

Space and Social Order: The Challenge of Computer–Mediated Social Networks^{*)}

Michael Paetau

Fraunhofer Institute for Autonomous intelligent Systems
Schloss Birlinghoven, D–53754 Sankt Augustin, Germany
paetau@ais.fraunhofer.de, <http://www.ais.fraunhofer.de>

Introduction

The growing interest that is once again taken in the issue of space in social science debates does not necessarily reflect the true significance that is attributed to spatial aspects in observing the social. On the contrary, a substantial number of sociologists interpret the debate as a kind of requiem for the concept of social spaces. Here, two phenomena in the development of the modern age are given as a reason: first, the emergence of a global society in which the role of traditional spatial borders, such as those of the nation–state, is steadily diminishing, and second, the revolution in the conditions of information and communication, the constitution of cyberspace, which was triggered by the rapid developments in digital media. In my presentation, I would like to concentrate on the second aspect and address the issue of how space and sociality relate to each other. What significance can be attributed to space as an explanatory factor for social order? How should the way the issue of space has so far been treated by sociology be assessed, and how should concepts of a "spaceless sociology" (Stichweh) be viewed in this context? Niklas Luhmann is often referred to as a principal witness of a sociology that is not dependent on space. In my opinion, this reference is entirely unjustified, as I will attempt to demonstrate in the following.

1. Duplication of Society

Strangely enough, the issue of space has re–entered the sociological debate through a problem that many authors have already interpreted as a clear sign of the "vanishing of space": the digital revolution of our information and communication conditions. To be more precise, it is the unclear *relation* between the new and the old communication conditions themselves that has once again put the question of the significance spatial aspects of the social on the agenda of social reflection.

Literature initially fostered the impression of a duplication of society. There are reports of an emerging virtual economy in which virtual companies and organisations encounter their sisters in the real world. They are discussed in virtual conferences. And hopes have even been pinned on virtual communities in countering the individualisation tendencies of the modern age (Rheingold). Virtual spaces complement traditional space, and even society in its entirety has its pendant in cyber–society.

The borders between the "old" and the "new" society seem to be clearly marked. Communicative events within "cyberspace" as conditioned by the information and communications technology defines "virtual society" as a sort of "society in parallel to society". Everything that is outside remains in the other, so–called real–world space of old society. Whereas in one world, spatial aspects of communication (that is, interaction among those present)¹ are stylised as a reference model for the feasibility of social order, it is assumed that they can be dispensed with in the other, so–called "virtual" world.

The drawing up of a border in this manner, with a virtual world here and a real world there, has shaped the debate over the last few years. One side disputed that anything resembling social communication could occur in the virtual world (Bredenkamp 1996), and from this, it was deduced that it was impossible to arrive at stable social structures in cyberspace. This was challenged by the claim that the world of computer networks was in the process of developing into an independent social system. This hypothesis was founded on the communicative links the Internet offers, an aspect that indeed can hardly be disputed (Fuchs 2001).

^{*)} Presented at the XV World Congress of Sociology, Brisbane, Australia, July 7–13, 2002, RC 51 – Sociocybernetics (<http://www.unizar.es/sociocybernetics/brisbane/abstracts2002/sesion8.html>)

¹ Giddens speaks of "facework commitment" (Giddens 1990)

In my opinion, both assessments lead into a cul-de-sac. I regard this manner of distinguishing between the media world and the real world, however it may be defined, as problematic in the context of a sociological analysis. For its shortcoming is that one specific form of communication is played off against another. On one side, the social efficiency of communication transported by the media is assessed with reference to communication among those present (i.e. interaction in a physical space). On the other, media-transported communication overcoming the synchronicity of time and space is declared a reference model for further societal development. The magic formulas are E-commerce, E-governance, E-democracy, and so on.

