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Scociology of the Internet

Towards a (Meta-)Sociology of the Digital Sphere

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Zuerich, December 2002

Content:

1. Introductory considerations 1
2. The functional universality of digital computer systems as a starting point 2
3. Is Cyberspace spatial? 5
4. Implications of Cyberspace for the level of Social Interaction and Social Systems 8
4.1 Ease of exit and absence of density pressures 8
4.2. The Softened Dictatorship of Time 11
4.3 The absence of locational anchoring, bodily contacts and primary interpersonal perception 12
4.4 The leveling and blurring of Real World status differentials 15
4.5 The predominance of volatile, monothematic and project-related social relations 16
4.6 The need for highly prespecified codes, symbolic patterns, problem definitions and environmental conditions 17
4.7 The rising salience of credibility and trust 20
4.8 The facilitated social integration of "strangers" 21
4.9 Expansion of highly voluntary social interactions, relationships and roles 22
4.10 The softened incompatibility between "egocentric" and "altruistic" action 24
4.11 The intrinsic "softness" of digital social systems 29
5. Implications of the Internet for the Cultural Level 30
5.1 The softening of artifacts and the deletability of the past 30
5.2 From producer-guided to receiver-guided culture 32
5.3 The demise of stable *ex ante* classification schemes 34
5.4 Toward a "Sampling Culture": from molecular to molar forms of production 35
5.5 High mutual "permeabilities" as a condition for blendings and “crossovers” 37
6. Implications on the Individual Level 40
6.1 From offline individuals to online "dividuals" emanci-pated from body and space 40
6.2 Freely chosen and freely modifiable self-constructed identities 42
6.3 Support for "externalized selves" and microsocial cultures 44
6.4 The blurring distinction between productive and receptive roles 45
7. For conclusion: some epistemological and meta-theoretical consequences of Cyberspace for the social sciences 47
7.1 The concepts of "Virtual Reality" and "Vireality": 47
7.2 The Internet as a "hypersocial" space 49
References 53

Citation:
Geser Hans: Towards a (Meta-)Sociology of the Digital Sphere. In: Prof. Hans Geser: Online Publications. Zuerich, December 2002. http://geser.net/intcom/t_hgeser13.pdf

1. Introductory considerations

With every new communication technology, the field of social science is enriched by additional forms of social interaction and by the rise of new types of collective behavior and organization. For example, the concept of bureaucracy - as introduced by Max Weber - presupposes the existence of written documents and the prevalence of writing and reading skills among its employees, and no "public sphere" or "public opinion" is thinkable without regularized mass media based on the printing press, radio and TV.

In addition, new media create the need to redefine many already established concepts on a more abstract level, so that they can be applied to a wider variety of phenomena. Thus, terms like "social interaction" or "social relationship" have to be generalized in order to include pen pal relations, telephone talks or video conferences. Computer networks - and the Internet in particular - give rise to especially profound and far-reaching challenges by affecting not only conventional terminologies and theoretical propositions, but also the very epistemological and meta-theoretical foundations on which social sciences have hitherto been erected.

This is because internetted computers are prone to support almost any type of technically mediated human communication. Oneway as well as reciprocal transmissions, bilateral as well as multilateral exchanges, public as well as private communications, synchronous as well as asynchronous discussions, and the transmission of text documents as well as oral voice, graphics, pictures, video footage or acoustic sounds. The most dramatic challenge is certainly associated with the capacity of computer networks to superimpose upon the Real World society a "Cyberspace": an artificially created new sphere of societal life partly complementing and partly substituting almost all aspects of Real World society: from global social movement campaigns and scientific research endeavors or commercial transactions to intimate sexual intercourse, psychotherapeutic counseling or artistic productions. While conventional mass media just support radial one-to-many transmissions and the phone affects only microsocial bilateral conversations, computer networks have far deeper implications on all social level because they enable the formation of larger groupings and because they widen the range of social interactions beyond conventional limits of space and time.

This is reflected in meso-sociological phenomena like "virtual communities" or "virtual organizations* as well as in the macro-sociological concepts of "Cyberspace" or "Information society".

While such fundamental challenges call for intellectual endeavors far too demanding to be mastered by any single researcher, the following article tries to highlight at least a few consequences of computer networks for the field of sociological study, and to envisage some ways how sociology will have to adapt on the level of metatheoretical premises, substantive theory-building and operational conceptual definitions.

2. The functional universality of digital computer systems as a starting point

In sharpest contrast to industrial machine technologies which constrain human behavior (as well as production outcomes) by the irreversibly fixed specificities of heir material structure and functioning, computers are generalized tools for engaging in an almost infinite range of different activities and for solving an ever increasing spectrum of tasks.

On the most basic level, this functional universality is rooted in the rather recent mode of data formatting called *"digitalization":* by transposing texts, sounds, pictures (and potentially all other phenotypic patterns appealing to human sensual perception) into zeros and ones, so that they can all be manipulated, stored and transmitted with the same technological means and programming procedures (Manovich 1998).

As a consequence, deeply anchored specializations and segregations on the level of human tasks, professional roles and organizational functions become shaky or vanish altogether: giving for instance rise to "multimedia journalists" producing multimedia report, or to generalized media companies active in the print sector as well as in the realm of cinema, radio and TV.

On the second level, the *personal computer* is a universal tool empowering each individual to exploit the capacities offered by digital data processing for an ever increasing spectrum of tasks and purposes: writing letters, painting or transforming pictures, produce graphical representations, reading e-books, composing music, consulting dictionaries or programming games.

Conventional communication media have been mere passive "tools": mediating between individuals (or between the real world and individual experience) without letting arise a separate level of social life. For instance, mass media are merely transporting information from an emission center to many single recipients, generating a large number of asymmetrical dyadic relationships without networking these relationships among each other. Likewise, the telephone is a passive communication tool which leaves the communicating partners physically separated at different locations, instead of immerging them in a common new environment (Bauwens 1994). By contrast, computers are far more than passive tools because they are able to read, to store, retrieve, transform, select and transmit information, to react to incoming messages, to generate their own productions by applying software etc. Even stand-alone computers generate a virtual field, they "interact" with their users, they can be programmed of delivering suggestions, filtering out irrelevant data, synthesizing data into colorful graphs etc.

On a third level, *networks of interlinked computers* are the most universal of human action tools expanding their functional capacities with breathtaking evolutionary speed: including tasks requiring social exchange or cooperation, the implementation of authority, the fixing of contracts or the elaboration and implementation of communal values and rules.

Computer networks are even better equipped to create a common cultural environment for a potentially unlimited number of participant users. In the case of the Internet, it is a "public sphere" co-generated and daily maintained by millions of individual and collective actors disposed to notice each other and to engage in mutual interactions within a coherent common frame. Thus, "Cyberspace" emerges as a macrosocial environment which parallels (and in some aspects even surpasses) Real World society by its capacity to include all participants into a coherent, permeable communicative space.[1] Its creators may well be conceptualized as "Cyborgs": consisting of a human individual and a computer which combine their complementary capacities so that a highly productive and interactive "socio-technical actor unit emerges which can become an inhabitant of this new virtual world.

[1] The notion that Cyberspace has a constitutive (not mere modifying) impact on human society is especially evident in the framework of Niklas Luhman who defines society as "das umfassende Sozialsystem aller kommunikativ für einander erreichbaren Handlungen." (Luhmann, Niklas Soziologische Aufklärung 2. Aufsätze zur Theorie der Gesellschaft, Opladen: Westdeutscher Verlag, 1974; S. 11.).

As a consequence, the project of a future "Sociology of the Internet" arises: a desperately complex undertaking that has to face two metatheoretical challenges:
First, it has to cope with the fact that in sharp contrast to industrial machineries, computers and computer networks cannot primarily be seen as causes that would *determine* any kind of individual or social behavior. To the contrary, they must be considered as factors of *indetermination* that make causal explanations and predictions of all kinds more difficult, because they empower individuals to have more alternatives at hand.
And *secondly*, the concepts used for describing action courses and action outcomes have to be highly abstract, so that they can include the whole spectrum of possible manifestations. This is easily seen when highly familiar Cyberworld concepts like "user", "site" and "content" are inspected. When talking about the press, radio and TV, theory-building is facilitated by the functional specificity of each medium. In the case of print media, for instance, we can talk about readers, newspapers and written texts: concepts with precise meanings and clear connotations
In the case of the Internet, only very abstract, unspecified concepts can be applied because the medium encompasses an almost limitless range of different functions. Thus, the word "reader" is no longer adequate because recipients can read, see pictures and video and hear music at the same time; and the concept of "recipient" is deficient because it does not include active communicative modes of behaviour. Only the word "User" is generalized enough to take all these complexities into account. But this concept is highly unspecified because it cannot be differentiated from somebody making use of coffee machines, vacuum cleaners, legal remedies or pharmaceutical drugs.
Similarly by talking about forms of emission and transmission, concepts like "newspaper", "journal", "texts", "editions", "article" "program" etc. become inadequate because they cannot grasp the complex structure of hypertextual and multimedia presentations. Instead, the thinly connoted notion (web)"site" has to be used in order to do justice to the fact that the same structure may offer information, pictures, videos, streaming audio, live radio, discussion forum, breaking news, archives, downloadable software etc. Finally, the word "content" is increasingly used to denote all the variable data transmitted through the Net: differentiating them from invariable formal protocols, website structures etc., but not connoting anything specific about their intrinsic characteristics or their relationship to any possible "users".

Considering all these indeterminacies (on the causal and the conceptual level), it could be concluded that the quest for a "sociology of the Internet" is a futile as the search for a general "sociology of electricity" which would have to include the whole range of energy-supported human activities: ranging from electric toothbrushes to electric chairs. While this *ultima ratio* cannot be ruled out definitely, there is nevertheless still the option of gaining more specificity and determination by studying the Internet *in situ*: analyzing its use by particular individuals or groupings operating under specific circumstances and pursuing precisely stated values and goals. Under such specified conditions, there are good chances of defining concrete user types, content structures and usage patterns, and to identify reciprocal causal relationships between Internet usages on the one hand and individual or sociocultural correlates on the other.

3. Is Cyberspace spatial?

Nouns like gateway, electronic frontier, website, homepage, cyberspace or information superhighway, and verbs like "surfing", "navigating" "routing" or "roaming" (Adams 1997; Crang 2000 etc.) show the pervasive tendency to conceptualize the new world of digital phenomena in metaphors of physical space. The same tendencies exist on the lower level of single domain websites, which are often conceived according to the model of various well-known territorial structures like rooms, lobbies, dungeons, dens, cafes, as well as cities, villages, or whole continents (like the virtual continent called "Britannia" in the world game "Ultima Online") (see van den Boomen 1998)

Like in many other cases, such metaphors have positive functions and negative side-effects at the same time.

On the *positive side*, they provide useful heuristic tools for a rough intellectual structuring of hitherto "uncharted lands" (what is a spatial metaphor in itself). Specifically, by importing metaphors from physical space, the digital realm is conceived as a sphere where the following conditions hold:

1) *Universal relatedness rather than mutual isolation*: all events and actions are a priori embedded in a single common universe: so that everything is related at least by being located in the same spatial cosmos, regardless of whether any other relationships exist.

2) *Possibilities rather than constraints*: "space" is providing an infinitude of choices (e. g. directions and speed of locomotions, locations to be visited etc.) without determining which choices are made by anybody at any time. (Viseu 2000).

Thus, spatial metaphors have the function of emphasizing freedom, of directing attention toward bundles of unspecified alternatives, and of assuming a primordial basis on which any more specific structures can be erected. For example, the word "superhighway" invites everybody to drive his own car at any time in any direction, and the term "website" explicitly leaves open any expectation what content it will specifically provide. In other words, all spatial metaphors have the effect of emphasizing a large gap between "form" and "content": i.e. between basic premises and specific purposes of human action. The term "space" in particular connotes a most fundamental condition within which all human behaviour is experiencing "dispositions" rather than constraints.

On the *downside*, spatial metaphors are also extremely misleading because they tend to overstate the similarities (and underrate the fundamental differences) between Real and Digital worlds. In the Real World, physical space constitutes a homogeneous, isotropic three-dimensional universe where all objects (including human bodies) have their definite place and thus are interrelated in at least one aspect - even when no other interrelations exist: their objectively measurable spatial distance. On the societal level, physical space thus generates the basis for a common collective environment all human beings share without any possibility of individual modification or escape.

This pervasive coherence makes us all the inhabitants of the same world, but at the considerable cost of reducing our freedoms of action by subjecting it to two basic constraints:

1) the constraint that more time and energy has usually to be spent for reaching more distant locations than for reaching more proximate points;

2) the constraint that more remote sites can only be reached by "traveling", which means: following a course of geographical points in a strict sequential order.

In Cyberspace, both of these physical constraints are eliminated. Contrary to physical space, cyberspace is not structured in terms of spatial distances, because whenever surfer A is at point x, he/she can reach any other points with (almost) equal ease (in terms of efforts or time).

> *".... the Internet collapses space into one 'hyperpotential point' which implodes all concepts of distance, spacing and separation."(Nunes 1997).*

Thus, cyberspace violates the "first law of geography" the principle that near things are more closely related than are distant things. (Adams 1997).

> *"Location is ... irrelevant in cyberspace in the sense that network servers and online addressees are equally accessible from everywhere. Any Web site in any odd corner of the network can be accessed with essentially equivalent transmission speed and message quality from any other corner of the network, which means that the effects of whatever information is available at a given site are felt simultaneously and equally in all jurisdictions, independent of their "distance" from one another." (Johnson/Post 1998).*

As Johnson and Post are arguing, there are absolutely no relationships between Cyberspace and Real space, insofar as

> *"no necessary relationship exists between electronic addressing - such as Internet Protocol addresses, domain names, and e-mail addresses - and the location of the addresses (machine or user) in physical space." (Johnson/Post 1998)*

This implies that net users are not able to locate themselves as being at a particular place (in terms of objectifiable distances to any other users). Thus, to be in a chat network means for everybody: to be "here" - regardless of his physical location. But this virtual "here" is a very undifferentiated kind of location: without left and right, top and bottom, frontstage and backstage etc.

Everybody who is online occupies the same location and "sees" everybody else in the same location (while under face-to-face conditions, everybody has his own place as well as his own perspective on the location of all the others.

> *"Communication technologies alter the degree to which the unmarked deictic center is shared and obvious to participants in a conversation. In telephone conversations we share utterance time but not speaker location; users of electronic mail share neither location nor utterance time. In the case of real-time computer-mediated conversation, users are physically separated but share utterance time.*
>
> *The center of place reference in a telephone call is the speaker's physical location (perhaps because the physical locations of caller and called are relatively unambiguous). Speaker and addressee locations are not shared, so the other's location is "there." As already noted, CMC creates a shared virtual space; this shared deictic center allows example 7 to be well formed. If someone is logged onto a network channel but is not sending messages (a behavior known as "lurking"), other users can be uncertain of their presence in the shared space and ask "are you here?" (Bauwens 1994)*

As a consequence, all attempts to conceptualize virtual reality in metaphors of space are fundamentally mistaken because the digital domain is not spatial at all, but eliminates space (Chesher 1997). In particular, the very term "Cyberspace" is a misnomer which should be substituted by terms like "Cybersphere" or "Digital Domain". Likewise, movement in the vir-

tual sphere can not be conceptualized as "surfing" or "navigation", but as an invocation of addresses (all being accessible in the same way) (Chesher 1997).
The notion of "surfing" is particularly misleading insofar as it conventionally refers to an activity which has the sole purpose of keeping oneself in a course of continuous spatial movement, not of reaching specific spatial destinations. In direct contradiction, the Internet is structured in a way that only destinations (= places to be visited) exist, while the change between different locations is only filled with unstructured periods of waiting, not with an activity meaningful in itself.
In a way, the Internet thus resembles the American way of dividing up land into individually controlled parcels, while the "commons" in between remains uncultivated:

> *"The Web has already been compared to the American Wild West. The spatialized Web as envisioned by VRML (itself a product of California) even more closely reflects the treatment of space in American culture: the lack of attention to space which is not functionally used. The territories that exist between privately owned houses and businesses are left to decay. The VRML universe simply does not contain space as such -- only objects which belong to different individuals" (Schultz 1996).*

If any spatial metaphor is adequate, we may see each surfer at the *center of a perfect sphere,* always remaining in a position to reach out to any point of the sphere's surface.(=a specific single site) in approximately the same time (ping interval). This metaphor has the powerful implication that each Net user is constantly confronted with the challenge to make a choice among an almost infinite number of alternative next destinations: very unlike a Real-World traveler whose choices are highly structured by the different accessibility of more proximal and more distant locations. Consequently, physical proximity is no longer a factor facilitating (or even inducing) social association, so that collective integration has to be based on other factors (e.g. communalities of status, language, values and interests).
On a methodological level, it has to be acknowledged that spatial location loses its explanatory significance for social behavior, so that a major *objective*, easily measurable causal factor of sociology has to be dismissed.

