

The History and Systematics of Functional Differentiation in Sociology

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1. Early Modern Europe and Ideas on Functional Differentiation

The origins of the concept of *functional differentiation* are to be found in early modern Europe. There is first of all the concept of *vocation* ('Berufsstände') which in its strong Protestant and German versions points to professional specializations which were thought to be lifelong specializations within a restricted professional sphere. One was bound to this vocation not only by professional competences, but also by ethical obligations to the professional sphere to which one belonged that were thought to be binding for individual practitioners. Bindingness could imply that the whole style of life was expected to be penetrated by these – possibly very extensive and encompassing – obligations (cf. Conze, 1972; La Vopa, 1986; 1988).

The order of vocations and professions was strongly linked to macro-societal classifications which in 17th and 18th century thought still looked to *estates* as the basic unit of societal structure formation. From this coupling of vocations and estates arose the idea that besides the estates based on persons being born into them there was a second kind of estates which was based on vocations. In vocations you are a specialist. You are separated from other specialists. But the vocational estates of early modern Europe were thought of as a macrosocietal feature which counteracted these separating effects.¹ There are good reasons to claim that the vocational estates of early modern Europe were the first structural variant in which functional differentiation was accepted as a macrosocietal feature.²

In the second half of the eighteenth century, in the social theory of the Scottish enlightenment, the first explicit differentiation theory was formulated, especially in the writings of Adam Smith and Adam Ferguson. This theory is obviously a theory of professional specialization and more precisely a theory of the subdivision of complex tasks which brings about ever more professional specializations. But this thinking could never produce a theory of functional

¹ See a very interesting formulation in Mendelsohn (1981).

² Cf. Stichweh (1991: 28-37), on estates and professional corporations as a kind of historical experiment in functional differentiation; cf. Scott (1988: 49-58), for a succinct analysis of the genesis of a society of estates from a nonspecialized, nearly classless farmer (*bonde*) society in Sweden between 1100 and 1400.

differentiation because it primarily perceived in differentiation processes the loss of collective agency and therefore did not conceive differentiation as a macrosocietal property. This is clearly articulated in a passage in Adam Ferguson: ‘Where shall we find the talents which are fit to act with men in a collective body, if we break that body into parts, and confine the observation of each to a separate track?’ (Ferguson 1773: 47).

A different understanding arose in the German reception of Scottish enlightenment thinking (see Pascal, 1962). This reception was concentrated in the years between 1790 and 1810 and it gave to the Scottish idea of division of labor a new and peculiar twist. Even in the German reception there existed a fear that specialization would result in one-sidedness and isolation and loss of collective consciousness, but some prominent theorists – Wilhelm von Humboldt and Friedrich Wilhelm Schleiermacher probably being the most well-known among them – chose another path. They interpreted specialization not as restriction and one-sidedness but as a process of individualization (see interestingly Eck, 1908). And they perceived the individual as somebody who by the process of specialization succeeded in concentrating all of his forces on a limited field. On the basis of this concentration the individual was able to expand and to take ever more world contents into the domain of his or her experience. In this interpretation specialization is no longer a comparatively limited phenomenon of doing something simple ever more precisely and intensely. It is instead an oscillatory movement of restriction and expansion, of mastering extensive contents by looking at them from a very specific perspective. And one has to add one more point from the earlier literature on vocations. As it was the case with accepting one’s vocation that it had to be understood as a kind of ethical obligation, the same may be said regarding the interrelation of individualization and specialization. To be an individual, to concentrate all of one’s forces on some specific perspective on the world, is a normative expectation and an ethical demand addressed to all of us. That point of view articulates something completely different from the fear of one-sidedness formulated by earlier observers of specialization (cf. Stichweh, 1994; 2012).

How does such an analysis of the interrelation of specialization, individualization and ethics relate to functional differentiation? Only one step has to be added and this step is already to be seen in Friedrich Schleiermacher, among others. The concept of individuality is not limited to natural persons. There are higher-level individualities, arising from the plurality of specialized and individualized perspectives concentrated on one and the same meaning domain. And on the basis of the diversity and the convergence of these individual perspectives the emerging

meaning domains become visible as such higher-level individualities. One can then address these meaning domains as if they were historical individuals. A good early example of such a *façon de parler* is in Johann Joachim Winckelmann's *History of the Art of Antiquity* from 1764, where in the last sentence of the preface he writes: 'I devote this history of art to *the art*, to *the time* and especially to my friend Anton Raphael Mengs' (Winckelmann 1764: XXVI). There seems to be no categorical difference between functional abstractions such as 'the art' and the individuality of natural persons, such as Winckelmann's painter friend. Furthermore it can be said that these phenomena of collective individuality, the functional domains or meaning provinces, can claim the same ethical dignity which in the first instance had only been attributed to individuals as natural persons.

More than a hundred years later the first great German sociological theorist of functional differentiation, Georg Simmel, came back to these developments and especially to Friedrich Schleiermacher. Simmel points out that it is a novel world historical idea that not only the equality of men but also the differences between men represent demands of equal ethical dignity. What is unique to Schleiermacher, Simmel concludes, is the idea that universals or absolutes only exist as individuals and by this argumentative turn the seemingly trivial social principle of division of labor for the first time in history acquired a foundation in a metaphysics of being (Simmel, 1917: 94).

