

# The History and Systematics of Functional Differentiation in Sociology

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## I 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* which in its strong protestant and German versions points to professional specializations which are thought to be lifelong specializations on a restricted professional sphere to which one is not only bound by one's competences. Besides the competences one has acquired there arise ethical obligations to the professional sphere to which one belongs and these are thought to be binding for individual practitioners. Bindingness can imply that your whole style of life is expected to be penetrated by these obligations. That is besides being binding obligations can be very extensive and encompassing.<sup>1</sup>

The order of vocations and professions is secondly strongly linked to macro-societal classifications which in 17<sup>th</sup> and 18<sup>th</sup> 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 is a second kind of estates which are based on vocations ('Berufsstände'). In vocations you are a specialist. You are separated from other specialists. But the vocational estates of early modern Europe were thought as a macrosocietal feature which counteracted these separating effects.<sup>2</sup> There are good reasons to claim that the vocational estates

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<sup>1</sup> Cf. Conze 1972; La Vopa 1986; La Vopa 1988.

<sup>2</sup> See a very interesting formulation in Mendelssohn 1785.

of early modern Europe were the first structural variant in which functional differentiation was accepted as a macrosocietal feature.<sup>3</sup>

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 new professional specializations. But this thinking could never produce a theory of functional differentiation as 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?"<sup>4</sup>

A completely different understanding arose in the German reception of Scottish enlightenment thinking.<sup>5</sup> This reception was concentrated on the years between 1790 and 1810 and it gave to the Scottish idea of division of labor a new and peculiar twist. There existed this fear that specialization will result in one-sidedness and isolation and loss of collective consciousness even in Germany but some prominent theorists - Wilhelm von Humboldt and Friedrich Wilhelm Schleiermacher probably the best known among them - chose another path. They interpreted specialization not as restriction and one-sidedness but as a process of individualization.<sup>6</sup> And they perceived the individual as somebody who by the process of specialization succeeded to concentrate all 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 experiences. In this interpretation specialization is no longer a comparatively limited phenomenon of doing something simple ever more precise and ever more intense. 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 or calling 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.<sup>7</sup>

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 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

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<sup>3</sup> Cf. Stichweh 1991, pp. 28-37, on estates and professional corporations as a kind of historical experiment in functional differentiation; cf. Scott 1988, pp. 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.

<sup>4</sup> Ferguson 1773, 47.

<sup>5</sup> See Pascal 1962.

<sup>6</sup> See interesting Eck 1908.

<sup>7</sup> Cf. Stichweh 1994; Stichweh 2012.

individuals. A good early example of such a *façon de parler* is in Johann Joachim Winckelmanns, *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.”<sup>8</sup> 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 “Anton Raphael Mengs”. Furthermore it can be said that these phenomena of collective individuality, the functional domains or meaning provinces, can claim the same ethical dignity which at the first place 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 as well 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.<sup>9</sup>

There is a last remark regarding the first part of the argument of this paper. Parallel to the developments described here there already appear the first theorists of globalization or theorists of – as the contemporary term calls it – ‘World Civic 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 they all describe the social realities analyzed by these functional abstractions as chainings (“Verkettungen”) which tie the most distant regions of the world among one another.<sup>10</sup> This is the reason why in the years immediately after 1800 the composites of “world” such as Goethes invention “world literature” became so frequent in German language texts<sup>11</sup> and already at this point in time the indissoluble link 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.

## II Embryology and 19<sup>th</sup> Century Ideas of Functional Differentiation

All this was still protosociology. If you look at these early formulations of the interrelation of functional differentiation and globalization to be found in the German literature between 1780 and 1830 it still lasted approximately a century until sociology as we know it today arises. But in 19<sup>th</sup>

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<sup>8</sup> Winckelmann 1764, XXVI.

<sup>9</sup> Simmel 1917, 94.

<sup>10</sup> Cf. Stichweh 2008. In 1829 Goethe already speaks of a worldwide free trade of concepts and feelings (ibid. p. 41, n. 68).

<sup>11</sup> Cf. Koch 2002.

century social thinking a second paradigm of thinking about functional differentiation came about which was tied to the nascent discipline of embryology.

In early 19<sup>th</sup> century embryology which was based on the use of microscopical observation one finds in authors such as Johann Friedrich Meckel and Karl Ernst von Baer a new perspective on differentiation which was derived from observing processes of histological and morphological differentiation in individual organisms.<sup>12</sup> This perspective conceived functional differentiation as the transfer from homogeneous states in a system to increasing heterogeneity. Homogeneity was thought to be the state of a still incoherent and therefore instable 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 intense 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 present-day sociology and it still may function in some respects as an 'obstacle épistémologique' for sociological thinking.

What resulted from the adoption of this 19<sup>th</sup> century paradigm of functional differentiation? The sociological idea of functional differentiation became somehow tied to biological concepts of individual development, development not being a concept describing collective, macrosocietal trends but being much more apt for analyzing growth and differentiation processes in the life histories of individual organisms. And sociology became connected to organisms as an analogue for social systems although organisms need much stronger mechanisms of coordination and integration than one will ever expect or need in a society. Finally 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 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 18<sup>th</sup> 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 used if ecological circumstances demand adaptations.<sup>13</sup>

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<sup>12</sup> Cf. Meckel 1811, 64ff.; Baer 1828, 153-9, 206-8, 225, 263-4.

<sup>13</sup> The most important author in 20th century biology is Ernst Mayr, see Mayr 1942; Mayr 2004. But he never had any influence on the path of sociological differentiation theory.

### III Organicist vs. Individualist Theories of Functional Differentiation: The 20<sup>th</sup> Century Situation

It is in 1890 and 1893 that the modern sociological theory of differentiation really takes its start. In 1893 Émile Durkheim publishes “De la division du travail social”.<sup>14</sup> 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 homogeneous parts which can be aggregated but as well be 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.<sup>15</sup>

Functional differentiation is in Durkheim conceived as “organic solidarity” which is based on differences arising in processes of individualization. Durkheim was a strong advocate of individualism<sup>16</sup> but in terms of differentiation theory he did not opt for a populationist theory of individuals. Instead “organic solidarity” as 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 guarantees 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.<sup>17</sup>

In 1890, three years before Émile Durkheim, Georg Simmel presented in “Über sociale Differenzierung” the other major theory of social and functional differentiation.<sup>18</sup> 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 itself – and therefore we are confronted with two totalities incessantly fighting with one another.<sup>19</sup> And for the first time in history the diversity of individuals is not only a factual

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<sup>14</sup> Durkheim 1893.

<sup>15</sup> Béjin 1974.

<sup>16</sup> Durkheim 1898.

<sup>17</sup> Cf. Durkheim 1893, 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."

<sup>18</sup> Simmel 1890; and see the other major statements on differentiation in Simmel 1900 and Simmel 1917.

<sup>19</sup> Simmel 1917, 69: "Die Gesellschaft will eine Ganzheit und organische Einheit sein, so daß jedes ihrer Individuen nur ein Glied ist; in die spezielle Funktion, die es als solches zu üben hat, soll es womöglich seine gesamten Kräfte gießen, soll sich umformen, bis es ganz zum geeignetsten Träger dieser Funktion geworden ist. Allein gegen diese Rolle sträubt sich der Einheits- und Ganzheitstrieb, den das Individuum für sich allein hat. Es will in sich abgerundet sein und nicht nur die Gesellschaft abrunden helfen, es will die Gesamtheit seiner Fähigkeiten entfalten ... Dieser Widerstreit zwischen dem Ganzen, das von seinen Elementen die Einseitigkeiten

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.<sup>20</sup>

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 which is still relevant in our days. 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 20<sup>th</sup>-century sociology. Differentiation in his writings is mostly considered as "separation" of two functions and the subsequent "inclusion" of the separated functions into one encompassing system which then has to become more generalized in its constitutive values.<sup>21</sup> 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 brought about.<sup>22</sup>

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 and 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.<sup>23</sup> In this variant there is no supervenient unity which somehow holds together differentiated units (besides the much more general unity of "society"). The differentiated system is much more individualized in its 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.<sup>24</sup>

This second perspective which looks at systems as "historical individuals" resulting from complex processes of system formation has a clear advantage if you really want 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 the AGIL perspective there is a clear place for the "economy" and the "polity" but not for the other

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der Teilfunktion fordert, und dem Teil, der selbst ein Ganzes sein will, ist prinzipiell nicht zu lösen: man kann kein Haus aus Häusern bauen, sondern nur aus besonders geformten Steinen, keinen Baum aus Bäumen erwachsen lassen, sondern nur aus differenzierten Zellen." And see the very interesting remark on Athens in Simmel 1903, 125: "Die ungeheure Bewegtheit und Erregtheit, die einzigartige Farbigkeit des athenischen Lebens erklärt sich vielleicht daraus, daß ein Volk von unvergleichlich individuell angelegten Persönlichkeiten gegen den steten inneren und äußeren Druck einer entindividualisierenden Kleinstadt ankämpfte."

<sup>20</sup> Cf. Simmel 1917, 94.

<sup>21</sup> Cf. for a characteristic formulation Parsons 1970, 204ff.

<sup>22</sup> Dumont 1980, p. 245, cf. 19-20.

<sup>23</sup> See Luhmann 1977.

<sup>24</sup> Luhmann discovered this connection of 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.

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 systematic catalogue of constituents of function systems which I will explore and describe in the last part of my argument (IV).

#### **IV Constituents of Function Systems in Contemporary World Society**

If one wants 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).<sup>25</sup> 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 differentiation.<sup>26</sup>

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 propose a list of those constitutive properties I consider to be the most important.

##### *1. Unity of Structure Formation and Semantics*

A function system is as well a unity in terms of social structure formation as in terms of a self-descriptive semantics and it is based on a convergence of these two descriptions 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 which 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.

The convergence of the identification of boundaries via structures and semantics (self-descriptions) I take as 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"<sup>27</sup>: The reality of a

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<sup>25</sup> Cf. on this the discussion between Richard Münch and Rudolf Stichweh in the ‚Kölner Zeitschrift für Soziologie und Sozialpsychologie‘ 2010: Münch 2010 and Stichweh 2010.

<sup>26</sup> For example: in science one will easily identify thousands of subdisciplinary research communities.

<sup>27</sup> Cf. Campbell 1988.

statement is somehow confirmed by our ability to find congruent supporting evidence by 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 have to do - to cite only 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. "Globalization" if we look at it as a self-description of society and not as a scientific theory might function as a potential candidate for such a totalizing self-description

## *2. 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.<sup>28</sup> 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.

## *3. 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.<sup>29</sup> Functionality then means 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

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<sup>28</sup> 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; Luhmann 1984.

<sup>29</sup> Cf. for an instructive understanding Millikan 1984.

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 true as Parsons and Luhmann maintained that the function of politics consists in the production of collectively binding decisions<sup>30</sup> - and how does the functional autonomy in the generation of this 'product' – collectively binding decisions – 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) in a purity which is not attained or tried in any of the other function systems of society.<sup>31</sup> 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?<sup>32</sup> 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.

#### 4. 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'. 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.<sup>33</sup> In some function systems we find explicit self-descriptions which make this point: Knowledge of law has to be based in 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).

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<sup>34</sup> where they function as a formulation of the autonomization of a capitalist economy. By Mark Granovetter<sup>35</sup> the concept of embeddedness was transferred 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

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<sup>30</sup> Cf. Luhmann 2000, 81-88.

<sup>31</sup> