber, but it is obtrusive and disruptive for many others subjected to the technology in many social contexts when a phone rings.

Toward end of the day, we recapitulated our conversation on globalization and betterment through more several examples. Farah discussed the work of Feldenkrais with brain-body movements and use of computer with dialogue to seek optimal solutions in the process of conflict resolution. She illustrated how earlier knowledge we have sets the stage for latter knowledge. Christian spoke about computer ambivalent interfaces that do not disturb everyone at work. Another example still is ongoing access to weather forecasts. Arne presented two examples of human relationships, in which one member of the couple becomes caretaker of the other, and various scenarios that could follow involving the balance between betterment and detriment of the couple. Ernesto discussed the example of hysterectomy in the treatment of women in Argentina. Farah added two examples, one about the law pertaining to whether women should wear a veil, and whether the benefits of drug administration outweigh the risks, such as administering drugs to children. Arne added three further examples, one pertaining to the law prohibiting removal of a pebble from a national park, another writing a book to share what one knows with the next generation, and finally another involving the volume of cell phones disturbing public places. One can think globally in regard to the consequences, but one can act locally not to participate especially in activities that contribute to the detrimental consequences.

We came to the point that it is critical to know the roles and social context of the relationship. As long as there is mutual bettering, the ethicality of the relationship is not a concern. But when a person is bettering to the detriment of the other person it is out of balance and exploitive. It is not determined necessarily by power, as many relationships are inequitable by definition, such as employer and employee, mother and child, and doctor and patient. There are many human predicaments without any given answer that represents betterment, but we have to know circumstances and context to consider its ethics and what we can do with it.

We finished our first day summarizing our process, theme, and trigger questions for reporting our progress to the large group. We started with the theme of influence of human globalization on human betterment. We remarked that the many examples and story telling were highlights but the words were abstract concepts to us largely without real world application. But what results can we anticipate? To what aim do we converse? On the general side, more focus on globalizing and bettering was suggested. On the specific side, we expressed an interest in specific applications we can take away with us from Fuschl to better the lives of others. Where the Greeks focused on what it means to live the good life, we may ask what it means to live the bettering life.

Our group summary to the large group entailed informing everyone that story telling was effective in conversing about our ongoing theme of human bettering. We devoted most of our time to many examples of trends toward globalization and whether these changes were for the betterment or detriment of human beings.

4.2. Day 2

We began with a discussion of the goals of participating in the Fuschl Conversations. We noted the individual takes back information to apply in the home setting. The small group has a conversation that is supposed to stand on its own. The small groups converse with the large group, and the small group may continue over sequential Fuschl Conversations to pursue its theme. The long-term goals of the conversation teams also involve producing group reports of each conversation and sometimes books.

We talked about designing the system for the future, defining the nature of design as an idea of a template that is a configuration of human beings and resources. When desired, designers decide to bring about the template for the future, to enable the present to become the future in terms of the template. We discussed the positive and negative side of social systems design through examples like the spread of democracy and the eugenics movement.

We contrasted conversation (con + verse) and dialogue (dia + logos). Although overlapping constructs, the former is rooted in living with, community and togetherness. The latter stresses the

back and forth communication through which some understanding emerges. Certainly they both can be typified as movement in communication toward an understanding. Conversation emphasizes knowing by means of the collective forms of communication, and dialogue is coming to know through the word. However, we noted caution in being clear when making reference to conversation and dialogue, because there are several forms, for example Platonic, Socratic, Hegelian, and Bohmian dialogue. Shared moments, in which the group can resonate with the meaning of what is being said and the shared sense of it, are at the heart of conversation and dialogue. It is a gestalt, a union, and an emergent reality. We viewed these forms of communication as kinds of bettering very central to social systems design.

At midday, we listed four choices of direction for continuing our conversation: 1) How great is the influence of globalization, especially in regard to technology? Use the examples from yesterday to go deeper into the relation of globalization and human betterment. 2) Go further into how one can use and practice dialogue and conversation for human betterment. 3) Consider further how one direction that is bettering for some may adversely impact on others, especially the ecology. 4) Explore more the ethical dilemma involving the presumption that we can design systems for others. Is designing in the service of bettering, is it OK, and is it ethical?

After articulating the similarity and difference between designing and planning in regard to human bettering, we noted that if everyone involved is free to impact on the design, the design and system that actualizes it can develop into a form that need not rigidly conform to the original design. Allowing such a process may overcome the ethical dilemma for those involved but does not address the dilemma for others, unless they can become part of the system and continue to modify the design to meet their needs and serve their interests. We discussed the open source group and Linux operating system as one such example. As long as one is free and able to modify and tailor the system for bettering one's life, participants are not forced to use a system designed for them without any opportunity to redesign it. We debated a bit the relevance of this dynamic in design to cooperation and competition, and symbiotic and parasitic relationships, as we imagined it applied to our example in software technology. Despite the potential of symbiosis, we questioned whether the users could be the benefactors.

During the afternoon we centered our conversation on the influences bringing about and apparent from globalization. We discussed globalizing influences that are bettering and worsening. For example, how does the government influence the Internet, and vice versa? The Internet enables more processes associated with democracy, such as voting, while at the same time, it allows more information pollution. The Internet is a globalizing force, but what is the evidence? It is evident from human activity on the Internet that humanity is globalizing. Communications are not limited to geography. It is putting more people in rapid communication with each other without censorship and filters that are present in other media. One example is buying books via Amazon.com from Austria. Another illustration is online banking, specifically, moving money from one account to another and paying bills without going to the bank. Thousands of web pages appear every day. We noted the ultimate evidence of globalizing is likely integration of cell phones, Internet, television, and other electronic media into one hand held electronic device. Everyone will eventually have one, and an electronic canopy for global communications shall envelop the earth.

We culminated the day formulating a synopsis to present to the large group that evening. We discussed more examples of betterment and detriment, involving credit cards, online banking, purchasing goods and services, third party access to personal information, and franchises. Two points were stressed about the current popularity of recapturing the personalized business relationship to ensure customer satisfaction and the importance of replication (franchising) to provide what appears better to more people. We considered the Internet as paradigmatic of what is happening with humanity in what we express by the term globalization. There are bettering and worsening influences on globalization, and we do not know how the story will come out exactly, even though we experience the world increasingly as one huge place. We would like to believe we can influence this process, but at the same time, given it is a macro level phenomenon, we usually feel it is beyond our control.

Our group presentation began with the use of story telling, that we have found very productive to our conversation process. We imagined the future as a world where every human being had a transplant and a number, where everyone can communicate with everyone else. Part of this imagined future was the earth in an electronic envelope that is accessible to everyone, for example by means of the Internet, but we would require none of the technologies currently in use, only our transplant, because all the technologies have been integrated into the transplant. It would seem that globalization of humanity is already moving toward this imagined future. Is this social systems design that is for human betterment? However, whether an influence is for betterment or detriment is often difficult to decide, because while some gain, others lose. Overall, we considered symbiotic relations (win-win) reflective

of bettering, and parasitic ones (win-lose, lose-lose) reflective of worsening. Whether a change is bettering or worsening may not be evident in the short run, but most often a mix of the two in the long run. Likely we must debate and influence globalization through our politics and practices. Given the ethical side of our nature, we must be free always to question the process. We must guide, in the sense of cybernetics, the process as much as possible, so that on the balance of it in the long run, the story favors bettering. We must remain vigilant to the consequences

4.3. Day 3

The major focus of our conversation regarding our group theme, designing systems for human betterment, to this point focused on the influences of globalization for human betterment. While a key guiding question from the Greeks, "What is the good life?" still has currency, we chose to pose that guiding question in a more contemporary language, based on our group theme, "What is the bettering life?" In such a life, it is necessary to always have choices, and its pursuit is for improving one and others while remaining vigilant to not worsening the lives of others, hence retaining an ethical stance in bettering. Furthermore, choices must be given unconditionally without worsening, for example, the persecution of others for making choices one may not have made oneself.

We discussed symbiotic relationships in society as forms of bettering in contrast to parasitic relationships, where the person (or institution) that is the host loses and the parasite moves from person (institution) to person (institution). The latter are clearly worsening type relationships. How do we know whether we do something good that is bettering the lives of others? It may be that bettering the lives of some people may worsen the lives of others. We may not know at the time. We critiqued the concept of bettering and considered whether optimal should replace bettering to describe what humanity might desire and attain. But who decides what is better or optimal? When we say the system decides, what does that mean? For example, take the Internet; does it reach an optimal by its very nature of activity by thousands of users? Perhaps there can be no one better way and the best way, that can represent all parties in the pursuit of a solution that is bettering, is the optimal solution. Any other than the optimal overly compromises some and to the benefit of others, hence this not a bettering for all parties but a parasitic kind of relationship. Carbon dioxide emission that pollutes the air in Europe was discussed as a salient example when we compare its effects across the countries of Europe. Another example concerned foreign aid from United States and European countries to many countries in Africa. In the name of bettering the economy and lessening the poverty, the donating country brings a factory, and then it brings other appliances to support it, and so on until what began as aid results in irreversible changes in the culture, social organization and ecology of that place. Despite the jobs created and associated economic transactions, the project becomes more about a colonial return to the donor on investment of what the factory produces. Graft and corruption by government insiders in the host country have worsened the situation. Such aid and its consequences illustrate a parasitic relationship and colonialism rather than a symbiotic one, because of the economic and ecological cost to the host country.

Our conversation moved to a more basic level in that having the resources to survive makes simple solutions to our topic of betterment difficult still for most of humanity, because the proliferation of humanity continues, as does plight and war. Millions cannot meet our basic needs to survive with food, water, shelter, and territory. Most human conflicts and problems are about access and use of basic resources. History shows us that we are not skilled at the distribution of resources on an equitable basis, in regard to the production, use, and distribution of natural resources that underlie human interest in bettering. Human bettering is defined in such terms, despite the political layers of interpretation we may put over what is basically at stake in any given geographically focused human predicament. We touched on one prime example, admitting and working with the conflict over the control of oil in Iraq, instead of the form of government (dictatorship) and nuclear proliferation.

Globalization is a concept without explanatory value. Its value is limited, in that it is a short hand term to convey the most general consequence of the proliferation of the volume of people all over the planet. One has to look at how globalization is organized and its influences to understand it. Also, given natural resources are there, the ways we work with them has great consequences. We discussed the example where indigenous groups respected and lived symbiotically with the buffalo, until the invading Europeans, who did not respect that relationship, killed the buffalo for sport. We jumped to terrorists today, in some sense like an invader, who does an unthinkable act that has horrific results for the people of that place.

We finished our work for the day with our draft of our team presentation to be given to the large group and later provide our group summary for *the IFSR Newsletter*. It summarized the major aspects of

bettering and influences on globalization that bear on our theme of designing systems for human betterment. Our essential question was: What is a bettering life, rather than what is a good life? What is essential for a better life was of great interest to us. What is essential to change that is bettering? The Internet was given as a prime example. The Internet was designed for military research then changed over time for use by the public. We used this activity as an example of symbiotic win-win type bettering. But maybe the concept of bettering is wrong, and it is better to use optimum in some circumstances. People need resources. Bettering means people have to have access to resources. Reasons for conflict usually boil down to access and non-access. Regardless, people have to respect access. Finally, we raised and included the ethical issue about whether we can design systems for human betterment with and without others who will be impacted by the system. It is always a concern that we impose the designing of systems and systems designed on others who had nothing to do with designing them.

4.4. Day 4

Our initial period of the day was spent on reflections, filling in some gaps for new members of the group, and what we have accomplished.

When the Fuschl Conversations began, there was much coverage by the groups on social systems design, designers and designing, and ideas about social systems, but there was little if any conversation about what this group has done since its inception in 1998, specifically, the ideas of betterment, ethics, and bettering.

So far, our highlights over these days involved increasing focus on applications, stories, and illustrations to examine influences on globalization in terms of bettering and worsening of the human condition. We mentioned further specific examples, namely Schweitzer taking his medical practice to Africa and the invention of Esperanto. We noted aspects that illustrated bettering and worsening. We finished the day being left with the following to ponder: Can we design a system we can apply to real life, outside a Fuschl Conversation? Can we leave Fuschl with guidelines, and apply (test) that system, that is live the bettering life, that is the more ethical life? Can we do that? Can we optimize bettering? What about other processes, concepts, that may contrast and be confused with bettering, namely harmony, harmonizing, standardization, optimization, and homogenization (e.g. entropic processes)? These questions provided some directions to continue our conversation.

We took up the concept and an example of harmonization. We defined it to be an exaggeration of commonness (resonance) among human beings. We stated it to be the dominance of commonness of voices, things, ideas, political views, et cetera. At one extreme, it is a resonance that can be beautiful, as in the case of a choir; it is often sought and appreciated, because it is experienced as a pleasure and aesthetic. At the other extreme, it can be repressive when it appears as suppression of the majority over the voices of minorities. We related such to aspects of human affairs, whether it is for bettering and worsening. One specific case is the judicial system. It is often the case where judges agree, but then there is a minority opinion, that once expressed, has some persuasive influence on what could otherwise have been an exaggerated commonness across judges. The minority view is also often helpful for continued reconsideration of the issue, because what the judges decided does not permanently settle the issue but reduces conflict for the time being and gives law enforcement the authority to insist on greater tolerance.

We discussed the observation that Fuschl conversation groups have different styles and variations of the process of conversation. Some groups seem to engage in dialogue only. Other groups become conflicted with personal agenda, differing viewpoints, competing directions, and issues of leadership. Some groups become essentially task driven to produce PowerPoint presentations of each day of content generated. We noted our process in this varied mix of possibilities and how we have converged in our work to share our ideas and row the same boat, so to speak, as we have traveled down the stream this time toward the end of the Fuschl experience. We compared various styles of conducting the teams to the original idea of the Fuschl Conversation. We noted the template to provide minimal structure without straight jacketing each team. How do you work with the group for bettering? How does each small group work with the large group for bettering?

Another observation was about the participants who come to Fuschl. They almost always come from Europe and North America. The members do not represent all locations on earth, even though we speak of interests and issues, such as bettering, globalization, and social systems design, as if we do. Even those who appear originally from an under-represented part of the world, for example South America, Asia, and Africa, have resided and worked in Europe or North America for so many years that it would be inaccurate to claim they represent the views and voices of their place of origin. But

something very radically is missing from Fuschl that appears connected with the original inspiration for initiating the Fuschl Conversations. Where is the impact of the Fuschl Conversations if only like-minded persons are invited? The participants typically come from insular, technologically advanced, and comfortable life areas of the world, when so many places of the world that are not represented go begging for human betterment. We proposed the possibility that the Fuschl Conversation be organized around delegations from a wide range of places on earth. What would it mean for the organization and conduct of the Fuschl Conversation to have many kinds of peoples comprise the conversation teams? We emphasized the other instances of this idea, an old idea, because it helps peoples of earth to learn about their commonness and common interests. It also enables us to discover, appreciate, and draw upon our differences for complementary collaborative teamwork to better the human condition.

Given the mix of heritage in culture and blood of peoples today, it is also important to secure the choice of each person to decide what part of their background he or she prefers to represent in the conversation. We raised the possible ethical concern about who comes and participates in conversation. Can one who chooses but has no heritage by culture and blood represent someone who they are not? Is this acceptable or dishonest? We noted that if the person decided in such a case without the permission of those who he or she wants to represent, there is an ethical issue, but if one comes with permission and choice by the people represented, then the ethical issue is not a concern. It must include mutual choice. Another possibly acceptable situation might be that it is understood it is for role-playing purposes only, but this is not really at the root of Fuschl. The participants should be living with and in the issues involved in the conversation.

We turned to our group goal and what we wanted to accomplish at this Fuschl Conversation. We discussed whether our common goal has been clear this time compared to previous years of the team. This time we have not spent much time structuring our work by making any visuals and a presentation. Members expressed mixed views on whether the conversation needs to be free flowing, structured, task-oriented, and goal-oriented.

We considered what to do in regard to our final verbal report to the large group. We focused on possibilities to use our time to interact and dialogue with the large group, to better the Fuschl Conversation in this way, rather than present a content oriented one-way presentation with charts, diagrams, and lists of concepts. For example, we could facilitate discussion among groups on their content, thus fostering inter-group dialogue. Alternatively, we could engage in a dialogue with the other groups organized to further our group theme.

At this point we discussed briefly a synopsis of our conversation and some logistical details for completing this team paper. Our major theme of this conversation was epitomized by the question: "Is globalizing bettering?" There are implications of designing, globalizing, and bettering. We have conceptualized and discussed them in terms of mutually influential processes. These are cybernetic relationships. Designing, for example, influences globalizing, and vice versa. Globalizing processes are bettering and worsening; it is the balance of the two as globalization proceeds that has concerned us. Our interests have been served through sharing examples and applications, primarily through telling stories.

We agreed to each write points about what we have done, accomplished, and experienced in this conversation, as we have understood it. We met the afternoon at an outdoor café on the shore of Lake Fuschl with a flip chart. We listed and discussed our goals and trigger questions. We culled, refined, and organized the material for our presentation to the large group. We finished our last team session acknowledging the absence of closure to conversation. Our group process felt open and vulnerable to the future. Our conversation was an unending process.

5. Team Summary and Conclusion

In the morning of the last day, our group took its turn to present to the large group. We reported that we continued our theme from past years with the goal of deepening our understanding of bettering, particularly the relation between designing systems and globalization. We made principal use of two overarching questions: What are the implications of globalization in designing systems? What are the implications of designing systems on globalization? Consideration of this dynamic repeatedly informed our conversation.

Over the ensuing sessions that comprised our team conversation, we covered a series of trigger questions that served to mark, like lily pads across a pond, the route we traversed in and about our group theme. The order of these trigger questions was as follows: What is a good life? What is a better life? Is it ethical to design systems for others? Is the concept of betterment correct? Is designing systems an ongoing process? What are the implications of globalization designing systems for human

betterment? What are the influences on and for globalization on human betterment? Is bettering always a symbiotic win-win relationship? Who decides who wins? How do we ensure a win-win situation? Does bettering mean being able to access vital resources? How can we design a bettering system for human communication? For whom does it matter that we meet here at Fuschl? How important is it to always have choices? Can we have more persons participant or must we work with representative participation in designing systems for human betterment as humanity continues to grow? How do we get everybody to participate through democratic and parliamentary processes?

We summarized the team highlights of our conversation in terms of the following points: There is a reciprocal cybernetic like loop or dynamic involving ways globalization impacts on us and we on it. This dynamic may be studied and understood in a myriad of forms from micro to macro levels. In designing systems for human betterment, it is vital to always have a choice. It is essential we give others a choice in what we design. Choice is key to resolving the ethical issue of designing systems for others. Representing others in the process of design for betterment must come with their consent. Participation for betterment is optional, as every application has betterment and detriment for someone. Local actions do impact to have global consequences, especially when local actions are reproducibly concurrent countless times. Macro level consequences are emergent phenomena from such local actions that may not immediately be apparent to us, but nevertheless we must attain comprehensibility of them, if we are to have the means to design systems for human betterment. Symbiotic relationships promote bettering. It is important to be sensitive to and conscience of consequence of one's actions for betterment, given the above points. Focus on vital resources involve an understanding of fundamental human interests. If any interests are bettered, essential vital resources we need to survive have to come first to minimize conflicts over resources. There are only questions; there are no answers.

Finally, each team member shared personal accomplishments, learning, surprises, and pearls of wisdom gained from the team conversation. Our team conversation concluded with our team presentation to the large group.

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Team 3: Foundations of Information Science: What comes after Enlightenment Rationality?

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Team Report: Towards a New Foundation of Information-, Cognitive- and Communication-Science

Introduction

The practical goal of formulating foundations of a general theory of information, cognitive and communicative processes in nature and society is that we hope to be able to contribute to the designing of a conscious evolutionary process (Banathy 1996) that integrates technological and human aspects in a process that leads to the emergence of a new form of humanity.

Designing a participatory and co-operative society is in need of such an integrative theoretical framework that we aim to build. For solving the global problems we need to integrate nature, society, consciousness, and technology in a co-operative way. For doing this we need to theoretically understand the connections between the different realms of existence (matter, life, consciousness, society). The general unified theory of information and self-organization that we want to work out might accomplish this.

1. Formulation of the Problem

We want to construct a general theory that conceptualizes reality as the field containing meaningful human social interactions as well as technology and nature. It is a unifying framework that is not naturalistic, culturalistic or dualistic but praxeological as it views reality through human social and semiotic practice.

We need a **non-reductionistic, multidimensional and complex** approach in order to explain the complexity of human practice as Edgar Morin points out.

2. Basic Foundations of a General Theory of Reality

We view the basic aspects of human social semiotic practice as **cognitive, Communicative, and co-operative problem-solving processes** oriented towards:

1. Survival and procreation
2. Social position/power
3. Finding a meaningful life.

We see human social practice relating to **4 basic aspects of reality**:

1. **Nature**,
2. **Life** ,
3. **Consciousness**,
4. **Meaning**.

We have made a visual model of the basic ontological prerequisites we find as a minimum necessary to create a transdisciplinary framework for co-operation between the natural and social sciences as well as humanities and technological science such as computer science and informatics, in figure 1.

Our praxeological understanding of reality fits with approaches of scientists like Luhmann, Wittgenstein, American pragmatism (Peirce), Marx, Mead and Wittgenstein:

These scientists focus on practice from different views:

- Luhmann: communicative practice from a systemic and autopoietic view (Luhmann 1995)
- Marx: social production, problem-solving from a materialistic view (Marx 1844, 1867)
- Mead: symbolic interaction from a social constructivist view (Mead 1967)
- Peirce: semiotic practice from a pragmatic, triadic semiotic and evolutionary view (Peirce 1931-58)

- Wittgenstein: language games and life forms (Wittgenstein 1958)

Error! Objects cannot be created from editing field codes.

Fig. 1: The epistemological dimensions of a general framework for approaching FIS that takes departure from human practice

We want to propose a **unifying, non-reductionistic theory** of information, cognition, communication and human embodied knowledge production as rationalistic reductionism as for instance seen in the information processing paradigm of cognitive science can't deal with the complexity of the information society and the problem of meaning and interpretation as well as of establishing a global culture. A theory of human practice (praxeology) has three dimensions agreed upon in most philosophical approaches:

1. epistemology
2. ontology
3. axiology

The disagreement concerns the relationship of the three dimensions:

1. Independent Relationship
2. Interdependent Relationship: Hierarchic relationship or Networked relationship

We agree on the interdependent character of the three dimensions of reality and a combination of hierarchical and networked relationship.

3. The Evolution of Systems

A complex praxeology needs a complex and dynamic ontology as we do not believe in the possibility and productivity of reducing reality to simple mathematical or rationalistic scheme or structures. We think we have to combine structural and processual approaches to avoid reduction to either pure structure or pure process as both need each other in causal explanations.

One way of doing this is an evolutionary systems stage model. Such a systems concept has been developed from Bertalanffy's General Systems Theory (GST, Bertalanffy 1968). Such an evolutionary systems stage model conceptualises the interaction between structure and process as the emergence of metasystems that result in the dominance of supersystems (Hofkirchner 2001).

A metasystem is a higher-order system that has emergent qualities that distinguish the metasystem from lower-order systems. Each system consists of subsystems and is itself subsystem of a supersystem. Metasystems refer to the diachronic aspect of evolution, supersystems to the synchronous aspect of evolution.

Evolutionary systems theories are not explanations of the creation of the world, but of its development and differentiation. The theory we want to work out is non-reductionistic and as such non-deterministic. An important aspect of explanation is that there is a temporal sequence of levels and systems. An explanation is not a deterministic time-causal explanation, but a search for the necessary preconditions of the present stage of the present world system we call a supersystem.

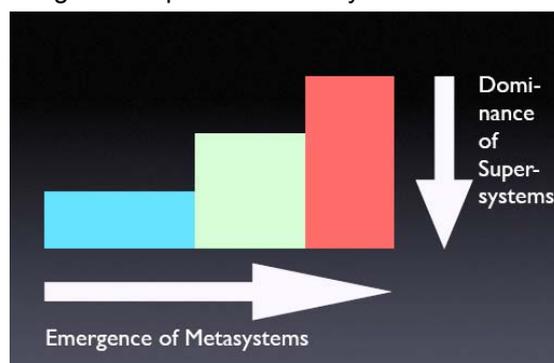


Fig. 2: The emergence of metasystems and supersystems

in systemic evolution. Time is going from left to right.
Complexity is going growing going up.

The concept of the metasystem transition allows us to reconcile GST, Peircian evolutionary semiotics, dialectical thinking, and systems thinking based on Spencer-Brown's logic of form (Heinz von Foerster 1984, Maturana and Varela 1980, 1986; Luhmann 1995).

Metasystem transitions: Firstness, Secondness and Thirdness

In a metasystem transition we have 1. an Individual phase, 2. an interactional phase, and 3. an integrational phase (Hofkitchner 2002). The individual phase corresponds to C.S. Peirce's concepts of the basic categories of Firstness (potentialities, proto-elements), the interactional phase to Secondness (dualistic processes and relations manifested through constraints and forces), and the integrational phase to Thirdness (triadic systemic regularities and patterns). In visual figures it can be viewed like this:

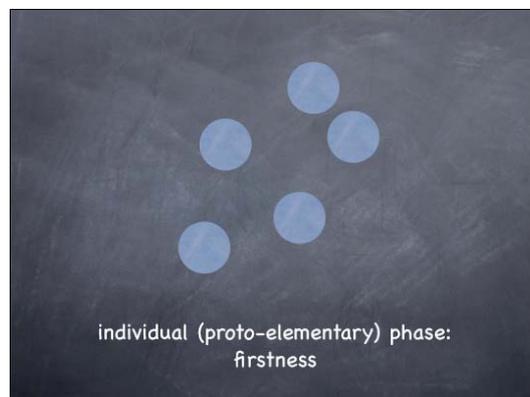


Fig. 3.: The first phase in metasystem transition starting with individual qualities or pro-elements in Firstness.

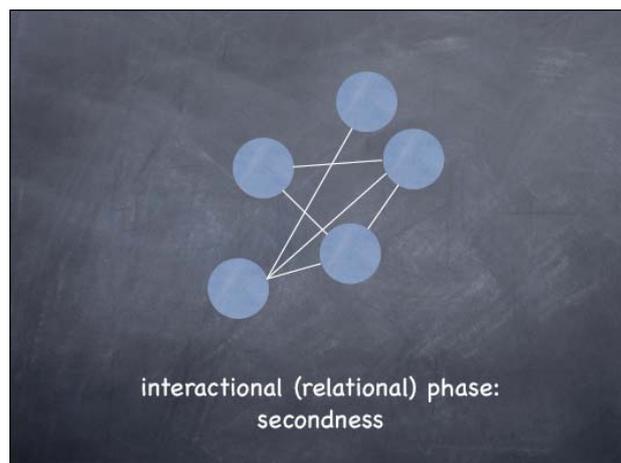


Fig.4: The interactional, relational phase of Secondness.