A last remark has to be made regarding the first part of the argument of this chapter. Parallel to the developments described here there already appear the first theorists of globalization or theorists of – in contemporary terms – 'Global Civil Society' (or 'Weltbürgergesellschaft' in the Kantian original). One can name here among others Immanuel Kant or Georg Forster or Carl Gottlieb Suarez or Johann Wolfgang Goethe, and finally in the same line of argument Karl Marx, whose differentiation and globalization theory formulated 1847 in the 'Communist Manifesto' is a clear extension of the line of argument beginning in Kant. All these authors make use of functional abstractions such as 'the art', 'learning', 'science', 'trade', 'industries', 'literature'. And all of them describe the social realities analyzed by these functional abstractions as 'chainings' ('Verkettungen') which tie the most distant regions of the world together.³ This is the reason why in the years immediately after 1800 the composites of 'world', such as Goethe's invention 'world literature' became so frequent in German language texts (cf. Koch, 2002) and already at this point in time the indissoluble link

³ Cf. Stichweh (2008). In 1829 Goethe already speaks of a worldwide free trade of concepts and feelings (ibid. p. 41, n. 68).

of functional differentiation and the global domestication of space was well established. Functional differentiation became visible as a division of labor on a global scale compatible with ongoing individualization as the other core trend of modern society.

2. Embryology and 19th Century Ideas of Functional Differentiation

All this was still proto-sociology. Looking at these early formulations of the interrelation of functional differentiation and globalization to be found in the German literature between 1780 and 1830, there was still approximately a century to go until the discipline of sociology as we know it today arose. But in 19th century social thought a second paradigm of thinking about functional differentiation emerged which was tied to the nascent discipline of embryology.

Early 19th century embryology was based on the use of observation by microscopes. A new perspective on differentiation which was derived from observing processes of histological and morphological differentiation in individual organisms can be found in authors such as Johann Friedrich Meckel and Karl Ernst von Baer (cf. Meckel 1811: 64ff.; Von Baer 1828: 153-159, 206-208, 225, 263-264). This perspective conceived functional differentiation as the transition from homogeneous states in a system to increasing heterogeneity. Homogeneity was thought to be the state of a still incoherent and therefore unstable system. Heterogeneity was supposed to arise from the specialization of the individual parts of the system (that is: the individual organism in embryological development) and it implied the more intensive coordination and cooperation of the specialized parts. It was a fateful event for sociology that Herbert Spencer read Karl Ernst von Baer in an English translation and coined from this reading the formula which then became the core metaphor of his differentiation theory: differentiation as the transition from ‘indefinite incoherent homogeneity to definite coherent heterogeneity’. This heritage is still present in contemporary sociology and it still may function in some respects as an ‘obstacle épistémologique’ for sociological thinking.

What resulted from the adoption of this 19th century paradigm of functional differentiation was that the sociological idea of functional differentiation became tied to biological concepts of individual development. This happened despite development being a concept designed for analyzing growth and differentiation processes in the life histories of individual organisms, and not for describing collective, macrosocietal trends. Consequently sociology became

connected to organisms as an analogue for social systems even though organisms need much stronger mechanisms of coordination and integration than could ever be expected or needed in a society. From this metaphor came the idea of an invariable catalogue of necessary functions and organs, again something plausible for living organisms but implausible for much more loosely coupled systems, such as societies.

A much better alternative might have been available only a few years after Herbert Spencer's reading of Karl Ernst von Baer. In 1859 Charles Darwin published *The Origin of Species* and this was a theoretical venture much closer to 18th century theories of division of labor and to the sociology and metaphysics of individuality conceived by German neo-humanism and romanticism. In Darwin we have populations of individuals who are described as individuals on the basis of their differences and diversity. And such populations of individuals are – as is the case in Schleiermacher – higher-level individualities in their own right. In the biological case these higher-level individualities are called species and an ecology of life can be described by a multiplicity of species being loosely connected among one another and by new species incessantly arising and old species continuously being extinguished. Speciation obviously would have been a much better paradigm for functional differentiation than the developmental processes coming about in an individual organism. The advantages of speciation are to be seen in speciation concepts leaving more room for contingency, for dependence on ecological circumstances, for loose coupling among species, historicity instead of developmental needs, and finally for systems as populations of individuals in which individuals conserve novelties which may be useful if ecological circumstances demand adaptations.⁴

3. Organicist vs. Individualist Theories of Functional Differentiation: The 20th Century Situation

It is in 1890 and 1893 that the modern sociological theory of differentiation really takes off. In 1893 Émile Durkheim publishes *De la division du travail social* (Durkheim, 1973). This book is based on the distinction of 'mechanical solidarity' and 'organic solidarity' as two types of societal differentiation. 'Mechanical solidarity' means a horizontal order of similar or

⁴ For this line of argument the most important author in 20th century biology is Ernst Mayr (1999; 2004). But he never had any influence on the path of sociological differentiation theory; cf. interesting on Mayr, Wortmann (2010).

homogeneous parts which can be aggregated as well as separated from one another without major consequences for social order. Perhaps it is the most important difference from Herbert Spencer that Durkheim tried to demonstrate the stability of such an order based on similarities (Béjin, 1974).

Functional differentiation is conceived by Durkheim as ‘organic solidarity’ which is based on differences arising in processes of individualization. Durkheim was a strong advocate of individualism (Durkheim, 1898), but in terms of differentiation theory he did not opt for a populationist theory of individuals. Instead his theory of functional differentiation was very much based on the idea of the corporation (which includes many individuals which opt for similar specializations) as the basic building block of society. The family, which functioned in a society with mechanical solidarity as the building block which guaranteed continuity, is much weakened in modernity by the fact that it has to be established as a ‘new family’ in every new generation. By this circumstance the corporation becomes ever more important as it is not an intermittent social system but exists continuously and therefore is supposed to function as the institutional guarantee of the stability of functional differentiation provided by the continuity of corporations.⁵

In 1890, three years before Émile Durkheim, Georg Simmel presented in ‘Über soziale Differenzierung’, the other major theory of social and functional differentiation.⁶ Once more the focus was on functional differentiation and individualization. Functions formulate claims on individuals; they imply the expectation addressed towards individuals to bring all their varied competences and forces into highly specialized activities. But in Simmel this interrelation of functional specification and individualization was conceived as an ongoing struggle. Individuals will not be willing to subordinate themselves to functional totalities; each individual tries to be a complete world in himself – and therefore we are confronted with two totalities incessantly fighting with one another.⁷ And for the first time in history the

⁵ Cf. Durkheim (1973 : XIX), on this argument: ‘Comme elle (la famille RS) se disperse aujourd'hui à chaque génération, l'homme passe une notable partie de son existence loin de toute influence domestique. La corporation n'a pas de ces intermittences, elle est continue comme la vie.’

⁶ Simmel (1890); and see his other major statements on differentiation in Simmel (1917; 1977).

⁷ ‘Society strives to be a whole, an organic unit of which the individuals must be mere members. Society asks of the individual that he employ all his strength in the service of the special function which he has to exercise as a member of it; that he so modify himself as to become the most suitable vehicle for this function. Yet the drive toward unity and wholeness that is characteristic of the individual himself rebels against this role. The individual strives to be rounded out in himself, not merely to help to round out society. He strives to develop his full capacities (...) This conflict between the whole, which imposes the oneness of partial function upon its elements, and the part, which itself strives to be a whole, is insoluble. No house can be built of houses, but only of specially formed stones; no tree can grow from trees, but only from differentiated cells’ (Simmel, 1950:

diversity of individuals is not only a factual reality but becomes an ethical demand addressed towards individuals for whom their individuality functions as a paradigm of higher order individualities such as friendship, marriage, family and state (cf. Simmel, 1917: 94).

From this divergence of differentiation theory arising at the starting point of sociological thinking two theories of functional differentiation can be derived which define a space of conceptual possibilities still relevant today. The first option is a kind of organicist theory which can be understood as a *decomposition paradigm*: differentiation is always thought of as the division of an antecedent unity into two new parts/systems deriving from this unity. It is probably fair to mention Talcott Parsons as the most important protagonist of this decomposition paradigm in 20th century sociology. Differentiation in his writings was mostly considered as ‘separation’ of two functions and the subsequent ‘inclusion’ of the separated functions into one encompassing system which then had to become more generalized in its constitutive values.⁸ Louis Dumont went so far to call this hypothesis of the ongoing inclusion of separated subsystems into one supervenient system ‘Parsons’ law’ and to postulate that it is the only law the discipline of sociology has ever brought about (Dumont, 1980: 245, cf. 19-20).

The other analytical option which might be called the individualist version does not look at separation/decomposition but at a process of system formation which is based on the genesis of new system/environment-distinctions in the history of social systems. In this perspective the separation from other systems to which the rising system was near in earlier phases of its development may be an important part of the story of a new social system, but it is only a part. The focus clearly rests on the novelty of a new system and on the multiple synthetic and integrative effects which are preconditions of system formation. Niklas Luhmann is the most important contributor to this tradition (see Luhmann, 1977). In this variant there is no supervenient unity which somehow holds together differentiated units (besides the much more general unity of ‘society’⁹). The differentiated system is much more individualized in its

59). And see the very interesting remark on Athens by Simmel: ‘The tremendous agitation and excitement, and the unique colourfulness of Athenian life is perhaps explained by the fact that a people of incomparably individualized personalities were in constant struggle against the incessant inner and external oppression of a de-individualizing small town’ (Simmel, 2010: 107).

⁸ Cf. for a characteristic formulation Parsons (1970: 204ff).