> *"As the use of CMCS and other electronic media expands to increasing numbers of remote areas and telecommuters, physical distance is a less effective parameter in explaining characteristics of an individual's perceived isolation from the organization." (Caldwell/Taha 1993)*

Nevertheless, physical distance may at least partially be "emulated" by artificial structuring devices like links, browser bookmarks or news customization. But such structurings are very weak and unreliant because they don't exclude many choices and can always be circumvented (e.g. by typing in a specific URL). To predict the second-next page may already prove to be impossible because when the bookmark chosen is "yahoo-com", the individuals opens himself up to a very large number of further selections.
In contrast to physical space, such artificial "distance structures" cannot constitute a generalized, overarching systems of coordinates independent of any participating actors, because everybody can generate and modify them at his/her will: so that A maintains a different distance to B than B to A, and no third observer will ever be able to define the "real" distance between A and B. In a way, Cyberspace thus promotes a regression to more primitive topologies characterized by a plurality of self-centered and group-centered spaces, as they were prevalent in Pre-Newtonian times.

In the present time of a globalizing offline word, one of the major indispensable functions of physical space is to provide a homogeneous, unified World where all objects and human subjects have their definite place. On the societal level, physical space generates the basis for a common collective environment all human beings share without any possibility of escape. Recent ecologist movements try to generate a global unity of mankind by insisting that we are all inhabitants of the same planet earth: so that we grow closer together to the degree that global physical interdependencies increase. This “ecological communitarism” is evidently subverted by a “digital individualism” based on the experience that in Cyberspace, everybody can be his own huts and cities without haven to use up scarce, unsustainable resources and without interfering with any bothering neighbors.
Given this immense significance of physical space for (planetary) societal integration, we may hypothesize that its dismissal (or "deconstruction") in the Digital Domain has the consequence that the coherence of the actual social world may become loosened, because no similarly unified "Cybersphere" is likely to come into existence.

4. Implications of Cyberspace for the level of Social Interaction and Social Systems

4.1 Ease of exit and absence of density pressures

In the Real World, complex and tightly knit systems of social interaction (like scientific congresses), of economic transactions (like market places) or work-related cooperation (like factories or other organizations) usually tend to be concentrated on restricted territories, because only under conditions of physical proximity, the efficient communication and coordination between many heterogeneous individuals and/or highly specialized roles can be effected. On the other hand, history shows that the pressure resulting from high demographic densities has often stimulated the development of higher forms of social institutions (like in the case of Egypt, Mesopotamia and other irrigation cultures where population was confined to rather small fertile territories surrounded by inhospitable desert.) (Ausubel 1999; Chase-Dunn/Jorgenson 2001). The reason is that highly elaborated mechanisms for systemic integration are necessary in order to create homogeneity and order among densely coexisting heterogeneous actors.
In geographical space, people often have no choice than to continue staying where they are currently located: within their community, province, nation or continent. To the degree that they don't have an "exit" option when they are dissatisfied, their fate heavily depends upon their capacity to articulate their "voice". e. g. by-participating as citizens in democratic political decisions. Such voice is all the more important to the degree that tight systems of common rules have to be enacted in order to secure an orderly coexistence between masses of individuals living within dense territories (e. g. within apartment blocks, cities or conurbations).[2]
Thus, we see the rise of the Greek Polis as a successful model of integrating divergent population segments into a common political system; and the emergence of large organizations able to create efficient coordination between rather autonomously functioning working

[2] For an introduction and elaborated theoretical discussion of the concepts "exit" and "voice", see Hirschmann 1970: passim.

units. In all such cases, the emergence of social order goes along with the establishment of legitimate centres of authorities able to make binding decisions, to act as ultimate conflict mediators and to implement collectively binding rules.
As *Carneiro* has argued, statehood could only evolve in geographical regions where populations were not able to escape to neighbourhood territories when they were subjected to centralized power (e. g. because the settlements were surrounded by inhospitable desert or by other impenetrable states) (Carneiro 1970). Likewise, densely populated cities emerged because they provided easy accessible markets for many specialized products and services, and the centralized control of industrial workers by management presupposes that employees are highly dependent on the corporation (e.g. because they have no resources for opening their own independent business).

In the digital "electropolis", no such density pressures can accumulate, because everybody can leave any location without effort, and there is always unlimited further space available: simply by opening additional web pages or domains.

> *"Fortunately, the very ease with which users can choose to exit an online space (in notable contrast to the high cost of leaving a geographically defined politically sovereign territory) provides an alternative mechanism for preserving a "voice" for "netizens" in the context of Internet self-governance. Rules on the Internet will thus be subjected to popular will by means of "voting with one's modem" rather than by means of traditional balloting or the election of representatives. In the online context, the check against sysop tyranny is not "one person, one vote" but, rather, ease of exit." (Johnson/Post 1998).*

As evasion is such an easy, ever accessible option, it is difficult for any leadership to implement norms homogeneously on all members, because deviants may rather go away than accept any unwelcome expectations (Komito 2000). In this aspect, online groups are similar to preagrarian foraging groups: composed of migrating families not ready to subordinative to political authority because they can easily evade to new, still uninhabited territories in case of dissatisfaction.
Similar to such hunter and gatherer bands, online groups lack the capacity to establish institutions for the resolution of conflicts, because whenever quarrels arise, they are more likely to be solved by emigration than by compromises at a negotiating table or by the acceptance of authoritarian decision. (Komito 1998). This is in sharp contrast to proximate sedentary communities (e.g. in agrarian settings) where people are readily submissive to collective norms because they have invested so heavily in their homestead that emigration is no realistic option.

> *"In proximate communities, individuals engage in social relations with people whom they might prefer to avoid. Individuals have rights, but also duties, which they have acquired while growing up and have now internalized. They must sometimes deal with people they dislike as the price of being part of the community. This sense of involuntary commitment and participation is often lacking in electronic groups; when there are disagreements or even if things just get boring, people just leave the group." (Komito 1998).*

As in foraging groups, the constant ease of exit is a major factor in preserving highly egalitarian structures where prestige and privileges is allocated according to individual abilities, not

according to class membership or any ascribed attributes (Komito 1998). Contrary to frustrated migrants leaving their homeland, however, such newly acquired digital spaces are not located in some lonely peripheral zone, because every user can reach any other user with the same ease, and thus remains fundamentally integrated in the Global Net of Communication. Thus, widespread integration without the need for authoritative ruling is created, because the ever present ease of exit eliminates the pressure to develop a "Hobbesian" social order. As a consequence,

> *"this cosmopolis possesses a tolerance of diversity, the co-existence of various groups who mingle in active street life, but who do not join together in active citizenship. The urban metaphor here may well be a displacement of the urban villages of the Chicago school. The telematic world is a city populated with Little Italies, and a thousand identity-based urban villages." (Crang 2000)*

Thus, Cyberspace revitalizes the feeling of living in an ever-expanding world full of new opportunities rather than in the zero-sum world of finite, non-expandable territorial spaces: a feeling lost in the United States since the "frontier" was closed (Cooper 2000).

In a very general way, the rise of the Internet fits neatly into all the recent developments which have enhanced the freedom of individuals and other nongovernmental actors: the neoliberalist and deregulative tendencies in economic policy and the demise of totalitarian communist systems. It supports tendencies to restrict the reach of politics, because it widens the options individuals have at hand for solving any problems by means of autonomous actions, so that no governmental intervention is needed. In particular, it lessens the pressure on the United States to act as an expanding and controlling imperialistic power, because it opens the way for a much more decentralized mode of worldwide American "colonization" carried on by a manifold of individuals, groups, associations, institutions and corporations (Cooper 2000), and for strengthening a pluralist "civil society" as a countervailing force against centralized political power. Thus, the Internet reinforces the "typical American way of world colonization" which has never been primarily based on expansionist political and military strategies, but much more on

1) the development of hitherto unexploited territories,
2) the global diffusion of American culture and lifestyle,
3) the widespread activities of many independent (especially corporate) actors.

Within nations, the Net supports tendencies to diffuse authority among a multitude of governmental levels and specialized agencies (Cooper 2000). However, the seducing notion that Cyberspace represents a remake of the old "frontier" can also be misleading because unlike the territorial dispersion characteristic for early American settlement patterns and expansion processes, the decentralized colonization of cyberspace goes along with a sustained capacity of all actors to enter into any type of interactive relations and to built any kind of collective organization.

In short: Cyberspace enhances the capacity to build societal structures which are highly individualistic and highly collectivistic at the same time.

4.2. The Softened Dictatorship of Time

Offline social interactions are heavily shaped by the scarcity of time, particularly when they rely on the simultaneous presence of different individuals at the same location. For instance, team meetings as well as scientific conferences and parliamentary debates face the constraint that the time allocated to individual speakers has to be strictly limited, and that many participants contribute little to the discussion or nothing at all.

Especially larger groups cannot escape the "iron law of oligarchy" because given the limited time for talking, opportunities for verbal expressions have to be curtailed and tend to become distributed highly unequally among the members - particularly when collective decisions have to be reached. Such scarcity problems increase in modern societies to the degree that participants have larger role sets demanding simultaneous involvements at different places or rapid dislocation from one place to the next: so that it becomes more difficult to organize frequent meetings and to extend sessions to longer hours.[3]

In a functional perspective, time scarcity contributes to the structuring and integration of social systems:

1) by limiting the range of expressed opinions,

2) by short-cutting opportunities for opposing proposals,

3) by facilitating the "delegation" of intragroup communication to small oligarchic elites.[4]

Thus, there are high chances of reaching a fictitious "consensus" and "unanimous decisions" based exclusively on the fact that dissensual opinions have remained unexpressed (or that many members have resigned to form any opinion because they anticipate that they have no chances to intervene). In the case of online relationships, these constraints stemming from time scarcity are less effective for two reasons:

1) communication is not limited to specific meeting hours where all members have to be present at the same place;

2) there is no need to restrict talk to a single "platform speaker" at any given moment. Instead, all participants are able to feed in messages of any length on any moment at the same time.

For very small groups, face-to-face meetings may allow the same flow of communication as is possible by Computer-Conferencing: because all participants can express themselves as much as they are eager to. The larger a group, however, the more communication flows have to be restricted. Therefore, larger groups profit most from Computer-based interaction, because the restriction "one speaker at a time" is relieved. Thus, online communication makes it possible to create quite large conversational groups while keeping the participation chances of all members relatively equal and on a rather high level (Kerr/Hiltz 1982:147).

In addition, participants in online discussions have more leeway of disengaging from the ongoing discussion process by reacting to any earlier votes and by feeding in new topics, exogenous documents or highly elaborated contributions of their own.

While face-to-face- discussions have a reduced complexity because they focus exclusively on one topic at a time and because every speaker tends to refer only to the votes immediately preceding, online discourses have much more capacities to process several simultaneous

[3] Therefore: we might conclude that meetings in modern societies would tend to become ever more oligarchic if no technological correctives would become available.

[4] As the empirical studies reported by Rauch (1983) have shown, all groupings surpassing a certain size (of about 15 to 20) spontaneously develop a small oligarchic elite (of about 5 to 9), while all other members become relatively passified followers accepting the decision of this informal body. Of course, this tendency is strongest when the task of the group is to produce decisions within a given limit of time.

"threads" and to recycle statements from any earlier stages of the discussion. In addition, computers help to produce very rapidly a "group memory" consisting of everything what has ever been posted. Because of its explicitness, this memory can easily become the basis of a group culture which is collectively shared by the members and can rapidly be transmitted to newcomers. In short: the pool of available information and opinions can grow almost without limits because time scarcity is not effective as an exogenous constraint.
As a consequence, more *endogenous* individual and social factors have to be mobilized when complexity shall be reduced: e.g. strict norms about which contributions should be taken into account and how they shall be evaluated. Thus, the equality of articulation may well be (over-)compensated by the inequality stemming from the fact that not all messages have the same chance of being read or exert influence on other members. However, it should be recognized that while the *degree* of inequality may be similar in f2f and online communications, its *quality* has drastically changed: Under face-to-face conditions, inequality stems primarily from forces of social power and social control which determine the chances of each member to make himself heard. Such *inequalities of emission* have a highly objectified character because everybody can see that certain participants dominate the discussion while others contribute only short votes or nothing at all.

In online collectivities, inequality stems from factors of social reputation and prestige which determine the probability that a specific message will be read and studied, that it has an influence of other member's opinions and that it will contribute something to the group's goals. In contrast to the highly visible and objective discriminations observed in face-to-face settings (as well as in the mass media), such *inequalities of reception* are much harder to ascertain and to quantify, because they are determined by rather invisible processes of differential reception (e. g. by reading As messages very carefully, while ignoring completely the contributions stemming from B, C. or D. (=inequality of receptions). This invisibility is a handicap for the participants who find it hard to get a consensual picture about the effective extent (and causes) of inequalities reigning among them. And for the outside observers (e. g. sociological researchers), it means that more laborious methods have to used in order to measure and compare such stratification patterns within and between collectivities.

4.3 The absence of locational anchoring, bodily contacts and primary interpersonal perception

As Georg Simmel elaborates in his "Sociology of Space", most social collectivities and institutions tend to anchor themselves physically by taking advantage of the objectivity, stability and generalized functionality of geographical locations and territorial space.
Thus, firms manifest their unity by factory buildings dedicated to production and administration; families coincide with households, and parishes are unthinkable without the local church edifice where believers regularly gather for common service (Simmel 1908b).

When no anchoring in a stable location exists, social relations in the Real World are still heavily structured by convergent sensory perceptions and experiences resulting from the physical closeness of interactive participants. For instance, groups become easily self-integrated by the simple fact that individuals sitting simultaneously in the same room see themselves as members of a single, coherent social system; and people meeting at a party, on a journey or on the street are likely to exploit common environmental experiences as

topics for their talks (e.g. the weather, the fact that trains and buses are retarded or the observation that several invited guests are missing). Similarly, social interactions and emerging social relationships are profoundly shaped by the physical bodily appearance of the participants as well as by their activities related to the non-social environment.
However, sensory perception has a narrow spatial scope and cannot be subject to intentional control, so that face-to-face groupings are limited in size, weakly organized and heavily subject to informal social pressures and the dynamics of emotional interpersonal reactions. All such intrinsically stable environmental factors make it easier for individuals to identify themselves as members of a single, coherent social system. In fact, they allow the continuing existence of the collectivity to be demonstrated even when no interactions between members are taking place. By providing a "nonverbal message system" which frames verbal communication processes, they lessen the need for constant ongoing interaction, so that participants are freer to engage in other activities (or in no activities at all) (Jones 1997).
Evidently, cyberspace lacks all these sources of social integration stemming from such anchoring in physical or biological structures. There is no "skyline" representing the City as a unified system, no application of physical force, no stress resulting from overcrowding, no persuasive power based on impressive gestures or penetrating voices, no discriminations based on skin color or physical disabilities and no casualties resulting from traffic accidents or violent (=body-damaging) crime. Thus, virtual collectivities lack both the advantages and handicaps associated with such physical supports. For instance, online communities face the problem that individual participants are not able to have a synopsis about who else is actually participating (or merely “lurking”), and that there are no places or buildings on which stable mutual expectations of continuous gatherings and interactions could be based.
Even in densely knit networks where the same participants interact on a continuous basis, the members can only see the actual flow of messages (at best organized in "threads"), while the collectivity as a whole remains an abstraction not amenable to any sensory perception. What can be seen are just the ongoing communicative exchanges, and from these ongoing interactions, the existence of the "collectivity" (which remains invisible) has to be inferred.
In other words: online groups are essentially *interactional* groups which wane and grow in accordance with the ebb and flow of internal communications, and which effectively cease to exist when communication ends - even when the respective web platform is still in existence.

> *"You can see this in virtual communities: discussions, affairs and quarrels come and go very quickly, and people come and go very quickly. Most people in virtual communities have periods of activity and periods of absence. When you return after a period of absence, you are often welcomed by the members who still know you. But if you don't show up for a long time, the population of the virtual community may have changed completely." (van den Boomen 1998).*

When communication ceases among individuals sitting together in the same room, they continue to be a "group" because the members are still physically there, they recognize mutually that they are present and therefore remain able to resume communication art any point of time. When a Net platform is without visitors, nobody is "there" anymore, so that no group is actually in existence. In fact, unvisited Net sites with defunct discussion fora quickly turn into objects for cyber-archaeologists (Jones 1997): like early human settlements abandoned since hundreds or thousand years. Consequently, online groups are under constant pressure to continue interaction just for testifying their continuing existence - even when no

functional need for such continuance exists. In addition, each member feels a constant pressure to participate regularly in order to be acknowledged as a "regular member".