2. Dislocation of Space from Place

While sociology has never directly linked the issue of the social with space, spatial proximity or distance as a factor determining the possibility of particularly close or less close, stable or less stable social relations always played an important role. Embedding communication in local or spatial contexts of action (e.g. village communities, teams in companies, nation-state), which was still empirically significant until just a few decades ago, was used as a plausible explanatory pattern (Simmel 1908, Tönnies 1887). For Tönnies (1963), "locational ties" are one of the three central categories his concept of community is based on (alongside ties of blood and spiritual ties). Simmel's reflections on the spatial conditions for the shape that community life assumes are oriented on a geographically delimited space that constitutes sociality depending on whether it is "filled" or "less filled" with interaction. Simmel perceives the social as something that is formed spatially. Here, space assumes the role of delimiting those in a given space from others (Simmel 1908). Luhmann takes up this argument to describe segmented societies: alongside relatives, "inhabited space" is one of the principles according to which they define their unity (Luhmann 1997:635). Norbert Elias regards space as an "arrangement of social intertwining patterns" (Elias 1988). The concept of space also assumes an important role in Henri Lefebvre's sociology. However, Lefebvre isolates it completely from its geographical connotation. For him, social space is the comprehensive incorporation of a society's social practice. The activities of individuals and their societal reproduction relations are manifested in it. "Spatial practice, which embraces production and reproduction and the particular locations and spatial sets characteristic of each social formation. Spatial practice ensures continuity and some degree of cohesion. In terms of social space, and of each member of a given society's relationship so that space, this cohesion implies a guaranteed level of competence and a specific level of performance." (Lefebvre 1991:33).

More recent analyses of modern society describe the fundamental changes that have occurred in the spatial and temporal constellation. Giddens (1995) observes an inherent development of the modern age towards a temporal and spatial asynchronicity, which he refers to as dislocation and disembedding, as taking the social out of locationally tied interactive contexts tied to a location. Establishing general communication conditions independently of space and time generates new forms of sociality. For one thing, however, their stability is still completely uncertain. And, secondly, this does not rule out destabilising consequences for society as a whole.

Thus the historic fundamental question sociology raises as to the feasibility of social order appears in a new form: How important or unimportant are location and space under the conditions of the spread of information and communications technology-mediated social networks? To what extent can social relations whose embedding in spatial circumstances has either not taken place or only exists in a rudimentary form be maintained not only in a temporary and fluid form but for the long term and in a stable condition?

Giddens pins his hopes on so-called re-embedding mechanisms. The term refers to types of social relation that relate to local spatial and temporal circumstances and can, as it were, simulate them. Thus Giddens ultimately retains relating to a location as an important explanatory pattern for social order, albeit in the shape of a "spatialisation" and using mediating and simulating "re-embedding mechanisms".

Strangely enough, in the ensuing debate on Giddens' hypotheses, many hopes have been pinned on those forces that caused the trend towards delocalisation in the first place, i.e. the new media themselves. The strategies recommended in the media sociology debate are contradictory. On the one hand, it is hoped that the location can once again be attributed its old role, thus saving the unity of the social in the traditional manner (marketplace metaphor, the global village, etc.), and on the other hand, one tends to drop location and space as the point of reference for the social. Going beyond Giddens, many authors nowadays subscribe

to the hypothesis of "space disappearing" altogether (cf. Bolz 2001).

For some years, Niklas Luhmann has been referred to as a principal witness of a spaceless sociology (Stichweh 1998; Werber 1998). Luhmann's statement that a theory appropriate to modern society ought to be formulated in a manner "that does not make it dependent on space and time in setting social borders" (1997; 30, note 24) is understood as an argument for the concept of a "spaceless" sociology, an interpretation that is unjustified in my opinion (Stichweh 1998; Werber 1998).²

Here, I would like to support a different position and claim that Luhmann's theory is suitable like none other to arrive at a concept of "social space" that can be of use in the analysis of modern society and could do away with the division into two societies outlined earlier on. My hypothesis is that this could enable the social sciences to catch up with a semantic development that already set in among the natural sciences a century ago, where it resulted in a revolutionising of the concept of space.

3. The semantics of space: from the container metaphor to a relational concept of space

When space was referred to in sociological analyses, an Euclidean notion of space was presupposed, albeit more implicitly than explicitly. Social space was assumed to be a homogenous, three-dimensional thing that is filled with bodies (or is not, in which case it is an empty space). This notion has received much criticism because it commits sociology to traditional topology and also suggests the illusionary concept of a coinciding of the political spaces with the economic and human or social spaces (Läpple 1991: 189).

In the natural sciences, attempts were already being made towards the end of the 19th century to abandon the Euclidean notion of space. This started with Riemann's separating the physical concept of space from the mathematical one (1854)² and was completed with Einstein's considering time in determining space. Einstein criticised the so-called container concept of space and replaced it with the relativity of space and the unity of the space-time relation.