⁹ *Society* is here understood as the totality of all communications from which function systems select some communications that they partially internalize. But even those communications that are internalized always are endowed with a potential of further meaning with which one function system can never deal exhaustively. If one looks for example at an esoteric scientific publication in a highly specialized journal this seems to be a communicative event that exclusively belongs to the sphere of science. But the same publication may play a

achievements, and this perspective can be – but need not be – combined with an individualism which looks at human individuals contributing to system processes as a population of individuals and as a reservoir of variants which functions as a microdiversity inherent to the system and enabling ongoing processes of adaptation and refashioning of the system.¹⁰

A good example for this synthetic logic in functional differentiation is the rise of sport as a function system in 19th century society. Sport is the remarkable example of three separate traditions which never had been part of the same system or the same cultural understanding, but which converged in late 19th century to the modern system of sport. The first of these traditions was *athletics* (primarily boxing and wrestling – only much later track and field athletics were added), two thousand years old, very competitive and violent, shaped by professionals and addressed towards a public looking for a spectacle. Then there was *gymnastics* (with a Scandinavian and German background and a Greek pedigree), a non-competitive training of the body, very much inspired by ideas about health and body culture and body discipline and beauty. And then there is *sports* (a late medieval term, perhaps from Latin *de-(s)-portare*, i.e. going elsewhere to do something different), a term which was coupled to the pastimes (*passetemps*) of early modern European nobility. From this coupling came a close link to what one could do with horses and dogs (racing, hunting). The synthesis of these three traditions was a very complicated process (extremely abbreviated here) from which finally one function system in world society arose which reconstituted all these historical divisions and then added ever new disciplines of sport which still is the dynamics in which we all are involved (Cachay, 1988; Stichweh, 1990).

This second perspective which looks at systems as ‘historical individuals’ resulting from complex processes of system formation, has a clear advantage if one really seeks to understand the rise of function systems in society and history. The Parsonian decomposition paradigm with its binary logic will have difficulties and always had difficulties in looking at more than a few function systems (in Parsons’ AGIL perspective there is a clear place for the

significant and wholly different role in the communication processes of a family system in which it may be presented as an offprint which symbolizes success and social ascent and differential status among family members. This even works if the respective paper has never been cited by another scientist. Society then is the system which guarantees the unity and consistency of this communicative event to which the different function systems connect in many different ways. And then there are many communications to which none of the function systems will ever connect. These communications are clearly internal to society but not to one of the function systems. This argument I present here has to be distinguished from the Parsonian argument regarding highly generalized values spanning differentiated societal spheres.

¹⁰ Luhmann discovered this connection between functional differentiation and the microdiversity of individuals late in his career and therefore did not have the chance to work it out. See Luhmann (1997).

‘economy’ and the ‘polity’ but not for the other function systems). A theory looking for synthetic processes of system formation knows no inherent limits to the number of function systems it will be able to describe. It only needs an abstract catalogue of (necessary) constituents of any function system and can do historical analyses on the basis of such a catalogue of constituents which in itself has a provisional status. It can be enlarged and corrected on the basis of new analytical insights or from new insights won in historical studies about individual function systems. It is such a provisional but systematic catalogue of constituents of function systems which I will explore and describe in the next section. Then follows a conclusion which looks at the three core questions formulated by the editors of this volume.

4. Constituents of Function Systems in Contemporary World Society

If one seeks to understand functional differentiation in contemporary world society one has to start with an adequate idea of the pluralization of function systems. It is no longer a good idea to limit one’s interest in functional differentiation primarily to politics and the economy and to have only a residual idea of other functional complexes (a very vague concept of ‘culture’ often takes this badly defined place).¹¹ This will not result in an interesting and instructive picture of world society. Instead one has to accept that there definitely exist more than ten global function systems in world society (among them: religion, law, the economy, the polity, the arts, science, education, intimate relations and families, the sports, the health complex, mass media, perhaps tourism and perhaps the leisure complex); and then, if one adds to this primary level of function systems the internal differentiation of function systems into subsystems, one will often find thousands of subsystems which are differentiated along complex mixes of hierarchical, segmentary and functional lines.¹²

For analyzing this plurality and diversity of function systems one needs an abstract theory about the constitutive properties of a function system in society. I will in the following propose an overview of those constitutive properties I consider to be the most important on the basis of the available historical and comparative research on the differentiation of function systems. Such a systematic overview of the constituents of every function system has never

¹¹ Cf. on this problem the discussion between Richard Münch (2010; his chapter in this volume) and myself (Stichweh, 2010).

¹² For example: in science one will easily identify thousands of subdisciplinary research communities.

been tried in the sociological literature on functional differentiation. From my point of view it is necessary as a starting point for a comparative and historical research on the genesis and diversity of functional differentiation, which probably is the most important event in the genesis of modernity and world society.

Unity of Structure Formation and Semantics

A function system is a unity in terms of social structure formation as well as it is a unity in terms of a self-descriptive semantics, and it is based on a convergence of these two perspectives in identifying the boundaries of the respective system. The same convergence was probably not given in the society of estates of early modern Europe in which we have the estates as a multiplicity of societal subsystems, but at the same time a unifying societal semantics was produced in the higher estates or strata with the expectation of being authoritative for all the estates in society. From this resulted that there were estates or strata which were not the authors of the descriptions by which their place in society was identified.

I take the convergence of the identification of boundaries via structures and semantics (self-descriptions) to be one among many indicators of the reality of function systems. I consider it as an analogue to what elsewhere in the methodology of the social sciences is called ‘triangulation’ (cf. Campbell, 1988): The reality of a statement is somehow confirmed by our ability to find congruent supporting evidence on the basis of very different methods of observation.