This contrasts with offline groups where knowing who is physically present is most often sufficient for knowing who is still willing to continue group membership, and for predicting who will again engage in interaction in the near future. Thus, the advantages stemming form the "lessened dictatorship of time" (4.3) are largely offset by the need to use much time for the ongoing processing of communication, because no quick synthesis resulting from a "visual overview" can be achieved.

Like people lacking eyesight, online partners lack the diffuse synthetic experience of ALTER EGO as a complex personality conveying many cues simultaneously by his or her bodily appearance, face-work, gestures and general behavioural style. Instead, they experience ALTER EGO only d*iachronically* by his/her flow of sequential messages which transport only consciously disclosed information. Consequently, there is an urging need to exploit these messages fully for constructing a mental image of the absent communicator and his/her ideas, intentions or emotional states. In particular, past messages will also be reconsidered in order to gain more specific impressions about what kind of relationship has developed so far and what kind of communications will be possible in the future.

Thus, we may hypothesize that members of online groups tend to see themselves "nominalistically" in terms of a sum of singular communication acts or rather microscopic communication systems (like discussion threads typically evolving among a tiny number of participants). For the same reasons, virtual groups have difficulty of displaying their existence to the outside world - a particular handicap for political movement groupings whose impact relies on impressing their environment by their mere size (Geser 2001).

Consequently, constant efforts are needed to maintain social identities and cohesion. For instance, it is essential that formal statutes or "mission statements" as well as the history of past group events is present on the homepage, so that older members have anchoring points for re-verifying their commitment and newcomers find visible cues that facilitate their assimilation.

The problem is particularly acute in the case of USENET groups which are constituted exclusively by ongoing email communication, because their "history" exists only in the (very intrackable) form of a multitude of past messages and "threads". In such cases, it seems essential that somebody tries to systematize these divergent materials and to present their most essential content in the form of FAQ (= answers to "frequently asked questions"). FAQ's are a new form of collective tradition: highly explicit on the one hand and highly flexible and adaptive on the other. By combining these two characteristics, they differ from oral traditions where flexibility has to be bought by lack of explicitness, and by written formal statutes which represent the ossified results of past collective decisions.

In most online groups, such conditions engender a tendency toward oligarchization, because their continuity and structural stability depends heavily on the continuing activity of stable core members. These "activists" are necessary for the generation and maintenance of a collective identity and culture as well as for the success of any kind of collective collaboration:

> *"In virtual communities there is an ongoing collective process as long as there is interaction and debate between frequently returning individuals. This creates a continuity on the virtual group level. And this may result in collective moments. This can be collective action, directed outward (for instance when the webgrrls wrote a letter to a maga-*

zine that had printed complete nonsense about women on the Internet) - and this can be directed inward, like collective meetings or collective agreements about the rules in the community." (van den Boomen 1998).

Only when such active cores are present, online groups may assume "community" characteristics by providing a group environment with stable composition and a virtual place where a permanent nucleus of values and norms is maintained.

4.4 The leveling and blurring of Real World status differentials

In the Real World, social life is heavily shaped by the visible display of material status differentials. For instance, large corporations impress their environment by large-scale, luxurious buildings, women show their wealth by carrying expensive jewelry or garments, and policemen and soldiers certify their official status by uniforms and weapons. All these expressive objects have in common that they are scarce, because their (re)production is technically difficult, expensive or legally prohibited: so that they can safely be used as emblems for group membership or as indicators for status and rank.
In cyberspace, no such scarce objects exist, because all actors are equal in having full access to all tools of multimedia presentation (like pictures, artistic fonts, background music etc). Thus, even savvy adolescents can create highly sophisticated websites competing well with those of large-scale associations, enterprises or powerful institutions. This implies that online communication cannot be embedded in a surrounding scenery which itself conveys much important information about the actors before verbal communication even starts, and that Websites or other Net products are not apt to mirror differences in Real World wealth, power or prestige (see Brönnimann 1997).
Especially high ranking elites accustomed to impress others by the mere size and luxury of their villas or offices may feel frustrated by such levelling effects, while lower ranking actors may contrarily embrace the new opportunities to provide positive impressions on the basis of very low personal status and resources. This deficient capacity to articulate offline status differentials is another factor which amplifies the segregation between the Virtual Sphere and the Real World: by facilitating the emergence of purely virtual status rankings .(e. g. based on effective online communication) not related to wealth, power or conventional prestige.
In many cases, such attributions have to be produced as a product of past communication: e.g. by given high reputation to individuals who have proven that they have supreme knowledge or a high motivation to serve others:

"There are people who expend enormous amounts of energy on a newsgroup: answering questions, quelling arguments, maintaining FAQs [1]. Their names - and reputations - are well-known to the readers of the group: other writers may defer to their judgement, or recommend that their ideas be sought in an argument."(Donath 1996).

Thus, the Internet provides ample opportunities for many people to reach a certain status of reputation that emerges exclusively from their specific (mostly verbal) contributions and may not at all correlate with their reputation in any offline status positions and roles.
Another problematic consequence is the difficulty of correct personal attribution, because authorship can often not be verified beyond doubt. For instance, when a Website is opened in the name of a group, association, enterprise or institution, recipients still don't know to

what degree the conferred messages have to be attributed to such an encompassing collectivity or to single individuals (those responsible for the creation of the respective site).
In fact, we may guess that many individuals are eager to amplify the significance of their personal presentations by pretending to speak in the name of a collectivity or organization which has not authorized them (or which doesn't even exist). As a consequence of such "impression management", the Net may become overpopulated by fictitious collective actors; and creative web-producers may playfully act as temporary "party leaders" or firm managers in the same carnevalistic manner they switch gender when participating in MUD's or IRC's.

4.5 The predominance of volatile, monothematic and project-related social relations

Offline relationships are relatively cumbersome to build up, but when they exist they often become "generalized" in the sense that they persist per se and are exploited for variable purposes over time. *Online relationships*, on the other hand, are easily formed and dissolved, so that they are established ad hoc whenever a need arises, without giving rise to generalized bondings that persist even during very difficult times:

> *"In cyberspace, there is nowhere that a sense of place can grow, and no way in which the solidarities that sustain human beings through difficult times can be forged. In many electronic groups, for instance, individuals have only single-stranded relations. Participants in Usenet groups share a common interest in a particular issue or activity, but often have no other relation with each other." (Komito 1998)*

This focusing on one single topic is in strongest contrast to "proximate communities" as they have been prevalent on traditional societies: people living permanently together, so that they communicate and cooperate on a multitude of topics and tasks, and everybody enters into multifaceted relations with everybody else (Komito 1998). Thus, online collectivities resemble pre-agrarian foraging groups which were also characterized by shifting membership coalescing just for the purpose of coping with momentaneous tasks and with adapting to current environmental conditions:

> *"While proximate communities are often thought to be clearly defined entities, foraging communities are temporary aggregations of individuals. There is often little sense of collective identity (for a discussion of variations within foraging societies). Membership in a community is voluntary and temporary, and individuals move and groups are redefined, depending on ecological and personal factors." (Komito 1998).*

This specificity makes online relationships highly fragile: it may end any time when the salience of the topic is reduced or vanishing altogether.
Thus, we see online movements being formed and transmuted flexibly according to current policies and events, while established institutions like labour unions have fixed their identity and structure beyond all specific purposes: they constitute generalized bases that can become instrumentalized for various goals and policies, and they invent readily new raisons d'êtres when traditional reasons are no longer salient. As the "organization" as an independent level of identification and normative demands is lacking, the identity of networks have to be based more heavily on cultural patterns: on the basic consensus about values and strategic goals, or even better: on the common acceptance of a "project" from which specific problems, roles and activities can easily be derived.

For instance, the development of open source software developments (like Linux) takes place within informal collectivities of loosely connected programmers who base their cohesion exclusively on their identification with a common project, not with the collectivity itself. (Raymond 2000). As a consequence, not much investment is often done in order to secure the survival of the social system. To the contrary, participants often behave in a way that fission or disintegration is occurring:

> *"There may be little investment, by individuals, in maintaining the group or achieving the collective goals or tasks. This is evidenced by the flame wars and other divisive behaviours that develop when individuals are unconcerned whether the group fissions or disappears, and are indifferent as to whether the tasks or goals of group are achieved." (Komito 1998).*

4.6 The need for highly prespecified codes, symbolic patterns, problem definitions and environmental conditions

Another consequence of physical nonpresence is the need to focus communication on highly specific topics and on highly unambiguous signs and symbols.

Face-to-face encounters have always an aspect of "diffuseness" in the sense that interactions cannot be strictly limited to very specific, predetermined aspects (e.g. discussion topics or cooperative goals). They always involve individuals as whole personalities communicating on a multitude of (verbal and nonverbal) channels simultaneously, so that a large variety of (intentional as well as unintentional) informational cues are transmitted that are helpful in interpreting verbal expressions (Geser 1996).

In *online communication*, such personal knowledge is similarly crucial, despite the fact that it is more difficult to gain because messages are highly dissociated from their senders:

> *"With Usenet, there is no editorial board ensuring standards of reliability; each posting comes direct from the writer. Thus, the writer's identity - in particular, claims of real-world expertise or history of accurate online contributions - plays an important role in judging the veracity of an article. Similarly, knowing the writer's motivation - e.g. political beliefs, professional affiliations, personal relationships - can greatly affect how we interpret his or her statements. Is the persuasive posting about the virtues of a new compiler coming from a programmer who has evaluated its code output or from a marketer of the product? The reader who knows that the author stands to gain from promoting a product or an idea is likely to doubt the veracity of the claims" (Donath 1996).*

Typically, however, online partners know each other exclusively in terms of their written Email messages or by the information conveyed on personal homepages. Most often, these pieces of information do not add up to a meaningful synthesis, and they provide no gateway to other personality traits not intentionally conveyed. As a consequence, it becomes crucial that the symbols transmitted have a precise unambiguous meaning, so that they can be intrinsically understood without reference to their particular originators.

Especially among unknown partners, communication is only successful when it is kept in strictly defined domains: so that reliable mutual expectations are created and verbal messages are correctly understood. In political discussion fora, for example, it is often observed that most of the discourse consists of a simple exchange of prefabricated, neatly defined

ideological positions, while the processing of new meaning (by talking about doubtful, insecure positions) has little place:

> *"In a sense, this is the profound problem about all of the email conferences on the wars: they depend upon, and themselves construct, a notion of fixed positions. In terms of the conferences discussed above, there seems to be no place for the profane, the dubious, the doubting, or the simply confused - into which categories most of the population, even most of the email using population, probably fall, at least some of the time. For all its post-modern apparel, then, email may be revealed as the last refuge of a peculiarly modernist discourse and politics." (Stubbs 1998).*

As there is an urgent need to rely on highly consensual, standardized topics and conventionalised codes of expressions, the groups best suited for online interactions are those whose members agree on *highly standardized or formalized codes* which give not rise to any problems of interpretations: e.g. *chemists, philatelists or adherents of fundamentalist religious sects.* For instance, we see most newsgroup communication focused on highly unproblematic topics where participants can build on *universally shared Real-World experiences* and precisely defined verbal terms (e.g. topics associated with housing, pets, cooking, *computers* etc.). In terms of *Lakoff und Boal:* participants in virtual interactions are predominantly "meaning-takers", not "meaning makers" (see: Lakoff / Boal 1995). As a consequence, the online world tends to split itself up into an ever growing multitude of separated communicative islands each of which cultivates an introverted centripetal perspective and locks their participants in mutual contacts that may well endure in time, but not widen into broader spheres.

In more theoretical terms, we may conclude that the Cybersphere contributes to higher levels of segmental social differentiation, thus promoting the mutual segregation of highly specialized groups and circles, and the fragmentation of human personalities into a multitude of tiny subidentities each played out in a highly specific field of communication (Wilson 1997).

Secondly, we may hypothesize that even highly subjective expressions easily gain a "supraindividual" quality in the Net: because they become disconnected from the personality of their creators, so that whoever receives them has no alternative than to interpret them in terms of highly standardized, collectivized connotations. Thus, individuals have no alternative than to produce a highly depersonalized "objective culture" even when expressing their innermost feelings and thoughts.

Looking at the USENET as well as the MUD's in the WWW, we see the immense significance of *language* as medium *constituting* (not merely describing and expressing) virtual worlds.

In a way, Cyberspace is the nearest approximation to a truly Hegelian Utopia which is founded on verbal concepts ("Begriffe") and which develops according to "dialectical" evolutions within this same verbal sphere. In no other field (except maybe classical metaphysics), language is burdened so much with the task of *constituting* Reality (=”Seiendes”), instead of merely describing it (or just imagining, or projecting in terms of fantasies, hopes, anticipations, intentions or plans).

All this stems from the basic fact that the absence of interpersonal bodily perception results in a deficit of communicative structuring, because too few informative cues are available for building up secure interpersonal expectations and for expanding specific initial contacts into broader, more generalized spheres. As a consequence, there is a need to rely on precisely prefabricated, highly consensual and standardized symbolic codes. Paradoxically, then,

online communication may be more successful in the sphere of highly institutionalized and traditional culture than in more innovative realms where meanings are still "under construction". In addition, we may guess that the advantages of global circulations accrue only to the highly externalized and standardized portions of knowledge, while implicit "tacit knowledge" has still to be learned within primary group settings which cannot be easily transferred from one place to another. In contrast to Serres' "knowledge redemption thesis", there will therefore always be "places of knowledge" which have to be visited in order to acquire highly informal cognitive skills as it is usually needed for mastering any vocational or professional practice (Serres 1998). Consequently, there is no hope that the territorial fragmentation of knowledge (which gives for instance rise to regionally strictly limited "industrial districts") will vanish in the near (or even the more distant) future. There will always be trade and manufacturing secrets which can easily be monopolized by localized collectivities because they cannot be explicated in a way to flow freely in digitalized information channels.

In all cases where computer networks are successfully used for highly informal and decentralized forms of social cooperation, it can be observed that the deficient guidance by leadership and authoritarian control is substituted by highly structured initial environmental conditions, goal definitions and/or patterns of problem definition which provide a secure target to which all individual contributions can be directed, and highly objective operational criteria for assessing the viability or disfunctionality of such contributions. This is particularly evident in the case of *open source software developments* like Linux which can go on effectively on a worldwide scale for many years without necessitating the establishment of formal organizational structures. Such projects can only start and proceed when somebody provides a highly structured primary input which then serves as the permanent working environment for all participants and as the structure which defines with high objectivity and precision all problems that have to be tackled:

> *"Somebody (usually one person) wrote the basic program to the state where it was already usable. The net community then takes over and refines and fixes problems, resulting in a much better program than the original, but the important part is to get it started (and channelling the development some way). The net works a bit like a committee: you'll need a few dedicated persons who do most of the stuff or nothing will get done."*[5]

Since Linus Torvalds has initiated the Linux project by offering the entire code of his initial working kernel in 1991 for free download, about 40 000 programmers all over the world have contributed to the development - all of them without pay and without formal assignment of any roles and duties. Only because the degree of specification, formalization and interdependence is so high on the level of the code (which defines the working environment of all), it can be so much lower (or even inexistent) on the level of social organization.

> *"At one level is the source code. Linux, like all other operating systems, consists of numerous lines of code organized into logical hierarchies of discrete units and subunits. The units of code in turn mediate each other in executing a task, forming an immense web of interdependent functions for even the most basic system operations. At the same time, this logical and densely interconnected design of the operating system is to be sharply contrasted with the shapeless contours of the growing development community." (Kuwabara 2000).*

[5] Linus Torvalds in: Marc Smith and Peter Kollock (editors).1999.Communities in Cyberspace. London: Routledge.

Developers can easily ascertain (by themselves as well as among each other) whether certain codes are "good" or "bad": whether they solve existing problems or whether they create new problems because they contain "bugs".

> *“A new patch of code must be coherent, bug-free, and functionally novel or superior to the existing or alternative code. As well, the function must be immediately needed by the Linux community. And finally, as Torvalds stresses, the code should be simple and easily understood by others looking to use it and modify it” (Kuwabara 2000).*

To have such quick and objective feedback about one's performances is essential from the cognitive as well as from the motivational point of view.

On the *cognitive* level, feedback creates precise and secure information about the effectiveness of past work steps as well as about the next problems to be attacked. For instance, developers B and C derive the definitions of their tasks from the bugs developer A has produced in his previous contribution - without having to wait for a supervisor for assigning them such a job. Under such conditions, software development is a self-structuring task producing its own social controls and coordinative adjustments within its own process, so that very little additional managerial guiding is necessary. While Linus Torvalds himself certainly exerts centralized leadership, his discretion is in effect highly restricted by the fact that he has to legitimize his decisions constantly on technical grounds, because everybody will be able to verify whether the results are fruitful or not.

On the *motivational* level, immediate output verification is a good basis for gaining self-satisfaction as well as for the mutual attribution of reputation.