A relational concept of space like the one that has been used in physics since Einstein dispenses with a fixed reference system that space can be observed and measured from. For Einstein, as opposed to Newton, space does not continuously stay the same and immobile if it is not related to another object but depends on the position of the observer. Transferred to society, the location of the social could be identified where the operative process of communication takes place.

Already in 1995, Georg Großklaus demonstrated how conceptual models of the social space have changed over the previous 150 years. In connection with the development of communication conditions in society the concept of space drawn up in the traditional manner and followed by corresponding formation of social identities and social systems (e.g. drawing up of borders between different cultural spaces, between public and private space, between immediate and distant space, between the centre and the periphery) had started to move (cf. Großklaus 1995). I maintain that with Luhmann's systems theory, this semantic shift has reached a theoretically advanced state in which it is justified to speak of a radical paradigmatic change of the category of space in the social sciences. The space in which sociality is constituted develops through the relations between the elements of social systems, i.e. communication. No geographical borders can stop it. Communication does not take place *in* social spaces. Rather, it creates these spaces. It is solely the ability of communication to link up that determines the formation of a social space.

² Stichweh's principal argument is that the category of space is a concept that is external to society. There can be no doubt that Luhmann only grants segmental societies a role for space that explicitly shapes sociality. Here, just like relations, space can serve the purpose of defining the borders of larger social units (Luhmann 1997:635). But can one conclude from this that the criterion no longer has a role to play in modern societies that are distinguished by functional differentiation? I will take this point up further on in my presentation.

² Riemann maintains that whereas physics has to determine space on the basis of experience, mathematics can dispense with this and make use of modern experimental options instead. While he stresses that what is mathematically feasible by no means has to have a physical parallel, he also points out that physics can venture into hitherto unexplored areas with the aid of mathematical methods to determine space. Riemann above all reckoned with measurement relations of space proving unwieldy in infinity when confronted with the provisions made by geometry and believed that this could motivate researchers "to consider non-Euclidean geometry or move on to mathematical projective spaces" (Rösenberg 1987).

4. Space as a recognition pattern of socio-cultural topographies

For a long time, certain socio-cultural topographies that were handed down played a considerable role in the development of people's social and cultural orientations. Großklaus speaks of "cognitive maps" that provided societies with a spatial and symbolic model of orientation for thousands of years and underwent partial modifications from time to time. This binding list of spatial frontiers "regulated all forms of ritual exchange and interchange between gods and people, dead and living people, the initiated and the non-initiated, rulers and subjects, savages and civilised people, members of one's own group and members of strange groups: it determined the rituals of crossing borders and defined the paths and routes on which one could leave one's own interior space and reached the foreign external space of other peoples and cultures; finally, it provides a basis as a narrative structure for myths, epics and texts of all sorts right up to contemporary times" (Großklaus 1995).³

These traditional and familiar "cognitive maps" are currently losing their significance. The model of space based on them is no longer able to provide appropriate referential structures for our media-supported experience. The process of deterioration goes on step by step, and its progress probably depends more strongly on the historical process of conversion from print to visual media than on the development of techniques to overcome geographic space (coaches, trains, cars, aeroplanes). Primarily this cognitive map evolved via a *symbolic* adoption of the faraway foreign space instead of as a result of real locational changes through *travelling*. As long as the monopoly of interpreting the world was tied to the book, this type of "virtual" border-crossing had to progress via reading. Literature sent its heroes out on a "transcendental journey" (Großklaus 1995: 110), forced them to leave their home space and cross the border to the foreign space. "These slow journeys presupposed the fixed system of borders and distances that was represented in the old spatial map." In his novel "Las Palabras Perdidas", Jesús Díaz has the "immense poet" say: "Day for day, I travel in my library. Not only in space, but also in time" (Díaz 1992: 153).

All this changes fundamentally with the development of audio-visual media.⁴ The process starts with photography and film and carries on via television and the digital media. The transition from the cinema to the television already represents a marked break. Since television perception is always confronted with *processes* of optical-electronic (image) manipulation (not with image *situations*), it builds up events as fleeting image shapes only to decompose them again. "The orientation of television perception always progresses in an accelerated manner, right up to the physiological limits; its pattern is the dynamic mosaic; its process is that of a hyperactive and hypermobile collage of stimulus points." (Großklaus 1995: 129). Whereas the traditional film (more or less) slowly builds up the plot in a similar fashion to how literature proceeds and also requires our attention throughout the entire length of the film, television is, by its very structure, "the machine that smashes and shatters the stories" (Großklaus 1995:129). Wherever images appear and disappear in real-time, a condensation of events into stories, and thus the collective assurance of a meaning, is rendered impossible. Rather, the TV picture serves the short-term assurance of present reality. Events world-wide flow through the brains of viewers in a "tele-iconic" fashion, without delays, interim periods and distances.