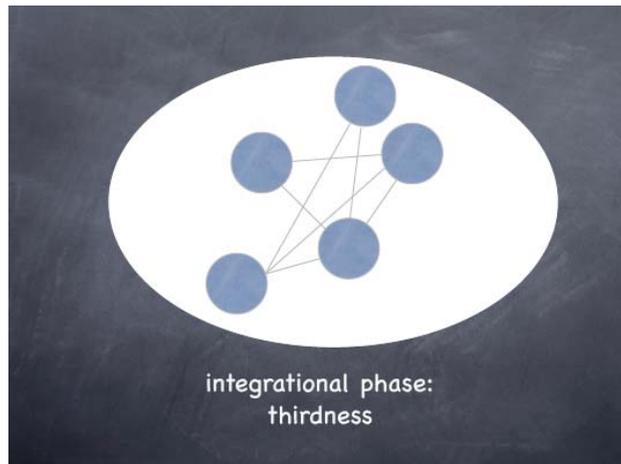


Fig. 5: The third phases of metasystem transition is the integrational phase of Thirdness.

This model of the metasystem transition also corresponds to Hegel's three phases of dialectical development (Fuchs 2003a, b): 1. thing-in-itself (identity), 2. being-for-another (negation), 3. being-in-and-for-itself (negation of the negation, higher-order identity). We are aware that there are some conceptual discrepancies between these approaches and some differences in the metaphysical frameworks, but we think that the similarities are so big that it will be more fruitful to should focus on the common aspects and thereby get the semiotic aspect of signification, interpretation and meaning integrated in the systemic and dialectical approaches.

We can make a further semiotic understanding of the metasystem transition: Firstness is a proto-element that has a potentiality to manifest into something such as a structure in the world. Secondness appears when two proto-elements make a dual relationship to each other (that can be of mental, material or social character). At this general level of theory it is not necessary to reduce the connection to any specific character. When the relation is specified and made more regular and stabilized, we enter the level of Thirdness. We can relate it to Peirce's triadic semiotics and dynamic semiotic web in the following way. See figure 6.

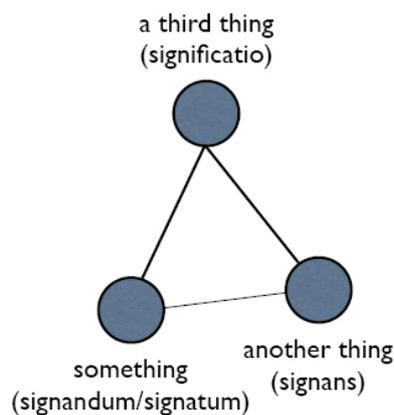


Fig. 6: A semiotic understanding of the metasystem transition where signandum is Peirce's representamen, signans is Peirce's object and significato is Peirce's Interpretant.

From a semiotic point of view here an interpretant emerges that connects the representamen with the object. From this triadic relation the sign emerges. From a systemic point of view it can be emphasized that the triadic sign emerges as a new quality of reality which is both structure and process. Semiosis means that there is an ongoing recursive relationship between the three elements that stabilizes itself in the form of a new systemic level through a kind of self-organization of meaning. We consider this triadic process and structure to constitute the most elementary system out of which all other systems are built in different kinds of emergent networks.

4. The Concept of Process-Substance

The most fundamental question of philosophy concerns the foundation and essence of all being. With a combined foundation of 2nd order cybernetics and systems thinking, semiotics, and dialectical thinking we believe one-sided concepts of reality can be avoided.

What we can say about basic reality is that it is a dynamical continuous field of vague spontaneous proto-elements that are in an ongoing recursive flux or process that can manifest into systems. Reality is a field of unmanifest protoelementary recursive processes. The foundation of reality is its process-structure, the concept of process-substance (Ernst Bloch, Bloch 1975, cf. also Fuchs 2003a) shows that the foundation of the world is its permanent dynamical change. This corresponds to saying that reality permanently organizes itself, it is a *causa sui* (Spinoza), it is its own reason, the essence of reality is that the only thing that doesn't change is that reality exists through permanent change, but as Peirce points out with a tendency to take habits.

Reality is characterised by hypercomplexity, i.e. it has an inbuilt dynamical and vague field complexity that is beyond measurement (like the Planck-scale limits, see e.g. Nielsen 1991 and 92), a chaotic Firstness as Peirce calls it, and there are no single centres of reality.

Multiple descriptions of reality will compete against each other, complete each other, and describe the other system from their own viewpoint. Thus we take a critical perspectivist and realistic view as the basis for a praxiological social construction of meaning in communication.

It is also important to underscore the evolutionary dimension that self-organizing systems are pro-active, anticipatory and become still more communication-depending (Luhmann 1995) more and more as we approach the social sphere. Self-organizing systems cannot not communicate (Watzlawick/Beavin/Jackson 1967)

5. Unity in Diversity

Realizing that there are no points of observation outside of society and the world, we want to make a transdisciplinary framework for unifying the polycentric dimensions of reality and explanations (cf. Lars Qvortrup's book "The Hypercomplex Society", Qvortrup 2003, 1993). In spite of the hypercomplex polycentrism of reality as seen from within the world and within society and language, we do believe that there is some kind of cohesion of unity in diversity in the world such as Peirce's 'tendency to take habits and produce signification and meaning.

Although we believe in deep explanations of reality, in evolution and causality, we want to avoid the paradox of explaining first causes by using our dynamic triadic categories as minimum statements..

6. The four Aristotelian Causes

We believe in effective and final causes working at the same time when a system self-organizes and that the recursive process of self-organization is the basic process of evolution.

Self-organization is at the same time driven by effective and final causes, but not in a traditional mechanistic or religious sense. We believe there is a continuous field connecting effective, formal and final causes. In Peirce's theory this is called **Synechism**.

Synechism means that there can be punctuations, symmetry breaks, emergence of new qualities, but no unbridgeable gaps in evolution. (We don't consider this to be opposed to quantum physics, but there is a dialectic between continuity and discontinuity.)

The continuum represents the diachronic movement. When we talk about synchronous aspects in systems development they are as we described above. For the diachronic aspect we use Aristotle's two other causes, the material and the formative cause. The material cause can be ascribed to the bottom-up-forces (micro-level) and the formative cause to the top-down-forces (macro-level, downward causation) in the emergent evolution of systems. The top-down force is the formative force that the supersystem imposes upon the underlying system.

None of the four causes is able to fully determine the fate and the form of the system in its self-organizing development. They all co-operate and can at different times have different strengths of influence.

The rise of subjectivity Aristotelian forces in self-organizing systems

In the course of evolution there will be a shift of influence from the efficient and material causes to the final and formative causes as we move from natural systems to living and social systems. Let us demonstrate our thought in some visual models.

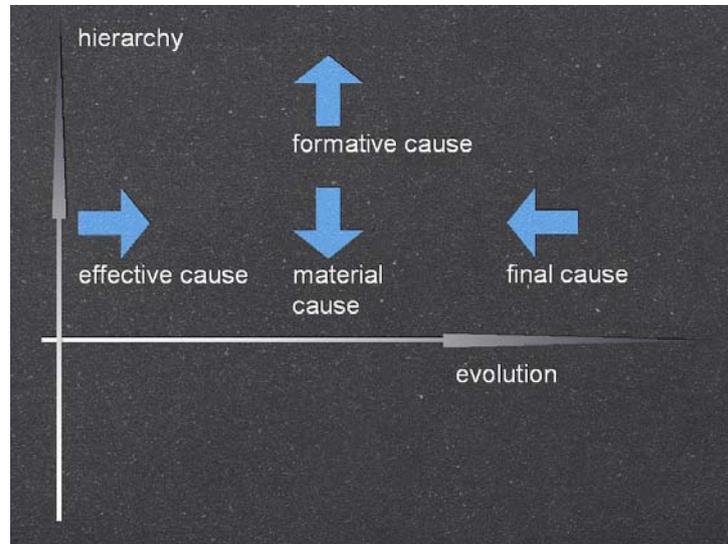


Fig. 7: show the four Aristotelian courses and there influences in the course of evolution.

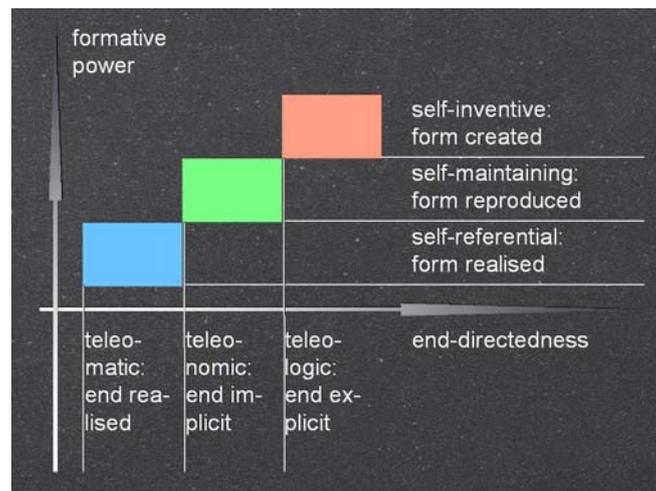


Fig. 8: Aristotelian Causes and an evolutionary hierarchy of Self-Organizing Systems

This theory is compatible with Peirce's view of evolution. He works with three different kinds of evolution, where the teleological aspect gets developed more and more:

1. **Thycistic** (free or random variation).
2. **Anachastic** (dynamic dyadic interactions, a more mechanical necessity like Darwin's natural selection) and
3. **Agapistic** (combining the free variation with the dyadic interactions trough habit formation by the mediating ability of Thirdness).

Peirce's concept of **evolutionary love** is what we reformulate in a modern form as evolution by self-organization .His concepts of chaos as spontaneity, the continuum field theory (Synecism) and its habit-taking is the tendency of systems to self-organize through recursive processes and create new emergent phenomena.

Agapism corresponds to a synthesis of chance and necessity that can be called relative chance or **less-than-strict-determinism** or the self-organization drive in nature, which leads to habit-taking or new emergent phenomenon.

Thus the theory is using modern terms for what Peirce called Thycism, Synecism and Agapism.

7. Foundations for cognition, communication, and co-operation: Structural couplings

As shown above then self-organizing systems are born proactive and semiotic, which makes them semiotic cognitive, communicative, and co-operative. Mechanical systems like for instance machines are produced from the self-organizing systems. Some natural systems have an evolutionary course that take them into near-mechanical states, such as rocks and fluids. Thus as Prigogine and Stengers (1984) show, then the mechanical systems are a special and limited form of systems that are not crucial to the understanding of emergent evolution of self-organizing systems. But dissipative systems with their self-organizing ability are. Self-organization needs energy flow and dissipation of entropy to build up order, information and semiosis.

But to make an evolutionary theory that encompasses the rise of the inner world of living systems with central nervous systems and the social co-ordinations coming through cognition and communication, we need a broader framework than the one based on matter, energy and objective information. This is why we also use Peirce, as his theory of Firstness has pure feeling and the tendency to form habit and thereby the ability through Thirdness to make interpretative semiotic relations that self-organize and develop through evolution.

Interpretation is an organization of the relation between perturbation (noise) and the system's embodied, pro-action and anticipative functions organizing an aspect of the environment in a meaningful way for the system's survival.

We claim that self-organizing systems are sign-producing systems at least when they become living systems. These self-organizing co-operative processes are semiotic and communicative processes as described by modern biosemiotics (Brier, Hoffmeyer, Emmeche).

Self-organizing systems are **operationally closed** (Luhmann 1995). To have a systematic relation to its environment, an operationally closed system has to establish a structural coupling which is a systematic change in the system's organization with the purpose of conserving the system's organization in the drift of evolution and history. A **structural coupling** is a connection of two systems that takes place in such a way that one system perturbs changes in the structure of the other system, but doesn't determine these structural changes. This is done in such a way that pre-structured responses to the specific irritation and perturbation are created in the system and are thus making it proactive and anticipatory.

The structural coupling is what makes signification possible. The structural coupling is a simple and crude representation of selected aspects of the environment and its influence on the self-organizing system's organization. Structural couplings are made between self-organizing systems especially of the same type. We thus see the ability to make structural couplings as a prerequisite for the production of semiotic interpretants.

In the semiotic process (semiosis) we first find an unspecific or undetermined irritation of the self-organizing system. The structural coupling acts as a medium that allows the system to create an interpretant of the irritation that it is perturbed by. Thereby the system produces a meaningful representation of the environment. The meaningful representation of the environment is in Peirce's semiotic terms the interpretant.

Systemically viewed this is an emergent phenomenon that structures the field of perception and cognition in a type of **downward causation** between the supersystem and the system. Thus a meaningful representation of the environment is created within the system and projected to the outside world producing a **signification sphere** (Brier 2001).

This is done by seeing the irritation as a representamen for outside objects. Hence the irritation becomes a sign of phenomena in an outside world that cause structural changes within the system and the emergence of new qualities such as understanding. In Luhmann's terms the system reduces the complexity of the environment through this strategy of meaningful interpretation. **The ability to make structural couplings is a prerequisite for cognition and therefore also for communication**

(Brier 1995). This theoretical frame fits very well with Peirce's concept that cognition of non-intentional signs is **signification**.

Foundation of communication

Foundations of communication are: the ability to make structural couplings, the structural coupling of two systems, that each system can make a (however crude) model of the other system, and that each system has a certain degree of freedom that allows the active production of emergent qualities.

Communication is a mutual retrospective structural coupling of cognitive systems, system A produces a representamen of its environment with the help of system B and B produces a representamen of its environment with the help of A, communication is a common production process of representamens and interpretants. Such production processes are autopoietic.

Computers (such as in a network like the Internet) don't communicate with each other and human beings don't communicate with computers because computers don't have the ability to make structural couplings and representations of human beings, they are mechanistic passive systems without the pro-activity necessary for communication (Nöth 2002).

At the level of human communication the question concerning the relationship between the encoded meaning and the decoded meaning is important. There are theories that stress the genetic aspect of communication like Jean Baudrillard (1983), who says that we live in a world full of signs where the attribution of meaning is a casual process. But Luhmann (1995) stresses that communication is contingent, uncertain and unlikely. Peirce defines a symbol as a sign where the relation between the representamen and the object is established through a cultural habit that has become fixed through contingent historical processes.

For Luhmann this contingency is the background for the emergence of **symbolic generalized media** such as love, power, money, truth that speed up communication by reducing social complexity and simplifying communication by making use of fixed binary codes (paid/unpaid, true/false, majority/minority). Each such medium relates to exactly one binary code. On the other hand there are theories like Critical Theory that focus on the reproduction of the communication process and of meaning in society. They stress that socially attributed meanings are transmitted in cultural processes. The synthesis of both approaches can be found in theories like Cultural Studies (Stuart Hall, Raymond Williams, Richard Hoggart, John Fiske, etc., for a more detailed discussion of cultural studies and the self-organization of culture see the paper of Christian Fuchs in this book, Fuchs 2005).

Stuart Hall (1999) has pointed out that a certain degree of determinism in the form of hegemonic meaning as well as a certain degree of indeterminism in the form of negotiated meaning and oppositional meaning is present in the cultural reception process. Dominant meaning means that "there exists a pattern of 'preferred readings'; and these both have the institutional/political/ideological order imprinted in them and have themselves become institutionalised" (Hall 1999: 513).

Negotiated meaning is decoding that "contains a mixture of adaptive and oppositional elements" (ibid.: 516), oppositional meaning means "to decode the message in a globally contrary way, [...] within some alternative framework of reference" (ibid.: 517). The main achievement of Hall is that he has shown that there is no necessary correspondence between encoding and decoding. Different interpretations exist in parallel and even in opposition and antagonism to each other.

Meaning is not imposed, but is multidimensionally produced in contested social struggles, hence signification is not only a consumption process, but itself an active production process. Linking semiotics to society and culture shows that power has both a social and a semiotic dimension, signification both empowers and constrains people. There are forms of semiotic power in society (Fiske 1987). The struggle of alternative or opposing meanings in the cultural realm of modern society is a double movement. It is dialectics of containment and resistance (Hall 1981), homogenization and difference (Fiske 1987).

All of these theories contribute to the comprehension of communication as a self-organizing process where senders and receivers have to be seen as self-organizing living systems which produce their own sense that can't be reduced to a mechanical exchange of information.

Foundations of co-operation as practise

At the level of co-operation there is a praxis that connects to Firstness and its qualities. This comes close to what Habermas calls **life world** (Lebenswelt) (Habermas 1984). We view praxis as including

the phenomenological existence of human feeling, experience, self-consciousness. Our understanding of practice also includes social phenomena such as production and communication. Co-operation is the production of livelihood in the human life world (Fuchs 2003c, Hofkirchner 2002). The communicative exchange of representaments is a prerequisite of co-operation. Human co-operation means that human beings find common understandings and meanings of certain aspects of the social world. These shared meanings are then objectified and represented in the form of objects of the social world that are part of the shared social environment of the human subjects involved in the co-operation process (ibid.).

We don't confine co-operation processes to the human realm. In a general sense understood as interactions between self-organizing systems producing emergent qualities in a shared environment, it is a basic process in all self-organizing systems. In this sense also bacteria or cells co-operate.

Since all self-organizing systems establish closure even the simplest ones establishes an individuality, and since they are proactive in preserving their own organisation they develop a functional interest in survival in nature, in society and in meaning. They have what Spinoza calls *conatus* (a kind of vital force) they emerge as interpretation positions in reality that not only interpret the environment but also the behaviour of the other self-organizing systems and ultimately some kind of existential meaning.

We see first person experience and qualia as arising in the living systems as emergent phenomena as the biological structure and organisations become still more refined and specialized in the nervous system and finally brains. Peirce's pure feeling or the basic awareness is thus manifested or reflected more and more in the evolution of still more complex living systems that at the same time develop proactive interpretants and therefore also personal and social/cultural meaning. With human co-operation and self-awareness through language the field of personal and cultural existential meaning, ethics and aesthetics develops.

8. Arts as a Transdisciplinary Medium

The arts could function as a transdisciplinary mediator in science and society. Artworks are a social product that reflects the social relationships of a certain period of society. But the arts ever since the emergence of modern society has developed a special position as a relatively autonomous system, one can't deduce the dominant forms and contents of arts from the relations of production and power of a social formation. This is what Adorno has called the non-identity of arts (Adorno 1970). The aesthetical dimension of arts goes beyond the facticity of society (that which is), it can anticipate possible futures of a beautiful, fair, and just society.

Aesthetical forms go beyond the alienation of modern society and anticipate a happy and beautiful society. The arts can strengthen the creativity and imagination of human beings that are necessary for designing our systems in a co-operative and participatory manner. Art is a generalized medium that has the ability to reflect human endeavours and picture the latter in different ways. Although arts are primarily an aesthetical medium, it always carries a more or less explicit ethical dimension. So the aesthetics of arts can have an ethical dimension.

Contemporary art forms a mix of different styles and forms of human knowledge. The arts are the border where all spheres of human knowledge meet and it functions like a mediator between them, integrating their different codes. The arts do to have ability to build the meta-language of culture uniting all its forms. It may serve as a medium of unification of science and other forms of culture in the process of designing the future by integrating technological, ethical, aesthetical, political, economic, and ecological aspects of social systems, especially by reflecting the human existential and meaningful existence. An aspect that we have already systematically incorporated in our present approach is to show that the cognitive process also depends on the interpretative activity of the subject.

In this sense we could say that the art can implement a particular mission by formatting new ideas of the world and contributes to destroying old stereotypes because any art fulfils a common task: an artistic incarnation of the objective laws of life. Arts are an expression of the fact that in all forms of human knowledge the tendency of an overall picture of the world arises. And much more than that, the arts are able to collect the worldly knowledge of the different human cultures because in the art the possibility of the existence of many different points of views, values and opinions simultaneously is given. This creates a new level of reality that enables a dimension of freedom (Лотман 1992) that can display alternatives in a world that has problems of producing alternatives within its well-disciplined symbolically generalized media.

9. Conclusion

By unifying aspects of semiosis, cognition, communication, and co-operation in systems thinking we have attempted to create a transdisciplinary framework for understanding the information processes in the knowledge society in a way that unites the social, mental, biological, chemical and physical dimensions of reality.

We have been able to formulate a common framework with common primitives for thinking about the past, present, and future of society, nature, and technology. The design of technology must be oriented on human beings and human values.

General theories are necessary because they show that the self-organizing characteristics of nature, life, meaning and society are the foundation of existence.

Technology is part of our existence, but doesn't and can't form a foundation that controls reality. If technology dominates existence, it would tend to violate the laws of self-organization that are at the core of the evolution of nature and society (Nöth, 2001, 2002). It must be integrated into our personal, social and ecological reality in a meaningful and humane way so that it enhances our existence (Hofkirchner/Fuchs 2003 ...).

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Christian Fuchs*: Self-Organization of the Cultural Subsystem of Modern Society

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1. Introduction: A Typology of Cultural Theories

For me the main results of the very fruitful, participatory, and self-organizing conversations of the Foundations of Information Science (FIS) group at the 12th Fuschl Conversations (April 18th-April 23rd, 2004; participants: Søren Brier, Anthoneta Doncheva, Christian Fuchs, Wolfgang Hofkirchner, Gottfried Stockinger) include the following ideas:

- In order to solve the global problems mankind and society are facing today we need to create a co-operative participatory society. In order to do so a praxiological understanding of basic processes such as communication and co-operation is necessary.
- The essence of all reality is that it changes and self-organizes itself permanently, hence it is a dynamic, complex process.
- Systems develop based on metasystem transitions where new qualities emerge.
- Metasystem transitions have an individual phase, an interactional phase, and an integrational phase.
- These three phases correspond to Peirce's concepts of Firstness, Secondness, and Thirdness and to Hegel's three phases of dialectical development: 1. thing-in-itself (identity), 2. being-for-another (negation), 3. being-in-and-for-itself (negation of the negation, higher-order identity).
- As a result of permanent triadic development processes (in nature and society) the triadic sign emerges as a new quality of reality, which is both structure and process.
- Self-organizing systems are proactive and semiotic, which makes them cognitive, communicative, and co-operative. These are semiotic processes.
- Communication is based on a reciprocal structural coupling of cognitive systems: system A produces a representamen of B' behaviour with the help of system B and B produces a representamen of A's behaviour with the help of A. Thus communication is a common production process of representamens and interpretants.
- Human co-operation means that human beings find common understandings and meanings of certain aspects of the social world. These shared meanings are then objectified and represented in the form of objects of the social world that are part of the shared social environment of the human subjects involved in the co-operation process.

Based on these ideas I want to discuss the essence of human culture as a signification sphere of society and want to show how the ideas developed by the FIS group at the Fuschl Conversations 2004 that deal with threefold dialectical processes, threefold semiotic processes, and self-organizing processes of cognition, communication, and co-operation can be applied to the cultural realm of society. The main questions that I treat in this paper are: What is culture? What is the role of culture in modern society? How can culture be conceived as a dynamic system? I try to give one legitimate answer by considering culture as a self-organizing system. Traditionally culture has very frequently

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been conceived based on a series of dualisms between subject/object, actors/structures, system/environment, production/consumption, continuity/discontinuity, base/superstructure, nature/culture, high culture/popular culture.

My approach is based on trying to show that these categories are not separated form of beings, but that they interact and produce each other mutually. Hence philosophically the underlying logic employed is dialectic, this dialectical reasoning is embedded into a theory of social self-organization. My position can be characterized as a dialectical Cultural Materialism, it is both dynamic and realistic. The main influences on this work are British Cultural Studies, especially thinkers like Raymond Williams and Stuart Hall, and Pierre Bourdieu's social theory.

In section 1 I first deal with the relationship of subject and object in cultural theory and discuss different approaches on culture and provide a typology of cultural theory that identifies subjectivistic (1.1.), objectivistic (1.2.), dualistic (1.3), and dialectical (1.4.) approaches. The question of how actors and structures are related in culture will be of specific importance in section 1. Then I will try to show that culture is not just subjective knowledge, but a knowledge system where subjective knowledge is linked to specific forms of objectified knowledge in dialectical production processes (section 2). Then I will try to explain the cultural process of the production of meaningful sign systems in society (section 3), the focus will be on the relationship between cultural production and consumption. Section 4 deals with the question whether cultural evolution is a continuous or a discontinuous process, it tries to show that the concept of self-organization allows us to conceive cultural development based on a dialectic of continuity and discontinuity. In section 5 I discuss the relationship of base and superstructure in modern culture and suggest that symbolic struggle between different life-styles, the class and capital structure (understood in a very broad non-economistic sense), and ideology shape the development process of modern culture. Section 6 discusses the relationship of nature and culture.

Chris Jenks (1993) has identified four meanings of the concept of culture. Culture as

1. general state of mind
2. state of intellectual and/or moral development in society
3. collective body of arts and intellectual work
4. a social category that describes the whole way of life of a people

The first two meanings are more subjective ones, relating to the ideas (1) and values (2) of human subjects. The third and the fourth meanings are more objective ones in the sense that they describe realities outside of the individual, i.e. cultural products (3) and the totality of meaningful experiences and practices of a social group (4). Cultural products and way of life can be seen as objectified cultural forms: cultural products are an externalization of subjective human ideas; social practices in processes of communication and co-operation relate the subjective knowledge of individuals, each individual is both subject as well as object of knowledge.

Raymond Williams (1983) indicates three distinctive usages of the term:

1. Culture as a general process of intellectual, spiritual and aesthetic development
2. Culture as a particular way of life of a people, a period, a group, or humanity
3. Culture as the works and practices of intellectual and especially artistic activity. "This seems often now the most widespread use: culture is music, literature, painting and sculpture, theatre and film" (Williams 1983: 90).

Usage (1) is a subjective one, usages (2) and (3) are objective ones.

I want to discuss subjectivistic, objectivistic, and dualistic approaches on culture in order to show how my own concept differs from these ones and tries to bridge the gaps between them (cf. the typology of different concepts of culture in tab. 1). Subjective theories conceive culture as opinion, ideas, beliefs, a state of mind of human beings, objective theories consider it as symbolic content stored in objects of the human being's environment or as collective ideas and world-views and a totality of collective meaningful practices in society, dualistic theories consider it as having independent subjective and objective forms. The decisive criterion for the typology in tab. 1 is the relationship between subject and object that can be conceived as reductionistic, holistic, dualistic, or dialectical.