> *"As for the co-developers, the development of the kernel essentially amounts to a competitive process, in which they each seek to contribute the best code they can. In effect, ego satisfaction through reputation becomes directly tied to the self-interest of the individual hackers that in turn drives the Linux project. (Kurabawa 2000)"*

Only because participants are able to acquire unambiguous social reputation within the salient group of other co-producers, they feel enough compensated for the lack of remunerative rewards.

> *"In the hacker community, by contrast, one's work is one's statement. There's a very strict meritocracy (the best craftsmanship wins) and there's a strong ethos that quality should (indeed must) be left to speak for itself. The best brag is code that ``just works'', and that any competent programmer can see is good stuff. (Raymond 1998)."*

Of course, the Internet has intensified and especially accelerated feedback among co-developers enormously: thus speeding up the evolutionary process as well as increasing the degree to which participants can profit from cognitive guidance as well as from attribution of personal reputation.

4.7 The rising salience of credibility and trust

While the stream of published information can no longer be controlled by anybody, Net users will have ever increasing needs for secure guidance and for limiting their scarce attention to those few sources that can be trusted without qualification.

> *„If there is anything about which most editors and observers seem to agree, it's that good ethics is good business. In the increasingly chaotic and fragmented world of online media, newspaper sites have brand names to protect and defend--brand names that, set them apart from a ravenous pack of wannabe news providers.“ (Lynch 1998).*

For instance, shareholders find themselves confronted with a whole gamut of information about enterprises which may well be misinformed (or even deliberately falsified by competitors or speculators) – so that they will turn to highly reputable sites like the Wall Street Journal. In addition, net users face ever increasing risks of being misled by manipulated by misleading photo images modified by morphing programs or other kinds of software applications. Thus, the public will only have trust in highly reputable photo reporters known to be absolutely honest and sincere. (Abrams 1995).
As the creation of interpersonal trust is much hampered in Cyberspace because interaction partners have no means to ascertain each others identity and personal reliability, trust in social systems and institutions becomes even more crucial. As a consequence, highly established, traditional brands which enjoy outstanding public trust have disproportionate chances to win large amounts of customers, while new start-up firms are often doomed:

> *"The reluctance of consumers to send money to strangers over new channels such as the Internet has prompted the argument that trust is increasingly conferred on the basis of reputation. From this perspective, the willingness of clients and customers to participate in virtual, remote forms of transaction is seen as depending upon a construction of trust engendered by the brand image of the trader. In which case, comparatively new entrants into the financial services market with a strong brand image and customer-base - such as Virgin, Marks and Spencer, General Motors and Tesco -- may be able to penetrate the financial services market to an even greater degree than they have through more conventional distribution media."(Knights et al. 2001.*

As a consequence, we may expect that the Internet contributes to an additional concentration of influence and market share in the hands of few highly reputable firms and institutions which will be highly successful in offline and online channels at the same time.

4.8 The facilitated social integration of "strangers"

Georg Simmel has argued that the "stranger" has to rely much on impersonal money transactions in order to participate in society, because he has no access to more particularistic resources (e.g. informal personal acquaintances or detailed knowledge about local places) (Simmel 1900: 223ff.). By analogy, we may hypothesize that strangers do well to use the Internet for getting themselves integrated in informational and communicative settings, because they find themselves less handicapped than in many offline settings. Evidently, online interaction has changed the ways how unacquainted people interact with each other and how strangers ("Newbies") are integrated into pre-existing groups.
Three main differences to offline interactions stand out.
1) As participants are only virtually present, they are never the source of violence or other kinds of intrusive behaviour. Thus, they can be welcomed without anxiety and suspicion, and interaction with them can be quite unrestrained because even when they feel hurt or insulted, they may only leave rather than react with aggression.

As Goffman (1959) has noted, face-to-face interactions are risky because I readily notice when I have caused others to feel embarrassed, frustrated or offended; under online conditions, however, such negative impacts of my behaviour are much less likely to become manifest, because its so easy to leave the virtual group context without giving notice and reasons (Brooks et, al. 1997), and because all cues not intentionally transmitted (e. g. mimics and gazes expressing anger) are filtered out, Miller 1995).
2) Interactions with strangers take place on platforms where at least a minimal commonality between participants (usually: a common interest in a topic) can be assumed. As communications have a very high degree of "functional specificity", they can go on fruitfully even among completely unacquainted individuals who would found no common ground when they would engage in more diffuse types of interaction.
3) Newcomers can be integrated quite quickly because the group culture usually exists in a highly explicit form (e. g. as written documents or FAQ's which provide sufficient information about the groups goals, values and behavioural norms.
Nevertheless, this specificity has not the form of highly standardized, ritualistic and semantically closed interaction sequences as they occur for instance when strangers in the city want to know what time it is or how to get to a specific location. Instead, strangers engaged in online interaction can engage in highly fluid and informal communications in which new solutions to problems can be developed and new perspectives can be created. (Carroli 1997).

As online communications (as well as personal online identities projected) are so highly segregated from their senders, they lend themselves to fluid modification because their originators have not to fear that their whole personality may be affected by such productions ore transformations. As "communities of strangers" (Carroli 1997), online groups provide a very specialized and shaky form of "belongingness" among people completely unacquainted to each other: a commonality which is not given by tradition or by the mere fact of living at the same location, but which has to be produced and maintained by constant interaction.

4.9 Expansion of highly voluntary social interactions, relationships and roles

The physical absence of interaction partners implies the absence of various sources of social pressure which draw individuals into communication processes partially independent of their willingness and actual needs. During conferences or team sessions for example, participants are virtually "trapped" in closed gatherings where they have to listen to everything being said, to react to questions they don't like to answer, to remain seated when they would like to leave etc. As a consequence, face-to-face gatherings are highly instrumental for making individuals talk about matters they would rather avoid under different circumstances (e.g. answering interview questions or giving testimony before courts), and for focusing interindividual communication on collective goals (e.g. by generating negotiated compromises or binding decisions). On the other hand, they are much less functional for producing "authentic" and "fully sincere" expressions of subjective thoughts, opinions or emotions, because everything uttered is shaped by mutual expectations reigning in the surrounding social field. Consequently, individual communicative behavior has to be treated mainly as a dependent variable, while collectivities may well become social systems *sui generis* with emergent qualities and action capacities of their own.
By contrast, such situational factors are much less present in online interactions, because participants are not embedded in a common environmental setting and have no access to

nonverbal cues informing about mutual expectations (or reactions to previous expressions). Individuals will feel free to decide at what time they read incoming mail or send out their own messages, who shall be addressed by what kind of responses and whether participation in ongoing discussions shall be continued or not. Lacking cognitive information about ALTER's reaction, they have no choice than to let themselves guide by their inner views and preferences; and being unaffected by pressures of "social desirability", they will feed in their own statements even when they visibly don't contribute to consensus and collective cohesion. To use Erving Goffman's terminology, we may hypothesize that online situations lessen the pressure to maintain idealized "front stage" behaviour and to execute deindividualized ceremonial ritualizations.

> *"In face to face interactions, the performer and the audience normally utilize techniques for "saving the show" or avoiding likely interruptions. Over electronic communication, the accommodation process becomes much less defined. The ambiguous nature of self over electronic communication decreases the desire to maintain a working consensus between the performer and the audience. The attitude which the performer would normally express in the absence of the audience begins to emerge. The distinction between the "back region" preparation and the "front region" presentation become blurred. The individual feels less need to hide his abnormal or socially unacceptable thinking and behaviour. The individual feels less constraint to present themselves as "normal" to others." (Brooks et al. 1997).*

As a consequence, interaction styles are less determined by deindividualized ritualizations, but more by intrinsic characteristics of the participants. For instance, gender differences may become amplified: in the sense that males often adopt an adversarial and sarcastic style, tend to give more positive and supportive contributions. (Brooks et al. 1997).

Thus, we may make the methodological conclusion that online communications are predominantly shaped by intrapersonal factors: by idiosyncratic individual preferences, interests and opinions as well as by purely subjective social stereotypes and expectations**.** This hypothesis relates surely to receptive behavior (e.g. while surfing) but also to more active behavior (e.g. creating websites, posting newsgroup messages and the like) (Kerr/Hiltz 1982).

Similarly, online communication seems to create almost ideal preconditions for acting out very elementary inner emotions (e.g. aggression, hatred or sexual desires). Given the absence of social controls, internal psychological factors may easily take the lead in guiding individual behavior and expression: giving rise to "affectual actions[6]" called "flamings" which - from the psychoanalytical perspective - may be seen as regressions to childish stages of feeling and behavior.

Methodologically speaking, we may see virtual interactions as a rather unbiased source of objective indicators for intraindividual thoughts, preferences and emotions, because it lends itself to highly authentic processes of expression, undistorted by interpersonal considerations or collective social pressures. Turned the other way round, it may be hypothesized that online communication is best suitable for the most peripheral spheres of social participation where individuals have no intention to engage in any enduring social relations or to make any kind of irreversible commitments (Kerr/Hiltz 1982: 151). In fact, cyber contacts extend the social sphere individuals live in by a new most ephemeral layer of social relation-

[6] referring here to Max Weber's definition of the term (see: Max Weber: Wirtschaft und Gesellschaft. Mohr, Tübingen 1972 [5. Aufl.] p. 13).

ships: ephemeral in the sense that they may be focused on one single, highly specific course of interaction.
This is very visible in the case of research teams which open themselves up to additional online partners whenever the need for more specialized expertise arises. This leads to the ephemeral role of "accidental consultants" who are contacted at occasionally or at singular occasions - without any more general obligation to participate fully in a stable team.
This implies that research groups can become smaller and more loosely structured because they have less need for pooling all relevant expertise within themselves (Huber 1990). As a result, the main qualifications demanded from researchers may change: their "stock of knowledge" is much less important than their capacity to procure specific information whenever such a need arrives.[7]

In a more general sense, we may conclude that: computer-mediated communication supports and reinforces the tendency (already inherent in modern societies) to engage in highly volatile, reversible kinds of role extremely distant from any kind of "communalistic" social integration.

4.10 The softened incompatibility between "egocentric" and "altruistic" action

Social relationships and social structures in the Offline world are highly shaped by all the "zero-sum games" which result from the scarcity of highly-valued resources and products.
For instance, political systems are the evolutionary result of competition and fierce fighting over the control of territories: a basic resource which can only be redistributed because it cannot be increased. And the economy results from the basic premise that most goods cannot be distributed freely, but at a price which mirrors their costs of production (in terms of scarce labour, raw materials etc) on the one hand and the intensity of consumer demand on the other.
Scarcity gives inevitably rise to the most serious problem permeating most human relationships and all endeavours of social cooperation: the "Hobbesian" collision between the self-interests of different (individual and corporate) actors. Given that whatever is yours cannot be mine, a basic antagonism exists between all social actors, so that complex institutions (like property rights, exchange rules, territorial jurisdictions etc.) have to be established in order to prevent conflicts, and even more complex institutions (e. g. courts or international negotiations) have to be enacted so that over conflicts can be solved.
Consequently, there is no alternative than to enforce rules which deviate heavily from the inner preferences of the subjects, but which are nevertheless followed because sanctions are feared, because rule makers are granted legitimacy, or because the subjects grudgingly decide to support a social order which at the end serves the interests of them all.
Of course, there have always been "resorts" where such antagonisms have been weakened or even absent: positive-sum games where all actors could raise their satisfactions at the same time. For instance, when people meet for socializing and engage in conversation, they "produce" something rewarding for them altogether, and when I tell my friend how to cook

[7] As a consequence, the social network scientists live in may become more important than ever: because every interpersonal relationship is a resource that may be tapped at any given moment (not only in rare occasions of face-to-face meetings at conferences).

excellent muffins, I enrich his life without diminishing anything of my own. (In fact, I can find the mere thought rewarding that my friend honours me as a knowledgeable and helpful person).

As an institutional order, science has always been based on the fundamental harmony between self-centered and other-centered (inter-)action. Thus, the more I can reward recipients by communicating to them my innovative ideas and discoveries, the more I can win in terms of personal reputation as well as in terms of fruitful intellectual reactions.
In contrast to the whole domain of physical products, the sphere of symbolic productions has the basic characteristic that *distribution* does not imply *redistribution*: by simple copying, unlimited numbers of others can become co-owners without disowning myself. Insofar as the notion of "property" is maintained, it can only refer the physical substrates on which the symbolic patters are encoded. Thus, property takes the form of "copyrights" by limiting the right to produce books or CD's on which they are stored. Such secondary economizing becomes more difficult when scarcities vanish because the costs for copying and distribution decrease toward zero levels. Thus, telling a joke to my friends cannot be the object of an economic transaction because I don't define such a communication as a work effort for which I expect to be compensated.
Evidently, *digital encoding* has dramatically decreased the costs for producing identical copies of almost all types of symbolic products (texts, pictures, music etc.), the *personal computer* has enabled everybody to produce such copies without any special efforts and skills; and the *Internet* has empowered all users to distribute such identical copies within almost no time to innumerable other users on the whole globe (Kleinman 1996; Barbrook 1998a; Geser 1999).
By eliminating scarcities, the Internet has extremely widened the range of human activities which can be "autocentric" and "altruistic" at the same time. For instance, anybody shooting his private digital pictures of rare birds or orchids can as well publish them on the Web for worldwide enjoyment, a scholar elaborating a comprehensive bibliography in the course of his own studies can as well load it on the Net, and every institution producing an informative website just for its members may publish useful information for many unknown outsiders all over the world.
This accords well with the fact that In the Online World, there are much less possibilities to solve social conflicts by the exercise of authority. Instead, they are minimized by creating optimal matchings between individuals and social groupings: so that everybody finds himself in social orders with which he or she materially agrees.

> *"The best available solution to conflicts in individual goals and values regarding online conduct may be found by allowing individuals to join distinct, boundaried communities on the Internet, each with its own divergent set of rules, and by allowing those communities to deal with external pressures by devising their own mechanisms for filtering out unwelcome messages and with internal conflict by easing (or requiring) exit." (Johnson/Post 1998).*

Open source software projects like Linux derive much of their effectiveness and temporal stability from the fact that they use the entire world as their talent pool (Raymond 1998). The mere extensity and heterogeneity of the recruitment field makes it highly probable

1) that at least a handful individuals are found who take such a strong intrinsic interest in "Linux" (as a public good) that they are ready to work very hard on it without any pecuniary incentives;
2) that the pool contains people with so heterogeneous skills and interests that almost all of the tasks to be solved are tackled by at least somebody voluntarily - so that there is no need for formal role assignments.

Thus, there is increasing evidence

> *"....that it is often cheaper and more effective to recruit self-selected volunteers from the Internet than it is to manage buildings full of people who would rather be doing something else." (Raymond 1998).*

In particular, there may be a sufficient supply of originators whose commitment is so high that they provide the initial innovative founding inputs on which all the followers can then proceed:

> *"In a heterogeneous population, larger groups are more likely to have 'outliers' who have high levels of interest and resources. Given the global community, the odds of finding the likes of Torvalds and Alan Cox might still be extremely low. But it takes only a handful of them, perhaps even one, to clear the land. Once the land is cleared, there stands little in the way of people planting the seeds and tending the garden." (Kuwabara 2000).*

This principle of "self-selective matching" between subjective motivation and objective function is highly predominant in collective freeware programming, especially within the LINUX community where it has been demonstrated that even highly cumbersome and exhausting tasks like software debugging can be effectively done under such decentralized, self-motivated conditions.

> *"The Linux movement did not and still does not have a formal hierarchy whereby important tasks can be handled out ... a kind of self-selection takes place instead: anyone who cares enough about a particular program is welcomed to try" [54]. But if his work is not good enough, another hacker will immediately fill the gap. In this way, this 'self-selection' ensures that the work done is of super quality. Moreover this "decentralisation leads to more efficient allocation of resources (programmers' time and work) because each developer is free to work on any particular program of his choice as his skills, experience and interest best dictate" (Kuwabara, 2000).*

A major precondition for success seems to be the strict parcelling of big tasks into smaller tasks which can be independently solved ("modularization"), so that developers have not to engage in laborious coordination efforts because they can reach an intrinsically satisfying goal by their own strength (Dafermos 2001). As a consequence, developers find it essential that their individual productions remain identifiable "building blocks" on which their name is printed, so that their reputational rewards are not dissipated (Dafermos 2001). This of course shows that internetted voluntary cooperation systems will not function in the case of highly collectivized products (like political campaign successes) which cannot be decomposed into tagged individual contributions. Despite the leadership role of Torvalds and the emergence of rudimentary middle level management structures, Adam's Smith's principle that collective welfare results from a summation of egocentric activities carries over from the realm of market exchange to the sphere of production, because individuals gain secure personal advantage from their contribution to the collective good:

"…the Linux world behaves in many respects like a free market or an ecology, a collection of selfish agents attempting to maximize utility which in the process produces a self-correcting spontaneous order more elaborate and efficient than any amount of central planning could have achieved." (Raymond 1998)

This coincidence between individual collective function was particularly prominent at the very start of the project, about which Linus Torvalds remarked:

"[Linux] started as a program for my own use. I was blown away by how many people there were with similar needs. Being completely ignorant about the size of the project, I didn't have any inhibitions about doing something stupid. I could say that if I had know, I wouldn't have started."[8]

Thus, the sociological notion that individual actions have unintended social consequences is reasserting itself in a more dramatic way than ever. While we might admit that prices, interest rates and other correlates of market exchange emerge and change in unplanned ways as a blind result of many individual transactions, we may still cling to the idea that at least production processes take place as realizations of prefabricated plans: by deductive top down processes of goal setting, planning, role assignments, commands and social controls which guarantee that specific purposes are reached with specific resources within a predetermined period of time. In the Linux case, however, we see an example of unplanned and unguided evolutionary production where the product emerges out of a manifold of short-term tactical moves and uncoordinated individual contributions.