According to Großklaus, it is above all real-time, the simultaneity of the distant event and the close event image, that vouches for the image's authenticity. "Simulatory proximity dissolves distances, blurs the borders between what is close and is one's own and the distant strangeness, effecting the ultimate demystification of what one has perceived as strange: the strange body, the strange space, the strange culture in favour of global acquisition via signs." (p. 132). Everything that drops out of this real-time simulation loses authentic and simulatory strength.

³ Stichweh suspects that spatial perception dominated in hunting and gathering societies because they had to rely on the permanent exploration of spaces. This only changed with the Neolithic revolution and the fixed attribution of positions to individuals. The process was completed in the modern age, where (spatially-distant) strangeness is reinterpreted into backwardness (in terms of temporal and civilisation aspects) (Stichweh 1998: 345).

⁴ Großklaus divides this transition into periods using different technical inventions and the corresponding changes in perceptive behaviour: 1. the panorama (England 1794, France 1799), 2. the Daguerreotypography (1837), 3. cinematography (1892), 4. television (1936) and 5. the computer (Großklaus 1995: 113 pp. 9).

This development is radicalised with the computer in the sense that it now becomes possible to separate the simulation from its real-world model. For the first time, things can now also be simulated that are neither perceptible nor observable in reality, that are not real or not yet real (but feasible in principle). What was only possible via imagination in the pre-computerised era is now objectified, represented as a sort of reflectance of the real world. But above all, it is represented as consistent, calculable and programmable. And thus it suggests that even these final, transcendental residual areas have been subjected to the will to have everything at human kind's disposal.

The emergence of computer-mediated social networks (e.g. so-called virtual organisations) completes this development, and I maintain that it is reflected scientifically in sociological systems theory.

5. A relational notion of space in Luhmann's systems theory

The changes in our spatial perception have only very slowly led to theoretical consequences in sociology. The theoretical reconstruction above all features a step-by-step abandonment of the Euclidean notion of space. Preliminary work in this direction was already done by authors such as Elias, Lefebvre, Bourdieu, and also Giddens. Discarding the container metaphor means setting out from the social operations themselves. The social space would then no longer be determined by geographical aspects (arrangement patterns of the locations of people and artefacts) but primarily as a co-ordinate system of social action or social positions (Bourdieu) or as a network of communication (Luhmann) that has, to a large extent, liberated itself from its geographical prerequisites. Such an entirely turn to a relational concept of space we find in Luhmann's Systems Theorie. Luhmann dispenses completely with a fixed inertial system that would be available as a reference system for the communicative network. I maintain that the crucial point is that in treating the issue of sociality, the approach does not set out from a unity but from a world that is not structured around a centre. It is a polycontextural world (cf. Fuchs 1992). By integrating the observer's situation into the definition of what appears as a social space, one could speak of a constructivist concept of space. Although Luhmann does not present an explicit theory of space⁵, his definition of the social does not require locations. What constitutes the social context is communication; and it will not be stopped by any geographical borders. Societal functional systems do not comply with country or language borders, mountain ranges, seacoasts or rivers. Such delimitation categories are not respected as borders by the generalised communication media, neither by money nor by truth or love. Communication does not take place in spaces but creates these spaces.

On the other hand, it cannot be denied that existing spatial facts have a not inconsiderable impact on the social. Language communities that can be identified in area spaces, cultural differences oriented on geographical conditions, forms of communication conditioned by climatic features: all of these are without any doubt spatial factors that cannot be ignored when analysing social systems. But of what significance can all this be to the social if one follows Luhmann's hypothesis of the autonomy of social systems (understood as an operational unity in the sense of the autopoiesis concept)? If society constitutes itself through nothing but its own operations, i.e. communication, then the aforementioned spatial conditions can only be circumstances in society's geographical and physical external world instead of conditions in society itself. They could only be referred to as social facts on account of the communicative consequences that the society or a societal functional system draws from the external conditions. Here, there is an indication of a differentiation of the concept of space into a geographical and physical space and a social space.