In general it seems to be the case that functional differentiation as the primary form of differentiation of society favours monothetic self-descriptions as a characteristic form of semantics. We then deal – to refer to but one relevant example – with a semantics which postulates the existence of ‘the economy’ and adds supporting evidence – for example our strong interest in ‘utility’. This way the differentiation of society as it is described in structural terms is reproduced in all its facets in the semantics of self-description of society. From this arises the question if a society of this type can still produce self-descriptions which look at society as a total social system including all the different meaning complexes and function systems and their interrelationships and finally the zones of sociality which are not defined in terms of functional differentiation. If we look at ‘globalization’ as a self-description of society

and not as a scientific theory, it might serve as one potential candidate for such a totalizing self-description.

Specification in Terms of the Material Dimension of Meaning

A second constitutive characteristic of any function system consists in its consistent specification in terms of the material dimension of meaning.¹³ Specification is a never ending process working on a certain material focus, a process from which the communicative and conceptual core of a function system finally arises. The historical switch or transfer from a society of estates to a society of function systems means in one respect a shift in the societal relevance of the meaning dimensions. A society of estates is very much concentrated on social distinctions, on having more honour and reputation than is the case for another social group. In a functionally differentiated society material distinctions somehow push back questions of social rank and relevance. The most important societal distinctions refer to material or factual matters and the alternatives given by them. Where does a certain sequence of communications belong to: the economy, the polity, the educational system, the law, the system of science – and so on? The most important problems regarding the structure of society are problems which have to be decided in looking at material distinctions.

Functional Autonomy

My third argument regards functional autonomy. One will probably not be surprised to hear the word autonomy in this context. Autonomy is about self-regulation of the system and this self-referential regulatory autonomy should be an attribute of a function system. But what is *functional* autonomy? What does the concept of function mean in looking at macrosystems in society? Functions normally are products or achievements generated in a system which often is conceived as part of a bigger, encompassing system. These products and achievements are generated repeatedly and they contribute in a recursive loop to the ongoing identity and stability of the system whose products and achievements they are.¹⁴ Functionality then means

¹³ The conceptual basis behind this argument is Niklas Luhmann's theory of meaning which distinguishes three dimensions of meaning: the temporal, social and material dimension. 'Material' points to certain facts distinguished from certain other facts which for this moment have a claim to our attention; cf. Luhmann (1971; 1984).

¹⁴ Cf. for an instructive evolutionary understanding of function Millikan (1984).

this recursive loop between the continuous generation of these products and achievements and the identity and stability of the system (and its parts). One has to distinguish microfunctions which operate in small localized spaces and which incorporate the embeddedness of something in these spaces from macrofunctions. Macrofunctions point to the worldwide concentration of a specific type of communication in one global function system. And ‘functionality’ then speaks about the systematic differences which separate this communication type from alternatives realized in other comparable societal subsystems. The reference context for a function system obviously is the most extensive societal context which in contemporary society is defined by the system of world society.

Everything else which can be said has to be worked out in historical studies on individual function systems and the self-referential trajectory which established their macro-functionality. Is it correct, as Parsons and Luhmann maintained, that the function of politics consists in the production of collectively binding decisions (cf. Luhmann, 2000: 81-88) – and how does the functional autonomy in the generation of this ‘product’, collectively binding decisions¹⁵, arise? What about sports? It has been postulated that the societal function of sports consists in isolating the achievement complex (and in sports this refers always to achievements of the body) with a purity which is not attained or tried in any of the other function systems of society (Stichweh, 1990). Is science that function system which succeeds in giving to ways of experiencing and describing the world a causal force which strongly selects against alternative ways of understanding the same facets of the world (Luhmann, 1990)? Such attributions of societal functions have to be examined separately for each of the function systems of society and in each individual case it has to be established that a system really succeeds to establish a monopoly or at least primacy for a specific type of communications.

Purity and Disembedding

‘Purity’ and ‘disembedding’ are two terms in social theory which arise in the conceptual neighbourhood of functional differentiation. Purity is related to ‘thematic specification’.

¹⁵ ‘Collectively binding decisions’ are only binding as long as you act in a political inclusion role. In other societal spheres you will for example say ‘I am a scientist’ (and this way negate the bindingness of these political obligations in the role you presently assume); or in the words of a Peruvian trader from the textile conglomerate Gamarra (Lima) who looks to China as a paradigm: ‘El Chino te dice, el gobierno no me interesa porque la economia soy yo’ (Burch, 2012: Fn. 14).

Whereas thematic specification points to the *positive concentration of attention* on ever more closely circumscribed circumstances, purity functions as a complementary idea which accentuates the *negations* which are part of processes of specification. Negations identify those aspects of the world which are seen as foreign intrusions into function systems.¹⁶ In some function systems we find explicit self-descriptions which make this point: Knowledge of law has to be based on a ‘pure theory of law’ (‘reine Rechtslehre’ – Kelsen – implies separation from metaphysics and ethics), or mathematicians since around 1800 have to strive for ‘pure mathematics’ (separation from applications); and in the arts the demand for ‘reine Kunst’ is formulated via an intensification of self-references, for example in ‘l’art pour l’art’ (Egan, 1921).

A semantics which is somehow parallel to purity is formulated by the terms ‘embeddedness’ or ‘disembedding’. These concepts come from the economic anthropology of Karl Polanyi (1978) where they function as a formulation of the autonomization of a capitalist economy. It was Mark Granovetter (1985) who transferred the concept of embeddedness into network theory. There, in the context of a theory which emphasises the transsystemic status of networks, the concept of ‘embeddedness’ accentuates continuing as well as newly added external links of economic institutions. Finally, the concepts became an important part of globalization theory (cf. Giddens, 1990: esp. 21-29, 53). There, disembedding means the ongoing separation of systems from contextual conditions and the delocalization of sociality (i.e. separation of sociality from spatial conditions). In this understanding disembedding can be conceived as a constitutive achievement of each of the function systems of world society.

Self-substitutive orders

Function systems are self-substitutive orders. In this idea of Niklas Luhmann (1981) another aspect of the monopoly established by function systems comes forward. Function systems are not only monopolies in occupying a certain field of societal experiences (e.g. psychic and physical illness in the health system) and ever less accepting a complementary role for competitors in those fields claimed by them. They also establish monopolies because function systems in contrast to other societal institutions cannot be substituted for by functional

¹⁶ An interesting usage of purity is to be found in Andrew Abbotts’ theory of professions (cf. Abbott 1981; 1983): Purity is seen as a kind of retreat to core problems of a profession and this retreat is coupled to a prestige hierarchy which rewards those who opt for the negation of foreign elements.

equivalents. If one takes as an example the system of (visual) arts one can, of course, be an opponent of any formal invention practiced by artists in this system and can try out other artistic forms and artistic inventions which are to be identified as alternatives and oppositional acts. These are substitutions of alternatives internal to the system of the arts. But there is no functional equivalent to art. Of course, one can ignore the system and opt for self-exclusion from the system of the arts as a system. But then one lives in a world without art (without religion, without science, without political participations etc.) and there are no substitutes for these vacancies. The behaviour described is plausible and possible on the level of individual biographies and enhances the diversity of individuals in society.

And then there is one further possibility on the level of function systems and their subsystems. Of course, they could come to an end. There may arise an end of visual arts (as Hegel predicted), or the production of novelties in physical science may come to an end (as many 19th century physicists certainly believed). And even the end of the economy as a system has been predicted in the idea of communism. But in all these cases no substitute for the respective system that presumably came to its end is to be seen.¹⁷ At most a communicative void can be felt or experienced.

Binary Codes

All social systems, and this includes function systems as a particularly prominent type, are based on information processing – and as systems of information processing they operate on the basis of differences which are binary distinctions which they project on states of the world, and by these projections they try to collect and generate new information about the world.¹⁸ Systems make use of these distinctions as codings of information and the only way a state of the world can be thematized in a system is in a form based on codings (language being the most elementary form of coding). Things will never ‘speak’ for themselves. Sometimes codes give a continuous representation of realities they refer to (e.g. a temperature scale). But in most systems there exists an inbuilt preference for reductive representations, particularly for binary codes. As Barry Schwartz formulated it, ‘there is a tendency for binary

¹⁷ It is interesting that all these theories are 19th century theories.

¹⁸ Cf. Bateson (1973: 290): ‘ideas are immanent in a network of causal pathways along which transforms of differences are conducted. The “ideas” of the system are in all cases at least binary in structure. They are not “impulses” but “information”’.

categories to stand out as “figure” against a “ground” of continuous coding’ (Schwartz, 1981: 161).

What is characteristic of function systems is that they base their identity on the operations of only one binary code which they succeed in establishing as a world universal code. The world then only comes into view from the perspective of the respective function systems in terms of the basic distinctions of this system code: Statements are only interesting if they are either true or false (science); behaviour can be either lawful or unlawful (law); the same behaviour can in another context either be an indicator of love or of its waning (intimate relations, love); unlawful sex may still be paid for or fail to attract a willingness to pay and in these two cases it belongs more to the realm of economic behaviour than to intimate relations or law.

Even in the communications of the function systems there exists a basic knowledge of an underlying continuity of the codes. But function systems need and use the binarity of the codes as a technique of reinforcing identities and thereby for establishing boundaries of a system which demonstrates its singularity by the somehow dramatic application of its code. A practicing scientist knows that the strong preference of Popper for the refutation of scientific knowledge claims (which comes from a strict interpretation of binarity) is completely unrealistic. But it is a way of dramatizing the identity of science.

Generalized Symbols

Function systems based on binary coding choose the code values they use as symbols which allow for a maximum of symbolic generalization. As is always true with symbols they are used for making visible that two divergent and heterogeneous aspects of the world really belong together.¹⁹ In the history of the concept ‘symbol’ this already was its meaning in preclassical Greece (6th to 5th century BC) where a symbol meant an object which had been torn into two parts which at a later point of time (persons meeting again after many years) allowed to demonstrate the symbolic connectedness of the two parts of the objects and by transference the connectedness of their owners (Gauthier, 1972). The same understanding of symbol was present in the Greek law of evidence which was based on two pieces of evidence

¹⁹ Cf. the definition of symbol in Berger and Luckmann (1967: 40): ‘Any significative theme that thus spans spheres of reality may be defined as symbol.’

showing a close fit to one another and thereby allowing an interpretation of past events which was only thought to be reliable on the basis of this kind of dual evidence.