As social controls and incentives from immediate collocal neighbors are lacking, behavior on the Net is highly determined by momentaneous subjective motivations. In offline settings, such egocentric behavior often leads to social isolation because nobody in the environment is sharing currently such highly subjective preferences. On the Net, however, even individuals with extremely idiosyncratic preferences are likely to find congenial partners: e. g. people ready to play chess at half-past three in the morning, or sex mates devoted to the same forms of SM or fetishist behavior.

"People seem to move according to their inner compulsions, yet they find themselves synchronized automatically with a host of others" (Adams 1997).

In other words: the Net can be used for easing the incompatibilities between intraindividual, interindividual and supraindividual system levels; enhancing the degree to which individuals can follow their subjective drives and remain socially fully integrated at the same time.[9]

Thus, Cyberspace again facilitates the convergence between social purposes and individual motivations which has become so obsolete in the world of centralized and formalized organization.[10] In sharp contrast to humans in primitive migrating societies, however, modern Netizens can participate simultaneously in different groups with highly divergent systems of rules. By accumulating an idiosyncratic set of different memberships, each individual functions as a living link between such collectivities. In many cases, sincere altruistic behaviour is displayed by almost everybody because it involves so little personal costs. For instance,

[8] Cited in Kuwabara 2000.

[9] This may in turn well lead to a further devaluation of the offline world: Real Life is found increasingly frustrating because it confront people constantly with situations where subjective and social expectations collide.

[10] On the dissociation between subjective motivation and objective goals in the case of formal organizations, see: Türk 1978: 124ff.)

peer-to-peer exchange systems rely on the premise that millions of users are ready to make accessible part of their private hard disk publicly: because individual costs are minimal, while the advantages everybody draws from having access to so many other users can be immense (Rheingold 1994: 57f.).

> *"Although the circulation of gifts doesn't necessarily create emotional obligations between individuals, people are still willing to donate their information to everyone else on the Net. Even selfish reasons encourage people to become anarcho-communists within cyberspace. By adding their own presence, every user contributes to the collective knowledge accessible to those already on-line. In return, each individual has potential access to all the information made available by others within the Net. Everyone takes far more out of the Net than they can ever give away as an individual." (Barbrook 1998a).*

As very little altruism is needed for providing many users with highly rewarding gifts, the downside of the same coin is that rather modest quantities of evil-mindedness can suffice to create widespread damage: e. g. by creating viruses and hacking classified information "out of mere fun". *Hacktivism* is the ultimate form of an effective macroscopic action based on singular individuals who rely on their personal skills: without any need for social cooperation or coordination. Here, Mancur Olsons free rider problems becomes really pointless because the contribution of each participant is measurable to the highest degree, so that many individuals will be spontaneously motivated to engage in considerable efforts – without the need for additional “selective incentives”.

> *"Since a single hacktivist can bring down an entire government web site (albeit temporarily), hacktivism offers the promise of increased efficacy via identifiable contributions to the public good. One could argue that individual hacktions, by virtue of their solitude, not only transcend collective action dilemmas – they cease to be collective action at all." (Samuel 2001).*

Evidently, the Net has enlarged the reach of non-economic gift exchanges into regions which have hitherto been dominated by purely economic exchange: thus reducing the total share of the economy in the overall universe of human transactions.

It is tempting to assume that in terms of Peter M. Blau, economic exchange is substituted by "social exchange" (Blau 1964:88-97, and that in some (highly modified) ways, archaic principles reigning archaic "potlach economies" are currently reviving (Barbrook 1998a). Nevertheless, such a view neglects that basic fact that "social exchanges" also involve the exchange of scarce products or services, so that norms of interpersonal obligation are necessary to ensure reciprocity. By contrast, transactions on the Internet can be maintained by the mere self-interest of all participating users, so that no reciprocity (at least not: reciprocity between given exchange partners) has to be effected. Evidently, free riders not contributing anything themselves are abundant in the Net (e.g. as parasitic "lurkers"), but they do not constitute a problem because they do not reduce the total volume of system production and do not diminish the subjective satisfaction of anybody else.

While the recent demise of the "New Economy" raises the questions whether at least a partial commercialization of the Net will ever have chances to succeed, there are no doubts that as an "anarcho-communist el dorado”, the Net is currently thriving (to a degree arising existential fears among music enterprises and other economic actors thoroughly hit by P2P exchange Networks). (Barbrook 1998a). However, it is extremely important to note that the

participants of this "cybercommunist" networks are most often prosperous individuals well anchored in the commercial economy as well. This indicates that the gift economy is an additional "postmaterialist" layer superimposed upon well developed economic systems, not a substitute on the way of replacing it altogether:

> *"Often Net users benefit more from working together through circulating gifts than from taking part in e-commerce. Living within a prosperous society, many Americans are no longer solely motivated by monetary rewards. With sufficient time and money, they will also work to gain the respect of their peers for their efforts. Increasing numbers of people are now satisfying this desire for recognition within network communities. Individuals receive praise and friendship from their fellow-members by making excellent contributions to collective projects. Within the Net, the rise in the productive forces encourages a more advanced form of collective labour: work-as-gift." (Barbrook 1998a).*

The notorious emphasis on fun and playfulness (e. g. as a motivation base for freeware programmers as well as for website creators or forum moderators) indicates that many highly instrumental productions in the Net result from predominantly expressive individual actions: activities which have not to be compensated with any extrinsic rewards because they are experienced as intrinsically rewarding (Dafermos 2001). Thus, the Net can be seen as a gigantic refining machinery which transforms masses of rather egocentrically motivated actions into socially useful productions. When the number of users rises to a billion and more, the likelihood rises that at least one user is *intrinsically* motivated to offer products and services other users need: so that a non-commercial system of labor division is gaining momentum which is not only independent of any monetary incentives, but of any other reciprocal exchange relations as well.

4.11 The intrinsic "softness" of digital social systems

Given the absence of physically based structuring, cyberspace is a "soft" social world reigned mainly by highly volatile subjective attitudes and psychological motivations, interests, values, commitments, opinion leadership, expectations of solidarity and reciprocity or attributions of trust, reputation and prestige. Thus, Internet surfing often implies a sequence of extremely erratic, unpredictable subjective experiences tightly correlated with the fluidity of thoughts and mental associations. Every single time we log in, we may follow a completely different trail of links, and the slightest change of internal preferences may suffice to change these paths.

Theoretically speaking, the scarce common good for which all media are competing is not money, space, power or any other "material" goals, but a very soft resource called "conscious attention": a scarce good not expandable much on the level of each human being because of all other role-requirements of modern life.[11] As the Internet is such a latecomer, it has to compete with all other, already established objects and activities which attract individual attention: and as a typical "pull technology", it has no means of reinforcing attention when individuals decide that they have other things to do.[12]

[11] see for instance: Michel H. Goldhabers elaborations on the Net as an "attention economy" http://www.well.com/user/mgoldh/

[12] The capacity of the internet to absorb attention is particularly high because wherever surfing occurs, it is a dominant activity beside which almost no secondary activity can be exerted at the same time. Absorption is

Given the gigantic extension, complexity and daily change of the Cybersphere, it has to be expected that individual surfers find themselves in a rather helpless, "anomic" psychological condition: so that they are prone to browse the Net erratically and to let themselves drift by lowest-intensity whims and moods. In fact, business firms find it hard to catch lonely surfers on their site, because most of them switch so easily from one page to the next:

> *"According to a study by the University of Minnesota, if a site doesn't capture Web surfers' interest within eight seconds, they're gone--off to another one with a click of the computer mouse. Even if they stay, the average visit is only seven minutes. That leaves precious little time for Web publishers, advertisers, and merchants to promote or sell anything." (De Hof 1997).*

While attractive content may motivate them to visit a site, very different forces have to be mobilized for *keeping* them at a certain place: e.g. socio-emotional belongingness and multilateral interaction. In fact, many surfers seam to search for familiar places where they can feel at home. For them, cyberspace is an amorphous ocean where they look out for small islands where they are sure to meet congenial people, to find empathy for their own thoughts and feelings or even membership in a tightly-knit communalistic group. (De Hof 1997). Paradoxically then, it seems easier to make surfers pay for access into communities where they have to do something themselves (and even run the risk of being treated badly) than by offering them any kind of attractive content. (De Hof 1997).
As the structure of online interactions has to be based predominantly on psychological factors, stability and predictability can only be gained when individual users are ready to commit themselves voluntarily to specific destinations, where they can establish long-term patterns of collective life, cultural traditions or even some new kinds of societal institutions.

5. Implications of the Internet for the Cultural Level

5.1 The softening of artifacts and the deletability of the past

Under offline conditions, most groups, organizations and institutions regularly use buildings and other physical structures for articulating their existence and continuity, and for expressing their identity vis-à-vis their members as well as to the outside world.
Such anchorings have ambivalent consequences. On the one hand, they make it easier for collectivities to continue their existence and maintain their identity even at times of low member involvement and rather sporadic social activities (see 4.3). But on the downside, these structures tend to inhibit change: an old church building is unlikely to provide an optimal environment for newer forms of social gatherings and communication and it is getting too small when membership suddenly increases. In addition, physical structures tend to separate collectivities from all the others: so that alliances and mergers are inhibited and even sporadic interactions are not likely to occur.

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particularly high to the degree that interactive potentials are exploited: (e.g. by writing newsgroup messages or participating in online games.). These interactive features are also making the internet a serious competitor for face-to-face interactions to a degree never attained by books, radio or TV. Younger children may be particularly prone to substitute primary interpersonal by computer- and Net-related activities, because they find better opportunities than on TV for satisfying their needs for bodily movement and absorbing playful interactions.

One of the most fundamental implication of the computer age is that the sphere of "human culture" is enriched by a new sphere of software artifacts that mediates between the stubbornness and durability of physical productions on the one hand and the volatility of behavioral processes ("soci-facts") and subjective mental states "menti-facts") on the other. This innovation has a major impact on the way individuals, groups and societies relate to their own past**.** In the conventional sphere of social communication, we find a neat separation between rather fluid processes of *ongoing* social action (e.g. oral speech) and rather solid, immutable products of *past* social actions (e.g. written printed texts).

The possession of writing is usually thought to define the difference between "prehistorical" and "historical" societies: a notion which illustrates the deep implication of writing technology for the capacity of social collectivities to store and retrieve information. When there are no written documents, it is evidently difficult to relate to the past, because one has to rely on subjective memory or orally transmitted stories - both very much subject to distortions, loss of precision etc. Evidently, one important function of written texts is to store past events, ideas, decisions, agreements etc. in an immutable form: so that they can be made fully present at any point of time in the future. Of course, the same is true for nonverbal physical artifacts like buildings, pictures, music instruments or furniture, insofar as they are not subject to later modifications.)

One of the major innovations of online communication is the emergence of "semi-fluid" artifacts appearing in objectified (e.g. written) form while remaining perpetually accessible to additions or revisions (e.g. Webpages "under constant construction", lively Internet relay discussions or weblogs and Guestbooks where everybody can add his contributions. Substituting physical texts by online documents, physical tombstones by virtual memorials, homesteads by "homepages" or paper photos by digitalized images always means: choosing a soft storage medium where such documents can be modified at any time in a way that

1) the earlier "original" is completely wiped out and

2) the process of modification doesn't leave any visible traces.

Thus, future historians will certainly have difficulty of synthesizing a cultural history of WWW because at any point of time, most Web pages have recently been created or modified, while older ones (or earlier versions) have been irreversibly deleted.

In a similar vein, philological studies on future "classical authors" will be hampered by the fact that when they have died, they will leave hard disk files which contain only the latest version of their productions, so that it may be impossible to trace the genesis of a poem, a novel or a philosophical system.

Up to the present, we had no alternative than to be surrounded (and often heavily constrained) by past human productions, because they have been incarnated in stubborn physical media like stone, metal or paper. In the future, the presence of earlier cultural products will depend far more on active intentional endeavors: e.g. the decision to create "backups" of de-actualized web documents and sketchy "Beta-version documents" (and to provide the necessary technologies and programs for retrieval).

Given the reversibility and modifiability of all digital productions, we may envisage a new era of human culture dominated by "living", permanently modifiable and modified creations, while conventional culture is reigned by "dead artifacts" frozen in an immutable state even when their authors are still alive. These changes will be particularly felt in the realm of written culture. Conventional written texts have the connotation of being "final" statements released only after authors have completed their intellectual endeavors or certified that all information is true and all assertions can be defended. As a consequence, the sphere of writ-

ten publications had a certain dignity and reputation separating them from the sphere of oral verbalizations below the threshold of writing (or even: publication) In the future, we may have to adapt to a new layer of proliferative sketchy writing, because any errors or shortcomings can easily be corrected afterwards. As a consequence, the scope of "objectified cultural artifacts" could well expand to many expressions and articulations hitherto locked in intrapersonal thoughts, oral conversations or private handwritten notes.

This development is particularly relevant for the public sphere where the Internet gives rise to a kind of "backstage" publicity contrasting rather sharply with the "front stage publicity" of conventional Print Media, Radio and TV. In Erving Goffman's terms, "front stage" is the arena where individuals try hard to impress their audience with a good performance and to present themselves in a disciplined, idealized fashion; "back stage" is the residual space where they feel free to behave informally, without pressures to evoke specific impressions and evaluations (Goffman 1959). Conventionally, "going public" means to enter the most head-lighted front stage society has to offer, so that disciplinary pressures are rather high. Publishing a book usually means: preparing a careful manuscript without any orthographic or grammatical mistakes; participating in a TV show implies: appearing in perfectly styled hairdressing and clothes. As a result, the conventional public sphere is a space permeated by ritualized and standardized conventions: limiting the leeway for subjective expression and raising the entry threshold to such a high level that most people don't feel fit for public activities most of the time. (For instance: most unsatisfied newspaper readers don't send "letters to the editors" because they feel unable to produce publishable texts).

Evidently, the Internet seems to loosen such conventional restraints. Thousands of individuals publish very sketchy personal homepages explicitly kept "under permanent construction"; and millions post very quick newsgroup messages without correcting even the most visible typing errors. Scientific papers are "provisionally" published in a stage where their language style and argumentative consistency is still very far from perfection; and even honorable institutions start their web presence with rather tentative pages devoid of professional ambition. (Ryder/Wilson 1995). Consequently, the gates are widely open to convey any kind of (changing) personal traits, whims, thoughts, and emotions, and almost anybody with minimal literacy feels competent enough to feed in his or her own contributions.

In a way then, the Internet leads individuals back to a very basic platform where they start anew with cultural production: without any guidance from established societal institutions and professions:

> *"Homepage design is a new form of human expression. There are no rules of content. There are no acknowledged experts. No universal standards of criticism. We can only learn from each other, and from our third-grade colleagues."(Ryder/Wilson 1995)*

5.2 From producer-guided to receiver-guided culture

The evolution of communication media can be described an ever growing dissociation between encoding and decoding processes: leading to an increasing autonomy of recipients from authors and from agencies of emission.

Under *face-to-face conditions*, the sovereignty of speakers is absolute because listeners have no way than to follow in every detail their utterances: word by word, sentence by sentence. Thus, listening to a speech implies an attitude of submission and obedience, expresses that listeners are ready to accept the dominance of the speaker at least for a short time (e.g. because of his/her outstanding reputation).

Papyrus rolls still force readers to follow the sequential structures fixed by the writers, because unfolding a roll can only be done in one direction (Bolter 1984).
Books are very different in this respect, because they can be opened at any page in the same easy manner. Certainly, most of them still try to enforce a linear kind of reading by numbering pages and chapters and or by displaying a sequential structure: beginning with introductory remarks and ending with summaries or conclusions. However, at least dictionaries, encyclopedias and directories exploit fully the new capacities of books for nonlinear communication. Here, the fact that pages are numbered from 1 to 1289 or more is a completely irrelevant fact: without any impact on the factual behavior of their users.