A sociological concept of space could be formulated if it was a space produced by the operations in society itself, i.e. a social space generated by communication. Spatial distance and spatial borders by no means lose their character of setting barriers, but they can be made disposable by society with the aid of modern information and communications technology. Social spaces can be explored that used to be inaccessible to past generations. The issue of whether someone lives in a centre or on the periphery of a social system is determined less by his or her place of residence but rather by the intensity and the connections of his or her communication. Here, the geographical and physical and the communicative circumstances may correlate.

⁵ When he is explicitly dealing with space, he sometimes sticks to the container metaphor (e.g. Luhmann 1995: 179pp.), while he also subscribes to Giddens' distinction between places and objects in space (Giddens 1984: 110ff), interpreting space as a *medium* consisting of loosely linked elements into which *forms* can impress themselves (Luhmann 1995).

However, this depends more on the communications technology infrastructure and the development of communicative relations it enables than on geography.

Interpreting the emergence of computer-supported social networks as the formation of relational spaces implies a sociologically relevant distinction between society and interaction. This is not new. Because from a sociological perspective, it has always been the case that the physical presence of individuals at certain places in space only determines communication in certain instances. Organisations can be referred to as examples of the opposite. Organisations replace the principle of face-to-face communication with the criterion of membership, or as Luhmann puts it, social inclusion and exclusion. In large organisations, most people never see each other face-to-face, have never spoken to each other and are nonetheless members of a social system that has been created by communication.

Thus social spaces can be interpreted as communication networks that are crossed by social systems of all types, both by interactive systems tied to the synchronicity of communication and by organisations that have liberated their action from synchronicity and can – at least to a large extent – dispense with the criterion of who is present in their communication. Society takes advantage of the computer networks to create sociality. It uses the new forms of communication for its autopoiesis. This also occurs with the aid of interaction or organisations. Thus computer-mediated communication is regarded as being imbedded in the manifold communicative operations of social systems. In this sense, following Luhmann, the networks can be interpreted as a form in the medium of communication, as a form that is in itself at the disposal of creating further forms.

This perspective needs not speak against identifying social systems evolving solely within computer networks by using telecommunication. It is clear that every communication not only has to choose from the wealth of world events which are to be treated as informative, but that it also has to select from the diversity of available forms of dissemination. Here, there may be compelling connections between the information chosen and a suitable dissemination medium with which it is communicated. However, if the focus is on a certain social system and it is not merely a single communicative operation that is being observed but the overall context of its autopoietic reproduction, one will, in most cases, encounter hybrid forms of communication. Communication takes place both within and outside the networks. It finds its own way regardless of the dissemination media it uses.

6. Society as a virtual reality

Luhmann regards social systems as communication systems operating in the medium of meaning. With this formulation, Luhmann is following Husserl's phenomenology, in which meaning is the premise for any processing of information. Every date in experience is projected onto a horizon of further possibilities. Seen from this premise, every society initially reveals itself as a *virtual* reality, independently of computer networks, physical simulation or computer-aided visualisation technologies. Society first presents itself as an immense potential for irritations, surprises and referrals from which immediately required operations are selected. However, these selections are not random but are subject to certain restrictions. Not everything that happens in the world can be perceived (even with the aid of the media), not everything that is uttered as information in the world can be understood and not everything that is understood bears the potential to further communicative connectivity. Our connection to the world's incomprehensible complexity is already restricted by a narrow section of reality. This section, in itself a social construction, can be designated as virtual reality.

In this sense, virtual reality refers to the difference between potentiality and actuality. The expression *difference* implies that both sides must be considered, both that of what is actually there and what is possible. Possibilities must also be accessible in some way for cognitive or communicative operations. This is the only way in which a decision can be taken to make this or that side topical and not to address the other one. And this is also the only way to identify a selection as a selection, namely by the reflection of what has not been selected. This is what distinguishes virtual reality from the world's immense and inaccessible complexity. The world is the incomprehensible manifold of what is given. Virtual reality is what is already on the horizon of possibilities and what allows more or less dot-accurate access. What has not been selected in this situation has not vanished but remains extant and potentially accessible, and can therefore be re-

actualised.