Type of Approach	Culture conceived as...
Subjectivistic (individualistic) approaches	cognitively constructed domain in the form of opinions, ideas, beliefs, a state of mind <i>(culture as cognitive attribute)</i>

Objectivistic approaches	material symbolic artefact (cultural products, cultural works) or meaningful social structure that exists outside of human subjects <i>(culture as symbolic material thing or as collective meaningful values, world-views, and practices)</i>
Dualistic approaches	two independently existing forms: 1. a cognitively constructed domain, 2. a material symbolic artefact or dominant collective value-systems and practices <i>(culture as two independent subjective and objective domains)</i>
Dialectical approaches	a meaningful process of cognition, communication, and co-operation that has both subjective and objective aspects <i>(culture as process and reflective relationship)</i>

Tab. 1: Typology of approaches on knowledge research

I now want to discuss each of these approaches in more detail.

1.1. Cultural Subjectivism

I want to give some examples of such an approach that considers culture as cognitive, subjective state of mind.

"A society's culture consists of whatever it is one has to know or believe in order to operate in a manner acceptable to its members, and to do so in any role that they accept for any one of themselves. Culture, being what people have to learn as distinct from biological heritage, must consist of the end product of learning: knowledge, in a most general, if relative, sense of the term. [...] Culture is not a material phenomenon; it does not consist of things, people, behavior, or emotions. It is rather an organization of these things. It is the form of things that people have in mind, their models for perceiving, relating, and otherwise interpreting them" (Goodenough 1962: 36).

"A distinctly human capacity for adapting to circumstances and transmitting this coping skill and knowledge to subsequent generations" (Harris/Moran 1979)

For Richard Johnson culture is "the subjective side of social relations", it involves the "historical forms of consciousness or subjectivity, or the subjective forms we live by" (Johnson 1996: 80).

For Kroeber and Kluckhohn culture is "transmitted patterns of values, ideas and other symbolic systems that shape behaviour. [...] Culture consists of patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, and on the other as conditioning elements of further action" (Kroeber/Kluckhohn 1952). "By culture we mean all those historically created designs for living, explicit and implicit, rational, irrational, and nonrational, which exist at any given time as potential guides for the behavior of men." (Kluckhohn/Kelly 1945).

Talcott Parsons: "Cultural objects are symbolic elements of the cultural tradition, ideas or beliefs, expressive symbols or value patterns [...] treated as situational objects by ego" (Parsons 1951). For Parsons culture is a subsystem of action systems that has the function of "latent pattern maintenance", it stabilizes norms and values. "Culture [...] consists in those patterns relative to behavior and the products of human action which may be inherited, that is, passed on from generation to generation independently of the biological genes" (Parsons 1949: 8).

Max Weber: "The concept of culture is a value-concept. Empirical reality becomes 'culture' to us because and insofar as we relate it to value ideas. It includes those segments and only those segments of reality which have become significant to us because of this value-relevance. Only a small portion of existing concrete reality is colored by our value-conditioned interest and it alone is significant to us. It is significant because it reveals relationships which are important to us due to their connection with our values" (Weber 1949: 76)

1.2. Cultural Objektivism

Objectivistic cultural theories understand culture either as artefactual cultural works or as collective norms/rules/ideas/knowledge/behaviour of social groups.

First two examples for the first objectivistic usage of the notion of culture:

For Norbert Elias culture means mental, artistic, religious facts (1939: 90), the value and character of certain human products such as artworks, books, religious and philosophical systems that are an expression of the character of a people opposed to the character of other peoples (ibid.: 91). Contrary to the concept of culture, the notion of civilization would not mean products, but human manners and forms of behaviour. Civilization would be a process, culture a product or result of such processes.

For Lawrence Grossberg culture means texts and discourses that "that are produced within, inserted into, and operate in the everyday life of human beings and social formations, so as to reproduce, struggle against, and perhaps transform the existing structures of power" (Grossberg 1996: 180).

Now some examples for the collective dimension of objectivism. Note that the difference between these notions and subjectivistic notions is that the former speak of a collective dimension, whereas the latter of an individual dimension of culture. Collective means that values, norms, knowledge and rules are constituted and reproduced in social processes, they are shared by or imposed on a social group.

For Karl Mannheim culture has to do with "spiritual formations" (Geistesgebilde)/"intellectual formations" (Denkgebilde) (Mannheim 1982). Culture would be an expression of identical patterns of experience of social groups (70ff). A cultural community (Kulturgemeinschaft) would be a group of people with common experiences and consciousness, it would be an experiential community (203f) that has collective representations (Kollektivvorstellungen) (208ff).

Van Maanen/Schein (1979) consider culture as "values, beliefs and expectations that members come to share".

"A culture is a configuration of learned behaviors and results of behavior whose component elements are shared and transmitted by the members of a particular society" (Linton 1945: 32).

"Culture is the shared knowledge and schemes created by a set of people for perceiving, interpreting, expressing, and responding to the social realities around them" (Lederach 1995: 9).

"The collective programming of the mind which distinguishes the members of one human group from another" (Hofstede 1984: 51).

"Most social scientists today view culture as consisting primarily of the symbolic, ideational, and intangible aspects of human societies. The essence of a culture is not its artifacts, tools, or other tangible cultural elements but how the members of the group interpret, use, and perceive them. It is the values, symbols, interpretations, and perspectives that distinguish one people from another in modernized societies; it is not material objects and other tangible aspects of human societies. People within a culture usually interpret the meaning of symbols, artifacts, and behaviors in the same or in similar ways" (Banks/McGee Banks 1989).

One of the most famous definitions of culture has been given by Edward Burnett Tylor who sees it as the patterns of feeling and thought of social groups: "Culture [...] taken in its wide ethnographic sense is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society" (Tylor 1871: 1).

Marvin Harris stresses that culture is not an individual, but a social phenomenon. "Culture refers to the learned, socially acquired traditions of thought and behavior found in human societies. [...] When anthropologists speak of a human culture, they usually mean the total, socially acquired lifestyle of a

group of people, including their patterned, repetitive ways of thinking, feeling, and acting” (Harris 1997: 88).

Becker/Geer (1980) define culture as a “set of common understandings expressed in language”.

"Culture: learned and shared human patterns or models for living; day- to-day living patterns. these patterns and models pervade all aspects of human social interaction. Culture is mankind's primary adaptive mechanism" (Damen 1987: 367).

“Culture means the whole complex of traditional behavior which has been developed by the human race and is successively learned by each generation. A culture is less precise. It can mean the forms of traditional behavior which are characteristics of a given society, or of a group of societies, or of a certain race, or of a certain area, or of a certain period of time“ (Mead 1937: 17).

“Culture is like the sum of special knowledge that accumulates in any large united family and is the common property of all its members“ (Aldous Huxley, quoted from: <http://www.wsu.edu:8001/vcwsu/commons/topics/culture/quotations-on-culture/quotations-on-culture.html>)

1.3. Cultural Dualism

The most important dualistic concept of culture is the world model of Karl Popper. He argues that there is knowledge in the subjective sense consisting of dispositions and expectations, but that there is also objective knowledge consisting of linguistically formulated expectations submitted to critical discussion (Popper 1981: 66). Popper says in rationalist tradition that most of our knowledge and dispositions are inborn and inherited. Subjective knowledge would be possessed by some knowing human subject, it would be a state of mind or of consciousness or a disposition to behave or react. Objective knowledge would consist in the logical content of theories, conjectures, guesses (ibid.: 73). “Knowledge in this objective sense is totally independent of anybody’s claim to know; it is also independent of anybody’s belief, or disposition to assent; or to assert, or to act. Knowledge in the objective sense is knowledge without a known: it is knowledge without a knowing subject” (ibid.: 109). Objective knowledge would also exist if it is not recognised by the human being, “a book remains a book [...] even if it is never read” (ibid.: 115). Examples for objective knowledge would be theories published in books and journals and stored in libraries. Popper called the world of subjective knowledge world 2 and the world of objective knowledge world 3. World 3 would contain theories, arguments, conjectures, journals, books, problems, and problem situations, world 3 ist the world of culture. It would have an independent existence, although a human creation, it would create its own domain of autonomy (ibid.: 118).

Popper distinguished three worlds of existence: “first, the world of physical objects or of physical states; secondly the world of states of consciousness, or of mental states [...] and thirdly, the world of *objective contents of thought*, especially of scientific and poetic thoughts and of works of art” (ibid.: 106). Hence culture is for Popper world 3, the world of objective knowledge, it contains products of the human mind that continue to exist independently of their originators. It has been created by human beings, but is independent of their existence. “The third is the world of intelligibles, or of *ideas in the objective sense*; it is the world of possible objects of thought: the world of theories in themselves, and their logical relations; of arguments in themselves; and of problem situations in themselves” (ibid.: 154).

Popper talks about both subjective and objective aspects of knowledge, but for him these two domains are independent. World 3 is created by world 2, but exists independently of it. He misconceives the relationship of subject and object as dualistic, and doesn’t take into account that the knowledge of human individuals and social structures is mutually connected and produces each other. Popper constructs a dualism between human actors and objective structures. The objectification of human activity for Popper are only things that make up world 3, books, artworks, videos, computers, papers, etc., he doesn’t see that also collective organizations (like enterprises, parties, universities, etc.) are an objectification of subjective human knowledge and activity.

1.4. Dialectical Concepts of Culture

Objectivism reduces culture and/or meaning to the side of the objects as such (as commodities, things, etc.). "The text-as-produced is a different object from the text-as-read. The problem with Adorno's analysis and perhaps with productivist approaches in general is not only that they infer the text-as-read from the text-as-produced, but that also, in doing this, they ignore the elements of production in other moments, concentrating 'creativity' in producer or critic" (Johnson 1996: 93). Subjectivism reduces culture to the individual and to cognition, it conceives culture solely as ideas and subjective meanings. It leaves out both aspects of production and social relationships.

Dialectical concepts of culture stress that the latter has both subjective and objective aspects that interact. Culture is considered as a dynamic process relationship that establishes common meanings that signify certain objects. My view here is one that is close to British Cultural Studies (especially to the theories of Raymond Williams and Stuart Hall). I try to combine a sociological dialectical materialistic perspective with a semiotic one.

Stuart Hall (1996) stresses that British Cultural studies has been influenced by two paradigms: structuralism and culturalism. The strength of the first would be the "stress on determinate conditions, [...] the fact that, in capitalist relations, men and women are placed and positioned in relations which constitute them as agents" (Hall 1996: 42f). The strength of the latter would be the stress on "conscious struggle and organization" (ibid.: 45). Hall notes that Cultural Studies should take the best elements from both paradigms, I suggest that such an interconnection can best be made by dialectical reasoning, i.e. the notion of mutual production of cultural practices and cultural structures.

For Raymond Williams culture doesn't mean the best ideas in a social formation in the sense of "high culture", for him culture means the production of common meanings, it is ordinary. One of Williams' achievements is that he has challenged idealistic and elitist theories of culture that see culture as "the best which has been thought in the world" (Arnold 1957: 6)⁴, the use of the "language, the changing idiom, upon which fine living depends" (Leavis 1930: 5), and mass culture as "a parasitic, a cancerous growth in High Culture" (Macdonald 1957: 23), and that try to argue that dominant groups are more intelligent and gifted than others and hence attempt to ideologically secure domination. They hence e.g. suggest "to save culture by restoring the old class lines, [...] to revive the cultural elite" (Macdonald 1957: 33). Such conservative views see the mass of human beings as passive, dumb, inactive beings that are not able to make good decisions, and hence they call for authority and are totalitarian in nature. Against such conservative, elitist, heteronomous definitions it is important to hold that culture is a meaning-producing social process that can be found in all social relationships. In the 1920ies many such conservative thinkers have suggested that charismatic leadership figures are needed in order to save society from the dangers of modern technology and mass culture. At least in Germany they have helped to intellectually pave the way towards fascism. E.g. Oswald Spengler who considered culture as an organism that like nature follows a life pattern of spring, summer, autumn, and winter (Spengler 1918/1922) considered modern technology as causing a destruction of Western white culture, due to technology humans would become slaves of machinery (Spengler 1931: 75), coloured people would use technology for trying to destroy the white race (ibid.: 82f), technology would destroy the authority of leadership figures, the "coloured world revolution" would be the greatest danger for white Western culture (Spengler 1933: 146), colored people would wage a "race war" against the West (ibid.: 147). Spengler's theory is racist, idealistic, and deterministic.

By seeing culture as related to descriptions that make sense, Williams stresses subjective aspects, but by referring to culture as the whole way of life he also stresses the social ("objective") aspects. "We use the word culture in these two senses: to mean a whole way of life – the common meanings; to mean the arts and learning – the special processes of discovery and creative effort. [...] Culture is ordinary, in every society and in every mind" (Williams 2001: 11).

For Williams culture is the totality of relationships between social practices (whole way of life) and the meanings that these relationships produce and express in e.g. art, learning, institutions, and ordinary behaviour. The objective dimension here is present in the form of social relationships, the subjective one in the form of conscious experiences. Together these two dimensions are termed by Williams "structures of feelings" which he defines as "a particular quality of social experience and relationship, historically distinct from other particular qualities, which give the sense of a generation or a period. [...] We are talking [...] about characteristic elements of impulse, restraint, and tone; specifically affective elements of consciousness" (Williams 1977: 131f). The structure of feeling would be the culture of a

⁴ Arnold argued that the popular culture of the working class causes anarchy in society and that hence authority and repression is needed in order to secure high culture.

period, “it is the particular living result of all the elements in the general organization” (Williams 1961: 48). This concept is an attempt of trying to think together lived experience and social structures.

Semiotic concepts of culture are close to a dialectical view of culture because they consider culture as establishing a relationship between the real and the symbolic (a relationship between object and meaning in bivalent semiology, and a relationship between object, symbol, and meaning in trivalent semiotics). E.g.: For Clifford Geertz (1973) culture is a “web of significance” (5), an “interworked system of construable signs” (ibid.: 14), a “symbolic system” (ibid.: 17), the “accumulated totality” of “organized systems of significant symbols” (ibid.: 46). If human behaviour were seen as symbolic action, the question if culture is subjective or objective would lose sense. For Richard Münch culture is a system that enables the assignment of meaning to social action (Münch 1991: 49). It is a “system of meaning” (ibid.). This meaning would be realized in communication processes. Such understandings of culture consider it as a relationship, but are based on the rather idealistic shortcoming that they consider as cultural only the symbolic realm, not the relationship between the real and the symbolic.

Culture is a social process that produces common meanings that signify certain entities in a self-organizing system, this process is based on a mutual productive relationship between the subjective culture of a human being (his ideas, norms, values, beliefs) and objective cultural structures (meaningful cultural artefacts with symbolic content, and collective norms, ideas, values, rules, traditions, world-views (Weltanschauung) ethics, morals). Human beings enter social relationships where they produce and reproduce social structures that enable and constrain further practices. This is the process of social self-organization or re-creation (Fuchs 2002, 2003a-d, 2004a, Fuchs/Hofkirchner/Klauninger 2002, Fuchs/Schlemm 2004). Practices of human actors produce social structures that produce further practices that enable the production of further social structures and relationships. This idea of social self-organization is related to Anthony Giddens’ idea that the “structural properties of social systems are both the medium and the outcome of the practices that constitute those systems” (Giddens 1979: 69) and Pierre Bourdieu’s idea that the habitus is a property “for which and through which there is a social world” (Bourdieu 1990: 140). A dialectical notion of social self-organization that opposes the dualism of Niklas Luhmann’s works can be based on the works of Giddens and Bourdieu (Fuchs 2003c, d) rather than on the functionalistic social theory that has traditionally shaped social systems theory. Cultural self-organization means the processes of self-organization that take place in the cultural subsystem of society. It is based on human actors, their interactions, and the structures that are produced. In cultural self-organization human actors based on their subjective ideas, norms, values, beliefs in social relationships produce collective meaningful artefactual and social structures that enable and constrain human thinking and actors and hence produce further social practices that produce further collective cultural structures (cf. fig. 1).

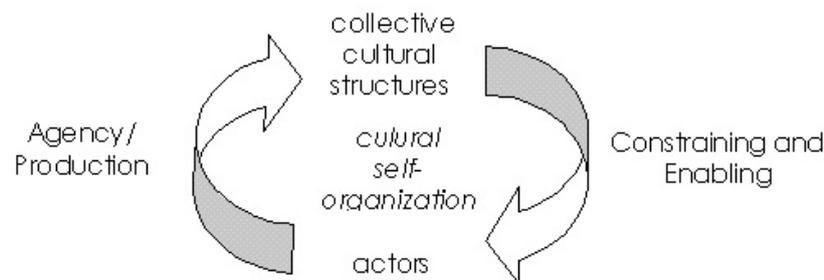


Fig. 1: Cultural Self-Organization/Re-Creation

To describe culture as a dynamic, self-organizing systems means that we assume that there is the permanent emergence of new cultural structures in social systems. The notion of emergence as the appearance of new qualities in a system that can't be reduced to the underlying elements, but stem from the creative synergetical interactions of these elements, is one of the central concepts of theories of self-organization. For the area of subjective cognitive cultural structures (knowledge) this is obvious. Concerning collective cultural structures we can say that new cultural artefacts emerge relatively frequently. This is especially true in the information or media society where the cultural industries have a strategic economic and social role. Certainly also meanings are permanently attached to entities in social processes permanently. This means at least that collective meanings are permanently reconstituted, but not that they permanently change fundamentally. There is indeed a certain continuity of collective norms, values, rules, traditions, ethics, morals that is being permanently reproduced in order to contribute to and enable the overall self-reproduction of society and social systems. Meanings interact, are related, and can form higher order symbolic systems, symbolic systems are frequently emerging and imerging.

The notion of cultural self-organization helps us to conceive culture as complex dynamic system and to see that in every society common meanings are permanently established and recreated, these meanings are objectified in dominant norms, values, traditions, as well as in rules, institutions, artefacts. Cultural meanings are “made by living, made and remade, in ways we cannot know in advance” (Williams 2001: 15).

Raymond Williams has as early as 1973 in his paper “Base and Superstructure” – one of the foundational texts of Cultural Materialism – coined the term “emergent meaning” and “emergent culture”. “By ‘emergent’ I mean, first, that new meanings and values, new practices, new significances and experiences are continually being created” (Williams 2001: 170f). Emergent meaning is the permanent discontinuity and novelty through which culture can reproduce and organize itself. Williams notes that dominant culture is alert “to anything that can be seen as emergent” (ibid.: 171). Williams didn’t connect this notion of cultural emergence to the sciences of complexity which were just about to emerge full-scale in the 1970ies, but he intuitively anticipated the idea that self-organization in the sense of the self-reproduction of a system requires the permanent constitution of new qualities of a system.

The cultural subsystem of modern society that produces collective meaningful structures that represent world-views, rules, norms, values is itself organized in the way of a number of subsystems such as the mass media (cf. Fuchs/Hofkirchner 2003, Fuchs 2003f, 2004b), science (cf. Fuchs 2004c), art, education, and systems of physical recreation like sports and medicine.

The mass media form an autopoietic or self-organising system that is organized around the permanent production of topical news about the state of the world, it produces views on the world. Mass media are organized around certain technological media (printing press, radio technology, television, computer etc.) that are embedded into social institutions (for more details cf. Fuchs/Hofkirchner 2003, Fuchs 2003f, 2004b). Hence the term mass media doesn’t simply denote certain technologies, but social relationships that make use of technological media in order to organize themselves and to reach certain goals. The mass media are closely structurally coupled with the economic, political and technological subsystems of society, they can achieve their goals only by making use of technological, economic, political and cultural media. Institutions of the mass media frequently (especially within deregulated social and institutional settings) also pursue economic interests and make use of technological media in order to achieve these aims, i.e. they sell knowledge and news as commodities. The commodification of symbolic forms aims at capital accumulation both in a direct and an indirect way. In a direct way information commodities are sold on the market, the indirect way is constituted by the sale of advertising space (advertisement in television, banner-commercials in the Internet). We should employ the term *mass media* because technologies are used in order to reach a large number of people. Audience ratings are an important economic aspect of the mass media. A central characteristic of the existing organization of the mass media is that the main contents are controlled and produced by a relatively small number of people and groups, whereas the number of recipients is much larger.

As I have tried to show elsewhere (Fuchs 2004c) that scientific systems are self-organizing units that perform the production of theories and truths by the way of a productive, circular causal duality of scientific actors and scientific structures. Science is a dynamic system where research practices produce and reproduce structures that produce and reproduce research practices. Scientific structures are medium and outcome of scientific actions. At the action level one can find a systemic hierarchy that is made up of individual researchers, research groups, scientific communities, and the overall scientific community. Scientific structures include theories, research institutions, technologies, journals, publications, science funds; norms, values, and rules of scientific conduct. The main scientific practices can be categorized as genuinely scientific practices (innovation, dissemination, scientific interchange, funding-related activities, teaching), cultural practices (public discourse), political practices (science policy), and economic practices (action related to scientific knowledge as commodities, patents, science-industry-partnerships, sponsorship).

Art is the system of human creativity that produces artworks as aesthetic forms that are organized around the binary code beautiful/ugly. Art is related to fundamental human abilities like creativity, phantasy, and imagination, it reflects world-views of a specific social period and its binary code is a value system.

Education is a system that confronts people with knowledge and enables and constrains them to produce certain world-views. The product of education is qualification, skillfull knowledge needed to solve certain problems.

Whereas systems like the mass media, education, and art recreate the human mind, recreational systems like sports and medicine have the function of recreating the human body. This shows that the

cultural system aims at the recreation of body and mind of the human being. In its self-organization it not only recreates the human being, but it also produces collective world-view patterns and meaningful products and structures that influence the way people live, act, and think. In this respect culture is a whole way of life affecting social relationships as well as the human body and mind.

Culture has to do with mental production processes and social objectifications of mind. Hence it is obvious that culture has to do with knowledge. I will now take a closer look at this relationship.

2. Culture and Knowledge

All self-organizing systems are information-producing systems, all self-organizing social systems are knowledge-producing systems (Fuchs/Hofkirchner 2004). Knowledge is neither a thing nor a cognitive entity, it is a dynamic social process, a active productive relationship between knowledgeable human beings (ibid.). It is the manifestation of information in social systems that involves the interpretation, evaluation, and usage of data and can be found in various subsystems of society. Knowledge is a threefold process of cognition, communication, and co-operation (ibid.). It has both subjective and objective dimensions. Subjective knowledge are processes of cognition, objective knowledge are objectified forms of knowledge that are constituted in social processes of communication and co-operation (ibid.). Both levels (the subjective and the objective one) interact and produce each other mutually. Knowledge is a process of constructive reflection: Certain stimuli in society trigger social changes in a social system, an event causes creative interaction processes in the system that result in emergent novelty, hence one can say that the fluctuation is reflected within the structure of the system in a complex, nonlinear way.

Some cultural theories argue that culture is the totality of knowledge patterns of a social group (see e.g. the definition by Huxley in section 1.2.). If this is assumed, one must also assume that either all social systems are cultural in nature or that non-cultural systems are not based on knowledge. The first option means a too broad usage of the term culture that erases the difference between culture and society, the second option ignores that all social practices and structures are based on knowledge processes. Subjective ideas and their objectifications are a foundation of all social processes. Economic and political structures and practices are just like cultural ones based on knowledge. Hence culture should not be described as the only knowledge system in society, but as a specific knowledge system.

All human labour is based on a dialectical interconnection of mind and body. Hence all labour is both mental labour and manual labour. But nonetheless a distinction between mental labour and manual labour and the products of such different labour processes can be made: the first is mainly based on cognition, reflection, logical operations, etc., the second on the human production of physical energy. All goods, traditional machines as well as the computer as a new machine are an objectification of human knowledge, their technological structure is based on human knowledge. Traditional machines such as the assembly line have manual labour and raw materials as their input, in a transformation process they produce goods that are an objectification of manual labour as an output. These are traditional industrial products. The input of a computer is mental labour that is transformed by binary operations, as an output cultural products that are an objectification of mental labour are produced. Writing a book or an article is a mental production process, the book is a cultural product, an objectification of cognitive ideas, reproducing the book with the help of a printing press is an industrial process that helps to multiply the cultural product. Cultural products are objectifications of subjective knowledge that are the result of mental labour processes. They include goods like books, videos, films, music, artworks, software, etc.

Social structures are totalities of durable and institutionalized behaviour. They store and fix knowledge and hence they simplify actions and communications because the foundations of these processes don't have to be produced permanently, they can be achieved by making use of structures. Hence by storing knowledge, social structures reduce social complexity. Structures are carriers of knowledge, they are the foundation of temporal and spatial extension of social systems. Social structures make possible a continuity of social reproduction across space and time, they result in the temporal and spatial distancing of social relationships without the loss of continuity. Structures also produce specific forms of contiguity and hence they dissolve distances by reembedding social relationships that are disembedded in space-time. Social structures are a foundation of action and communication, they enable a certain degree of mobility, they mediate, organise, and co-ordinate social relationships and communications. Social structures as social storage mechanisms are objective/objectified social knowledge. Such structures can be found in ecology (natural resources), technology (machines), economy (property), polity (power), and culture (collective ideas, world-views,

rules, etc.). Hence we can speak of objective ecological, technological, economical, political, and cultural knowledge as types of objective social knowledge (Fuchs/Hofkirchner 2004) that are produced in self-organizing social processes that relate subjective knowledge by communication and co-operation.

Cultural structures are the manifestations of objective social knowledge in the cultural subsystem of society. Collective norms, values, rules, world-views, traditions, morals, and ethics as well as cultural products store knowledge about the social world and reduce the complexity of the social world. Hence they are just like all other social structures a capacity for action, they enable social practices. Objective cultural structures are meaningful objectifications of subjective knowledge that are produced by mental labour. The difference between cultural structures (collective norms, values, rules, world-views, traditions, morals, and ethics as well as cultural products such as books, software, theories, artworks, etc.) and other social realities is that the first are a direct objectification of creative mental processes. Non-cultural social realities (like in the economic or political realm of society) are not directly cultural realities, they acquire only a cultural character when they enter processes of social signification, i.e. when they are related to the realm of world-views, norms, values, morals, ideology, and ethics.

That cultural structures are social storage mechanisms has been noted by thinkers like Karl Mannheim and Niklas Luhmann. A cultural work is the “result of the communal experiential contexture stored up in it” (Mannheim 1982: 89). For Kluckhohn (1949) culture is among other things a “storehouse of pooled learning”. For Robert Artigiani values, ethics, morals (VEMs) are social information. For Niklas Luhmann culture is the “social memory” of society (1998: 586ff). Culture would be the appropriation of the past for determining possibilities for the future, it would condition forestall considerations of how to change accustomed behaviour and would be a sorting mechanism for forgetting and remembering in society (ibid.). Culture would reflect and observe self-descriptions of society (880). I object to Luhmann’s arguments that culture is not *the* social memory of society, but one of several social storage mechanisms in society.