Seen in this long term historical perspective, computerized texts are a logical further step in completing the dissociation between encoding and decoding behavior, because users enjoy all the freedom to navigate in any preferred direction. Hypertextuality in particular makes it less probable that messages are decoded in any way prescribed by the authors. By losing control over the sequential orders of verbal transmissions, they lose the capacity to transmit very complex chains of logical reasoning or complicated literary plots which require that a strict sequence in decoding is maintained. Thus, while it becomes very easy to be sender, it becomes less motivating to send anything, because no control over reception processes can be achieved. Such "undisciplined" decoding is least harmful when encoded texts are segmented into large number of self-sufficient subunits (like a dictionary is in very many translated words or expressions). On the other hand, it is particularly problematic in the case of narrative literature (e.g. short stories or novels) or in expositions of deductive (logical or mathematical) reasonings where it is essential that reading follows a linear course.[13]

From the point of view of recipients, hypertext provides the possibility of sifting masses of texts by employing self-defined criteria of selection and navigation, thus emancipating themselves from any guiding constraints set by the authors. More theoretically spoken, hypertext: enhances the autonomy of individuals in coping with cultural products by catalyzing the mutual autonomy between personal and cultural systems. It reinforces the evolutionary tendency that individuals experience cultural traditions no longer as constraints that limit their range of thinking or action, but as rich pools of resources which they can exploit for self-development as well as for coping with temporary problems and the pursuit of any personal goals.
Hypertext illustrates how individuals can use computers and computer networks for surrounding themselves with a highly "customized" environment of objective culture: at each moment tailored specifically to their actual situation and subjective needs. In particular, it allows them to synchronize processes of information intake with their spontaneous inner processes of "free association":

> *"Blazing trails through information space is "analogous to the trail of mental association in the [student's] mind" (Nyce & Kahn, 1991, p. 58).*
> *"Instead of a linear, page-by-page, line-by-line, book-by-book approach, the user connects information in an intuitive, associative manner. Hypertext fosters a literacy that is prompted by jumps of intuition and association" (Heim, 1993: 30).*

[13] See for instance: “This Essay Doesn't Fit On Your Screen: Some Thoughts on the Problem of Linearity and Fiction on the Web” http://www.panix.com/clays/fiction/fiction2.html

Thus, hypertext reading can be considered as an externalized kind of internal associative thinking, so that it can be smoothly adapted to idiosyncratic motives, skills and learning procedures:

> *"The nonlinear characteristic of hypertext creates a new type of reading and writing environment. It is an environment that supports the development of interactive learning materials After students learn to read hypertext literature, they are not dependent upon a teacher or lab assistant to use hypertext instructional materials." (Heim, 1993: 30).*

Because of their reader-centeredness, didactic hypertext systems are generally called "learning systems" rather than "teaching systems. They introduce an exploratory or discovery method of learning into the classroom. Students who learn to use hypertexts become active learners. Simultaneously, while students are becoming more mentally active, they are also interacting with new ways of presenting information through computer-based technologies:

> *"A principle point is that the student is in control and may use his initiative dynamically; the subject is NOT artificially processed into a presentational sequence"(Nelson 1987).*

Nonlinear or multilinear reading requires students to make critical choices about which passage of text or point of view they will access next. The complexity of these decisions depends on the type of document and the design of the hypertext system (Barnes 1994).
In settings where it is important that individuals inform themselves in very reliable ways, conventional media like oral lecturing or linear book reading are indispensable because their strong sequential structure is a substitute for social control: Thus, pupils can be left alone with well-structured books which provide guidance for identical parallel learning processes, so that they all acquire similar skills.
In the case of hypertext structures and Internet surfing, the technical media no longer provide secure sequential structuring of information and learning procedures, so that structuring has to be provided on the level of social interaction and social control. Thus, Internet application in schools may well make communication and cohesion within classes more difficult to achieve, because surfing students are far more likely to acquire highly divergent experiences and outlooks than students asked to work through certain chapters of a specific book.
In a general way, the supraindividual integration power of cultural products (resulting from their resistance to individualized assimilation and modification) will weaken or vanish altogether, because individuals will have the tendency to surround themselves with a sphere of "customized" culture (e.g. pasted pieces of text rather then books), so that they will become isolated from each other because they lack common cultural patterns to which they all could refer in identical ways.

5.3 The demise of stable ex ante *classification schemes*

Conventional storage and transmission media tend to create a large dissociation between the level of cultural artefacts on the one hand and the level of intraindividual mental processes on the other. As material objects have to be arranged in definite, mostly irreversibly ways**,** conventional inventories of texts, pictures, pieces of music or other cultural objects are ordered in terms of stable categories of classification: like the famous Dewey decimal system used by libraries or the classification according to epochs or styles applied in the field

of music and the fine arts. Similarly, each directory, encyclopedia of dictionary has to order its entries in a single predefined way: e.g. by position in the alphabet or by belongingness to specific subject matters, districts or formal institutions. Thus, the physical immutability of written texts has given rise to an immutability of ordering categories and conceptual schemes. Evidently, such irreversible structurings are highly discordant with the fluid and chaotic associational processes going on in human mind.

> *"When data of any sort are placed in storage, they are filed alphabetically or numerically, and information is found (when it is) by tracing it down from subclass to subclass. It can be in only one place, unless duplicates are used; one has to have rules as to which path will locate it, and the rules are cumbersome. Having found one item, moreover, one has to emerge from the system and re-enter on a new path. The human mind does not work that way. It operates by association. With one item in its grasp, it snaps instantly to the next that is suggested by the association of thoughts, in accordance with some intricate web of trails carried by the cells of the brain." (Bush 1945).*

When cultural objects are digitalized, the need for such stable, predetermined criteria of classification weakens or vanishes altogether. Information retrieval can easily be based on variable criteria chosen by the actual user himself: e. g. the date or place of appearance, the size of document, the name of the authors, the occurrence of specific terms or sentences, the name of editors or publishing houses - or the combination of any such criteria. As a consequence, we may easily hypothesize that the significance of predefined classificatory schemes will decline insofar as it has stemmed from such practical reasons. For instance, there is no need for an ontology segmenting the word into spheres of objects or fields of study according to which books may be classified in libraries or section defined in encyclopedias tomes. Instead, it becomes acceptable that the same texts are ordered in a variable way: according to the specific needs of individual users on the one hand and according to prevalent societal and cultural "fashions" on the other. Thus, the same sociological studies may easily be re-classified according to criteria of social class, gender, age, country, ethnicity, race etc - whenever the public need for such reorientations arise. And electronic libraries in political science no longer have to decide whether books on the European Union have to be classified under "domestic policy" or "international relations" - what would be very hard when the considering the dynamic process of European Unification.
From a sociology of knowledge point of view, we may speculate that computer-based information systems encourage cognitive maps where knowledge is ordered analytically in multidimensional ways (instead of broken down into definite empirical categories), and that they support endeavors to introduce new classificatory criteria (e. g. according to changing values, interests or situational conditions).

5.4 Toward a "Sampling Culture": from molecular to molar forms of production

The stubbornness (or bulkiness) of physical objects also usually implies that it is usually impossible (1) to decompose them into their constituent elements and recompose them in different ways; and (2) to insert them as elements or building blocks into many different larger structures. Among other consequences, this implies that whenever material objects have to be composed (or many of such objects have to be ordered), one among several (mu-

tually exclusive) criteria has to be chosen, and that such choices will tend to be irreversible because it will be very difficult or even impossible to switch to other criteria in the future.
Traditional cultural productions (like books, dramas or symphonies) tend to be composed of subparts which have no autonomous existence of their own, because they are connected exclusively to this single overarching structure. Thus, most gothic pictures and sculptures are fixed components of particular cathedrals in the same way certain aria passages can only be heard in specific opera performances and specific scientific elaborations have become chapters of a particular book.
In modern societies, we find growing tendencies to free such single components from such exclusive embedments, so that they can circulate independently and be integrated into new wholes. Thus, we find lyrical anthologies assembling poems from different centuries under new topical perspectives, radio music broadcasts dedicated to soprano arias of various composers etc etc. Electronic technology has opened dramatic new possibilities for disassembling and re-assembling cultural patterns: e.g. by methods of "sampling" used in Techno-Music or by "copy and paste" procedures open to everybody working with digitalized texts. Cyberspace is a sphere where this kind of fungibility is perfectionized to the utmost extreme. While digitalization allows the creation of data banks which can store all cultural products as byte structures which can be decomposed and recombined ad libitum, the internet facilitates the processes of combination, giving rise to all kinds of mixed products no longer attributable to clearly identifiable separate sources.

> *"We enter the world of musaic. Musaic is like a tapestry, a mosaic, or an ocean of soundbites and samples ranked and ordered according to individual taste. Digitized sound can now be assembled from various locations, realtime or from archives, and there are various pieces of software and editors to process it both online and at home. Live performances and existing soundworks or stored sound can be blended over large distances and the difference between realtime and recording is further from any audience's grasp then ever." (Bosma 2000).*

Similarly, when I create a comprehensive website encompassing several online texts, each of these texts keeps its status as an autonomous entity which can be retrieved independently in search engines and which can be linked to an infinite number of other websites.
More than that: recipients are completely free to take out any particular graphics, tables or sentences of a specific text in order to circulate them separately or insert them into other encompassing structures. This is particularly useful in modern (or postmodern) societies where authors are extremely uncertain about the interests and points of view of their (potential) readers, and where given cultural products tend to be viewed under very different and changing perspectives.
From the point of view of recipients, this development means that cultural products become extremely segregated from their (often: multiple) sources of primary creation, and that their process of generation can no longer be traced back to their origin. For instance, we may see the emergence of "vocal music" where genuine human voices and synthetic voices are mixed in a way nobody can disentangle.

> *"Sound can be scattered so fine that the original source, its historical reference and its emotional memory, can become impossible to trace. "An Ocean of Sound", as David Toop described ambient music in his famous book by the same title, is now very near our daily environment" (Bosma 2000).*

While earlier cultural productions have most often been created *ab ovo* (e.g. by producing original sounds on music instruments or writing original texts), future productions may become more and more "derived" from older one because existing patterns have been used as building blocks for the new. This shift from "molecular" to "molar" cultural production could imply that products of much higher complexity will be created than in the past, but that they will become more deindividualized because attribution to individual authors are can no longer be made. Thus, Cyberspace promotes the developments Georg Simmel has predicted in his analysis of "objective culture": that with temporal delay, intellectual and artistic production patterns will follow the same pattern of increasing labor division and depersonalization as physical production did in the course of industrialization.(see: Simmel 1919). Thus, humanity students have recently been observed to acquire rather impressive language skills by developing forms of “collage writing”: incorporating fellow-students' responses and other resources into their own work (Harmon 1999).
From the point of view of cultural evolution, this means that opportunities for innovative creations are increased, because it is far easier to reassemble existing "memes" than to produce new original ones. It also means that cultural production is more efficient, because whenever a complex whole (e.g. an Opus Magnum containing many chapters) finds no market, it is still probable that some of its components are well received in particular contexts, or that at least specific passages are often cited in other, more successful works.

5.5 High mutual "permeabilities" as a condition for blendings and “crossovers”

In theoretical terms, we may conclude that the Cybersphere contributes to *weaken* social segmentations based on *space and places*, while *increasing* social differentiation based on *topics, problem areas and functional differentiation*: thus promoting the mutual segregation of highly specialized groups and circles, the fragmentation of human personalities into a multitude of tiny subidentities engaged in a variety of specific interactions, and the differentiation of cultural into a manifold of value spheres, ideological views, cognitive paradigms and symbolic codes (see: Wilson 1997).
On the other hand: this hyperdifferentiation is counteracted by unprecedented permeabilitites between the segregated sectors:
- social groups can interpenetrate easily by exchanging messages;
- individuals can combine group membership roles *ad libitum*;
- cultural patterns of distant sources can be recombined and blended.

Thus, functional differentiation can gain momentum and increase to incredible levels without hampering societal integration, because it takes place in a unified digitalized universe where everything can be reached from every point of departure within extremely short time**.**

> *"With the break from the specializations, the computer enters as the essential tool of the separation, allowing the complexity of the world to be accessible and digestible. If it is not compulsory to interdisciplinarity check data, we focus more towards and are absorbed by the micro-problems - the developmental direction of the civilization then becomes marked by the solution to contextless problem-details (leading nowhere). The results of scientific, technological and cultural specialization have become elements of daily life, but due to the lack of cross references, more and more serious communication crises arise (e.g., air pollution, wars, economic depression). Since the most diverse*

> *types of information are stored in a uniform digital format, computer technology makes it possible to recreate this lacking cross-referential matrix. Due to high-speed data processing, a large amount of complex data is continuously available, becoming increasingly accessible and user friendly." (Sugar 1996)*

In the sphere of *written text documents*, the positive effects of digitalization on socio-cultural integration can be most easily seen. As such documents tend to be physically separated in different physical units (e. g. books or journal issues), linkages between them have to be created artificially and *ex post*. This creates much work for librarians categorizing books with keywords as well as for publishers who compile directories, readers and anthologies, and finally: for scholarly writers using their energies to create integrative works (e. g. dissertations trying to sum up different texts referring to the same topic, to set them into perspective etc.).
In fact, it may be said that most part of scholarly activities have been directed to such integrative tasks compensating at least partially the fragmenting tendencies on the physical level. But the resulting "integrative" works share the fate of resulting in isolated books – contributing to the *problem* of cultural fragmentation as well as to the *solution*.
By contrast, *digitalized texts* are much more disposed to become components of highly integrated hyptertextual (or supratextual) patterns, because
1) entire documents can be linked to each other;
2) within a text, there can be links which lead to other documents;
3) encompassing cooperative texts can be produced (by letting many different authors contributing to the same document);
4) the conventional "author" (being fully responsible for "his" text) may be replaced by text-producers with more modest claims: people generating collages of foreign texts by "copy and paste";
5) New types of "knowledge banks" can emerge which allow easy access to a limitless pool of documents and information; e. g. text archives with full-text search devices, or "expert systems" answering to human questions.

> *"At the same time that the individual hypertext block has looser, or less determining bonds to other blocks from the same work (to use a terminology that now threatens to become obsolete), it can also bond freely with text created by other authors. . . . As an individual block loses its physical and intellectual separation from others when linked electronically to them, it also finds itself dispersed into them. . . . One effect is to weaken and even destroy altogether any sense of textual uniqueness. (Delanay/Landow 1990).*

The growing ease of switching activities, roles and reference groups implies that cultural "hybridification" increases insofar as more "cross over" is occurring between hitherto rather separated groupings, institutions and spheres of social life. For instance, typical Internet users tend to oscillate constantly between highly private. semi-private and completely public modes of communication while remaining seated in front of their PC and using identical programs (e. g. Outlook for posting private emails as well as contributions to mail list and Usenet messages) **(**Harmon 1999). This situation is a fertile ground for the emergence of "blendings": e. g. linguistic styles which incorporate components of highly different world of verbal expression.

The sphere of conventional written culture is far removed from the world of oral expression, insofar as the intensity of feedback as well as the flexible informality characteristic for oral discourse cannot be emulated. While postal letters may be exchanged within days or weeks and replicas to journal articles may appear within months, books are most often functioning as unilateral publications not stimulating any feedbacks at all. To bridge the two worlds is difficult because people have to undergo extensive schooling for learning to read and write cumbersome transcriptions are necessary for making oral discussions available in written format, and extensive lecturing is indispensable for transmitting written documents in oral form. Online communication eliminates at least some of these segregations by facilitating the rapid exchange of highly informal written messages, which are allowed to be much more sketchy, preliminary and error-ridden than conventional mailed letters.

> *"The computer's oscillation between reader and writer reintroduces the oscillation between literate and oral coordinates that stands at the center of classical Western literature." (Lanham 1993).*

Thus, online communication is likely to engender the rise of mixed language styles which combine elements of written and oral language. The sphere of written culture is permeated (=enriched or spoiled, whatever the point of view) by various "lower" cultural layers of spoken language: often diverging across different regions, social classes, ethnicities or subcultural groupings. For instance, James O'Donnell observes that the Internet has created the space for verbal expressions which transcend the conventional boundary between private and public language (O'Donnell 1998). In fact, this "creolization" seems to take place as a onesided process: by reducing formality and politeness of public language much more than by formalizing private interchange (Harmon 1999). This can result in a significant impoverishment of linguistic style: e g. in a preference for simple, punchy declarative sentences.[14]
On the other hand, such increases in crossovers are likely to accelerate the speed of linguistic evolution: in the same way as biological evolution is promoted by polymorphic mixtures of hitherto separate genetic pools (Harmon 1999). Thus, online communication may at least partially deconstruct the homogenized written languages which have been implemented authoritatively in the course of national unification. Instead, they may be substituted by amorphous cross over idioms in which these universalistic forms are still present, but mixed up with a wide variety of heterogeneous and rapidly changing folk culture expressions.