In this context, Alfred Schütz speaks of "virtual reality areas", referring to an individual's horizon of meanings which consists of the diversity of experiences and events and constitutes sediments in various delimited regions of meaning. Not all of these delimited regions of meaning are in the core area of the field of awareness at a given moment. The "Attention a la vie" (Schütz 1982: 32) refers to a certain area of reality. In this moment, it becomes "selected reality" that can however be left at any other moment.

Computer networks can influence the difference between potentiality and actuality, they do not generate it. The boundaries are already set by the difference in complexity between the world and the social systems operating in it. In this respect, communication in the world-wide Internet is no more or less virtual than, for example, a scientific discourse taking place mainly in specialist journals but also, of course, in conferences, letters and mailing lists. From this theoretical angle, it is inappropriate to make virtuality conditional on the spatial and temporal asynchronicity of computer-aided communication or on the simulation abilities of modern computer technology. For example, when Howard Rheingold, who equates "virtuality" with "simulation" in a similar fashion to Baudrillard (Baudrillard 1994; Rheingold 1993), speaks of "artificial experience of reality" with regard to the use of computer-supported media, it is assumed that one can distinguish between an artificially created experience of something that is real and a real experience of something that is artificial. But precisely this is to disbelieve. Luhmann is critical of the term "virtual reality" because it encourages the mistake of assuming "that there is still a real reality that can be grasped with the natural faculties a human being has, while the issue has long become that of perceiving these natural faculties as just one of many possible cases " (Luhmann 1995: 243).

When mention is made of virtual reality and one thinks of data helmets, data gloves and data suits, or even just of data highways, fibreglass or coaxial cables, the focus may well initially be on the issue of what has been artificially created. But there are good empirical and theoretical reasons to pursue another course. Here, we are confronted with a debate that was already held in connection with the sociological concept of technology. And in the course of that debate, it was above all clarified that making a distinction between "artificial" and "natural" is of little use in obtaining an appropriate sociological understanding of technology (Rammert 1998; Weingart 1989). And the same applies to the issue of virtuality. Just like it is impossible to distinguish between what is natural from what is artificial in canalised rivers or among organisms that have been created with biotechnology methods, the attempt to do so when entering cyberspace will be doomed to failure.

For example, virtual enterprises do not define themselves by communicating via computer networks. It is neither the use of multimedial systems (even virtual reality technology, for instance in the areas of simulation, construction, teaching or medical applications), the employment of computer-aided communication networks nor the staging of teleconferences or the creation of so-called tele-workplaces that turns an enterprise into a virtual enterprise but the special way in which its system elements are connected. No doubt it can be assumed that the use of multimedial systems is an important precondition for the viability of virtual enterprises in the first place. And in this sense, these technologies act as important catalysts for the development of such forms of the social.

What is crucial is a special form in which economic activities are organised that raises doubts as to whether it is an organisation. What is certain and does appear to have been agreed on in organisation sciences is that virtual organisations distinguish themselves by loose connections and non-memberships. They are not tied to fixed structures or configurations of components (e.g. organisation members, machines, buildings).

Organisation science literature brings the temporary character and project mode of the service-creating processes to the fore. Davidow/Malone stress that it is above all the inclusion from time to time of external suppliers or clients in the planning and running of the production process that leads to the development of virtual enterprises (Davidow/Malone 1992). The structures evolving from this represent a problem-related, dynamic integration of real resources (Picot et al. 1996). The resources are there, but linking them up to organise real service processes initially only exists as a potential. One could refer to this as a system "lying in wait " (de Vries 1998).

With Luhmann, who takes up Fritz Heider, one can also describe this relation as the difference between the

medium and the form. The communicative structure of a virtual venture provides the medium in which a distinction is made between reality, potentiality (as a conditional reality) and the unreal (Luhmann 1984:93). It is only the (loosely connected) communicative structure of the enterprise that makes something that was previously recognised as existent in the world (e.g. in the market) but was not identified as lying on the possibility horizon of the respective social system useful for the development of forms. The medium enables a multitude of elements to create a multitude of forms or at least does not oblige them to seek one ostensibly best way of linking up.

The given possibilities are not random. So in relation to the diversity of the world as a whole they already represent a selection. They are always meaningful possibilities in a given situation in which the difference between actuality and potentiality represents the basis for real formation of structures. In virtual organisations only *specific* communication can emerge, not *random* communication. But the system provides enough scope to prevent the development of fixed ties or strict connections.