In a second respect the constitutive symbols of function systems have to be understood as *generalized symbols*. Generalization normally will refer to all of the three dimensions of meaning (as they are described in systems theory). That means generalizations have to bridge distances in time, differences in the material circumstances to which communications refer, and in the intersubjective diversity in looking at subjects. A characteristic case of a generalized symbol is the category ‘interesting’, as it is used in scientific communications. Its main achievement probably consists in leaving many things open regarding scientific statements. One says, ‘that is interesting’, and by this statement one primarily proposes to continue the examination of a hypothesis which has been proposed in a scientific discussion. The attribution of one of the two code values ‘true’ or ‘false’ is temporarily deferred and this is consistent with social dissent regarding the respective hypothesis.²⁰

Self-decomposition into Elementary Acts

Their self-decomposition into elementary acts is one of the most prominent properties of function systems. The emergence of a function system happens by constituting elements which as elements define what the function system is all about. This is a self-referential process which can only start near to the core of the emerging function system and then defines the boundaries of the system in further specifying and re-specifying the identity of the elements of which the system consists.

The constitution of elements is that process by which the system brings about internal unity and closure towards the outside of the system. Any communication arising in the system is confronted with constraints which enforce adaptation to the elements characteristic of the system. Any communication in the function system of science has to adopt one of the relevant forms of *scientific publication* (cf. Stichweh, 1987). If it doesn’t succeed in doing this it is not a part of science even if the claims it favours should be true. A communication can only become a part of the economy if payments are clearly related to it. If one only has knowledge about chances of economic intervention from which no decisions regarding payments arise,

²⁰ On the understanding of ‘interesting’ in science cf. Davis (1971); Weick (1989); Tracy (1993).

such (private) knowledge is no part of the economic system. Any statement about your obligations made in a conflict with other participants in communications only becomes a part of the system of law if one explicitly gives to these statements the form of a *legal supposition*. In all of the function systems this self-decomposition into elementary acts ensures the homogeneity of the communicative form of these elements which is compatible with a maximum diversity of substantial claims which can be communicated in the respective form.

Operative Closure

Towards the outside of the system this self-decomposition into elementary acts has the effect of an operative closure of the system. On the basis of its elementary operations the system is closed towards external interventions. If somebody wants to get influence on or in the system one has to transpose the communicative intentions into the communicative forms constitutive of the respective function system. But that means that one operates on the inside of the system and does not exert influence from the outside. Any other form of external intervention only effects *irritations* or *perturbations* of the system which will never be able to specify the effects they want to bring about in the respective function system. To mention one potential case: if politics tries to reduce the financial resources it gives to scientific research it will never be able to anticipate the cognitive reactions and displacements by which the system of science works these disturbances into its internal operations.

Openness by Progressive Inclusion of Societal Addresses

A function system that realizes closure on the level of its most basic operations, practices openness by the constitution of new addresses for the inclusion of persons and groups into the system. There is no contradiction in this as the inclusion of persons (and groups) is only realized via operations which are part of the operative repertoire of the function systems. All of the function systems in their histories develop a culture and a semantics of inclusion – and in all the function systems it is possible to identify indicators which point to a long-term tendency to the complete inclusion of all those addresses to which the status of personhood (sometimes it happens indirectly via group membership) can be attributed.

Inclusion means the way persons are factored into the processes of function systems by the constitution of addresses specific for the respective function system (cf. Stichweh, 2005b; Bohn, 2006; Stichweh and Windolf, 2009). These inclusion addresses are coupled to two alternative role patterns available in function systems (cf. Stichweh, 2005b: 13-44). In some cases inclusion means that one contributes to system processes by being included in an *achievement role*, for example as a political leader or as a research scientist or as a musician in public performances or as someone who publicly participates in competitive sports events. But, of course, these achievement roles are always limited to small numbers among the members of society. This does not mean that all others are excluded from participation in the respective function system. Rather, all the others are included as part of the *public* of a function system and as such are recipients of services generated by achievement roles and in a second respect they observe and comment and criticize system processes. To be in this way a member of the public of a function system is a universal status even including persons in achievement roles, whereas the access to achievement roles is highly selective.

In looking at individual function systems one will register numerous variants of the interrelation of achievement roles and public roles. In intimate relations the distinction of the two role types collapses (everybody playing both roles), the same is sometimes true in religion (universal priesthood in Protestantism) and this collapse even has been claimed for the arts ('everybody is an artist' – Joseph Beuys). And, of course, there are exclusions, some of them involuntary (democratic political systems with incomplete lists of voters; a demographical lack of marriageable partners), some of them voluntary and institutional (exclusion of disabled persons from sports, exclusion of women from education), some of them due to incomplete global reach of emerging function systems.

From this results a clear understanding of globalization as an extension of the communicative spaces in which function systems define their inclusion addresses. It would be somehow naïve to read this as a simple accumulation of ever more inclusion addresses. For all of the function systems of world society it is more plausible to conceive globalization as the rise of new spatial and regional distributions of inclusion and exclusion. This is the way in which world society brings about the structures of inequality germane to it. The genesis of inequalities (redistributions of inclusions and exclusions) happens in an autonomous way in each of the different function systems (cf. Stichweh, 2005a) – and it is a different question whether or not

these multiple inequalities somehow coalesce to patterns of inequality that transcend the boundaries of function systems.