Cultural knowledge is a threefold process of cognition, communication, and co-operation.

When a social system organizes itself, it starts from the cognitive knowledge (i.e. mental states) of the involved actors. By communication these actors co-ordinate their subjective knowledge and mutually enhance their knowledge. This communication can result in co-operative processes, i.e. in a co-ordination of activities that results in emergent qualities of the social systems. These emergent results are produced by synergies that arise from the interaction of the agents and the co-ordination of their subjective knowledge, emergent qualities of a social system are an objectification of the knowledge of the involved actors and of the co-operative dimension that arises from their communication. There can be no social self-organization and no social system without subjective knowledge because all social activity is based on active, knowledgeable human actors. That’s why purely objective concepts of knowledge are insufficient. And there can be no social self-organization and no social system without objective knowledge because artefacts and social structures that store knowledge about the system are a foundation of all organizations. That’s why purely subjective concepts of knowledge are insufficient. An integrated notion of social self-organization is based on both subjective and objective aspects of knowledge, it is based on a dialectic of subjectivity and objectivity. Subjective knowledge results in and is based on objective knowledge, objective knowledge results in and is based on subjective knowledge.

When two human systems interact (see fig. 2), they enter an objective relationship, i.e. a (mutual) causal relationship is established. A portion of subjective, systemic knowledge (“*cognition*”) is communicated from system A to system B (and vice versa, “*communication*”). The cognitive structural patterns that are stored in neural networks within the brains of individual human agents can be termed subjective knowledge. Human actors are knowledgeable beings. Communicating knowledge from one system to another causes structural changes in the receiving system. If there is a knowledge relationship between the two systems, it is determined that there will be causal interactions and structural effects. The structure of the systems (structural, subjective knowledge) changes, but we don’t know to which extent this will actually be the case, which new subjective knowledge will emerge, how knowledge structures will be changed etc. There are degrees of autonomy and freedom (=chance). If structural changes in system B take place and are initiated by system A, this means an objectification of subjective knowledge of A in B from the point of view of A. From the point of view of B it means subjectification of objective knowledge from its environment. In a communication process, this also takes place the other way round. As a result of communication it cannot only be the case that an objectification of knowledge in some of the involved systems takes place, it can also be the case that due to the synergies between the systems new qualities (knowledge) emerge in their shared environment (“*co-operation*”). Structural, subjective knowledge of the involved systems is co-ordinated, synergies arise and hence something new is produced commonly in a self-organization process. The

new structure or system that arises is an objectification of (parts of the) subjective knowledge of the involved systems. Knowledge in self-organizing social systems has cognitive (subjective), communicative (new subjective knowledge (=cognitive structures) emerges in systems due to interaction) and co-operative aspects (interaction results in synergies that cause the emergence of new, objectified knowledge in the shared environment of the involved systems).

This threefold process takes place in all subsystems of society. In cultural processes and the cultural subsystem, communication and co-operation primarily reflect mental labour, worldviews, norms, and values. The produced objectifications are cultural structures in the sense that they are meaningful objectifications of mental labour and reflect individual and social worldviews. The production of collective cultural structures is based on cognitive knowledge structures that are externalized and objectified in social processes of communication and co-operation. These collective structures that are the manifestation of objective social knowledge in the cultural realm and hence can be termed objective cultural information in turn influence subjective cognitive processes, i.e. the world-views of individual human beings. This is a dialectical process of the externalization of the internal and the internalization of the external. Hence cultural self-organization can on the informational level be described as a mutual productive relationship of subjective knowledge and objective cultural knowledge (fig. 3).

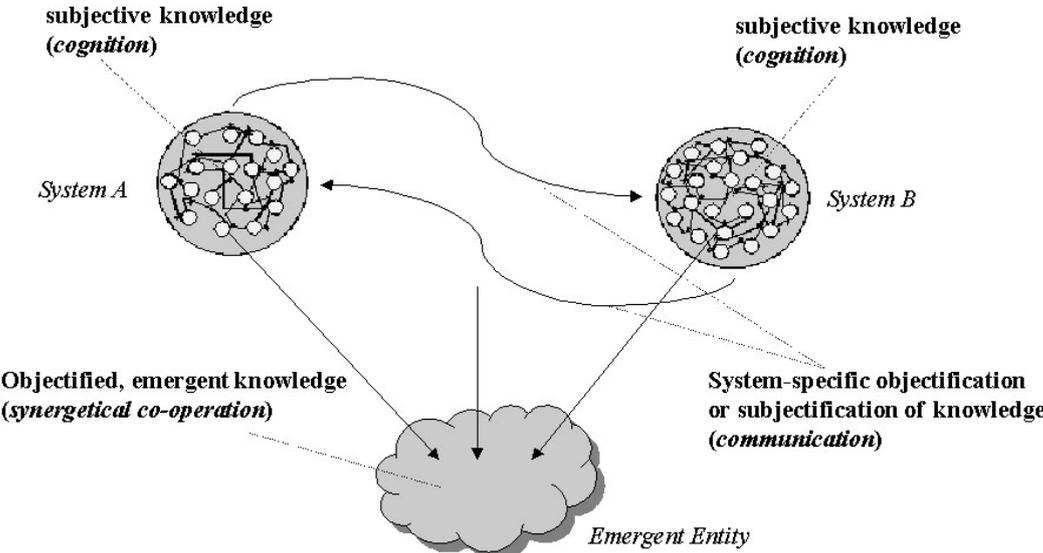


Fig. 2: A model of knowledge as a threefold process of cognition, communication, and co-operation in social systems



Fig. 3: The informational level of the re-creation of culture.

Besides knowledge also notions like “meaning”, “symbols”, “signs” are frequently employed when one speaks about culture. Hence I will now try to show that such semiotic concepts are very important for a dialectical cultural theory.

3. Signification as the Cultural Production of Meaning in Society

Collective cultural structures are meaningful structures and the products of mental labour. The process of signification has a wider social importance than the self-organization of culture as a subsystem. All social realities are interpreted in cultural processes by which they gain certain meanings. Hence the cultural subsystem is related to and structurally coupled to all other subsystems of society (ecology, technology, economy, polity). The process of signification has a general social relevance and should hence be described in some more detail. What I have described in section one is how collective world-views, rules, norms, values, etc. are constituted. These processes have in section 2 been further described on an informational level. What will follow now is a description of how existing collective cultural structures are used in order to give meanings to social realities, events, practices, structures that stem from all subsystems of society.

The process of the social production of meaning deserves special attention, here semiotic concepts are of importance. According to Peirce a sign is a triadic relationship between an object, its symbolic representation (representamen), and the assigned meaning (interpretant) (see fig. 4). "A sign, or representamen, is something which stands to somebody for something in some respect or capacity. It addresses somebody, that is, creates in the mind of that person an equivalent sign, or perhaps a more developed sign. That sign which it creates I call the *interpretant* of the first sign. The sign stands for something, its *object*. It stands for that object, not in all respects, but in reference to a sort of idea, which I have sometimes called the *ground* of the representamen" (Peirce 1931ff: 2.228). "A Sign is a Cognizable that, on the one hand, is so determined (i.e., specialized, *bestimmt*,) by something other than itself, called its Object, while, on the other hand, it so determines some actual or potential Mind, the determination whereof I term the Interpretant created by the Sign, that that Interpreting Mind is therein determined mediately by the Object" (Peirce 1998: 492).

In comparison to Ferdinand de Saussure's binary semiology Peircian semiotics has the advantage that the object is part of the sign system. This more easily allows a materialistic interpretation by assuming that in cultural processes of signification a complex relationship between the material-social and the material-ideational/symbolic realm of being is established by human beings in social processes.

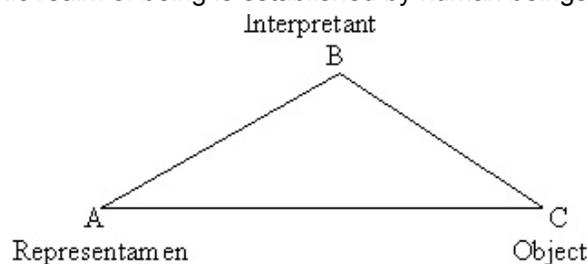


Fig. 4: The sign as triadic relationship in Peircian semiotics

For reasons of clarity I would like to speak of a sign as a triadic relationship between an object, a symbol, and meanings. The objects are realities of the social world, practices, events, systems, and structures of the human world. In cultural processes such entities are during the course of social processes represented as symbolic systems, i.e. collective meaningful social structures. In processes of interpretation meaning is assigned to collective social structures and meaningful symbolic systems emerge that form novel parts of social reality. The interpretant is itself a new object of reality and sign system that can be represented and interpreted. Hence the production of meanings is a permanent endless process that has been called semiosis by Peirce. It should be added that semiosis is not simply a cognitive process, but that it takes place on both an individual and a social level. Individual semiosis is the foundation for social semiosis, culture is the process that establishes a productive mutual relationship of self-organization between both levels. Semiosis is a dynamic process, the meaning of a sign is produced in the process of interpretation. "The meaning of a representation can be nothing but a representation. In fact, it is nothing but the representation itself conceived as stripped of irrelevant clothing. But this clothing can never be stripped off; it is only changed for something more diaphanous. So there is an infinite regression here. Finally, the interpretant is nothing more but another representation to which the torch of truth is handed along; and as representation, it has its interpretant again. Lo, another infinite series". (Peirce 1931/58: 1.339).

Self-organizing processes are dialectical processes (Fuchs 2003e). I will now try to show that semiotic processes are dialectical processes. If this is indeed the case, then it is consequent and consistent to try to combine the concept of self-organization, dialectical principles, and semiotic principles. Semiosis is a dialectical process in the sense that a Something (an object) and an Other (a Representamen)

refer to each other in such a way that a new meaningful sign system emerges that is again a new Something in the social world that enters the cultural process of interpretation. Peirce describes an endless process of the emergence of interpretants. This process is one of dialectical sublation (Aufhebung). This can be seen e.g. by the fact that Peirce made one definition of semiosis in direct analogy to Hegel's definition of the dialectical process. Peirce: A sign is "anything which determines something else (its interpretant) to refer to an object to which itself refers (its object) in the same way, the interpretant becoming in turn a sign, and so on *ad infinitum* ... If the series of successive interpretants comes to an end, the sign is thereby rendered imperfect at least« (Peirce 1931/58: 2.303)". In Hegel's dialectic *Logic* Something is only what it is in its relationship to Another, but by the negation of the negation this Something incorporates the Other into itself. The dialectical movement involves two moments that negate each other, a Somewhat and an Another. As a result of the negation of the negation, "Something becomes an other; this other is itself somewhat; therefore it likewise becomes an other, and so on *ad infinitum*" (Hegel 1874: §93) Being-for-self or the negation of the negation means that somewhat becomes an other, but this again is a new somewhat that is opposed to an other and as a synthesis results again in an other and therefore it follows that something in its passage into other only joins with itself, it is self-related (ibid.: §95).

In cultural self-organization (fig. 1), the dialectical process of social semiosis forms the bottom-up-process of the emergence of collective cultural structures, whereas the top-down-process is a dialectical process of individual semiosis where collective cultural structures function as objects that are individually interpreted and signified. In bottom-up-processes human actors enter social relationships and in a process of social semiosis establish collective sign systems. These systems enable and constrain individual semiosis.

One important question for cultural studies is the one that concerns the relationships of symbol and object to meaning. This is the question of how the production and consumption/reception of cultural products are related. There are three possibilities for this relationship, a deterministic one, an indeterministic one, and a dialectical one. Determinists argue that the meaning of a cultural good is fully determined in production. The most famous of such accounts has been provided by Max Horkheimer and Theodor W. Adorno (1944/88, cf. also Adorno 1941). In late capitalism all cultural forms would be commodities that manipulate the masses and produce false consciousness. "Something is provided for all so that none may escape; the distinctions are emphasized and extended" (Horkheimer/Adorno 1944: 131). "The culture industry as a whole has molded men as a type unflinchingly reproduced in every product. All the agents of this process, from the producer to the women's clubs, take good care that the simple reproduction of this mental state is not nuanced or extended in any way" (ibid.: 135). There would be a "necessity inherent in the system not to leave the customer alone, not for a moment to allow him any suspicion that resistance is possible" (ibid.: 150). For the audiences of mass culture there would be no room "for imagination or reflection" and "sustained thought" (ibid.: 134). Mass culture would have a standardized form that invokes standardized reactions, nothing fundamentally novel would emerge both in the cultural form and in thinking (Adorno 1941). The product of capitalistic mass culture would be "deceived masses" (142). Human beings are here seen as beings that are made passive and stupid by the fetishistic character of cultural commodities in a capitalist world. There one and only possible meaning that can emerge in the cultural interpretation of such commodities would be "false consciousness" that doesn't question capitalism. This is a one-dimensional and deterministic account. Contrary to Horkheimer/Adorno Walter Benjamin⁵ stressed that mass culture activates human phantasy and hence has a progressive social function. "Mechanical reproduction of art changes the reaction of the masses toward art. [...] The progressive reaction is characterized by the direct, intimate fusion of visual and emotional enjoyment with the orientation of the expert. [...] With regard to the screen the critical and the receptive attitudes of the public coincide" (Benjamin 1935). Benjamin's account is optimistic, but similarly deterministic as the one of Horkheimer and Adorno. In both accounts the commodity character already determines the form of interpretation. „Signification, which is the only function of a word admitted by semantics, reaches perfection in the signal" (Horkheimer/Adorno 1944/88: 174). For Horkheimer/Adorno the only significance of mass culture is "to defend society" as it is, for Benjamin it signifies emancipation from capitalism.

The most famous indeterministic account has been given by Jean Baudrillard (1983) who argues that in the information society symbols are detached from reality in such a way that anything can symbolize every possible meaning. He conceives what he calls hyperreality or simulation as an unlimited

⁵ Angela McRobbie (1994) has shown that Benjamin is of great importance for Cultural Studies because the idea of multi-accentuality has been anticipated by his idea that cultural products are shaped by a dialectic of dream state and wish images.

universe of meanings that collapses the relationship of object and meaning. Simulation “is the generation by models of a real without origin or reality: a hyperreal”. Simulation would be opposed to representation. “The latter starts from the principle that the sign and the real are equivalent. [...] Conversely, simulation starts from the utopia of this principle of equivalence, from the radical negation of the sign as value, from the sign as reversion and death sentence of every reference”. The hyperreal image “bears no relation to any reality whatever: it is its own pure simulacrum”. The German sociologist Niklas Luhmann (1996) has argued that it is undetermined how a communication is interpreted by a receiver, hence communication would be uncertain. Such accounts are relativistic and don't take into account that social development is not purely accidental because there are certain regularities in society (such as domination, class and power structures) that cause a certain continuity and a limited variety. Hence not all interpretations are equal likely, some or more likely than others, and some are even very unlikely.

A dialectical approach assumes that the content of cultural media and cultural products have contradicting effects, they can and frequently are interpreted in different ways. Such an account is based on a dialectic of chance and necessity. For me the most important achievement of British Cultural Studies is that they have shown that meaning is contested, that there are always different possible meanings of cultural facts, and that there are dominant, negotiated, and oppositional meanings.

The reality of society is represented in meaningful forms. The production of meaning is a social process and in capitalism it is a contested process of class struggle. There is a struggle over meaning where certain groups try to impose dominant meanings that are challenged by others which assign different meanings to objects. The meaning of objects always depends on the social and historical context, meanings are never ahistorical or transcendental. The fact that the production of meaning is social and contested means that the relationship of object and meaning is not linear, but complex and nonlinear. It involves a certain degree of indeterminism. The fact that different meanings can be ascribed to the same object has been called articulation of meaning by Stuart Hall, multiaccentuality by Valentin Volosinov, polysemy by John Fiske, and heteroglossia by Mikhail Bakhtin.

There is not one single meaning of cultural objects, meaning is contested and formed in social processes and in multidimensional class struggles. Hence meanings are relatively open, there can be different parallel or opposing/conflicting interpretations of texts. “In capitalism the social context of a sign's use is typically one of social struggle, so the meaning of the sign becomes part of that social struggle” (Fiske 1996: 127). Meanings are social and historical, they are determined by the social context of the production and use of sign systems, they change along with the historical and social change of society. Such arguments are based on Richard Hoggart's (1957) assumption that there is a “capacity of the human spirit to resist; to resist from a sense, even though it is not usually defined, that there are other things which matter and which are to be obeyed”. If discourse is considered language in social use and a terrain of social struggle, then culture is “the constant circulation and recirculation of discursive currents, [...] [the] constant process of discursive circulation, recirculation, and countercirculation, [...] the generation and circulation of meanings” (Fiske 1999: 7f+121). The struggle of alternative or opposing meanings in the cultural realm of modern society is a double movement, a dialectic of containment and resistance (Hall 1981), homogenization and difference (Fiske 1987). Hall stresses that culture is neither wholly corrupt, nor wholly authentic, but deeply contradictory. Meaning would not be immanent in a produced form, but be produced in the constantly changing cultural field of force of the practical relations of cultural power and domination. Symbolic cultural systems are not determined by their production process, both production and use are of importance and determining their significance. Meaning is not imposed, but is multidimensionally produced in contested social struggles, hence signification is not a consumption process, but itself an active production process. “Because the production of meaning/pleasure occurs in the consumption as well as the production of the cultural commodity the notion of production takes on a new dimension that delegates it away from the owners of capital” (Fiske 1987). Linking semiotics to society and social struggle shows that power has both a social and a semiotic dimension, signification both empowers and constrains people, there are forms of semiotic power in society (ibid.).

Stuart Hall (1999) has pointed out that the coding and decoding of the meaning of messages are shaped and influenced by discourses, i.e. by knowledge from routines of technological infrastructure, relationships of knowledge production, and institutional frameworks. Coded messages would be significant, meaningful discourses. Subjective aspects that influence coding and decoding would be very important and hence one couldn't assume an automatic identity of encoded and decoded meaning. There can be no absolute identity between coding and decoding, alternative readings are always possible. There is a certain degree of indeterminism at the side of the recipient. But this is not a full indeterminism as in accounts of the media such as the ones of Baudrillard and Luhmann. Hall mentions that there are dominant/hegemonic codes that try to ensure that recipients decode message

in a certain intended manner. E.g. employing emotional images of violence, disruption, arrests, etc. is a form of dominant encoding that makes use of the recipients' fears and emotions in order to increase the possibility that the forms of decoding and reading/interpreting a text remain strictly limited (for an example concerning the war in Iraq see Fuchs 2004b). Hence there are three possible relationships between reality and the meaning of symbolic content that represents a certain portion of reality. Different interpretations exist in parallel and even in opposition and antagonism to each other.

- ✧ Dominant meaning: "Any society or culture tends, with varying degrees of closure, to impose its classifications of the social and cultural and political world. These constitute a dominant cultural order, though it is neither univocal nor uncontested. The different areas of social life appear to be mapped out into discursive domains, hierarchically organised into dominant or preferred meaning. [...] We say dominant, not 'determined', because it is always possible to order, classify, assign and decode an event within more than one 'mapping'. But we say 'dominant' because there exists a pattern of 'preferred readings'; and these both have the institutional/political/ideological order imprinted in them and have themselves become institutionalised. [...] When the viewer takes the connoted meaning from, say, a television newscast or current affairs programme full and straight, and decodes the message in terms of the reference code in which it has been encoded, we might say that the viewer is operating inside the dominant code. [...] The dominant definitions, however, are hegemonic precisely because they represent definitions of situations and events which are 'in dominance' (global). Dominant definitions connect events, implicitly or explicitly, to grand totalizations, to the great syntagmatic views-of-the-world: they take 'large views' of issues: they relate events to the 'national interest' or to the level of geo-politics, even if they make these connections in truncated, inverted or mystified ways. The definition of a hegemonic viewpoint is (a) that it defines within its terms the mental horizon, the universe, of possible meanings, of a whole sector of relations in a society or culture; and (b) that it carries with it the stamp of legitimacy - it appears coterminous with what is 'natural', 'inevitable', 'taken for granted' about the social order." (Hall 1999: 512+515+516).
- ✧ Negotiated meaning: "Decoding within the negotiated version contains a mixture of adaptive and oppositional elements: it acknowledges the legitimacy of the hegemonic definitions to make the grand significations (abstract), while, at a more restricted, situational (situated) level, it makes its own ground rules – it operates with exceptions to the rule. It accords the privileged position to the dominant definitions of events while reserving the right to make a more negotiated application to 'local conditions', to its own more corporate positions" (ibid.: 516).
- ✧ Oppositional meaning: "Finally, it is possible for a viewer perfectly to understand both the literal and the connotative inflection given by a discourse but to decode the message in a globally contrary way. He or she detotalises the message in the preferred code in order to retotalise the message within some alternative framework of reference. [...] One of the most significant political moments [...] is the point when events which are normally signified and decoded in a negotiated way begin to be given an oppositional reading" (ibid.: 517).

Subcultures are an expression of the antagonistic character of modern cultures, they are formed as distinctive meaningful systems that represent the search for alternative identities that challenge dominant meanings. They are not automatically a symbolic expression of opposition, but they are articulations of discontent that are themselves contradictory in nature and frequently express dominant, negotiated, and oppositional meanings. E.g. hip hop as a distinctive subculture organized around practices of djing, breakbeats, spraying, rap, and breakdance articulates the opposition of blacks in the US with racist oppression, but in certain forms where it takes on antisemitic, sexist, and homophobic meanings it is also an expression of dominant meanings and the antagonistic articulation of dominant, negotiated, and oppositional meanings. Subcultures express both blocked and preferred meanings (Hebdige 1979). Subcultures are of specific importance in youth culture where the transition towards a flexible regime of capitalist accumulation and the individualization of society has produced various subcultures such as Punk, Rave, Hip Hop, Skating, Indie, Alternative, Hardcore, Grunge, Post Rock, Techno, Heavy Metal, New Metal, Gothic, Electro-Pop, Industrial, New Wave, Ska, Drum'n'Bass, etc.

It seems realistic to me to conceive the relationship of production/encoding and reception/decoding of texts dialectically by assuming that social relationships in modern society are whole ways of social struggle that are reflected in the symbolic realm as symbolic struggles and hence constitute a limited

plurality of hegemonic/dominant, negotiated, and oppositional meanings that are assigned to social realities in such processes of material and symbolic struggle. The causality of this relationship is one of dialectical determinism or conditioned chance: The social reality of the modern world, i.e. antagonistic social relationships, condition a number of possible conflicting meanings of cultural forms, there is a variety of possible meanings conditioned by class and power relationships, the real meanings are determined in active social processes. Figure 5 shows a in my opinion realistic account of the relationship of production and consumption of cultural goods. It shows that there is neither simply one possible meaning of an object, nor an unlimited variety, but a conditioned variety of n meanings that is both multidimensional and limited.

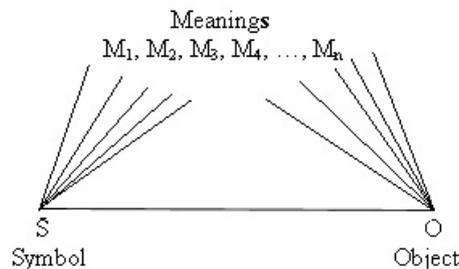


Fig. 5.: Conditioned chance as the causality of the relationship of the reality and meaning of cultural forms

Cultural products are mental products, i.e. products of mental labour that are significant signs. Herbert Marcuse (1937) has stressed the dialectical character of culture, certain cultural goods in the commodity world stabilize injustice and have an ideological character, but at the same time they are positive signifiers in the sense that they convey the picture of a order that is better than the existing one, inspire fantasy and hence act as anticipations of a better world. Cultural goods are antagonistic signifiers, they immanently signify structures of domination, but at the same time as a sort of anticipative and transcendental material function they can point beyond the realm of domination towards a realm of freedom.

The mass media are socio-technological systems where cultural products are produced and consumed (Fuchs 2003f, Fuchs/Hofkirchner 2003). Concerning the consumption process, there can be different interpretations and forms of usage. Also concerning the production process, the media can be shaped and designed in different ways. Hans Magnus Enzensberger (1970) has distinguished between repressive and emancipatory media use. The age of the Internet shows that both forms exist in parallel and even as antagonisms, they form two tendencies of media use in informational capitalism.

Repressive media use	Emancipatory media use
Centrally controlled program	Decentralized programmes
One transmitter, many receivers	Every receiver a potential transmitter
Immobilization of isolated individuals	Mobilization of the masses
Passive consumer behaviour	Interaction of participants, feedback
Depoliticization process	Political learning process
Production by specialists	Collective production
Control by owners or bureaucrats	Social control through self-organization

Tab. 2: Two forms of media use (from: Enzensberger 1970)

It is important to show now how what has been said thus far in the sections 1, 2, and 3 is related.

The analysis of culture as a knowledge system helps us to grasp the fact that the production of individual and social meaning that has been described in section one of this paper in more detail as a dialectical self-organization process is a process of cognition, communication, and co-operation. The bottom-up-arrow in fig. 1, i.e. the process of the emergence of collective cultural structures, can be considered a threefold process of cognition, communication, and co-operation on the knowledge level. This process is related to fig. 4 and 5 in the sense that the production of cultural structures is a symbolic representation of social relationships and social reality that gains different meanings as soon

as as it is used in the social world as a new social reality and hence is embedded into social struggles, social conflicts, class and power structures. Fig. 2 and 3 describe the knowledge level of the production process of cultural structures, whereas fig. 4 and 5 describe the unity of production and consumption/usage of cultural and social structures as dialectical semiotic processes. The top-down-arrow in fig. 1, i.e. the process of the emergence of subjective knowledge, is the process of consumption of collective cultural structures. Here as shown different forms of interpretations are possible (dominant meanings, negotiated meanings, oppositional meanings). In informational terms this is the process that relates to how the results of communication and co-operation processes in turn influence and change cognition. In fig. 4 and 5 the bottom-up- and top-down processes of emergence present in fig. 1 and fig. 3 are merged into an overall model of the production and consumption of meaningful social structures. This overall model of signification shows how social realities are interpreted, the objects of this process are not only cultural structures, these can be all sort of social structures and practices (also technological, economic, political, etc. structures and practices). Signification as a cultural process has importance in all social processes, cultural products just like any other product can have different meanings in society when they are considered within the framework of the semiotic model of signification.

In short: Semiotic processes of signification occur in all self-organizing social processes (fig. 4+5). All social system are self-organizing systems that operate as a mutual productive interconnection of subjective and objective knowledge. This is a threefold process of cognition, communication, and co-operation (fig. 2). The self-organization of the cultural subsystem of society produces collective cultural structures (fig. 1) that just like all other social structures enter the dialectical process of semiosis and hence gain meaning (fig. 4+5). The self-organization of the cultural subsystem can on the informational level be described as a mutual productive relationship of subjective knowledge and objective cultural knowledge (fig. 3). Fig. 2, 4, 5 are more general in character, they occur in all social systems and show that all social systems have cultural aspects, fig. 1 and 3 are more specific in character, they describe the self-organization of culture as a subsystem of society. The process of signification is a cultural process where the collective cultural structures that are produced in processes of cultural self-organization (fig. 1, 3) are socially applied in order to give meanings to existing social realities in all areas of society.