7. Conclusion

The relation between space and sociality can now be clarified by distinguishing the medium from the form, i.e. by referring to the difference between potentiality and actuality. A sociological concept of space can be formulated at this point that distinguishes at a conceptual level between two interpretations of space: geographical and physical space on the one side and social space on the other. As the environment of the social, the geographical and physical concept of space remains inaccessible for societal operations. One can adopt Stichweh's view and refer to the social space (or, as it were, the communication space) as a "medium of perception and communication" (Stichweh 1998: 346). However, we cannot observe it performing this role. Media as such cannot be observed. In the same manner as we are unable to observe "language as such" but only in its respective form, as Spanish or Chinese (and, even then, only in its written or spoken form, and again, in that form, only in the shape of a novel, newspaper article, etc.), space can only be observed in the forms it assumes. And these forms can be of a nature that completely separates them from geographical and physical categories of space. Social space can assume forms that can then be perceived by an observer as a group regularly attending a seminar in a university room as well as the form of a network with which companies or political campaign groups liberate themselves from local conditions of residence.

A space concept of this kind that sets out from Luhmann's systems theory is based on the following premises:

1. the cybernetic premise of self-regulation and self-steering, according to which each (regulating) observer is himself or herself an element of what he or she is observing or regulating;
2. the constructivist premise that no view exists that can observe the world in a better, more complete or more objective manner than others can;
3. the autonomy premise in the sense of an operational and selfreferential closure of social systems;
4. the systems theory premise that systems only generate themselves through their own operations and that, therefore, only those operations can be regarded as elements of a system that (re-) produce the system and present the forms created in a medium;
5. the difference-logic premise that the operations of a system generate forms (structures) in a medium, with medium and form being mutually conditional.

As a theoretical consequence going beyond Luhmann, space could be understood as an additional dimension of meaning (cf. Stichweh 1998; Werber 1998). When discussing issues of meaningful processing of the world's complexity, Luhmann distinguishes between three dimensions of meaning. First there is the fact dimension (it selects according to *what* happens in the world and what out of this is regarded as relevant), second, the social dimension (it makes its assessments according to *who* communicates something) and third, the time dimension (it refers to when something happens). The spatial dimension would have to be added that asks *where* something happens.

My hypothesis is that spatial aspects have not become worthless, for queries about, for example, the centre/periphery, proximity/distance, exclusion/inclusion by no means become superfluous. But any attempt to tie the social context to space, which is what some of the sociological classicists have done, would mean overrating the societal regulatory role that spatial borders (of a national, regional or communal nature) have.

However, the reverse strategy of completely dropping the location could imply a massive overestimation of the potential successful communication has. Luhmann also persistently warns of this overestimation when he refers to the "improbability" in principle "of social communication". And particularly with a view to the computer-aided media and so-called cyberspace, this warning appears to be important. For on the one hand, we are experiencing a huge increase in communication, but on the other hand, the options and the need for selection of communicative links are growing, too. Thus the *improbability* of successful communication in the sense of the realisation of its mutual links initially increases.

Here, spatial aspects could play a major role as a dimension of a meaningful construction of reality. In the form calculus of Spencer-Brown, spaces are tied to differentiations. He calls the space that is divided up by a differentiation (into a marked space and an unmarked space) "form". In this sense, the space can be regarded as a differentiation introducing a new differentiation. Stichweh suggests "proximity/distance", not in a geographical sense but in the sense of "measuring and calculating objects" as a cognitive operation (Luhmann 1995: 179).⁶ Luhmann explains this approach with the example of the emergence of the public in the 18th century. "When the integration of society is left to 'public opinion' in the 18th century, this ultimately implies that spatial integration has been dispensed with (...). For 'the public' implies nothing less than lifting of access control for everyone, i.e. dispensing with access control, i.e. that spatial integration is not defined in structural terms" (Luhmann 1997: 314).