Dynamics of Transgressing Boundaries

From the functional abstractions, symbolic generalizations and purifying negations on which function systems rest one further consequence can be deduced: All these properties delocalize and disembed function systems. From this results that for function systems the only boundaries they know are the boundaries of communication – and, of course, the boundaries of communication are the boundaries of the world which is the world of the function systems. This world may as well be described as *one world* which includes all meaning and all communication – or alternatively as a plurality of worlds which is a way of taking into account the enormous cultural distances which separate functional contexts of communication from one another. All the function systems constitute cultures of their own (*Eigencultures*), and this enables them to transcend the traditional boundaries of the historical cultures (i.e. regional and ethno-linguistic cultures) of the world. An ethnography of world society therefore will take the form of an ethnography of function systems (cf. Geertz, 1983).

Collective Singulars as Self-descriptions

A final feature of function systems and a feature by which they recognize their identity and separateness is the emergence of *collective singulars* for their self-designation. A case in point is *science* as a very general term of self-description which includes humanities and natural sciences under an umbrella term by which the idea of the unity and separateness of the sciences is formulated in a non-contradictory way. Another interesting candidate are the *arts* which for centuries were circumscribed by many collective plurals such as *beaux arts*, *liberal arts*, *arts and sciences*, *artes mechanicae* – and many other terms. Then in the second half of the eighteenth century there was the surprising emergence of the term *Die Kunst* (i.e. ‘art’ in the singular as opposed to ‘Die Künste’ in the plural; Winckelmann 1764: XXVI). This represented a remarkable case of perceiving a new functional unity in society which would still have been improbable a few decades before. And this perception was still a regional phenomenon which had to be globalized. In England, for example, it needed nearly a further

hundred years until the new term took hold. A remarkable demonstration of this is the ‘Inaugural Address’ John Stuart Mill, then Lord Rector of the University, gave at St. Andrews on February 1st, 1867:

‘It is only of late, and chiefly by a superficial imitation of foreigners, that we have begun to use the word Art by itself, and to speak of Art as we speak of Science, or Government, or Religion: we used to talk of the Arts (...) by them were vulgarly meant only two forms of art, Painting and Sculpture, the two which as a people we cared least about – which were regarded even by the more cultivated among us as little more than branches of domestic ornamentation, a kind of elegant upholstery. (...) [43] (...) To find Art ranking on a complete equality, in theory at least, with Philosophy, Learning, and Science – as holding an equally important place among the agents of civilization (...) to find even painting and sculpture treated as great social powers; and the art of a country as a feature in its character and condition, little inferior in importance to either its religion or its government; all this only did not amaze and puzzle Englishmen, because it was too strange for them to be able to realize it’ (Mill, 1867: 42-43).

This analysis, particularly when reading the whole passage in Mill, is a remarkable analysis of the value shifts and recombinations of cultural material which go into the emergence of an unexpected new function system in society, and at the same time it makes visible the symbolic focussing given to this process by the invention of a radically new collective singular.

5. Conclusion

As a conclusion I try to reflect on the three questions the editors of this volume have addressed to all the authors. This allows me to examine once more the results of this essay.

1. Functional differentiation is only one among several forms of differentiation. The other major candidates are the differentiation of social segments characterized by identical structures and identical functions; the differentiation of social strata which form a hierarchy of social strata into one (and only one) of which every person is born and normally belongs to

for a whole lifetime; the differentiation of centres and peripheries that organizes the spatial distribution of society. Among these very old social forms functional differentiation is the most recent invention and it is that social form which is nearly equivalent with world society as all the function systems are world-systems.

Internal to the function systems we find again realizations of all the forms of differentiation which is a good indicator of the complexity of contemporaneous differentiation patterns. But the other differentiation forms no longer operate on an organizational level which transcends functional differentiation. There exists no regional segmentation of the world which institutionalizes regional variants of world society, there are no world strata which transcend functional boundaries, and there doesn't exist a centre/periphery structure of the whole world but instead only centres in individual function systems. This can be seen as a kind of structural proof of the prevalence of functional differentiation.

2. Since functional differentiation arose there came about a kind of beauty contest in which each of the systems tries to advance claims that it is the most important – and on the other hand all of the systems have their enemies that try to conceive a world without the respective system: anarchists a world without the state, communists a world without the economy, atheists a world without religion, rationalists a world without the arts, fundamentalists a world without science. All of this is a negation of the plurality and diversity constitutive of world society. It is much more interesting to look at the self-sufficiency and closure of the meaning worlds of the function systems and of many of their subsystems. A biologist will never say elephants are more important than snails (elephants and snails probably would) but she will instead appreciate and study the immense richness of a diverse world.

3. The whole of which function systems are a part is society, the system which includes all communications in the world and excludes everything else. From society function systems do not arise by division (or decomposition) but by selection or selective sampling. Systems emerge by the selection of communications that are incorporated into system processes and they emerge by the selective inclusion of those communications which, even after having become part of the processes of a specific function system, still can be claimed by other systems and can be included into these other systems from other points of view.²¹ The most important insight here is that society and other social systems share communicative elements

²¹ See footnote 9 above for an example.

among one another. Each communication can be an element of a plurality of social systems. Therefore even the individual communication is multi-referential. Differentiation is a selective build-up of complexity internal to society. It is always simultaneous with many other similar processes going on at the same time. The internal differentiation of society then is the primary mechanism of the integration of society – and this operates via multiple and diverse claims on the same communicative elements of society.

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