That cultural consumption produces a variety of symbolic meanings shows that culture is not a static, one-dimensional system, but a dynamic system. Cultural development has to do with the question whether culture is a static or a dynamic process and a continuous or a discontinuous process. I will now try to show that the evolution of culture is based on a dialectic of continuity and discontinuity.

4. The Evolution of Culture

Geertz argues that culture evolved continuously, "step by infinitesimal step" (Geertz 1973: 48). The Australopithecus would not have suddenly developed into the Homo sapiens, but would have slowly and steadily acquired some elements of culture such as toolmaking and hunting. there would have been an overlap of "over a million years between the beginning of culture and the appearance of man as we know him today" (ibid.: 47). Opposed to this view are critical point theories that argue that culture appeared suddenly at a certain point in time (e.g. Kroeber 1948). This dual opposition can be resolved if one conceives the evolution of culture as dialectical. According to such a view culture developed neither purely continuously, nor purely discontinuously, but over a very long period of time more and more basic cultural elements have been accumulated and changed the essence of the Australopithecus, at a certain point of time quantity turned into quality and the Homo sapiens with the new quality of developed culture emerged.

The synchronous mechanism of self-organization described above can be called the self-reproductive form of self-organization. Self-reproductive systems organize themselves by permanently producing and reproducing their components and their unity. This is a dynamic, creative process, the system permanently creates itself and produces new emergent qualities. But there is also another type of self-organization, the diachronic one that can be described as order from noise or order through fluctuation (Von Foerster 1960, Nicolis/Prigogine 1989, Prigogine 1980). Phases of self-reproduction at certain moments are followed by phases of instability where certain ordered patterns of the system break down, fluctuations and chaos and intensify themselves. From this disorder new order emerges that is partly unpredictable. A number of authors has tried to conceive sociological models in analogy to the principle of order from noise (Laszlo 1996, Jantsch 1975, 1979, Wallerstein 1991, 1998; Mueller-Benedict 2001, Fuchs 2004a). Applying this general philosophical principle to society means that the overall self-reproduction of society is not a smooth, permanently stabile process, it is in constant flux

and from time to time enters phases of crisis. These are periods of instabilities where the further development of the overall social system is not determined.

From time to time, a social system enters crisis and phases of instability due to social contradictions. The self-reproduction of a social system takes place permanently. Self-reproduction results at a certain bifurcation point results in order from noise, it is predetermined that each social system or certain aspects of it will at a certain point of time collapse, but the exact point of time, the exact causes, and the exact outcome (i.e. the new form of order) are largely undetermined. The old structures condition a field of possibilities, a certain number of possible alternatives, but it is not determined which alternative path will be realized. Diachronic social self-organization is shaped by a dialectic of chance and necessity.

Such a notion of dialectical, diachronic self-organized development can be applied to the cultural realm in order to explain fundamental cultural change. In culture there is both continuity and variation of world-views, traditions, norms, and values, enculturation and deculturation. In processes of enculturation education ensures that traditions and habits are passed on from older to younger generations, the process of enculturation assures a certain continuity of culture. In processes of deculturation, dominant collective values are challenged by alternative ones. Due to the fact that society changes, also values, habits, and traditions change to a certain extent and at a certain speed. Fundamental cultural change can be due to the development of cultural or social antagonisms that change the ways of life. It can be caused internally culturally or externally by political, economic, or technological factors, or as a combination of several influencing factors. Culture is a relatively autonomous system that is in constant interaction with the other subsystems of society. Cultural development is based on a dialectic of enculturation and deculturation, continuity and variation. In society and in each single social system there are certain rules of conduct and behaviour that ensure the continuity of cultural practice, but these rules are challenged by alternative or opposing rules that might gain dominance. Cultural development is caused by relationships of collective value patterns that challenge and negate each other, by the successful transmission and learning of old and new cultural patterns. Once a new pattern is established it is challenged by alternative cultural patterns.

Culture doesn't consist of endless static ideas, all ideas and world-views are related to social reality and form a part of it and change historically. Already Karl Marx spoke about the historical character of culture: "The same men who establish their social relations in conformity with the material productivity, produce also principles, ideas, and categories, in conformity with their social relations. [...] Thus the ideas, these categories, are as little eternal as the relations they express. They are *historical and transitory products*" (Marx 1847: 130).

Karl Mannheim argues that culture has a historical character, there would be a relativity and transitoriness of every historical cultural manifestation, culture would have a processive and social character (Mannheim 1982: 42). When Mannheim speaks of the dynamic character of culture he means that it develops dialectically: There would be the "sudden new existence of a new style", a spiritual cultural entity would "amid its continuity, abruptly turn[s] into a different one" (Mannheim 1982: 127). "A new world-view is not dialectically distinguishable from its predecessors because it offers completely different fragments of experience, but because, at some point in time, the new aggregation is abruptly differentiated from the other" (ibid.: 127f).

Capitalism is an antagonistic social formation that is based on divisions into social groups that compete for economic (property: money, commodities), political (power: social relationships, origin), and cultural capital (qualification, education, knowledge). Political capital is "a capital of social connections, honourability and respectability that is often essential in winning and keeping the confidence of high society, and with it a clientele, and may be drawn on, for example, in making a political career" (Bourdieu 1986: 122). Political capital "is the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance and recognition - or in other words, to membership in a group - which provides each of its members with the backing of the collectivity-owned capital, a "credential" which entitles them to credit, in the various senses of the word" (Bourdieu 1983: 248f). Entities like titles and qualifications have like money a social value that is attached to them, they are a "measure of rank or order" (Bourdieu 1990: 131) and make agents with the same qualifications interchangeable. They enter a relation of commensurability. There are three types of cultural capital: embodied one (attached to the body, its internalization is a durable process, it costs time that must be invested, it can't be passed around and transmitted easily; e.g. qualification and education, it is embodied in the form of long-lasting dispositions of the mind and body); objectified one (cultural goods, e.g. books, instruments, machines, paintings; can be transmitted to others materially; for its acquisition one is in need of embodied cultural capital); and finally institutionalized one (academic qualification, degrees and titles, legally protected) (Bourdieu 1983: 243ff). Academic qualifications "are to cultural capital

what money is to economic capital” (Bourdieu 1977: 187). Educational capital as an aspect of cultural capital “expresses, among other things, the economic and social level of the family of origin” (Bourdieu 1986: 105). The social position of an actor depends on the volume and composition of capital (i.e. the relative relationship of the three forms of capital) that he owns and that he can mobilise as well as the temporal changing of these two factors (Bourdieu 1986: 114). The main classes of society are a result of the distribution of the whole (i.e. economic and political and cultural) capital. This results in a social hierarchy with those at the top who are best provided with cultural capital, and those at the bottom who are most deprived. Within the classes that get a high, medium or low share of the total volume of capital, there are again different distributions of capitals and this results in a hierarchy of class fractions.

This stratified class structure produces social struggles that aim at accumulating capital of certain groups at the expense of other groups (cf. Fuchs 2003d). These divisions are at the heart of the cultural evolution of modern society. Hence cultural development has both internal (the antagonistic logic of the accumulation of cultural capital) and external (the antagonistic logic of the accumulation of economic and political capital) causes. The cultural antagonism is one between unity and plurality. Dominant groups try to ideologically impose their world-views upon other groups in order to accumulate more capital and enlarging their sphere of influence and their social system. They aim at creating a unity without plurality that is frequently challenged by the dominating groups who themselves aim at a reversal of hegemony, i.e. a radically negated new unity without plurality, or separation (plurality without unity). The stratified structure of capitalism that is the result of the antagonistic logic of accumulation is opposed to a unity in plurality because it separates social groups and makes them having to compete against each other in the race for capital.

The capitalistic process of cultural self-organization is one of competition, accumulation, and separation. Fundamental cultural evolution is caused when suppressed world-views and values gain importance at the expense of dominant ones. It is determined that any dominant world view will come to an end and will be superseded and sublated by another world-view, but it is undetermined when and why exactly this will take place and how the new dominant cultural patterns will look like. The emergence of fundamentally new cultural values is not simply due to internal cultural causes, but due to the development of the totality of social antagonisms and the interaction of internal and external antagonisms of the cultural system. A cultural revolution doesn't necessarily collapse the whole social formation, it can be the case that there is a paradigmatic change in ideology (e.g. from mass consumption norms to individualized consumption norms and from collectivity to individualization) that isn't accompanied by a change in economic and political domination, but serves existing economic and/or political groups in order to restabilize their domination.

When we talk about cultural dynamics the question arises what the central forces are that shape the evolution of modern culture. Modern society is capitalist in nature, hence one can also describe it as a capitalistic society. Speaking of capitalism and culture on the one hand points to the question of how base and superstructure are connected, on the other hand it points to the question of the dynamics and driving forces of capitalist culture. I will now try to show that a dialectical approach can be helpful in conceiving modern culture and the relationship of base and superstructure in a complex, nonlinear, nonreductionistic way.

5. Culture, Materialism, Capitalism

The question of how culture evolves is related to the question of how culture is related to other subsystems of society. This is the question of the relationship between base and superstructure. In idealistic approaches culture is the product of mental activities, in materialistic approaches it is a product of material production. In crude materialistic approaches culture is seen as mechanically determined by economic production, the “superstructure” is assumed to be a linear consequence of the “base”. A more realistic and complex materialistic position assumes that matter is the totality of being in the universe and that society is a material totality that consists of ecological, technological, economic, political, and cultural realms of being that are different, but interconnected. Together they make up that which can be considered as social being or society. Culture as the realm of human ideas and their objectifications is neither internally nor externally determined, but socially determined. Hence the position of Cultural Materialism that I want to put forward argues that all our realities are socially constructed and constituted, i.e. all products and forms of human existence are material in the sense that they have a social character. This means that culture is a relatively autonomous system, it has its own practical and structural logic which in modern society is a logic of accumulation and heteronomy, and it is connected to other social processes that stem from the ecological, the technological, the

economic, and the political spheres of human existence. Culture is neither autonomous nor externally determined, it is a system that is based on external and internal social determination.

The superstructure (i.e. culture) is not the mechanic reflection, i.e. a linear mapping, of the base (i.e. the relations and forces of production), it can't be deduced from or reduced to it. Orthodox Marxism for a long time didn't realize this. That the base is not the mechanic reflection of the superstructure has for a long time not been realized by Idealism. All human activity is based on producing a natural and social environment, it is in this sense that the notion of the base is of fundamental importance. We have to eat and survive before we can and in order to enjoy leisure, entertainment, arts, etc. The base is a precondition, a necessary, but not a sufficient condition for the superstructure. The superstructure is a complex, nonlinear creative reflection of the base, the base is a complex, nonlinear creative reflection of the superstructure. This means that both levels are recursively linked and produce each other, economic, political, and social practices and structures trigger creative cultural processes, cultural practices and structures trigger creative economic, political, and social processes. The notion of creative reflection grasps the dialectic of chance and necessity/indetermination and determination that shapes the relationship of base and superstructure. There isn't a content of the superstructure that is "predicted, prefigured and controlled" by the base, the base "sets limits and exerts pressure" on the superstructure (Williams 2001: 165).

If one rereads Marx and bears in mind that our material reality is our social reality, a crude deterministic reading can be avoided.

"The production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men, the language of real life" (Marx/Engels 1846: 26). "Consciousness is, therefore, from the very beginning a social product, and remains so as long as men exist at all" (Marx/Engels 1846: 30f). "The ideas of the ruling class are in every epoch the ruling ideas, i.e. the class which is the ruling material force of society, is at the same time its ruling intellectual force. The class which has the means of material production at its disposal, has control at the same time over the means of mental production, so that thereby, generally speaking, the ideas of those who lack the means of mental production are subject to it. The ruling ideas are nothing more than the ideal expression of the dominant material relationships, the dominant material relationships grasped as ideas; hence of the relationships which make the one class the ruling one, therefore, the ideas of its dominance" (Marx/Engels 1846: 46).

This doesn't mean that ideas of groups are homogenous and can be deduced from economic relationships. Material in society means social, the social and the physical is the foundation of ideas, not their mechanic determination. There are degrees of freedom of interpretation in society. A contemporary interpretation of Marx shouldn't assume that the economic determines the cultural superstructure, but that the superstructure is determined by the capital structure of society. Capital in my usage of the term that is based on Bourdieu's concept of capital doesn't mean economic capital, it has economic, political, and cultural forms and hence is a broad sociological term. Hence that the superstructure is materially-socially determined means that there is a great degree of freedom in culture because it is shaped by the total distribution of economic, political, and cultural capital in society and the division into classes and class fractions that results from it.

The form of Cultural Materialism that I want to put forward assumes that basic social and economic production processes constrain, but don't mechanically determine, superstructural ideational practices and structures. They are a necessary, but not a sufficient condition for culture. Economic and political capital (property and power) have specific enabling and constraining effects on culture. Culture influences economy and polity in processes of downward causation, but generally one can say that producing and deciding are preconditions for value-based judgement, whereas values and morals are not necessarily a precondition for economy and polity.

Base and superstructure are not dualistically separated, Herbert Marcuse in this context argues that culture forms an integral whole of social life that includes the areas and ways of life we find in the areas of ideal (the mental world) and material reproduction (Marcuse 1937: 62). "Affirmative culture" would be a modern ideology that separates the mental from the material and conceives the first as an ahistorical higher order of the Fair, the Just, and the Beautiful. This ideology would assume that happiness can be attained as a cognitive state of mind and that hence it must not be attained as a social reality by material practice and social change.

Marcuse (1965) argues that this separation between a material and a mental sphere has traditionally been accomplished by a dualistic separation between civilization and culture where the first refers to the realm of necessity, social necessary labor and actions where man can not be himself, whereas the latter refers to a higher dimension of human fulfilment and autonomy where the struggle for existence has come to an end. In this dualism civilization would be characterized by material labor, the working day, the realm of necessity, nature and operational thinking; culture by mental work, holiday, free time,

the realm of freedom, mind and non-operational thinking. Traditionally culture would have had transcendental goals that anticipated the realm of freedom. But technological civilization would tend to destroy these goals of culture. So culture would become affirmative. A necessary space for the development of autonomy and opposition would be locked by society.

In late capitalism culture would be absorbed by civilization in such a way that culture as entertainment is accessible for most people, has a one-dimensional character that substitutes its critical dimension, but at the same time technological progress would open up a progressive cultural potential because a realm of free time for all, a sort of leisure society beyond necessity, would be made possible by the gains in productivity (Marcuse 1964, 1965). The dualism between civilization and culture would be sublated by late capitalism in an assimilation of labor and relaxation, failing and enjoyment, art and household, psychology and management (Marcuse 1965). "This liquidation of *two-dimensional* culture takes place not through the denial and rejection of the "cultural values," but through their wholesale incorporation into the established order, through their reproduction and display on a massive scale" (Marcuse 1964: 57). Late capitalist culture would be both affirmative and containing a liberating potential.

Edward P. Thompson has stressed that in modern society culture is related to class struggle. Classes would have their own form of culture and consciousness, forms of interpreting experiences and objectifying these experiences in traditions, value systems, ideas, and institutional forms (Thompson 1963). Culture would not just as being stressed by Raymond Williams be a whole way of life, but also a "whole way of conflict", a whole way of struggle (Thompson 1961).

For John Fiske (1996) culture doesn't mean the aesthetic ideals of form and beauty or a timeless human spirit, it would be political and would have to do with the "generation and circulation of meanings in industrial societies" (Fiske 1996: 115). Capitalist society would be a society divided by axes like class, gender, race, nation, age, religion, occupation, education, political allegiance, etc. Social relations would be the site of contestation and struggle. That culture is political means that it is a site of social struggle. "In the domain of culture, this contestation takes the form of the struggle for meaning, in which the dominant classes attempt to 'naturalize' the meanings that serve their interests into the 'common sense' of society as a whole, whereas subordinate classes resist this process in various ways and to varying degrees and try to make meanings that serve their own interests" (ibid.: 116). Popular culture "is the arena of consent and resistance" (Hall 1981: 453).

The antagonisms of modern society that are due to the logic of accumulation result in class struggles. Capital structure and the practice of conflict are the driving forces of the development of modern society. Pierre Bourdieu has elaborated a very useful theory that can help us in explaining the self-organizing dynamics of modern culture (cf. Fuchs 2003f). He suggests that humans belonging to the same class or class-fraction don't have identical, but homologous life-styles and tastes. He has elaborated the concept of habitus in order to grasp these common patterns of thinking and behaviour (cf. Fuchs 2003d). By being confronted with tastes and schemes of perception of other classes and class-fractions, specific life-styles of a class or class-fraction emerge (Bourdieu 1986: 170f). A life-style can be seen as a system of classified and classifying practices and distinctive signs. "Life-styles are thus the systematic products of habitus, which, perceived in their mutual relations through the schemes of the habitus, become sign systems that are socially qualified (as 'distinguished', 'vulgar' etc.)" (Bourdieu 1986: 172). Just imagine some daily situation, you will find numerous gestures, manners, carriage and social practices. All of these entities are distinctive signs, an expression of habitus. Life-styles are closely related to the conditions of social existence, i.e. the class structure of the modern world.

People, families and groups in modern society commonly strive for upclassing and if it becomes necessary they struggle against downclassing. Reconversion strategies are employed by individuals and families in order to improve their position in social space and are reflected in social transformations which modify the volume of the different class fractions and the structure of their assets (Bourdieu 1986: 135). There is a dialectic of downclassing and upclassing (Bourdieu 1986: 163): people in a certain class or class-fraction strive towards being part of a leading group or an upper class(-fraction), they have as their past or as the space where they do not want to belong, the group immediately below and as their possible future or as the space where they want to belong, the group immediately above. The maintenance of order of the whole system, "of the whole set of gaps, differences, 'differentials', ranks, precedences, priorities, exclusions, distinctions, ordinal properties, and thus of the relations of order which give a social formation its structure, is provided by an unceasing change in substantial (i.e., non-relational) properties" (Bourdieu 1986: 163). This dialectic results in class struggles, these are material (strikes, protests, refusal of work) and symbolic conflicts.

Symbolic struggles are fights over symbolic capital and tastes that shall establish distinction between classes in order to ideologically secure the domination of certain groups. "Tastes (i.e., manifested preferences) are the practical affirmation of an inevitable difference. [...] Taste is the practical operator of the transmutation of things into distinct and distinctive signs. [...] Taste, a class structure turned into nature, that is, embodied, helps to shape the class body" (Bourdieu 1986: 56+174+190). Symbolic capital depends on publicity and appreciation, it has to do with prestige, reputation, honour etc. It is economic, cultural or social capital in its socially recognized and legitimized form. There are symbolic as well as material dimensions of all three types of capital. Symbolic capital is a "capital of honour and prestige" (Bourdieu 1977: 179)⁶. Accumulating symbolic capital requires considerable labour and time devoted to making and maintaining relations and to material and symbolic investments. Symbolic struggles are cultural struggle in the sense that they make use of signification processes in order to produce signs that draw borders, erect a social hierarchy, and produce distinction. Hence the cultural process of signification as outlined in section 3 is of large importance in capitalism because it constitutes a symbolic dimension of class struggle that is not just imaginative, but has real material results. By producing new tastes as form of symbolic struggle, profits in distinction ("feeling justified in being (what one is)", Bourdieu 1986: 228) are produced. Because symbolic capital tends to devalue, new symbolic goods and ways of using them have to be produced frequently.

There are strategies of groups for distinguishing themselves from the group below and identifying with the group immediately above which they recognise as the possessor of the legitimate life-style. Groups, classes and class-fractions hence try to symbolically distinguish themselves, their tastes and life-styles from others. This results in symbolic struggles (Bourdieu 1986: 244-256), the devaluation of objects and an endless drive for novelty. "Struggles over the appropriation of economic or cultural goods are, simultaneously, symbolic struggles to appropriate distinctive signs in the form of classified, classifying goods or practices, or to conserve or subvert the principles of classification of these distinctive properties" (Bourdieu 1986: 249). The possessors of symbolic, distinctive properties or goods are threatened permanently with popularisation due to the struggles for upclassing. This results in the generation of demand for new tastes which define themselves negatively against other tastes and the dispossessed (Bourdieu 1986: 251f, 256). Taste and identity are at the heart of symbolic struggles and are employed by the dominating classes and class-fractions to stigmatise the dominated classes and class-fractions. Class struggles of the dominating against the dominated are different today than 150 years ago, they rely less on direct, physical violence, there is a "shift from forms of rough violence to forms of soft, symbolic violence" (Bourdieu 1993: 171). But also the forms of struggles of the dominated such as strikes not only have a physical, but also a symbolic dimension (Bourdieu 1993: 173ff). Cultural forms like language, music, clothing, artworks, furniture, styling, food, drinks, toiletries, books, newspapers, magazines, sports, records, toys, body care, cosmetics, appearance, manners, etc. are symbols that signify class differences in modern society and are used as forms of class distinction. Distinction is a principle that is at the heart of the antagonistic cultural development in modern society, it produces cultural classes and symbolic struggles.

Fundamental changes in world-views can result from symbolic and material class struggle when they either shift the balance of power in such a way that new classes or class-fractions gain dominance or when ruling classes employ new strategies of symbolic class struggle in order to secure their position by producing new cultural distinctions. Hence fundamental cultural change can both be disintegrative or integrative, it can destabilize or stabilize the existing class structure. Cultural change that operates with the help of the logic of symbolic struggle, distinction, exclusion, competition, etc. is heteronomous in character and typically for the capitalist social formation. This means that as long as the logic of distinction and capital accumulation is at the heart of society, social and cultural change will always aim at reproducing the class structure (although there might be deep changes in the social structure). Hence the most fundamental cultural change would be one that eliminates the logic of distinction and symbolic accumulation. Symbolic accumulation doesn't mean that dominant classes accumulate meanings at the expense of dominated classes who lack meanings. All social classes permanently accumulate symbolic capital, i.e. tastes and life-styles that make a difference, that is used as a weapon in the struggle for the accumulation of economic, political, and cultural capital, i.e. they permanently aim at transforming symbolic capital into material capital. Symbolic capital is accumulated by both dominant and dominated classes in a hegemonic field of active symbolic struggle that is articulated with the field of material struggle, the outcome of social struggles determines the social hegemony of certain meanings and social groups.

⁶ In this definition we again find Bourdieu's dialectical conception of the relationship of objective conditions of existence (structures) and the actions of human beings because he says that symbolic capital produces the clients as much as they produce it (see also Bourdieu 1990: 118).

Culture is essentially linked to world-views: "A world-view (of an era, a group, etc.) is a structurally linked set of experiential contexts which makes up the common footing upon which a multiplicity of individuals together learn from life and enter into it" (Mannheim 1982: 91). Mannheim stresses that world views are expressed in cultural forms. Similarly Raymond Williams says that the dominant structure of feeling is expressed and embodied in cultural artefacts (Williams 2001: 33).

The discussion on culture has shown that world-views are present in all aspect of life because all goods and relationships have significations, they are distinctive signs that express world-views and the material reality of classes. That cultural forms in modern society are signs that produce symbolic difference and symbolic class struggle means that culture has in this social formation an ideological character. Culture fulfills "a social function of legitimating social differences" (Bourdieu 1986: 7). This is not to say that ideology is the mere reflection of economic relationships of production, but that ideology is a cultural practice of signification linked to all areas of social production (economic, political, cultural) that produces difference, tastes, and distinction in order to reproduce the class structure of modern society. Hence ideology doesn't have an economic, but a social function, it is a cohesive factor that secures the principles of accumulation, class division, competition, and exclusion. Roland Barthes (1972) has shown that in modern society culture functions ideologically and produces myths, it not only produces ordinary meanings on the level of language in everyday life, but second-order signifieds/interpretations on the level of myth are frequently inscribed into signs. Myth would interpellate the subject, make itself look neutral and innocent, naturalize certain interpretations, give a natural image of bourgeois society, and present symbolic constructions as facts. "In passing from history to nature, myth acts economically: it abolishes the complexity of human acts, it gives them the simplicity of essences, it does away with all dialectics, with any going back beyond what is immediately visible, it organizes a world which is without contradictions because it is without depth, a world wide open and wallowing in the evident, it establishes a blissful clarity: things appear to mean something by themselves" (Barthes 1972: 155).

Louis Althusser (1971) has defined ideology as a system of ideas and believes that dominates the consciousness of a human being or a social group and is a 'representation' of the imaginary relationship of individuals to their real conditions of existence. Ideology calls human beings as subjects, this is a process termed "interpellation" by Althusser. Ideology interpellates individuals as subjects and makes them become subjects (members of families, churches, associations, parties etc.). An interpellation takes place in the name of an absolute subject (god, leader, state, boss, guru etc.). The individual is interpellated as a free subject so that it voluntarily submits to the will of the absolute subject. Like Barthes, Althusser wants to show that interpretations often don't represent reality, but how certain groups want others to see reality in order to dominate them. Althusser is right in showing that ideology is a social construction that aims at stabilizing relationships of domination. But the problem with his concept of ideology is that he sees human beings as passive bearers of structures, not as active agents who can and do resist domination materially and symbolically.

Althusser (1971) has distinguished the "repressive state apparatus" (government, administration, army, police, courts, prisons) from the "ideological state apparatuses" (religion, school, family, legal system, parties, trade unions, media, culture). Hence ideology for Althusser is a political phenomenon, society is conceived as consisting of economy and polity. This puts forward a very broad conception of the nation state that results in the fact that everything that has a non-economic character is considered as a state-run institution or practice, society is considered as economy + state and hence culture is fully reduced to ideology and the state. I think that there is a difference between politics and culture, the first is organized around power and collective decisions, the second around world-views, values, norms, traditions and life styles. Culture is a separate, relatively autonomous self-organising system of society that is based on its own structures, institutions and material practices. It consists of institutions such as education, religion, mass media, health, art and science. Ideology operates both in and through politics and culture, politics and culture both have public and private aspects, they overlap and are structurally coupled, but nonetheless have different priorities.