Giving the high flexibility and soft adaptability of online culture, it is predisposed to mirror faithfully the whole spectrum of existing cultural styles and to adapt rapidly to changing linguistic fashions. On the other hand, the parallel evolution of isolated regional ethnic or class specific styles is not likely to be repeated, because the permeabilities (and therefore: the diffusion rates) between the different style sectors will be much too high.

[14] The "loss of the semicolon" seems to be a major correlate of this regressive development (Harmon, 1999).

6. Implications on the Individual Level

6.1 From offline individuals to online "dividuals" emancipated from body and space

In the RealWorld, human actors are true “individuals" by exogenous reasons, because they have one body which cannot be separated from their capacity as reflecting subjects or as social actors. As personal unity is anchored in the physical world, it is unconditionally given, so that all behaviour can be attributed to a single actor unit.

> *"In the physical world there is an inherent unity to the self, for the body provides a compelling and convenient definition of identity. The norm is: one body, one identity. Though the self may be complex and mutable over time and circumstance, the body provides a stabilizing anchor. Said Sartre in Being and Nothingness, `'I am my body to the extent that I am.'' (Donath 1996)"*

In the online world, no such anchoring in a sphere of unconditionally given fundamentals exist, so that human actors have the basic status as "dividuals" who may easily display various discrepant identities in different online settings, which are not seen by anybody as emanating from a common source. Thus, "individuality" in the Net is not given ex ante, but has to be artificially produced. For instance, individuals who participate in online discussion groups can provide the address of their personal homepage, so that all recipients can relate their messages to a common source. In fact, the personal homepage may become the nearest substitute to a physical body: by providing a common anchor for various individual Net activities which otherwise could not be related to a common origin.

> *"A home page may provide a detailed portrayal of its subject: people include everything from resumes and papers to photographs and lists of favorite foods. A person's presence on the Web has depth and nuance not found in the ephemeral Usenet environment and a writer's self-presentation on the Web can provide a very enlightening context for understanding his or her postings" (Donath 1996).*

From a self-referential point of view, individuals are disposed to segregate their online roles to a higher degree than their offline roles from each other as well as from their core identity, so that the integration of their personality system will be reduced.
This has to be expected for two reasons:
1) *subjectively*, individuals lack the experience that everything they do is related to their unchangeable bodily existence and placement;
2) *interactionally*, individuals lack the pressure to be consistent across different roles because the publics of their various performances are highly segregated.

Similar conclusions result when the "despatialization" effects of Cyberspace are considered. To be a committed member of a territorial collectivity (like a community or nation) usually means to have a unified individual identity, because individuals can only be at one location at the same time. A diversification of territorial loyalties is only possible by physical movement (e. g. by living sequentially in different countries). Cyberspace deconstructs such unified individual identities by lessening the degree to which individuals "belong" to exclusive local groups or communities, and by increasing the degree to which they participate in multiple and ever changing groups dedicated to highly specialized goals:

"Networked identity does not just fragment the social and political into a series of standpoints based on given identities, but fragments individual identities.
People do not have singular identity based affiliations on-line (or off-line generally), but multiple memberships where the purpose of joining may be an individual goal. Rather than holistic support often associated with idealised communities, the differentiated parts of the net (and increasingly differentiated lifeworlds) often provide mutual support through peer groups in specific and narrow fields. Simmel's alienated, overstimulated urban bricoleur, stitching an identity from fragmented sources, fits well with accounts of information overload in cyberspace. " (Crang 2000).

Such developments evidently contribute to the depoliticising impacts of the Internet: because "citizens" have always been conceived as individuals deriving his essential identity from one single territorial system to which they belong. Only when such a primacy of one dominant status exists, an individual can be expected to participate in the polity as a subject with strong, consistent goals and opinions. The virtual sphere challenges this predominance by making salient a multitude of different social allegiances at the same location. When locational allegiances continue, they create cross-cutting loyalties to translocal virtual groups.

"Electronic space interacts with urban space to create heterarchic spaces, which disrupt conventional boundaries. The virtual is the multiplication of spaces, and temporalities, in the same place." (Crang 2000).

Emancipated from spatial constraints, Web surfers may well be the freest (and therefore most unpredictable) subjects in society (and maybe in the universe) insofar as they can switch between an almost unlimited number of options within every moment of time:

"When they're online, people constantly pass from one form of social activity to another. For instance, in one session, a Net user might first buy something from an e-commerce catalogue, then look for information on the local council's site and then contribute some thoughts to a listserver for fiction-writers. Without even consciously having to think about it, this person would have successively been a consumer in a market, a citizen of a state and an anarcho-communist within a gift economy. The 'New Economy' of the Net is an advanced form of social democracy." (Barbrook 1998b)

Overwhelmed and helpless in the face of this constant burden of choice, surfers are in constant need of guidance in order to define their preferences and to determine each step of their virtual trajectory. Consequently, they are likely to be very responsive to all kind of social influences: from suggestions, opinions and hearsays to social controls and exercises of authority. By providing the opportunity for swift role switching without changing location, Internetted computers facilitate the harmonization of different role duties, because diachronic role change can be substituted by (almost) synchronous roles involvements, and because frictional costs associated with time-consuming locomotional activities can be avoided.

From a meso- and macrosociological perspective, the Internet has thus the capacity to undermine such segregation by increasing the permeability between hitherto strictly separated institutions and contexts of social life. At many workplaces, for instance, PC users are free to switch between private and professional computer usage back and forth at any moment of time; and work may extend into private life when office calls are received during evenings, weekends or vacation. Under such new circumstances, centralized institutional control of

system boundaries is more difficult to maintain, because it is no longer achieved as a simple correlate of physical walls or spatial distances, but has to be actively upheld by constant controlling procedures (e.g. by preventing employees from using PC's and mobile phones for private purposes; Geser 2002).
It is empirically easy to see many circumstances under which such centralized control is inexistent (or ineffective), so that control shifts downwards to the level of individual users who become empowered to decide on their own about the modalities of segregation or permeability between different institutional settings, social systems, inter-individual relationships and individual roles. As a consequence, such boundaries are likely to become much more fluid, modifiable and unpredictable than in the past and, especially, much more a matter of intentional decisions that risk being controversial (and therefore have to be justified and legitimated) among the different individual actors.

Analytically, the borders between institutional spheres (e.g. work and home) are likely to change in three ways by becoming (1) more permeable, insofar as components of one sphere can more easily enter the other, (2) more flexible to the degree that the extension of different spheres can be varied according to current situations and needs; and (3) more interpenetrating (or "blending"), insofar as role activities may expand and belong to different domains at the same time (Geisler et. al. 2001).

6.2 Freely chosen and freely modifiable self-constructed identities

Lack of bodily presence means the absence of a stable, reliable substrate (endowed with specific characteristics) on which social interaction can be built.
As there is no certainty about the sex, age or race of interaction partners, many basic *cultural stereotypes* which shape interpersonal expectations and social relationships cannot become effective. And insofar as interaction partners cannot be seen, heard, smelled or touched at physically, the spontaneous *psychological processes* responsible for intuitive personal judgments and typifications (as well as for basic emotional responses like sympathy or antipathy) cannot come into play.
Basically then, online communicators tend to be reduced to the status of "naked subjects": which are not only free to choose their own actions, but also to design their own identities irrespective of their (ascribed or achieved) personal attributes in the Real World.
Particularly in unfocussed types of conversations (like IRC talk), partners are very eager to assess the status characteristics (particularly: the gender) of their partners, because the adequate interpretation of utterances is heavily dependent on such personal information.

> *"Many people are simply unable to negotiate social encounters without needing to fix, at least in assumption, the genders of their interlocutors. It is indeed a truly disorienting experience the first time one finds oneself being treated as a member of the opposite sex. My own forays into the realm of virtual masculinity were at first frightening experiences. Much as some of us may deplore what we see as the negative sides of our culture's sexual politics, we are brought up to align ourselves with gender-specific social navigation mechanisms. Once deprived of the social tools which I, as female, was used to deploying and relying on, I felt rudderless, unable to negotiate the most simple of social interactions. I did not know how to speak, whether to women or to `other' men, and I was thrown off balance by the ways in which other people spoke to me. It took much practice to learn to navigate these unfamiliar channels, an experience that*

gave me a greater understanding of the mechanics of sexual politics than any other I have ever had." (Reid 1994:79)

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But all these efforts are curtailed by the basic condition that such assessment remains dependent on consciously conveyed information which may be denied or deliberately incorrect. The ambivalent implications of such a disembodied mode of "intersubjectivity" can be seen in Internet gameworlds like "Multi-user-Dungeons" (MUD's), where participants face the problem that when everybody is free in this absolute sense, everybody is also forced to adapt to a maximally contingent and volatile social environment:

"MUD characters need not be of any fixed gender or appearance, but may evolve, mutate, morph, over time and at the whim of their creator. All of these phenomena place gender, sexuality, identity and corporeality beyond the plane of certainty. They become not merely problematic but unresolvable. If anonymity on MUDs allows people to do and say whatever they wish, it also allows them to be whatever they wish. It is not only the MUD environment that is a virtual variable--the virtual manifestation of each player is similarly alterable, open to change and re-interpretation. The player does not constitute a fixed reference point in the MUD universe. Players do not enter into the system and remain unchanged by it. Players do not, in essence, `enter' the virtual landscape--they are manifested within it by their own imaginative effort." (Reid 1994: 75)

The capacity to switch identities without effort encourages a playful attitude, so that conveyed identities become mere temporary projections acted out by a subject residing basically outside the virtual social system:

"The adoption of masculinity, femininity, androgyny, animality or the more fantastical meanings attributed to fictional races or genders, is as easily accomplished as might be the donning of a new set of clothes. Thus clothed in the borrowed trappings of other's cultural expectations and imaginings, cyborg selves interact in fashions that are based both on superficial appearances and on an acceptance of whatever the individual wants to be. They do not reject gender, or any other signs of identity, but play a game with them, freeing symbols from their organic referents and grafting the meanings of those symbols onto their virtual descriptors." (Reid 1994: 93)

Of course, this also provides the opportunity to take distance from the most central constituents of personal identity which have to be accepted as ascribed, immutable conditions in RL (especially gender, age and race). Thus, online interactions could potentially be systematically used for procedures of "desocialization": for facilitating the deconstruction of deeply ingrained patterns of social life and individual identity by making these premises conscious and explicit: so that they may be criticized or even changed. In particular, individuals may use online worlds for enlarging their scope of social experience and for learning "decentration": by living out quite variable identities in order to learn how it feels to be handicapped, a prison inmate, a politician with wide-range responsibilities or a member of the opposite sex. MUD's in particular can function as "identity workshops" where new characters and roles can be tried out without high costs or risks (Bruckman 1992). On the other hand, many individuals will find it more difficult to establish (and maintain) an integrated personal identity, because so many divergent and variating virtual characters and roles have to be combined (Bruckman 1992).

> *"If it is possible in virtual reality or cyberspace to enter an altered state, become disembodied, swap genders, create a virtual ego-center, decenter the self, and assume a different identity, then it may also be possible to assume more than one identity at the same time. In this context, the exponential increase in multiple-personality disorders in recent decades may be of more than just passing interest. While often viewed in the real world as a manifestation of mental illness or personality disorder, having multiple, serial, and simultaneous personae in cyberspace may not only be possible, but may even be encouraged as a part of interacting with others. (Cartwright 1994).*

In a more fundamental sense than envisaged by Georg Simmel when he wrote about the "Kreuzung sozialer Kreise", each individual could then face the problem of compatibilizing memberships in extremely different social settings - and finds himself fundamentally isolated insofar as that his particular constellation of membership is not shared by anybody else (Simmel 1908a). Thus, online networks have the function of enlarging the most peripheral spheres of our social life, of letting us glimpse into very unfamiliar worlds, by allowing punctual contacts with many individuals we would otherwise not have contacted at all. Cyperspace is an exploratory sphere where we can test new relationships and new types of communicative behavior in a trial-and error mode: thus increasing our chances of finding new individuals or communities congenial to our values and goals. These capacities can be deliberately used for organizing "community workshops" and for carrying through large-scale social simulations. For instance, several thousand participants may engage in the building and maintenance of a "virtual society" for testing out whether social orders very different from that of Real Society could be viable. In a Real World where the reign of private capitalism has become universal, cyber-simulations may be the only way to test out what would happen when (for example) private ownership of land would be abolished or wealth would be redistributed in a more egalitarian fashion.

Methodologically speaking, cyberspace could offer a way to establish a new sociological branch called "experimental macrosociology": specialized in the systematic comparison of artificially designed virtual social orders.[15]

6.3 Support for "externalized selves" and microsocial cultures

By applying specific criteria for selecting, combining, synthesizing, storing and retrieving information, even small groups or single individuals are able to embed themselves in a self-tailored "micro-culture" customized to their views, values and needs. Thus, individuals can use their computer as kind of "externalized self" which can amplify their capacities to articulate their ideas and to engage in social communications. This is vividly seen in the way computers can empower online communicators to activate their own mental resources. In *face-to-face contacts*, people are typically isolated from external information resources (like books, letters or things they have written themselves at earlier times), so that their communicative behavior is predominantly determined their actual state of mind and the information they can currently retrieve in their physical memory. Consequently, such oral com-

[15] One main limitation of such virtual societies arises from the fact that participants can always choose "exit" as an option when their dissatisfaction rises. Of course, these constraints could be overcome by creating total simulations where the individual participants are also artificially designed.

munication is dominated by the instant psychological and environmental factors, and each utterance is likely to refer to statements immediately preceding, because earlier contributions are no longer present in mind. In *computer-facilitated interactions*, each participant has continuous access to various foreign resources (e.g. online documents) as well as to his own hard disk files where he has deposited personal ideas and information. Therefore, their communicative expressions can be more complex and reflective, and will usually be less influenced by momentaneous thoughts (Kerr/Hiltz 1982: 126). Similarly, speakers feel free to address any previous statements, because all communications are equally present in written form.

6.4 The blurring distinction between productive and receptive roles

All conventional communication media tend to create very clear-cut dichotomies between active producers and senders on the one hand and passive recipients on the other (e.g. between authors and readers, producers and viewers, speakers and listeners). This is caused by the fact that technological mediation usually implies the intervening of a material vehicle of storage and transmission which tends to freeze its contents in an irreversible format and doesn't have any capacities for taking up and feeding back responses. Thus, traditional media reinforce and ossify structural asymmetries which have been established in traditional, pre-mediated culture: e.g. the division between preachers and lay believers typical for most churches, or the dichotomy between players and their audience found in the classical performing arts. While a few "gifted" individuals specialize on production or performance, all others are degraded to be mere passive receivers: mostly in the form of a mass public ordered to be silent during performances and to emit ritual applause after it has finished.
Evidently, such systems are apt to limit sharply the mere quantity of cultural creations (because most people are considered incompetent to contribute anything of value), and they are highly dedicated to idealize existing works as the products of unsurpassable geniuses which cannot be improved by any imaginable modifications. By contrast, digitalized culture is more a co-production shaped by original authors on the one hand and subsequent "users" on the other. In a way, the PC has thrown humans back into their infancy where sensory perception and motoric action was no clearly separated: because every object look at was also an object to be manipulated:

> *"And what is an object in a virtual world? Something which can be acted upon: clicked; moved; opened -- in short, used. It is tempting to interpret this as regression to the world view of an infant. A child does not think of the universe as existing separately from himself -- it appears as a collection of unrelated objects with which he can enter in contact: touch; suck on; grab. Similarly, the user of a virtual world tries to click on whatever is in front of him; if the objects do not respond, he is disappointed. In the virtual universe, Descartes' maxim can be rewritten as follows: "I can be clicked on, therefore I exist." (Schultz 1996)*

For several reasons then, such categorical segregations between senders and receivers become softened and blurred in the age of computer technology: *First,* all recipients are more active in the sense that they exercise their own selections: by choosing their reading paths through hypertexual structures or by copying specific text passages or pictures in their own hard disk folders**.** *Secondly*, at least some Net surfers may feed back their own reactions by messaging emails to the author, by providing commentaries in Guestbooks etc. *Thirdly,* Net

users can contribute something to the visibility or popularity of a site by making it known in newsgroups, creating links to it on their own pages etc. *Fourthly,* recipients may actively join an authoring team by introducing new ideas, providing their own addendums; or they may initialize themselves various kinds of cooperative endeavours.

Whether opening text documents, downloading pictures or playing MP3 files for listening music, PC users have a rich repertoire at hand to manipulate the reception process on the one hand and to modify the cultural product (e.g. by morphing) on the other: e. g. by emphasizing text passages in bold, by using morphing procedures for modifying pictures or by creating and manipulating music sounds with acoustical synthesizers.

A fruitful exploitation of such new potentialities necessitates far different talents than the well-known exercise skills needed in traditional reproductive culture.

> *"The clavier keyboard is now a unitary input device for all kinds of musical output. One digital "horn" creates the sounds of every instrument in a wind ensemble. Visual and musical signals are routinely translated into and out of one another for sampling and editing. If you sit down to a weighted-action electronic keyboard, you confront, in addition to the familiar eighty-eight in white and black, wave forms graphically displayed, a library of sounds on disk, and a computer to play, and play with, them. Such instruments, and such a manner of composition and performance, call upon talents quite different from those demanded when our mothers cajoled us into doing our Czerny exercises." (Lanham 1993)*

Given the potentially unlimited number of co-producers, the Internet is especially functional when the quality of product improves with the number of active participants. A case in point are software development processes where even large corporations like Microsoft have to rely on thousands of voluntary "Beta version users" in order to identify and eradicate the various bugs. Open source projects like Linux are totally based on worldwide networks of users who participate actively in the gradual improvement of the product by providing their own code.

> *"....while coding remains an essentially solitary activity, the really great hacks come from harnessing the attention and brainpower of entire communities. The developer who uses only his or her own brain in a closed project is going to fall behind the developer who knows how to create an open, evolutionary context in which feedback exploring the design space, code contributions, bug-spotting, and other improvements come from hundreds (perhaps thousands) of people." (Raymond 2000)*

Apart from maximizing the chances to eliminate errors, this fusion of producer and consumer roles has the effect that products are "user-friendly" from the onset - at least from the perspective of the - rather elitist - community of programmers. But exactly this may inhibit the adaptation of the software to wider, more passive collectivities of users. because the motivation of the voluntary, unpaid co-producers is heavily based on the intrinsic satisfaction to produce something they find "cool" from their expertist perspective.

7. For conclusion: some epistemological and meta-theoretical consequences of Cyberspace for the social sciences

7.1 The concepts of "Virtual Reality" and "Vireality": mediating the gap between fact and fiction

In MerriamWebster's Collegiate dictionary (online edition 2002) , we read

> **virtual**: "*being in essence or effect though not formally recognized or admitted"*
>
> **real**: *"not artificial, fraudulent, illusory, or apparent" "occurring in fact" "having objective independent existence"*
>
> **virtual reality**: *"an artificial environment which is experienced through sensory stimuli (as sights and sounds) provided by a computer and in which one's actions partially determine what happens in the environment."*

At first sight, then, the term "virtual reality" (not known before 1989) appears as an oxymoron, because it pretends to combine what is usually considered to be opposites: facts and fictions, the spheres of empirical facts and of mere imaginations. However, this intrinsic contradiction is much softened when we adopt more recent (e.g. Kantian) philosophical concepts which stress that there is no absolute "reality" unaffected by transempirical ingredients originating in human imagination: e.g. concepts of causality or of absolute space and time. More than that, modern constructivist epistemologies emphasize the role of deliberately selected conceptual and theoretical frameworks for determining what is true and false, and the importance of perspectivistic "paradigms" in organizing knowledge. In the human sciences, we know that scientific observers have to accept as "real" what individuals and social collectivities define as being real (Thomas Theorem), and that even the hardest social institutions (like states or militaries) only subsist insofar as most people maintain consensually and perpetually the subjective opinion that they "really exist".
Consequently, Manuel Castells is certainly right in stating

> *".... when critics of electronic media argue that the new symbolic environment does not represent 'reality', they implicitly refer to an absurdely primitive notion of 'uncoded' real experience that never existed." (Castells 1996: 372f.)*

Everybody who wears eyeglasses also knows that even primary visual perceptions provide only a "secondary reality" modified by the intervening effects of optical lenses; and when reading newspapers or watching TV; we all accept that our conception of worldwide factual events and developments is heavily shaped by the selectivity and interpretations of journalists and publishers as well as the filters and distortions immanent in the instruments (e. g. cameras) they use. As we can learn from writing and all the conventional media, the same technologies able to make us acquainted with wider realities (not accessible by primary perception) are also apt to substitute reality by mere fiction: either in the form of fakes and lies we erroneously take as the truth, or in the form of intentional fictitious artefacts (novels, films etc.) we all accept as the product of mere imagination. If such well-known things are accepted, they way is free to accept "virtual reality" as a correlate of very highly developed media which have the double potential of

1) connecting us with widest ranges of objective reality: especially by allowing us to extend our ranges of causal action and social interaction beyond all boundaries of space;

2) shaping such realities to the highest degree with various intervening factors: e.g. by transforming texts, "morphing" sounds and pictures, or by constructing artificial socio-cultural systems and environments which are fully the product of intentional human action.

This definition clearly reflects both of the elements noted above: the more extensive and intensive experience of "reality" (going along with (inter)active capabilities not available when dealing with books, radio or TV); and the correlative increase in "virtuality" stemming from the fact that everything existing within this new digital sphere is intentionally created by computer-supported (and therefore: highly variable and malleable) human actions and interactions.

While the term "virtual reality" is often restrictively used for the emulation of illusive 3-D spaces, it has the potential of giving adequate expression to all kinds of phenomena created on the basis of internetted computers. For example, Internet chattings as well as cybersex relationships share the characteristic that

1) on the one hand, there are strong feelings that others are "really present" because they are accessible as interaction partners;
2) on the other hand, there is an equally strong impression of "virtuality": stemming from the wide opportunities for intentional manipulations and the lack of primary bodily perceptions.

From the sociological point of view, virtual reality systems create a new level of social reality where all basic concepts (like "communication" and "interaction") assume new, unprecedented meanings. For instance, communication is characterized by message contents highly segregated from senders and receivers and their respective environments; and "interaction" assumes the more restricted meaning of "feedback" limited by asynchronicities as well as much lower channel bandwidth (usually restricted to the transmission of words and other explicit symbols; Chesebro 1999) Even more important may be the potential of virtual reality to give rise to a multiplicity of social worlds each of which constructed according to different rules and laws (Chesebro 1999), while all offline social realities are part of a single social universe insofar they are all embedded in the same RealWorld environment and governed by the same physical conditions on the one hand the same political and legal authorities on the other. While the term "virtual reality" conserves connotations connected to its much older two components, the concept of "vireality" (introduced by German researchers) is useful because to grasp the unprecedented capacities of the digital media to create new experiences where factual and fictive aspects are merged (Klein/Gramelsberger 1998).

On the most general level, we may say that malleability of software artifacts undermines the conventional segregation between "reality" and "virtuality" by creating an intervening sphere where users are empowered to be passive recipients and communicative (and/or influencing) actors at the same time. In the Cybersphere, individuals find themselves in a malleable environment open for exploration as well as autonomous modification:

> *"Visitors to cyberspace can travel as they wish in this virtual world, since they are no longer perceiving an image transmitted by the single eye of the camera lens but feeling impressions comparable to those that we receive in our usual environment. This multiplicity of sensory perspectives opens a whole network of possible interactions that escape linear perspective.*
>
> *One of the attractions of this virtual world is that those who have access to it can meet in it other "explorers". Thus we have a new, theoretically open and extremely malleable environment. What should we do or want to do and experience in it?" (Rötzer 1996).*

While "virtualization" means the substitution of reality by artificially created symbols, "virealization" means the complementary intertwining between real and artificial worlds (e.g. in the case of online communication where real individuals are the actors, but their personae are highly artificial creations which are very loosely related to their "real" bodies and minds). Thus, while looking at porno pictures may not be rated as marital infidelity, practicing "Tinysex" on MUD's is a far more complicated, ambiguous and dangerous phenomenon because it combines virtual and real components in a new, unaccustomed way:

> *"MUDsex falls into a realm between the actual and the virtual. Players can become emotionally involved in the virtual actions of their characters, and the line between virtual actions and actual desires can become blurred." (Reid 1994)*

More than that, individuals are capable of creating their own artificial world (including themselves as artificial identities), and they interact on the premise that other individuals do the same. This malleability reduces the capacity of any individuals to enforce their own selections or creations on any other human being. For instance, artists will find less opportunity to objectify their ideas in immutable creations, because new "interactive" art forms will emerge to which any user may add their own contribution:

> *"In the galaxy of three-dimensional virtual images into which we have entered, paintings and the handful of sculptures still produced using traditional methods have become a marginal phenomenon. Art produced using simulation techniques is moving towards the conquest of a three-dimensional world of space and objects which we can enter and where we can move about freely." (Rötzer 1996).*

In a sense, "vireality" has always been endemic in all social relations insofar as individuals confront each other as physical bodies or psychic minds, but as artificially constructed symbolic entities "personae". What is new however is that individuals have a far greater range of alternatives for expressing themselves, creating and modifying their outward identities, choosing their interaction contexts, experiencing different roles etc etc. For instance, artificially designed identities can be used to play out genuine psychological needs not realizable in the offline world (e.g. in the case of feminine men who want to play female roles). In such (and many other) cases, it may be paradoxically said that the "real" character of such individuals may be more genuinely expressed in their "virtual" roles than in their real-world identities. For avoiding this paradox, it is best to conceptualize these online identities not as "virtual", but "vireal" roles - thus recognizing that the "real" individual behind them is not only persisting, but is intentionally using these roles for enhancing his/her self-expression and "self-realization".

7.2 The Internet as a "hypersocial" space

In Real Life, we know very well that social phenomena are only partially determined by endogenous *individual and social* factors, because they are subject to various physical and biological constraints.

Given a geographical distance of 6000 miles, there are surely no *psychological* or *social* reasons why I will not be in Chicago five minutes from now, given the low temperatures outside, we have no choice then to assemble in enclosed heated buildings, and given my actual rhinitis, my sometimes inaccurate way of speaking is not determined by these *subjective meanings or intentions* which Weber holds to be constitutive for social action. Given my ac-

tual gender, age and bodily appearance, everything I utter will be interpreted by taking these status conditions of my personality into consideration; and taking the limited size of my lecture room into account, it is evident that my voice will not reach 10 000 recipients this evening even if my public reputation would suffice to attract as many people.
In Cyberspace, all these and many other "impurities" of the social world have less causal impact or are even inexistent. For instance, I can mail a message to my neighbor next door or to a friend in New Zealand in almost the same time and switch easily from a Swiss to Californian Web Site within less than a few seconds; discourses in a specific newsgroup are completely determined by (1) common knowledge that the group exists and (2) consensual personal interests, values and needs. And when millions of surfers consult the Website of the New York Times, this is fully caused by the high prestige publicly attributed to this newspaper, not by any more mundane or technical conditions (like its factual availability in nearby stores).
Epistemologically speaking, it could be argued that in Cyberspace, the famous "Thomas-Theorem" is more true than in offline-settings: that anything supposed to be true becomes true (by its effective consequences on interindividual experiences and action). In other words: the online sphere exemplifies better than any offline settings the ideal case of an "intersubjectively constituted world" (Husserl / Schütz): because anything "existing" in it has been created by acts of human communication. In fact, online surfers themselves will act consciously on the premise that their common world is nothing than an intersubjective creation - while real-word actors find this philosophical position notoriously difficult to maintain because they experience contingencies not attributable to any intentional acts.[16]

As a consequence, many concepts developed in conventional sociological theories are better suited for describing virtual relationships than social phenomena of the "Real World." First of all, online behavior satisfies the ideal-type notion of *"social action"* (in Weber's terms) because no unintentional and uncontrollable components have to be taken into account. When I look at Y's personal homepage, I may safely assume that absolutely everything in it (texts, pictures, sound) has been intentionally designed, and when I read newsgroup messages, I may exclude the assumption they are manifestations of spontaneous, uncontrollable psychological reflexes. Thus, interactive relationships in "Multi-user-Domains" are characterized by the regularity that

> *"Much of the information given by individuals about themselves is controlled information: their names, their gender, their self-description, their words, and gestures. Uncontrollable information which Goffman called "information given off" requires face-to-face situations or at least visual channels and thus plays a smaller role in MUD life." (Schwarz 1994)*

Likewise, the concept of *"role"* is ideally suited for participants in online interactions (particularly MUD's and MOO's) because they have no choice than to act in terms of highly specialized, artificially designed identities categorically dissociated from their physical personality and their other social performances.
Similarly, Goffman's theatrical metaphors (like *"performance", "stage", "ensemble"*) make better sense in artificial environment where literally everything can be manipulated for evoking a desired kind of impression (Coradi 1997).

[16] for a lucid discussion of this point see: Bernhard Waldenfels 1990: passim.

"Pure altruism" is manifested in virtual self-help groupings because helping individuals have absolutely no chance of being reciprocated by the receivers; and ideal-type "*egalitarianism"* can be observed in USENET discussions because all participants have exactly the same opportunities to articulate their views.

While *consensus* in face-to-face groups is often fictional because it is based on the fact that there is not enough time for everybody to speak out, it is likely to be more "genuine" in online groupings because there are no such articulative restraints; and the diffusion of pictures, sounds or other cultural patterns can reflect more truly the *"currently reigning fashions"* than - say - the diffusion of clothing or architectural styles, because their implantation in websites (and the elimination of older remnants) is not inhibited by significant efforts or costs.

The term *"community"* seems to assume a less ambiguous meaning insofar as highly divergent definitional correlates are finally disentangled. In its traditional usage, the concept is imprecise because it has linked objective components (spatial togetherness) with subjective elements (feelings of belongingness). This has been justified insofar as most subjective identifications referred to collectivities well concentrated in space. With the emergence of multilateral online communication, however, the confusing blending of these constitutive dimensions of human sociality has been eliminated: because it can now be demonstrated that identificational groupings can exist without any congregation of participants in space:

> *"The distribution of people in dispersed social systems is not only spatial but mental. Some people are in a planetary community; some are in a national community; still others are in a community bounded by their limited interests. The bodies of people might be in one spatial area, but not their social worlds. The concept of locale has little meaning in this context. The concept of communality was once proposed to refer to these locale-independent relationships. Now the implications for the community of the independence from locale as shown by these new kinds of relationships are becoming overwhelming." (Bernard, 1973: 183)*

The concept of *"privacy"* assumes radicalized connotations when it refers to perfect methods of encryption stultifying all efforts of eavesdropping (even by secret agencies); and correlatively, *"publications"* are more public than books or journals because they can be retrieved by anybody anytime at some hundred millions of places on the globe.

And *economic market relationships* can approach more easily the idealized conditions of neoclassical economic models because *competition* is not hampered by high costs or delays of information, localized monopolies, transport frictions or particularistic involvements. Thus, a "frictionless capitalism" (Bill Gates) can be envisaged where prices are constantly modified on auction and bargaining sites where changing needs meet changing supplies, and where competition is so intensive that profits are shaky because no monopoly rents can be maintained.

Thus, cyberspace is a sociological El-Dorado because it allows the study of ideal-type sociological processes and structures; as extraterrestrial space is an El-Dorado for natural scientists because it allows the study of physical processes unaffected by air, gravity, variable temperatures or other "distorting" conditions.

> *"Computers convey an idealized form of life, or a picture of what existence could be like if humans were not so frail, susceptible to error, and unreliable. Revealed by cyberspace is the fulfillment of an age-old dream. That is, events can unfold according to the*

dictates of reason and nothing else. Hence perfection is made to seem near at hand. Marx would have called this vision alienating, although nowadays it is touted to be indicative of progress and pursued." (Murphy 1996).

This is vividly illustrated in the case of MUD's or MOO's where everybody is beautiful and where interpersonal encounters do not suffer from prosaic contingences associated with physical imperfections:

"Cyborg bodies are, in many ways, superior to their actual counterparts. They cannot tire, stumble, or subject their inhabitants to any of the embarrassments or failures that flesh is prone to. Thus cyborg sex is a concentration of the erotic, a purifying of prurient imagination, a romantic idealization of sexual encounters worthy of the most airbrushed Hollywood art." (Reid 1994: 90).

Studying online sociality is extremely useful for gaining a new understanding of conventional offline sociality, because by the principle of subtraction, it provides a comparative standard which brings hitherto implicit, unreflected features of the latter into sharper relief. For instance, research on computer-mediated interaction and video conferences has contributed much to a better understanding of non-mediated face-to-face interactions (e.g. by making the specific capacities and risks of bodily co-presence and unintentional nonverbal communication more explicit).

On a more general level, the Digital Sphere makes manifest to what high degree conventional social relations and collectivities derive their functioning and internal structure from the physical world: e.g. from the spatial distances in public places which determine eye contacts and manifestations of "civil inattendance" or from the integrative impacts of being assembled in the same room and common environmental conditions.
Thus, we can learn what happens when these exogenous sources of specification and stability are absent: so that they have to be fully substituted by endogenous (e.g. psychological and cultural) factors.

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