References

- Baudrillard, J.: Die Illusion und die Virtualität. Bern 1994: Benteli
- Bolz, N.: Weltkommunikation. München 2001: Fink
- Bredenkamp, H.: Cyberspace, ein Geisterreich. Freiheit fürs Internet: Eine Achterbahn durch die Reste der zerfallenden Utopie. Frankfurter Allgemeine Zeitung. 03.02.1996
- Spencer-Brown, G.: Laws of Form. London 1969: Allen & Unwin
- Davidow, W. H.; Malone, M. S.: The Virtual Corporation. New York 1992: Harper Collins
- de Vries, M.: Das virtuelle Unternehmen – Formentheoretische Überlegungen zu Grenzen eines grenzenlosen Konzeptes. In: Brill, A.; de Vries, M. (Ed.): Virtuelle Wirtschaft. Virtuelle Unternehmen, virtuelle Produkte, virtuelles Geld, virtuelle Kommunikation. Opladen 1998: Westdeutscher Verlag. pp. 54–86
- Díaz, J.: Las palabras perdidas. Barcelona 1992: Ediciones Destino, p. 153
- Elias, N.: Über den Prozeß der Zivilisation. Soziogenetische und psychogenetische Untersuchungen. Frankfurt am Main 1988: Suhrkamp
- Fuchs, P.: Die Erreichbarkeit der Gesellschaft. Zur Konstruktion und Imagination gesellschaftlicher Einheit. Frankfurt am Main 1992: Suhrkamp
- Fuchs, P.: Die "world" in der Welt des World Wide Web. Medienjournal: Mediale Netzwerke. 25 (3). pp. 49–57
- Giddens, A.: The Consequences of Modernity. Cambridge 1990: Polity Press
- Giddens, A.: The Constitution of Society. Outline on the Theory of Structuration. Berkeley and Los Angeles 1984: University of California Press
- Großklaus, G.: Medien-Zeit, Medien-Raum. Zum Wandel der raumzeitlichen Wahrnehmung in der Moderne. Frankfurt am Main 1995: Suhrkamp
- Läpple, D.: Essay über den Raum. Für ein gesellschaftswissenschaftliches Raumkonzept. In: Häußermann, H. et al. (Ed.): Stadt und Raum. Soziologische Analysen. Pfaffenweiler 1991: Centaurus. pp. 157 – 207
- Lefebvre, H.: The Production of Space. Cambridge, Mass. 1991: Blackwell
- Luhmann, N.: Die Gesellschaft der Gesellschaft, Vol. I and II. Frankfurt am Main 1997: Suhrkamp
- Luhmann, N.: Social Systems. Stanford, CA 1995: Stanford University Press

⁶ A person can be referred to as close without this having any geographical meaning. As a system of communication that everyone can link up with, society is not spatially confined. This is why it cannot be localised in the physics of space. In social systems, borders are drawn up exclusively by operational closure. In such a context, the physical environment only makes itself felt as irritations or disturbances, which, however, have to be implemented inside the system if they are to have any impact.

- Picot, A. et al.: Die grenzenlose Unternehmung. Information, Organisation und Management. Wiesbaden 1996: Gabler
- Rammert, W.: Die Form der Technik und die Differenz der Medien. Auf dem Weg zu einer pragmatischen Techniktheorie. In: Rammert, W. (Ed.): Technik und Sozialtheorie. Frankfurt am Main 1998: Campus. pp. 293–326
- Rheingold, H.: The Virtual Community. Reading, Mass. 1993: Addison–Wesley
- Rösenberg, U.: Raumvorstellungen in der Physik. In: Pasternack, Gerhard (Hg.): Philosophie und Wissenschaften: Das Problem des Apriorismus. Frankfurt am Main 1987: Lang. pp. 123 – 134
- Schütz, A.: Das Problem der Relevanz. Frankfurt am Main 1982: Suhrkamp
- Simmel, G.: Der Raum und die räumliche Ordnung der Gesellschaft. In: Simmel, G. (Ed.): Soziologie. Untersuchungen über die Formen der Gesellschaft. Leipzig 1908: Duncker & Humblot. pp. 614 – 708
- Stichweh, R.: Raum, Region und Stadt in der Systemtheorie. Soziale Systeme. 4 (1998). pp. 341–358
- Tönnies, F.: Gemeinschaft und Gesellschaft. Grundbegriffe der Reinen Soziologie (1887). Darmstadt 1963:
- Weingart, P. (Ed.): Technik als sozialer Prozeß. Frankfurt am Main 1989: Suhrkamp
- Werber, N.: Raum und Technik. Zur medientheoretischen Problematik in Luhmanns Theorie der Gesellschaft. Soziale Systeme. 4 (1998). pp. 219–232