In stressing the cultural dimension of class struggles Immanuel Wallerstein (1990) describes culture as the ideological battleground of the capitalist world-system. Traditionally culture would have been described as either collective behaviours, values, and beliefs of certain groups that are different from other groups or as differentiation (e.g. between base/superstructure, material/symbolic, popular practice/higher arts) within a certain group. Both concepts of culture would be capitalist ideologies that are used as covers to justify the interest of some persons against the interests of other persons within society or between societies. Culture in capitalism would be ideology, "the justification of the inequities of the system, [...] the attempt to keep them unchanging in a world which is ceaselessly threatened by change. [...] Since it is obvious that interests fundamentally diverge, it follows that [...] the very

construction of culture becomes a battleground, the key ideological battleground in fact of the opposing interests within this historical system” (Wallerstein 1990: 39). Universalism, racism, and sexism would be the key ideologies of the capitalist world-system.

Structuralistic thinkers like Althusser, Barthes, and Wallerstein have shown that modern culture functions as ideology, but it should be added that ideology is a site of struggle between different meanings that try to win active consent (hegemony). Not only dominant, but also oppositional codes function as ideologies in modern society, they both interpellate subjects and try to invoke certain preferred meanings. Ideology does not map reality, but is a social construction that shows how certain groups want to define reality in order to make others see reality the same way. Someone who favours a certain ideology takes part in certain practices (going to church, meetings, consumption of information and culture etc.). These practices show that ideologies have a material existence and are not confined to the ideational realm. Ideologies divert attention from social divisions and social stratification. But ideology is not something that is simply imposed upon dominated classes by the dominators, it is actively produced and reproduced by all individuals and social classes, it is a relatively autonomous principle that secures cultural accumulation and distinction and as a process of signification that has overall social importance it secures accumulation in all subsystems of society. Antonio Gramsci's concept of hegemony helps in describing ideology not as a passive structural imposition on the masses, but as an active production process. Gramsci stressed that superstructures cannot be reduced to the economic base and that culture involves the “creation of (new) world-outlooks” and morals of life (Gramsci 1980). Hegemony is “the ‘spontaneous’ consent of the masses who must ‘live’ those directives [of ideology, CF], modifying their own habits, their own will, their own convictions to conform with those directives and with the objectives which they propose to achieve” (Gramsci 1971: 266). The concept of hegemony has been frequently stressed by British Cultural Studies in order to show that culture is a site of class struggle where hegemony is actively produced, reproduced, and challenged. Hegemony as a concept that doesn't reduce the masses to passive cultural dupes and bearers of structures shows that culture is an ideology in the form of dominant codes, but it enables alternative readings, oppositional codes and practices. Culture is an integrative self-organization process that consists of processes of bottom-up-construction and top-down-incorporation of collective meanings, rules, and values, Gramsci's concept of hegemony helps to conceive the relationship of actors and structures in cultural theory dialectically. “The value of the Gramscian theory of hegemony is that of providing an integrating framework which both sets of issues [the structuralistic stress on imposed culture and the culturalistic stress on constructed and spontaneously oppositional culture] might be addressed and worked through in relation to each other” (Bennett 1986: 222).

The question of how culture and nature are related has been traditionally answered in different ways. I will now try to deal with this problem in a dialectical way.

6. Culture and Nature

Animal behaviour is largely based on instincts, social behaviour on self-conscious, active, knowledgeable practices that allow choices and anticipation. In the animal world the meanings of signs are biologically determined and signs can't be recombined in order to form new meanings. In the human world the meanings of signs are socially determined and signs can be recombined in order to form more complex sign systems. Humans can invent new meanings and signs, animals are much more conservative and adaptive in their usage of signs, they hardly produce any new signs and do so only if they are compelled by nature to do so.

For Claude Lévi-Strauss (1981) the human being is both biological and social. He has conceived the relationship of nature and culture dualistically, seeing culture as everything that is not nature and that is opposed to the latter. Culture would be non-instinctive and based on norms and rules, whereas natural aspects of the human realm would be spontaneous, undetermined, and universal. Such a dualistic conception only sees the differences between nature and culture, it is blind for common aspects and the interactions of both realms.

Reducing society and culture to nature is dangerous as the fascist instrumentalization of Social Darwinism for facilitating the annihilation of certain groups that are considered as biologically inferior has shown. Biologism/Naturalism doesn't acknowledge the distinctions between nature and culture, it reduces culture to nature.

Projecting society into nature results in anthropomorphism: natural systems are conceived in human and social terms. E.g. the Gaia hypothesis assumes that all human and natural systems are alive and hence have intrinsic values and rights. Human rights are extended to the natural realm in a process of

logical projection. Such arguments also don't see the distinction between nature and culture, it conceives both realms as identical. As the arguments put forward by ecofascism show such a projection can be very dangerous. E.g. Peter Singer argues that all persons understood in the sense of a person as a conscious thinking being have a right to live, other beings have not. Hence certain animals would have a right to live, whereas certain human beings such as disabled newborn infants, hemophiliac infants not wanted by their parents or adopters, any young infant not wanted by its parents or adopters, and all human beings who do not know they are persons. Singer argues in favour of euthanasia of such human beings. "Killing a disabled infant is not morally equivalent to killing a person. Very often it is not wrong at all" (Singer 1993: 191). "Deep ecologists" like David Foreman argue that starvation and disease are "Gaian" solutions to overpopulation. "Human suffering resulting from drought and famine in Ethiopia is tragic, yes, but the destruction there of other creatures and habitat is even more tragic" (Foreman 1991). In an interview Foreman said that "the worst thing we could do in Ethiopia is to give aid [to the starving children] – the best thing would be to just let nature seek its own balance, to let people there just starve" (cited from Bookchin 1988). Such ecofascist arguments are antihuman in nature, they don't see the differences between nature and human culture, they project human rights and human qualities like self-consciousness into nature that is considered as one whole living organism ("Gaia").

Speaking of the duality of nature and culture means to assume a very broad concept of culture that includes a wide range of social practices and structures. E.g. Marvin Harris (1997) puts forward such a broad concept of culture, culture here includes technologies, productive and reproductive activities, social groups and organizations; as well symbolic, ideational, artistic, playful, religious, and intellectual practices and structures. Hence there is nothing left outside of culture (except pure nature) within society and culture means society. No clear distinction between culture and society can be maintained. Therefore I think it is advantageous to assume that society is the broader concept, that we are confronted with a dialectic of nature and society, and that culture forms a specific self-organizing subsystem of society that is based on a mutual production of subjective ideas and objectified ideational, meaningful forms.

The dualistic division between nature and culture has frequently been ideologically employed for arguing that certain groups that don't have a Western culture are uncivilized and uncultivated and hence need to be adapted to Western ideas. Such assumptions that define Western society as culture and other societies as non-culture are ideologies that have during the course of human history been frequently employed as justifications for domination, exploitation, colonialism, and warfare.

When we speak about nature we always speak about systems that are observed and changed by human beings, nature is part of society, for human beings there can be no observation of and encounter with nature from without society. The relationship of nature and society/culture is neither exclusive nor inclusive in character, i.e. nature and society are neither fully different nor fully identical. Nature is the totality of systems in the universe and their interactions, it is material and organizes itself on various levels, i.e. it consists of various developing interconnected system types. Systems of one type are interconnected and connected to systems of other types, hence nature is relational and dynamic in character. Society is the realm of human activity and interaction, it forms one specific, small part of nature. But for human beings this small part of the universe forms their overall context of activity. All human activity and observation takes place within society, there is no position of humans external to society. Nature as physical realm of activity of human labour, production, and communication is itself a part of society, in transforming and observing nature in economic, technological, cultural, and scientific processes, the human being integrates nature into society. Hence there is no relationship between nature and human beings external to society, all metabolic and observational processes that establish a relationship between nature and human beings function within society. Nature as human realm of activity is one subsystem of society that can be termed ecosphere. Nature has produced the human being and society as part of it, but the human being integrates nature as a subsystem of society into its own sphere of activities. Nature as part of society can be termed ecosphere. Hence when we speak about "nature and society" we speak about society as the total realm of activity on the one hand where we focus on social interactions between human beings and about the ecosphere as the interaction processes between humans and ecology and the interaction processes between physical systems that are observed by human beings.

In the production of his life which includes the metabolism between society and nature and societal reciprocity, man as the universal, objective species-being produces an objective world (*gegenständliche Welt*) and reproduces nature and his species according to his purposes. All human beings are naturally societal, within the human realm nature is social in the sense that it is being changed and appropriated by human beings. Within nature there are qualitative differences which allow us a division into levels such as physical-chemical, the living and societal. In this relationship frequently only the physical-chemical and the living is seen as "nature" opposed to human society. We

stress the unity in which the diversity is sublated, hence also preserved, nature and society are dialectically related (Fuchs/Schlemm 2004). Societality is our nature, nature is part of our society.

A dialectical view on nature/society assumes that nature is the foundation of society, that there is a continuous metabolism between nature and society, and that society has emergent qualities that distinguish it from nature. Marx pointed out that man like animals lives from inorganic nature, he must remain in a continuing physical dialogue with nature in order to survive. Nature can be considered as man's inorganic body in the sense that nature is "a direct means of life" and "the matter, the object, and the tool of his [man's] life activity" (Marx 1844: 516). Animals produce only their own immediate needs, "animals produce one-sidedly, whereas man produces *universally*; they produce only when immediate physical need compels them to do so, while man produces even when he is free from physical need and truly produces only in freedom from such need; they produce only themselves, while man reproduces the whole of nature; their products belong immediately to their physical bodies, while man freely confronts his own product. Animals produce only according to the standards and needs of the species to which they belong, while man is capable of producing according to the standards of every species and of applying to each object its inherent standard; hence, man also produces in accordance with the laws of beauty" (Marx 1844: 517). In the production of his life which includes the metabolism between society and nature and societal reciprocity, man as the universal, objective species-being produces an objective world (*gegenständliche Welt*) and reproduces nature and his species according to his purposes. With the human being, history emerges: "the more that human beings become removed from animals in the narrower sense of the word, the more they make their own history consciously, the less becomes the influence of unforeseen effects and uncontrolled forces of this history, and the more accurately does the historical result correspond to the aim laid down in advance" (Engels 1875: 323).

Society and culture are sublations of nature, nature and society/culture are dialectically connected. Friedrich Engels (1875, 1876) has stressed that the disembedding or emergence of society and culture from nature was a dialectical process: The breakage of immediate production started with the erect posture in walking which resulted in the specialization of the hand which implies tools, tools imply production as human activities that transform nature. A differentiation of certain bodily forms can result in other organic differentiations. The specialisation of the hand resulted in labour and the utilisation of nature. The emergence of labour and production resulted in a co-evolution of society and consciousness. The genesis of man is due to a dialectic of labour and human capabilities (hand, language, increase of brain volume, consciousness etc.) which have resulted in developments such as hunting, stock farming, agriculture, metal processing, navigation, pottery, art, science, legislation, politics etc. Hence there was a dialectical co-evolution of society (especially categories such as labour and production) and human abilities. This dialectical view that argues that the emergence of culture is based on a dialectic of brain and body as well as of society and human abilities. This dialectical view is still topical in modern anthropology (Geertz 1973: 48, Harris 1989: 39f). Man has "created himself" (Geertz 1973: 48).

For Sigmund Freud culture is "the whole sum of achievements and the regulations which distinguish our lives from those of our animal ancestors and which serve two purposes - namely to protect men against nature and to adjust their mutual relations" (Freud 1953: 85). Freud's main hypothesis about culture is that culture is based on the permanent subjugation of the human instincts. (*ibid.*: 92). Human beings would have to permanently negate their own nature, i.e. their natural instinct for sexual pleasure, in order to materially produce their own life. Hence culture restricts sexuality, it delays satisfaction, and permanently contradicts the pleasure principle (the human being strives for the maximum realization of happiness and desires). Hence the reality principle to a certain extent restricts the pleasure principle in the sense that the human being must master his body, nature, and social relationship in the form of labour in order to survive. Freud on the one hand sees nature and society as opposed systems, but on the other hand he is right in pointing out that nature exists within the human being in the form of basic instincts.

Freud has shown that nature is sublated in culture in such a way that human instincts form a biological dimension of the human being that is sublimated in a way that makes culture possible. Herbert Marcuse (1956, 1957) has argued that Freud would naturalize alienated culture by arguing that the permanent subjugation of pleasure and desires and their transformation into cultural practices that enable productivity are a cultural necessity. Freud would argue that suffering is a natural pattern of human beings and society. "The notion that a non-repressive civilization is impossible is a cornerstone of Freudian theory" (Marcuse 1956: 17). Marcuse says that in capitalism the reality principle is repressive: the human being would be conditioned to subordinate pleasure and material participation to alienated labour and the domination of capital. The reality principle would manifest itself as a repressive performance principle, Thanatos would dominate Eros and would be externalized in the form of aggressions, i.e. the domination of nature and man by man. Modern technology due to its high

productivity would open up the possibility for overcoming the repressive reality principle because it enables a realm of freedom where alienated labour is sublated and where the instincts that have in capitalism been transformed into labour can now be positively transformed into pleasure in the form of a maximum of free time. In such a society suffering would come to an end.

7. Conclusion

As a conclusion I want to formulate a number of sets of hypotheses that form the core of my foundations of cultural theory. These hypotheses neither form a whole theory, nor are they uncontested, but they surely form a legitimate position that shall stimulate conflict and discourse. They are preliminary results of an ongoing work.

H1. Culture is neither an individual or collective state of mind nor an artefact, but a dynamic process of cognition, communication, and co-operation that produces meaningful structures that signify a whole way of life and struggle.

H2. Culture is a self-organizing system where permanently subjective knowledge and objective collective knowledge patterns produce each other in order to produce subjective and collective meanings.

H3. All social realities are permanently signified in cultural semiotic processes that are determined by social contexts and struggles and hence produce an antagonistic conditioned plurality of meanings, each of these meanings can be dominant, negotiated, or oppositional in nature.

H4. In modern society cultural development is shaped by multiaxial social struggles and their relationships to a multiaxial field of capital structure that is made up of economic, political, and cultural capital.

H5. Base and superstructure are both socially constructed and hence material in nature, they produce each other mutually, the base is a necessary, but not a sufficient condition for the superstructure, it enables and limits the variety of superstructural forms. The superstructure is a complex, nonlinear creative reflection of the base, the base is a complex, nonlinear creative reflection of the superstructure.

H6. Cultural struggle is an active process, an ideological struggle for hegemony in the modern world, it produces competing tastes and life-styles that form a symbolic capital that functions as motor of variety and continuity in modern society. Modern culture is an antagonistic process of the accumulation of symbolic capital. Fundamental cultural change can both be disintegrative or integrative, it can destabilize or stabilize the existing class structure.

H7. Symbolic capital is accumulated by both dominant and dominated classes in a hegemonic field of active symbolic struggle that is articulated with the field of material struggle, the outcome of social struggles determines the social hegemony of certain meanings and social groups.

H8. Modern cultural forms are ideological in nature because they are signs that produce symbolic difference and symbolic class struggle that serve material interests and construct mythological and imaginative meanings that want to make others see reality not as it is, but as certain groups want to define them. Modern culture functions as an ideological imposition, but to this structuralistic notion should be added that ideology is a site of struggle between different meanings that try to win active consent (hegemony), it is actively produced and reproduced by all individuals and social classes. Not only dominant, but also oppositional codes function as ideologies in modern society, they both interpellate subjects and try to invoke certain preferred meanings.

H9. The dualistic separation between nature and culture, the reduction of culture to nature, or the projection of nature into society are dangerous ideologies. Nature and society are dialectically related, society is a disembedded totality that has emerged from nature and has emergent qualities. Nature in society is socially constructed and incorporated. Society and culture form a dialectical sublation (Aufhebung) of nature.

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Antoaneta Doncheva* : The Place of Science in Culture

The contemporary civilization has reached great heights in the skill of dividing the whole into parts. We have mastered this skill so well that we have forgotten to put the parts together again into the whole they once have belonged to. The consequences of this can be found in the sad conclusion of Jacques Monod, that in the contemporary civilization man lives in complete solitude, absolutely isolated, abandoned in the end of the Universe like a gipsy boy doomed to live in a foreign world, which remains deaf to the music of his soul, indifferent to his hopes and sorrows.

The 20th century has offered new interpretations of the picture of the world - the art, the science, the mythology, and the philosophy. The questions resulting from the reflections on the different fields of human culture are related to their places, differences and interactions.

One of the essential characteristics of human knowledge is the need to be achieved an overall picture of the nature and society, which has to show this world like a harmony, where all components have their own place and significance.

Another side of the human interpretation of the world, in addition to the scientific knowledge, are religion, philosophy and art.

Can there be a unified scientific knowledge, covering sociology, literature, history, philosophy, natural sciences, and art?

The problem of interdisciplinary is first of all a theoretical problem in science and culture. It is a well-known fact that the ideal of the so-called "exact sciences" is to create a closed conceptual system, by means of which to describe the subjects of the respective sciences. It is very difficult to connect those closed conceptual systems, which is, as a matter of fact, the objective of interdisciplinary.

The problem of correlation between the natural-scientific and socio-humanitarian knowledge has already been posed by Thomas Hobbes, who saw in science the power predestined not only to reasonably govern the natural resources, but also to overcome the evil in public life.

Later on Montesquieu requested the application of natural sciences' laws to history.

Hegel is the first one, who poses profoundly the problem about the difference between the scientific and artistic knowledge and its own languages. He underlined this specific character of the language of the Art and its inability to use the abstract conceptions. Also O. Kont contributed to the rapprochement between the scientific and the socio-humanitarian knowledge suggesting that sociology should study public life according to the model of classic natural science. The Art, according to Hegel is a sensual self-knowledge of the Spirit a simple mimesis/Aristotle/, but peculiar figurative knowledge of the human soul in "its deepest infinity."

"Because of that humanity is the centre and the contents of the true beauty and the true Art."/ Hegel, Aesthetics/

The case of Niels Bohr, who explained by means of the Chinese symbol Yin and Yang physical phenomena and returned this symbol back to culture with a new enriched meaning, was an example of the interaction called by the same great physicist a "correlation of complementarity" in 1927. Bohr implemented the idea of complementarity (as an expression of interdisciplinarity) in the relations between physics and chemistry, physics and biology, physics and psychology, instinct and mind, actors and viewers.

Furthermore, John Dewey tried to use Darwinism for proving his philosophic views.

The idea of systematization of human knowledge and of reducing the varied cognitive forms to a certain unity attracted the attention of the followers of the systematic-synergetic approach, who believed that the exact and logically grounded humanitarian knowledge was needed just as much as the strictly scientific natural science.

Thus, Charles Peirce included in his philosophy the method of the exact sciences, and as the founder of semiotics, tried to prove that the scientific method targeted at achieving degrees of truth, and first of all targeted at achieving the objectivity of things, most fully matched the semiotic nature of culture. On the other hand, Peirce made logics subject to ethics and aesthetics, and criticised his opponents, the positivists. The American philosopher presented the idea of culture as accumulation of general

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knowledge serving as the basis of public life development, as well as the idea of the importance of the signifying systems preconditioning the increase of general knowledge.

His follower Charles Morris cherished the hope that semiotics would connect the different fields of human culture. He regarded semiotics not only as one of the sciences, whose subject was the system of signs, but also as a tool for combining the individual sciences. By means of semiotics Morris envisaged to save all sciences from the prevailing Babylonian chaos.

His understanding of the sign nourished this hope. In Morris' theory, the status of sign possesses not only the real signs (speech, text, painting, music), but also the natural phenomena.

I cannot tell, whether semiotics lived up to the expectation of playing the unifying role regarding all other sciences, because already in Ancient Greece the unifying link between the exact sciences, the humanities and the art has been entrusted to philosophy.

Herbert Spenser has defined the main objective of philosophy as synthesizing and systematizing the data of the individual sciences and achieving a unified knowledge.

Let us assume that philosophy is a theory of the spiritual assimilation of the world, i.e. a form of self-knowledge, whose objective is not only to synthesize the world knowledge, but also to accumulate knowledge of the human life, its meanings and values.

As far as the post-classic philosophy today assumes that being is not a static, stable matter, but is situated in a state of constant happening, and admits that the Universe does not have any initial meanings, we have to acknowledge the process of generating meanings.

In the post-modern interpretation the realistic epistemology comes to an end, because it has stopped reflecting the environment and the traditional differences between belief and knowledge, visibility and reality. For the upholders of this idea (Jean Baudrillard), the hope of matching theory with reality was illusionary and insane.

In the philosophy of French existentialists the scientific-technical progress was dethroned as opposing personality and its inherent values, while the philosophy of Husserl posed the problem of the crisis in science. In his work *Crisis of European Sciences and Transcendental Phenomenology* the philosopher stated that contrary to the Renaissance Epoch the contemporary sciences were drifting away from the humanitarian values and were losing their focal topic, namely their *Weltanschauung*-basis. Husserl criticized mainly the positivistic framework, which stood for the necessity of strictly searching the scientific truth disregarding the essential issues of human life. Under the influence of positivistic methodology, philosophy seemed not to be able to fulfill one of its main objectives – presenting sciences with humanitarian values. This led to underestimating human culture as a whole. Absolutising the pure sciences resulted in lacking understanding of the purpose of man in the world and as subject to history and culture. The “pessimistic” *Weltanschauung* was related to this state of affairs witnessing, according to Husserl, the “crisis of the European sciences”, which had turned into tools failing to assume responsibility for the fate of mankind.

This line was continued also by his student Martin Heidegger, who criticized scientific research because of its final goal to dominate nature. In his view scholars and scientists were just toys in the hands of the “will for power” disguised as desire for knowledge, but as a matter of fact interested solely in dominating “things”. In this way Husserl and Heidegger continued the thought of Kant that the world studied by science and accessible for the positive knowledge was the world of the phenomena. Scientists could neither achieve the meaning of the “things in themselves”, nor could they relate the questions they asked to the real problems of mankind. Beauty, liberty, ethics could not be subjects to the positive knowledge. They, as the great German philosopher affirmed, belonged to the world of noumena, i.e. to the field of philosophy, and were not connected with the world of phenomena..

Philosophers like Maurice Merleau-Ponty did not criticize that sharply the scientific-technical progress, but rather questioned the common way of explaining everything that was going on in the world by means of different myths, as for example the myth of the almighty science. Through those myths scientists tried to turn life into a study laboratory believing that they would be able to solve all problems of mankind with the help of the mind. For Merleau-Ponty the most productive century in metaphysical terms was the 18th century establishing the sciences of nature without turning the ontological part into their subject.

Subject to sciences was everything without this or that aspect of being, because together with the external being, there was also the being of the subject, or the soul, the being of his ideas, and the relation between them, as well as the internal attitude towards truth. The philosopher was not against sciences as such – his pathos was directed to something else – against providing sciences with the status of possessing the only genuine knowledge. According to him, sciences and humanities might not be either opposed or indifferent to each other.

They had to complement each other. He pointed to himself as an example of a philosopher widely using the conclusions of experimental psychology, nuclear biology, quantum physics and cybernetics in his own research.

Nevertheless, the scientific-technical boom of the 20th century provided the basis for the following conclusion of one of the UNESCO reports (translator's note: freely cited after Bulgarian translation):

"In the course of more than one century the scientific activity in the environmental cultural space has increased so much that it threatens to maximally fill this space in the near future. Scientists are inclined to regard such a danger as illusionary and to explain this tendency with the high developmental speed of science hoping that the other lines in culture will sooner or later resist science and will make it serve mankind. Others think that the triumph of science entitle it to occupy the leading position in contemporary culture, even more that, according to them, the latter deserves a further development just as much as it can implement the scientific apparatus. Again other scientists express a tragic feeling of a dark perspective that man and the whole society will become obedient marionettes of science and already see the ghost setting up the future cultural catastrophe".¹

In this sense, the collapse of the former epistemological ideas is moving in different directions and is producing evolution in the cognitive methods, which leads to unifying knowledge of scientific and nonscientific origin in the contemporary paradigms. The need of establishing a thorough creative Weltanschauung has arisen.

To the best of my knowledge, I think that as mediator and unifier between science and the other forms of culture may serve the art and the artistic-poetic Weltanschauung related to it, but this could be possible only after realising the extraordinary role of the anthropologic factor showing that the cognitive process depends also on the interpretative activity of the subject. We must bear in mind, that this activity is accompanied by different in their nature sign and objective representations including also the activity itself, the quintessence of social and cultural experience. A central problem of all speculations in the field of contemporary art is also the problem of the ratio of underwent changes in the picture of the world. The term "open work" introduced by Umberto Eco becomes a metaphor in the explanation of the attitude of man not only towards the work of art, but also towards the knowledge of the world as in general. It is fully compatible with the term "open system" used in the synergetic. Many researchers rethink the possibilities of art regarding the representation of the world. Jean-François Leotard has written about the non-representative aesthetics, Baudrillard and Delauze – about the art entering the stage of simulation, and Derrida - about the "new mimesis". In the words of Theodor Adorno, art is the only means by which contradictory tendencies can be revealed and changed resulting in the scientific-technical revolution. Art becomes a "social knowledge including the essence not by discussing it, illustrating or imitating it. Art fills the gap between subject and object".²

In this context the ideas of Lyotard can be understood, namely that the contemporary art should not "set up" reality, but invent hints about the "thinkable", which cannot be represented.

For me, one of the most interesting theories is the theory trying to bridge over the different parts of culture, as described in the book of Nobel Prize Laureate, the well-known Belgium physicist-chemist Ilya Prigogine, in co-authorship with Isabelle Stengers Order out of Chaos. Man's New Dialogue with Nature published for the first time in 1974 in French, and afterwards translated into many other languages. As a matter of fact, its title in French was "La nouvelle alliance". The book produced lively discussions at that time involving leading representatives of different fields of culture and science. This was not just another new book, but a new message redefining the place of science in contemporary culture. According to some critics, it was possible that Prigogine and his colleagues from the so-called Brussels' School should give new impetus to a next stage initiating a new dialogue not only with nature, but also with society. In very simplified terms this theory can be described as follows – some parts of the Universe can work as mechanisms, indeed. Such closed systems are only few, compared to the number of systems in the Universe. The systems we are interested in are the open systems. They exchange energy, substances and information with the environment. To the open systems belong the biological and social systems, which means that every attempt to understand them within the framework of the mechanistic model will fail. Furthermore, the open character of the larger part of the systems in the Universe implies that reality is not an orderly, stable and well-balanced arena. The main powers in our environment are the instability and the non-balance. The wish of Prigogine and his colleagues, as he describes it, is to combine the western tradition focusing on experimenting and quantitative formulations with traditions such as the Chinese one with its ideas of a spontaneously changing, self-organised world. We do not have to become nostalgic about the past or mistrustful regarding the present consequences, but rather have to try discovering the unifying picture of the world through the vast variety of contemporary natural sciences and fields of culture, because the main objective is, so Prigogine in his book, to harmonise our knowledge of man and nature.

Alvin Toffler wrote with excitement in the preface of the English edition that the ideas of Prigogine and Stengers played a central role during the latest scientific revolution. This book returned the natural sciences and the humanities to a world, where things hardly remained in a stationary state, where they seldom kept equation or remained constant. The book would help to establish a new order answering even the most sophisticated questions of the new century.

Protagor said “ The man is the measure of everything”. This aphorism of the ancient Greek Philosopher expresses the essence of the role of the Art in human zivilisation.

Somebody could tell that the humanism is also the starting and ending point of any scientific work.

I think that in the science humanity is oriented to help the human being understand the world outside and live with it in an harmony as much as this is possible. The humanity in the Art is more oriented to reveal the ethics and esthetics values in the human life and to show the eternal values of the human soul.

We must not forget that the art and Literature are also the knowledge about the moral and politics. Any society, with would like to develop itself has to give a new meaning to the role of the Art in human life.

The progressive changing in a society could be done on a base of the scientific development, but also revealing the deepest truth of any piece of Art and it's message.

I myself prefer the knowledge, that is not limited by analytical stringency and the strictness of the facts, but the knowledge that offers me to achieve my deep not alienated I-a knowledge, that leads me to the catharsis.

I think that in some sense the devoting to the “scientific thinking” would be pernicious to the human world, because the Art gives to us the Truth of the Revealing beyond the interpretation of the established facts and it is able to find the hidden sense of the things and events.

The culture is always socially stronger and long-lasting then the Art, because the first one assures the stability and self-preservation of the society. But the art is the corrective of the culture and it's conservatism. The Art is always a challenge, because it magnifies and denies at the same time. It is the base of the impulse of the man to uncover again and again the world or et least himself and his own illusions, “because no one of the artists accepts the realty”/Nitzsche/

.The Art recreates the world, because it is its longing and ambition. This recreation, born from the rebellion, is one of the most important reasons of the social and human development.

In this sense the art is the corrective of the culture, because the human genius put all the rules and regulations into an verification. The Art, wrote Hegel, makes any piece of human creativity a hundred-eyed Argus to could see the inner soul and the spirit of any thing from all the points of view.

But of course the meeting point of science and Art is the man.

Бележки

1. This is a free quotation of the book by Ilya Prigogine & Isabelle Stengers, *Order out of Chaos. Man's New Dialogue with Nature*, Keineman, London, 1984.

2. Adorno, Th. *Aesthetische Theorie*, Frankfurt am Main, 1970.



Team 4: “Being” Social Systems: Awareness and Enactment

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Team Report: Being Social Systems

This paper is a summary of the processes and outcomes of a Conversation held in Fuschl, Austria from April 18 to 23, 2004. It was part of a larger meeting sponsored by the International Federation for Systems Research, which is held every two years. Five teams were involved in separate Conversations this meeting.

This Fuschl Conversation continued a theme that was begun at the 2000 meeting. Its intent was to build upon and further the possibilities for social systems design, which is the core theme of the Conversations as introduced by Bela H. Banathy. (The Conversations were developed as an alternative to conferences, where typically a great deal of information is presented but little true knowledge is developed or gained amongst participants.)

While the goals of social systems design through Conversation are admirable, the systems communities as a whole have yet to articulate any meaningful and coherent understanding of human social systems, as such. Efforts to affect systems, from family units to international economic and political systems, tend to borrow from an array of disciplines for theory and insight, but typically fall short or fail at the point of implementation.

The goal of this Conversation team was to continue to explore human social systems specifically, including the emerging realm of "virtual" systems, in an effort to understand how we as individuals participate in them (consciously or not) and to search for means by which we might affect them purposefully and positively.

The conversation began around the triggering question, "How are we social systems?" Ultimately, human social systems only exist to the degree that we, as humans, perpetuate them through our participation. Most of our activities on any given day, though, involve habitual routines to which we pay little attention. It would seem that changing them should require little effort – that we could simply choose to act differently. Just being aware of our actions, much less how they fit into the social systems of which we are parts, though, is more difficult and complex than might be assumed.

An agreed understanding at the beginning was that the point of the Conversation was not the debate of theories, or even the building of theory per se, but an increased awareness of how we create and participate in social systems. While the team encountered all of the mental / rational / theoretical difficulties in understanding social systems that would be expected, in the end we used the opportunity of Fuschl to speak from our own personal experiences. In other settings, we might have focused more on "model-building", as that type of knowledge is more transportable or replicable to external parties, but since we had the luxury of a week to experience "becoming" a social system, we took advantage of that.

Beginning

Like all conversation groups, the first step involved establishing a basis for communication, which is more than just understanding of words. In this case, the goal (recognized in hindsight and reflection) was that of creating a sense of symmetry between the members, in order to allow for the possibility of a deeper level of communication. (Symmetry was discussed in terms of the transition from states of dependence to independence to interdependence.)

As is also common of most introductions, there was a sharing of both ideas and stories of personal experiences. Charles shared his stories of living through several social crises: the Nazi invasion of his home country; the fall of the Belgian Congo, and; the social and economic crises of Argentina, where he now lives. There is a great deal to be learned from others' experiences, and these were quite relevant to the Conversation topic. The difficulty was finding a common understanding and sense of meaning about them, since they had not been experienced by the group as a whole.

The discussion migrated between stories, theories and concepts, trying to find a common frame of reference by which the team could truly begin its work. Human social systems certainly share some characteristics with social systems in the greater animal world, including insects. More complex neurology and language allow for systems of meaning, which obviously create distinctions in human social systems, though. Behavior seems to follow patterns, but is clearly not always logical or rational. Finding ways to talk about the experience of social systems, as opposed to talking about theories or related topics, was difficult, to say the least.

As a way of attempting to bring the focus of the team to present experience, an exercise was introduced in which numerous random, small objects (markers, tools, a harmonica, etc.) were presented, and the team was asked to spend 17 minutes – in silence – just “making something.” Significant discomfort appeared, and after about 12 minutes the team decided to abandon the exercise. One member simply put his head down on a table, remarking that he was not interested. When probed further, the explanation was, “I don’t understand, so I’m not interested, and I don’t feel any connection.” This proved to be a very useful insight about relationships within social systems, in general. Additionally, the importance of order and predictability for people was noted.

Making Movement

The first movement towards an initial sense of symmetry within the team occurred through an exchange between two members that could have been conflict-oriented (one member being facetious about something another had said.) Instead, it resulted in the two taking a risk of sharing more personal information than was anticipated. Because this was treated respectfully, it ended with an increased sense of trust in the team, as a whole. (This was later interpreted as an exploration of how authentic the individuals in the group could be, as part of the larger collective.) This was the first point in the Conversation at which a shared experience made a difference in the interactions, and perceived connections, between the team members.

Inevitably, though, there was a need to continue searching for common ways of describing and understanding the concepts that were being introduced. Questions of how choices operate within social systems were raised and discussed. A framework from A. L. Hirschman was introduced, describing three alternatives for participation: exit, voice, and loyalty. Essentially, people may participate in organizations and larger social systems in a variety of ways, including as customers, members, citizens, etc. If they become dissatisfied with the system, the simplest option is to leave it – to quit participating in whatever ways they have been. (How easily this is done, of course, depends upon many factors, including what one gets from the system and whether other options are readily available.) The more difficult option is to stay and voice one’s displeasure, in hope of improving things. The notion of loyalty helps to create the likelihood that people will stay and exercise voice, as opposed to leaving and therefore diminishing the system. This proved to be a very useful framework, through which the team was able to talk at a deeper and more common level about issues of active participation in social systems.

An effort was made to explore traits that might be considered “most fundamental” for humans, by looking at recent archaeological findings, and how these have been speculated to relate to language, technology, etc. (It has been proposed, for instance, that the drawing of symbols coincided with the presence of language, which could date back almost 100,000 years.) This led instead to more discussions of theories, including those of Korzybski (time-binding); Ernst Becker (human evil); and Buddhist notions of “clinging” and its relation to human suffering.

Issues of risk and conflict within social systems were explored, along with examples of cultural patterns and stereotypes. Within a culture, for instance, people can be expected to respond to issues in relatively similar and predictable ways, depending upon what is normal, acceptable, important, and so on, for them. Knowing these expectations, they can be used as leverage or for manipulation, to some extent.

This eventually led to a discussion about identity and its meaning within social systems (e.g., individual identity, organizational identity, etc.) Questions were raised about the singularity of identity, and whether individual entities had or could have multiple identities. The conversation gravitated to incorporate the power of double-binds and paradoxes within systems, and the Conflict Theory of Gerhard Schwarz.

By the end of the first day, a surprising level of initial cohesion had been reached with the group itself, but with this also came a sense that this group seemed to be seeking different guiding principles than the other Conversation Teams. The contrast appeared in the late afternoon session of the first day, when all the teams gathered to report on their initial progress. The sense was that the other teams were generally involved in just the things that this team was trying to avoid, which was the discussion of theories and ideas in an abstract sense. This, in turn, helped to clarify this team’s own focus and sense of symmetry even further.

The increased sense of symmetry and trust allowed for more risk-taking and more exploration and creativity at both the individual and group levels.

Day Two

By the second morning, an identity seemed to be developing for the group as a whole, at the collective level, and a sense of identification by the individuals with this larger identity. The team used this as an opportunity to continue exploring identities. While all seemed to agree that a surprising amount of progress had been made on the first day, participants were (understandably) reluctant to declare any sense of membership or commitment to the team, as such. There was tentative agreement that the team had begun to form some identity, and that there was some sense of identification with the team by its participants. This allowed further discussion about sub-groups, and core and periphery within social systems.

Issues of contrast and conflicts (distinctions) were raised. The notion of identity continued to be explored, including questions of individual vs. group or organizational identity. The concept of covenant relationships was introduced, with discussions about how these might differ from other types of relationships, and how they might affect individual identities. Hierarchy and structure, along with purpose and order, were considered, as well.

Just before lunch, it was suggested that the team take a short walk together into the village of Fuschl am See (a very small fishing / resort village with restaurants, shops, inns, and a cathedral near the center.) The thought was to investigate what if anything could be noticed or understood about social systems simply from observing them. The team first visited a small cemetery, and a plaque just outside the cathedral honoring the soldiers of two successive generations from the village, members of the same families who had died in WW I and II. Individually, the team members briefly walked around the plaza in the town center and then converged on a restaurant for lunch together.

After lunch, there was a very simple debriefing of the experience. (There was no formal method of data collection or analysis used, and therefore no common frame of reference for observation established in advance.) There was some discussion about the simple repetition of patterns that people repeat daily, with little or no notice. As actors and participants in these patterns, it's extremely difficult to understand their relationship to social systems on a more abstract basis.

The conversation gravitated to questions of symbols and their meanings, and to story-telling and other activities that perpetuate patterns in social systems, and that reinforce their identities. It shifted to the relationships between individuals, in terms of power, symmetry, and dependence versus independence, and then expanded to include questions of arrogance and learning, trust, patriotism, and cynicism.

Despite the fact that the topics of the Conversation shifted regularly and varied widely, the team at this point was beginning to address issues very central to the formation of social systems. How do individuals participate in the creation of collective entities, and how do the identities of individual persons and social systems relate to each other? Just what types of participation are required in order to create and maintain social systems, and how much diversity can be allowed or tolerated?

By the end of the second afternoon, a belief in the importance of the team's work by its members had developed to the point that the team felt it necessary to express these ideas actively. Given the brief time in which the team members had even known each other, collectively, this sense of internal cohesion appeared as an increased distinction between this team and the others in the larger Fuschl Conversation. By attempting to develop its own sense of norms, the team found itself somewhat distanced from those of the other teams – a process that is probably both common and necessary.

Day Three

The third morning, individuals engaged in the use of metaphors and the telling of personal stories and examples. Prior days had involved fairly complete presentations of models and viewpoints, but the use of stories allowed for deeper and more implicit understandings. A central story of the morning was that of the "101st Cow" (a variation of the Tragedy of the Commons.) In brief, the story is about a common pasture available to all 100 families in a village, but limited to one cow per family. A farmer notices that his neighbor begins to sneak in an extra cow each day to graze. This farmer then begins sending an extra cow of his own. Other farmers notice and do the same, and soon the pasture is overgrazed.

In the context of this Conversation, the story raised questions about many of the topics covered earlier: patterns that form social systems and how closely these must be maintained; tolerance for differences by individuals; trust, etc. The questions were carried into other examples and stories in

order to clarify them further. This eventually led to a discussion of the differences and / or separation between biology and human social systems.

A proposal was made that human social systems might be quite different than others found in nature, if they are based primarily in language and other symbolic forms (as opposed to more physical connections, such as scent, used by other animals or insects.) The team found it hard, though, to talk about social systems without referring to biological systems. Most likely, this was out of need for creating distinctions (defining “what is” by contrasting with “what is not.”) Examples included insect colonies, human-pet interactions, similarities with early childhood behavior, use of sign language by primates, and so on. It became clear that the topic area was far too broad, and too indefinite so far, to be covered in the Conversation. Discussion returned to what could be known and addressed in this context.

All groups had the afternoon off, which allowed a time for more informal discussions and reflections.

Day Four – Glimpses of Clarity

The morning of the fourth day began with more personal reflections and stories of past experiences. The theme that emerged was one of chaos and order. Previous topics were brought back in new ways as well, as new relationships became clearer in light of further discussions. Part of the focus fell on the ways in which repetitious patterns of human behaviors, and the symmetry between individuals, work to create identities and a sense of order in human social systems. These, in turn, seem to create a sense of predictability about both individuals and group identities (e.g., “I know who you really are,” or “I know what to expect of you.”) The concepts of exit, voice, and loyalty were also reconsidered and incorporated into the emerging understanding.

Conflict, Distinction and Symmetry

At the break during the fourth morning it was suggested that all teams convene again in a large group meeting to try to regain some focus on the Fuschl Conversation as a whole. The large group sessions in the late afternoons, intended for sharing information and updates between the teams, had been much less productive than desired.

Originally, all teams participating in the Fuschl Conversation had been focused, to some degree, on the social systems design process described by Bela H. Banathy. For most of the Conversations, Bela had been in attendance to “shepherd” the teams as they met. Over the years, though, both the team topics and their processes had evolved. Bela’s inability to travel to the Conversations after 1996, and then his death in 2003, had exacerbated the changes further. There was now less clarity about the concept of a Conversation, and less of a foundation for understanding across the teams.

The potential value of an all-team meeting was well taken, but the probability of being able to accomplish what was needed and intended in the given time-frame, and in light of previous all-team meetings that week, was minimal at best. Since this was the last working day of the week (the next morning being only for reports of results in an all-team meeting), members of this team were given the freedom by its facilitator to opt out of the larger meeting and to continue their work, which was seen as a more valuable use of the time under the current circumstances. The team facilitator would attend the larger meeting on behalf of the team, in order to have input into the process.

In essence, the team – rather consciously – chose to exhibit the sense of voice that it had been exploring and developing. The patterns around which the other teams appeared to be operating were not those of this team. (This did not make them wrong for the other teams – they were simply not authentic for this team.) Clearly, the members could have demonstrated loyalty in a different way to the larger group, but not without relinquishing a sense of loyalty to themselves, and to their own sense of purpose at that point.

Not surprisingly, expressing voice resulted in conflict. The choice of the team members to remain involved in their own Conversation rather than joining the larger group process was taken as an affront. For this and other reasons, the larger group abandoned the idea of meeting and returned to the individual teams. There was unfortunately no way to explain the team’s actions to the larger group at that point, and probably no words by which it would have been understood.

The team’s conversation for the rest of the morning centered on the ideas of Emery and Trist, with respect to systems and their environments. In our current age, the environment is considered an active actor rather than a passive context for systems. Emery and Trist describe five different

environmental types, ranging from the most simple and stable to the most complex and turbulent. This framework was explored in terms of its application to our experience of systems, and through additional stories and examples from which the ideas could be better clarified and understood. A key example involved the recent social turmoil in Argentina.

The afternoon of the fourth day was spent in collective reflection about what had been learned through the week, for purposes of developing a summary. The initial attempt was to categorize the team's outcomes in a model or framework of some sort. Attempting to capture this in traditional, theoretical terms, though, proved problematic for the group. As soon as the process was begun, the energy within the team diminished noticeably. It worked in opposition to the process agreed upon by the team the entire week, to stay away from the debate about existing theories.

Moving to abstract theory disconnected the individuals from a sense of meaning about what they had experienced. Capturing the process in a narrative format seemed to preserve more of its authenticity, while still providing information that might be shared with others (though not in the way that it was actually experienced by its participants.)

The "being" of social systems is apparently something that is experienced -- that we experienced -- but is difficult to describe (at a deep level) in an asynchronous way, after the fact. "You had to be there". In a more general sense, everyone is involved in social systems everyday, and is constantly negotiating their way into new social situations. A key learning was that we need to come to new situations with open minds and a willingness to learn, and, if things work well, the social system can become cohesive. Cohesive doesn't imply that we agree on everything, or that we fall into a mutual codependence, but that we become interdependent, and create behaviors in the group as a whole that are not inconsistent with the beliefs of the individuals.

The uniqueness of this Conversation was its focus on the lived experience of a social system. As small an example as it was -- one week of six people coming together for the purpose of a common exploration -- it allowed for a sampling of issues with much broader application and meaning. Though no absolute conclusions can be drawn, with confidence about generalizability, a great deal of learning and insight did take place. As intended at the beginning, the point was not to develop theory for purposes of informing other people, but for the individuals involved to experience, in some small way, what it is to be consciously a part of a social system.



Team 5*: Y3K and a Meta-System Design Field

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Team Report: Towards Y3K - a 2004 perspective on hominisation with some emphasis on educational systems

BACKGROUND

This report provides a summary of the further progress made by the so-called Y3K group at the 12th Biennial Fuschl Conversation in 2004. The group continued the topic explored in 2000 and 2002. The work in 2000 focused on developing an image of an essentially more desirable future in terms of an evolutionary guidance system (see Banathy, 1989) for the Year 3000. In 2002 the conversation explored what systems thinking might need to encompass in Y3K, if it were to make a major contribution to major social systems design on a global scale in the twenty-first century. The choice of Y3K is not precise as a future but simply serves as a metaphor for the design process and forces us to accept that we are not powerless to act now in seeking a better future for humankind.

At the end of the 2000 conversation a set of markers for an outline evolutionary guidance system (EGS) had been proposed (Brahms et al., 2000). In 2002 we recognized that contemporary systems design (CSD) was primarily developed for use within a framework of modern western industrial society e.g. (Dyer et al., 2002) and is underpinned by the principles and philosophy of the industrial age. It reflects the central concepts of classical western science. As such it has severe limitations for use in large scale/global social system design contexts such as idealizing Y3K. The 2002 team concluded that CSD must be recognised as a methodology with fixed values of key parameters of "application of time" and "culture" (see the plane of CSD in Figure 1 below). As such CSD can only be seen as a sub-set of methodology which may be required for work on a global scale. Other key parameters influencing methodology were anticipated. GD has since suggested "progress" as a further dimension and Figure 1 is adapted from the 2002 report to show this.

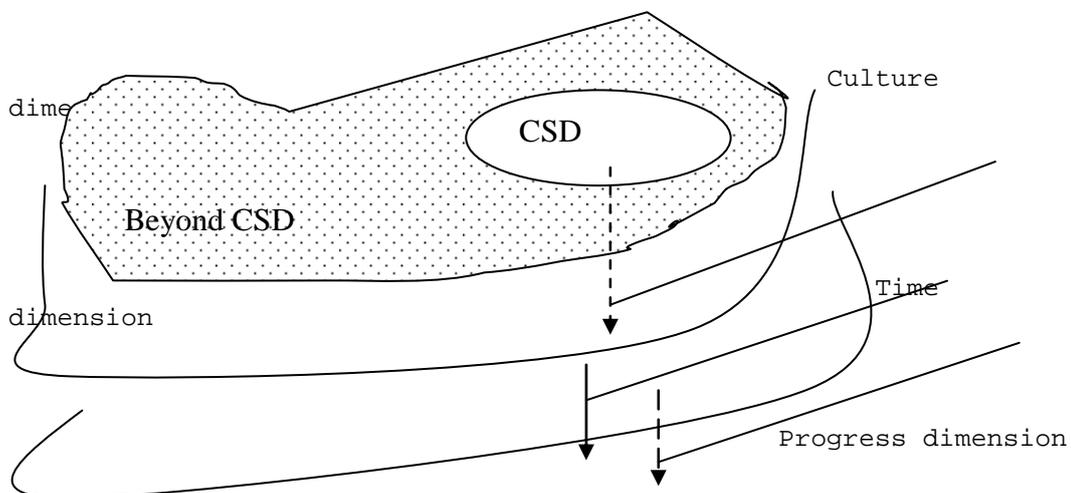


Figure 1 Two-dimensional model of CSD contrasted to the multi-dimensional needs of truly comprehensive systems design

This time, at Fuschl 2004, we hoped to explore these ideas further and to draw on the expertise of two new members, KP and PAMG. The group made considerable effort before the conversation to prepare for the meeting. Following the ideals of systems design input papers were circulated in January-March 2004, enabling the co-ordinator to prepare a summary design of suggested trigger questions (see Appendix A). The diagram includes triggers suggested by Gary Alexander and Peggy Gill, who in the event were not able to attend the conversation. These triggers are included for completeness, as they were not in themselves particularly useful as conversation starters.

INTRODUCTION

The original aims for Fuschl 2004 were to seek further understanding of the issues we faced and to try to propose specific actions that we, or others, can take in the next several years as first steps toward the types of ideals for Y3K we identified previously. In the event we needed to spend time on orientation and integration of two new team members and exploring how their ideas and ideas drawn from the disciplines of (i) complexity theory (KP); and (ii) artificial intelligence and cognitive science (PAMG) might provide insights to the overall design issue of Y3K.

No doubt due to one common aspect of our backgrounds – the subject of education systems for Y3K emerged as a repeating theme during our conversation. A new educational issue of, critical thinking capabilities, also emerged. This was linked to the proposition that - “what generations learn from their past and from their present has value in helping them define their own future” - is likely to apply throughout the passage of time to Y3K. The issue is what kind of contributions could we make for critical thinking capabilities of the Y3K people? The subject (what) and method (how) of learning are likely to change by Y3K, as indeed how critical thinking is to be defined. However, the need for capabilities of critical thinking seems to be a universal factor in education, regardless of time. If Y3K people have not enhanced their critical thinking capabilities, a goal of global human betterment would not have been achieved, notwithstanding further technological progress. As a minimum this seems to require that future generations are educated to be much more aware of: their evolutionary path; their role in relation to machines that they may invent to take on laborious tasks; the need to reduce sources of inequity; and their relationship with their environment and consumption of its resources.

This report describes both the process of our conversation and the avenues we explored. While we had an initial phase of generative dialogue and then attempts at formative dialogue, at several points in the latter we needed to reiterate back to generative discussion.

GENERATIVE DIALOGUE

As part of our generative dialogue, some issues around the basic ground had to be revisited as two colleagues (KP and PAMG), were new to the team. This extended over several days due to PAMG's delayed arrival. The process of briefing and sharing inputs was also important in gaining consensus and supplements to past work, and in providing sparks for our conversation.

As part of sharing inputs, the team members exchanged examples of cultural relativism. KP confirmed that time was an important factor in India due to its large N-S geographic spread, use of a lunar-based calendar and variation in harvest. This meant that the New Year, traditionally to celebrate the gathering of harvest, was celebrated at different times of the Western calendar. YH described MIS as another example of the non-applicability of western ideas to Japanese society. MIS is explicitly based on western cultural assumptions; it reflects a top-down approach and calls for management data. While it looked good, it could not work well as Japanese cultural assumptions and business practice are different. For example, in the case of an MIS relating to sales, a Japanese may make use of personal contacts to achieve sales targets and could not necessarily be judged on prescribed routes in typical performance data in a western style MIS e.g. “telephone calls made in the last month”.

We also revisited the notion of what it was to be human, which had concerned us in 2002, and which had shown a divergence of opinion between a view of humanity that was linked to existence on Earth as part of a *chain of being* and a more open-ended view that allowed for colonization of other Planets and beyond, and isolation from other forms of life. We noted the apparent possibility of ever increasing technological modification to the human species. We had previously discussed the prospect of robotic modification to replace worn out body parts. YH introduced a new possibility of genetic engineering to reduce susceptibility to disease, and whether such technology could be extended in future to reduce some human instincts for aggression and other less desirable behaviours.

Another thread to the conversation at this stage was “Do we try to change people and their culture, or do we change our methodology?” In principle all agreed that, following the systems design principle that people cannot design a system for someone else, the answer to the question was the latter. At one level of consideration, those groups who wished to have no part in change processes should be left alone. However, we also believed that we should not be prevented from examining possible ways of reducing inequity e.g. in terms of distribution of resources, reducing inhumanity to others, and extreme unfairness where it was reasonable. In this respect we were supported by the views expressed in a United Nations University think tank paper (Glenn and Gordon, 2003, p.9):

“.. it is increasingly clear that cultural change is necessary to address global challenges. The development of genuine democracy requires cultural change, sustainable development requires cultural change, ending violence against women requires cultural change, and ending ethnic violence requires cultural change. The tools of globalization, such as the Internet and global trade, should be used to help cultures adapt in a way that preserves their unique contribution to humanity and yet helps to improve the human condition”

We were happier with the first two sentences from the UN University document, than with the last as this seems to carry with it the implication of particular methods of action that may not be appreciated or appropriate. Also “adaptation” of culture implies a one-way process from the “more advanced, better, to the less advanced” and we would prefer a concept of synthesis of culture following analysis, and thus a two-way process between cultures. The closed non-adaptive society, for example, one comprising those holding extrovert fundamentalist beliefs (Ackoff and Strumpfer, 2003), was recognised as the most difficult, and likely intractable, problem.

The inclusion of another non-Western member, Kumkum Prasad, to the group was invaluable for increased understanding of the issues. KP explained that over the last 4000-5,000 years Turks, Persians, Moguls and the British had invaded India. India had been successful in adapting to most of these influences. She also reflected that as a consequence the Hindu religion had also adapted and survived, but that it took many forms from the orthodox (whose believers tend to be less-educated in the Western sense), to a more laissez-faire type of Hinduism (who believers tend to be more educated). KP also linked the belief system to life and survival experience. She explained that the cow had become sacred for many primitive societies in India because it had been the source of their survival, through provision of milk, leather and other resource to the family. Thus it would not be eaten. It was not worshipped, contrary to western belief, but it was still regarded as sacred in the sense of “it was necessary to be good to it”.

No formal conversion ceremony to Hinduism existed; one was Hindu by birth. Thus from some (orthodox) perspectives, adaptability was a weakness of Hinduism. It did not for example have special schools to inculcate the religion in the young. This was in contrast to Muslim society who tended to inculcate their religion in the young through the Madrasa school system. This might be a powerful influence in sustaining the extrovert fundamentalism described in GD’s input paper.

As an exercise of inducing changes in human behaviour for a better world in Y3K, GD brainstormed some ways in which change to current human behaviour patterns might be brought about:

- (1) alien invasion, uniting all Earth people in a common cause
- (2) a world-wide natural disaster, forcing pooling of remaining human resource to begin a recovery programme
- (3) the simulation of circumstances in which groups normally in conflict would be brought together and made to recognise that they will only achieve goals or ensure survival if they work collaboratively as a group.

Neither of the first two was predictable or welcomed. Suggestions for (3) included closed colonies in remote areas on Earth or Mars - this could take the form of a **Noah’s Ark** where a male and female from each of the various nations or ethnic groups were placed together to work cooperatively for survival, or placing such groups on a desert island with a need to work together to build a boat to ensure that they can leave the island. The notion would be that others from these communities could observe the cooperation through remote sensor technology, and hopefully adjust their own attitudes about the possibility of their working with a group with whom they have been hostile. There were some obvious difficulties with the more ambitious scenarios and unclear if the associated technological problems could be overcome. It was also possible that a range of less ambitious simulations based on the principle of *recognizing the value of others* might be developed. We felt that these ideas could be explored during a later conversation.

When Petros arrived later, he made a comment that even though such a simulation could be successful among a small number of people (who might grow to identify with each other), the situation could be a lot more difficult for a large group, such as an entire city, to get along with other large groups of people.

Conceptual and methodological contribution that complexity theory can make to Y3K and Social Systems Design

The group invited KP to describe and offer insights on how Complexity Theory might help with the Y3K issue. As the field was new to us, a summary of her description is included below.

KP explained that complexity theory is not a tool but a mental model. It introduces a revolutionary way of looking at the world and highlights the limitations of the traditional thinking. Complexity Science is an interdisciplinary research enterprise investigating the fundamental properties of living systems by various means including simulation of life-like processes in a very wide domain. Complexity Theory, therefore, is the synthesis of results and findings of a number of scientists working in different countries and in a number of different disciplines; there is no single unified theory of complexity. The diagram below summarises some of the key disciplines and their contribution to the science of complexity.

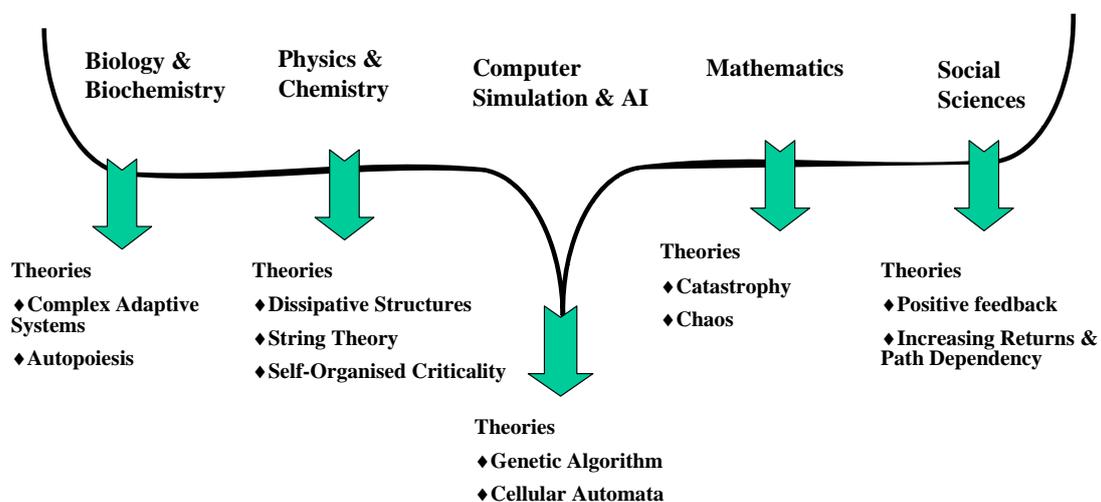


Figure 2: The disciplines of complexity science

The common factor in the work is that they all involve study of the dynamics of complex systems, ranging from individual cells, organisms to large ecosystems, and observation of how emergent order arises. The researchers have developed a number of new tools that solve many complex problems by imitating the way living organisms handle the problems they face in the battle for survival. Complexity theory takes the view that:

- systems are best understood as a whole
- that cause and effects are not separate and the whole is greater than sum of the parts
- critically interacting components of a complex system self-organise to form potentially adaptive and evolving structures.

We noted that all three of these are also central to what we call systems thinking.

KP suggested that the most relevant theory to the Y3K issue, from the human organisations and management perspective, is the theory of complex adaptive systems (CAS). She described its major characteristics as:

- CAS consist of intelligent agents. Agents operate according to a set of simple local rules.
- CAS are open systems and interact with their environment. A CAS evolves and co-evolves with other systems both by competing and co-operating with other systems in its environment.
- CAS operate at the edge of chaos.
- The process of change and development in CAS is non-linear and irreversible.

- There is no centralised control in CAS.

The interaction, interdependence & feedback between agents results in spontaneous self-organisation or as Stuart Kauffman (1995) calls it 'order for free'.

Self-Organisation & Emergence

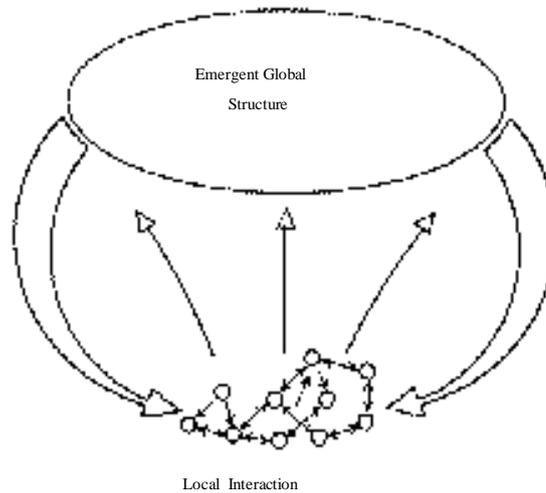


Figure 3 : Chris Langton's view of emergence in complex system. Source: Lewin (1993)

Kauffman's work focuses on the key concept of Complexity Theory namely 'self organisation: the spontaneous emergence of order'. He believes that natural selection plays an important role in evolution but is underpinned by self organisation.

"Neo-Darwinism is not enough to explain order of the living world: cells, organisms, ecosystems. Much of the order in organisms may not be the result of selection at all, but of the spontaneous order of self-organized systems (autocatalytic sets)."

Much of Kauffman's research tries to find natural laws that could explain the origin of life. He does not eliminate randomness. His theory of autocatalytic sets is based on the probability that a randomly chosen protein catalyses a randomly chosen reaction (p147)."

In *At Home in The Universe* Kauffman explains how complex systems evolve naturally 'at the edge of chaos'. He develops the concept of 'optimal patch' which allows a complex system to adapt to a forever changing landscape of constraints and pressure structures. In *Investigations* Kauffman (2000) takes this concept much further. He describe how life evolves and coevolves, and how complexity necessarily flows into the 'adjacent possible' which is the states a single step away from the system's current state. He writes:

"... autonomous agents forever push their way into novelty--molecular, morphological, behavioural, organizational. I will formalize this push into novelty as the mathematical concept of an "adjacent possible", persistently explored ... Biospheres, on average, may enter their adjacent possible as rapidly as they can sustain; so too may econospheres. Then the hoped-for fourth law of thermodynamics for such self-constructing systems will be that they tend to maximize their dimensionality, the number of types of events that can happen next.

... this non-equilibrium flow into a persistent adjacent possible may be the proper arrow of time, rather than the more familiar appeal to the second law of thermodynamics in closed thermodynamical systems."

Another important attribute of most complex systems can be expressed by borrowing the mathematical term 'attractor'. When disturbed, complex systems exhibit states to which the system eventually settles, depending on its properties. "In the language of dynamical systems, the state cycle is an attractor and the collection of trajectories that flow into it is called the basin of attraction. We can roughly think of an attractor as a lake and the basin of attraction as the water drainage flowing into the lake." Kauffman (1995).

However, there is not an infinite range of attractors. Brian Goodwin (1996), has shown that the mechanics of embryological development are constrained. In the language of complex dynamical systems, the space of morphological possibilities is thinly populated by attractors (Lewin, 1993). Among the vast range of possible behaviours, the system settles into a few orderly states. A small number of attractors create order while with a large number the system remains in flux and never settles into an orderly state.

We had a lively discussion on the extent to which systems thinking and complexity theory were the same or different. There were some areas of overlap in the sense of systems and CAS both advocating holism and recognizing synergy. One new and valuable concept of CAS is the importance of local agents, be they at the level of ants in an ants' colony, or individuals in our human societies as the basis of achieving change. We had some problems with the metaphor of ants operating to simple local rules applying to humans, as this seemed to ignore the essential creativity of the human species. The concept of critical interaction between agents seems important, firstly as a basis for understanding emergence to complement an explanation based on enthalpy change during reactions/interaction. Also, this was the first logical explanation GD had seen for the intuitive approach of proceeding by small fires. A challenge in the context of human systems would be to design systems for interaction to enable emergence to a higher level, where none existed.

On Hominization

PAMG's working hypothesis was that future generations cannot be really constrained by contemporary humankind and that the most we can do is to put forward what we believe to be the most fundamental and precious human characteristics from the perspective of our age. From that perspective he provided a brief summary of his ideas on hominization (i.e., the evolution of the human species). He started by remarking that systems vary extremely in a number of dimensions and that one of them is the time a system requires itself to change. He then offered Figure 4 to capture this dimension for 5 key types of systems: Artificial Intelligent (AI), Mental, Biological, Sociological, and Physical.

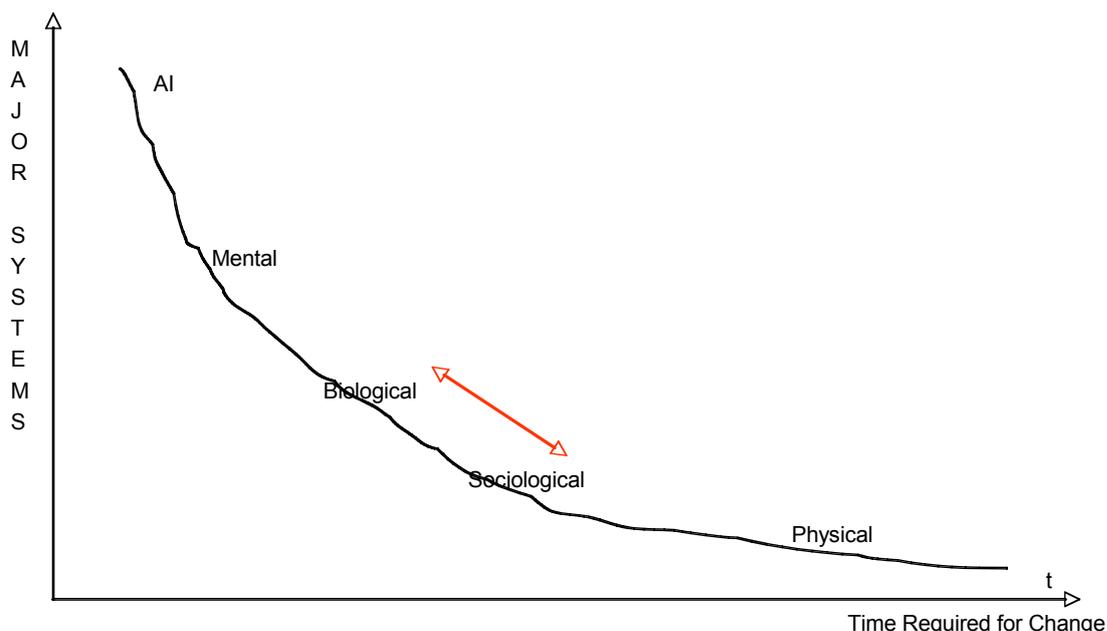
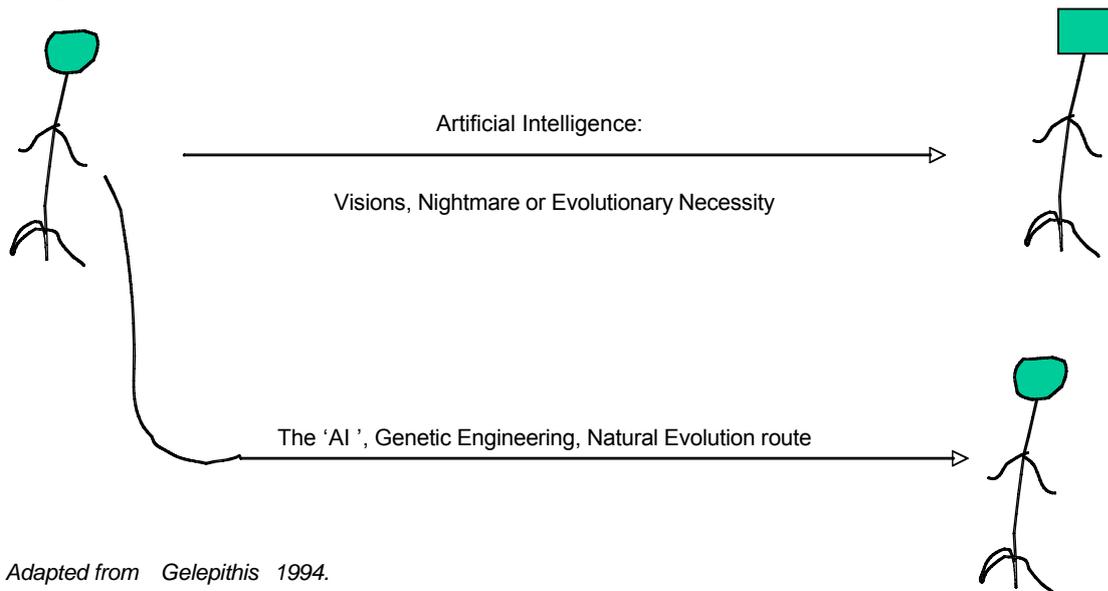


Figure 4: Time required for System Change

PAMG subsequently explained that the double red arrow next to the Biological and Sociological systems was meant to refer to the fact that the positions of these two types of systems may be juxtaposed depending on the specific meaning of the referents. If 'biological' refers to an individual member of a species, then their position is as that in figure 4. If, on the other hand, 'biological' refers to a species, then the sociological systems usually change in less time and therefore 'Sociological' and 'Biological' should be juxtaposed in the figure.

He went on to remark that the disciplines concerned with the above 5 types of systems constitute part of human knowledge and, more generally, the human mental space. Part of that space is what can be termed Belief Systems (BS). The problem is that human BS are quite often in conflict, and the key question for us all was how could such conflicts being avoided in a future human society?

PAMG then introduced, as a starting point, what he saw as the two major hominization possibilities, see figure 5



Adapted from Gelepithis 1994.

Figure- 5 : Hominization possibilities.

The first possibility requires unrestricted applicability of AI. The term AI is used in its standard sense of the scientific and engineering discipline that studies intelligence wherever it may be found and aims to design and build intelligent machines. The second possibility for hominisation requires restricted application of AI.

The first possibility for hominisation involves the development of robot generations on robot-based primitives, the second involves the development of robot generations on human-based primitives (Gelepithis, 1991, 2001). It is worth noting that presently, all our computer-based systems are of the second type (Gelepithis, 2001). It is an open and difficult question whether computer-based systems should forever remain human bound (as some of us definitely do wish to be the case), or it may be inexorable or even to the advantage of the human species that human-independent robots are developed (Gelepithis 1994, 1999).

Primitives constitute the basis of communication. Communication has been, essentially, defined as mutual understanding and the latter as 'reducibility' to one's own primitives. (Gelepithis 1984, 2004). PAMG provided the following example to clarify the meaning of primitives. When his daughter was about 2 and a half years of age, he had somehow to make her understand the danger of being killed if she crossed the dangerous road just outside their home. The problem was that she obviously had no understanding of 'death' or the notion of 'killing'. He therefore had to try to find her primitives in order to communicate. He asked her:

"Margarita, do you love your mother?"

"Yeaah."

"Your father?"

"Yes, very much."

“What about your X toy?”

“I love that”.

“Your Y friend?”

“ Yes, yes.”

“Well, if you cross this road without making sure that no car is coming then you will never be able to see your mother, friend, father or toys again”.

She paused, or rather froze, and then said:

“Do you mean, Daddy, never again?”

“Yes, that’s what I mean.”

There was some more discussion with her investigating further the consequences of what PAMG told her. The final result: she immediately after started checking the road carefully in both directions before crossing which was in sharp contrast to her previous intended behaviour.

Given the hominisation possibilities and the technological possibility of introducing robotic generations over the next 1000 years, the challenge would appear to be how we (humans) can retain at least some of our most fundamental and precious human characteristics without at the same time constraining future generations. The following diagram: figure 6 captures PAMG’s idea.

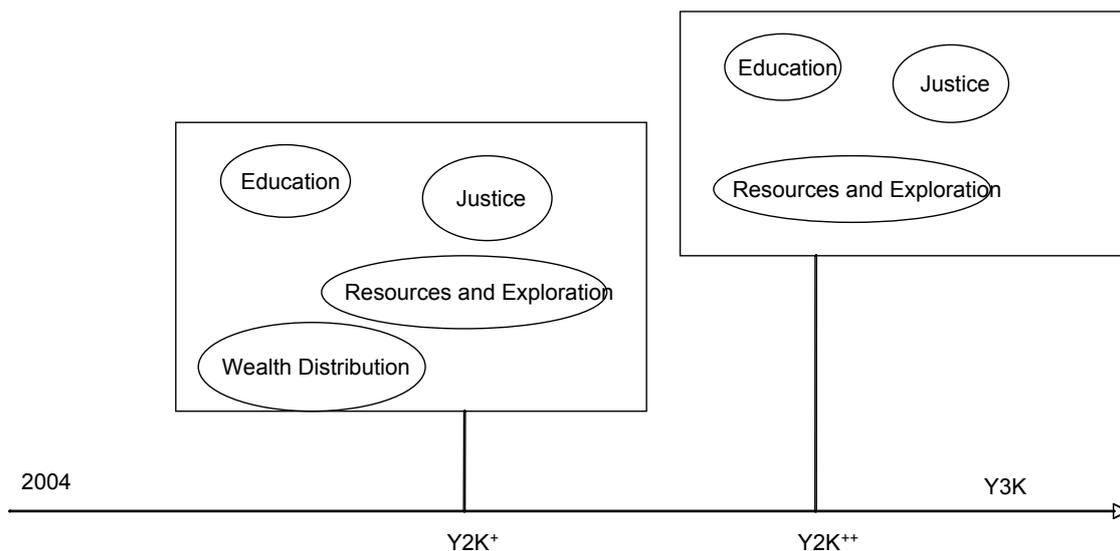


Figure-6: Earthian Civilization by the year 3K.

PAMG’s diagram intends to show that by the Y3K, the Earthian society could be seen as one where education systems, justice systems, and systems for resources and exploration would be *the only necessary support* systems. By Y2K⁺⁺, that is some time before Y3K, the problem of wealth distribution should have been solved through the use of robotic systems of the second type. They would have taken-over most laborious tasks, removing the need for labour to be exploited in any part of the world. Nevertheless, according to PG, wealth distribution will still be a major problem needing to be addressed through the intermediate timescales up to Y2K⁺⁺.

In PAMG’s view, the key role for education for now or for Y3K was to develop the critical element in human thinking. A characteristic that is extremely very low in the ladder of significant characteristics of our current educational system that is more mass-production oriented than anything else.

Finally, PAMG suggested that a key task now for humankind is to search for the development of a system of Earthian primitives that enable communication and capture the stages above. As a reminder - an Earthian System of Primitives (ESP) is conceived as a system of primitives that has been mutually agreed by humans at a particular time in their hominisation.

In commenting on these ideas the group observed that:

(1) the idealised vision of education /justice/ resource and exploration systems mapped closely to the Fuschl 2000 view of an Evolutionary Guidance System

(2) continuous attention to the removal of imbalance in wealth distribution at intermediate points along the journey to Y3K introduced an important dynamic

(3) while development of critical thinking was a key issue this was not the only human characteristic to be developed through education. We had already highlighted in 2000 the need for example for education to cover, inter alia: appreciation of the arts and music (which themselves represent communication primitives); development of design literacy and the sponsorship of individual creativity; and the development within the individual of respect for others, discipline, and good behaviour.

(4) PAMG's use of the adjective Earthian was consistent with that used to describe other planets in the solar system e.g. Martian, Venusian, Jovian, but that it was not in common use. The group suggested global as a well understood synonym. However, PAMG continues to prefer Earthian as he sees this as a simple, straightforward, geographic term denoting the smallness of our Earth.

Following clarification and conversation around the two mini-presentations, the group began to consider an initial trigger question to attempt a formative dialogue.

ATTEMPTS AT FORMATIVE DIALOGUE

After a number of redrafts the following trigger emerged as a tentative basis for a future dialogue:

*“Can we develop a system of questions - a proto-methodology - as an **offering** to any future community/society to consider to allow them to assess and adjust their progress towards their vision of a humanistic system of ideals, and enabling system of primitives?”*

Any future community/society would need to develop their own primitives. We also thought that at some stage in the future it would be useful to simulate the process by suggesting some markers for our own system – as this would serve as an exemplar from a perspective of 2004. We did not take this idea further as YH challenged what may be some of our fundamental assumptions, by pointing out what we cannot see: all of our built-in hindsight as human beings, the limitations of the contemporary science-oriented culture, and the limitations of our consumption society and marketing, etc. In other words, he hoped to open up our minds for all kinds of future directions, which do not necessarily mean progress or more advanced science. He argued that such a perspective could be a relief, rather than disappointment about our future.

He also suggested that alternative systems thinking could include:

- A. The future can be better, the same, or worse than what we have now. In other words, progress or “the more, the better”, will not have to be the only direction humankind has to pursue.
- B. We will continue to have disagreements on many important issues. We will plan our future based on the condition that such disagreements exist.
- C. Since science may not be able to produce the unified sets of facts and truth about the state of the world that majority of humankind accept, we will have to have an open-ended plan that has a space for a large margin of errors.

If we followed the above set of presuppositions, we would come up with “something” that is quite different from the contemporary systems design thinking. Basically, in the new approach we would need to assume that we do not know the reality and will never know it in the future but will always have various views about the reality. However, it is not that crucial whether we become closer to knowing the reality, since we do not necessarily seek human betterment. In other words, we do not necessarily seek progress as the end or means for the human society or the world, partially because it will continue to be quite difficult to reach a universal agreement on what a better world means. If we have a pluralistic view about the end and means of the future of humankind, we do not have to find the truth about the world but can afford to have pluralistic understanding of it. The group agreed that if any attempt to devise a methodology was to be attempted it would need to be based on a very open-ended plan.

We then attempted further formative dialogue based on the inputs from KP and PAMG. We were stimulated by the concept of interacting agents triggering emergence, and extended this idea to apply at several levels. Conceptually, then, this leads to the possibility of self-organized emergent behaviour

in all or some of these levels. PAMG commented that the notion of levels and associated bands (i.e., systems of levels characterising particular aspects of a system) has been explained and partially applied by Newell (1990). However, the group believed that it was the first time that application of these ideas had been considered by the social systems design conversation community. We therefore identified four (for convenience) levels and iteratively applied the model presented in figure-2 to these. They are: the individual, the regional, the national, and the global levels. The highest level is where an Earthian system of primitives should be developed.

We reflected that at the level of individuals/family, examples of interacting agents are reasonably common in the case of some social system types, e.g. we have parent-teacher associations (PTAs) operating in individual schools. Cases of interaction of such PTAs at a higher level are not so evident at community levels. Yet the cascading model would seem to call for this to happen, and to be extended to national and international level as a way of producing powerful emergent change. Overall the concept we explored would seem to point to a pressing need to create many more interacting agents for various types of social systems, particularly at the higher, national and international levels. During our plenary presentation it became clear that our conversation at this point had a degree of overlap with that of the Agora group, who had considered systems of representation at different levels within a major city, and appropriate technological support, which might facilitate democratic decision-making.

According to Newell (ibid) each level would need to be specified in terms of four characteristics:

Medium	- that which is to be processed;
Components	- that which enables primitive processing,
Laws of composition	- that which permits components to be assembled into systems, and
Laws of behaviour	- that which determine systems behavior; this depends on component behaviour and the structure of the system.

Currently in political science there is recognition of the concepts of the individual and community. However, "community" can take different forms, even a nation. But a nation can be small, e.g. Malta, i.e. much smaller than a large town in the rest of Europe. Hence, we have shown four levels as illustration. We also know that the more levels we try to distinguish, the more problems we have in distinguishing the four characteristics.

PAMG reflected that Newell has specified the law of behaviour for individuals as the principle of rationality. We are not comfortable with that specification in the context of the inherent creativity of humankind where the best course of action is not always necessarily rational. The rational must be balanced by the inspirational. We look forward to the possibility of considering ideas/comments relating to the various cells in subsequent work.

CONCLUSION

A conversation between four people of four different ethnic groups, representing both western and eastern traditions of thought, was a challenging and appropriate setting to continue conversation on the Y3K issue. We were able to reflect back to the outcomes from the 2000 and 2002 Fuschl conversations to seek reinforcement and extension to the conclusions drawn then. Bringing in new expertise from complexity theory and artificial intelligence was very useful in introducing new concepts for consideration. The concept of interacting local agents (from complexity adaptive system theory) producing a new level of self-organisation and emergence, led us to conceive of multi-levels of systems up to the international level as a possible basis for achieving emergence and global change. The creation of these interactions would depend on the development of systems of primitives to enable communication and understanding.

In navigating through our conversation, the team returned on several occasions to the issue of education for Y3K. Given the prospect of the wide use of robotic systems e.g. to reduce demands for human labour, the view emerged that the development of critical thinking in the young should be a key aim of future educational systems. However, we also require that the education system develop other knowledge and skills e.g. develop design literacy in the young and instill an appreciation of art and music (which have common primitives).

We remain challenged by many fundamental considerations. We wish to help future generations, yet we are acutely aware that we cannot design or even make design suggestions for them. We are also

in a dilemma over the issue of progress, and what it means for a future situation to be “better”. Any ideas we offer must remain very open-ended. Thus we did not achieve one of our original aims “to propose specific actions that we, or others, can take in the next several years as first steps toward the types of ideals we identified previously”. We did briefly consider the possibility of a range of simulations having the aim of helping groups to *recognize the value of others*, namely with others with whom they are normally in conflict. This could lead to concrete proposals in due course.

Thus our outcome is of an interim nature, which requires development, probably at the 2006 Fuschl conversation. Nevertheless, the team felt satisfaction in discussing a variety of significant issues.

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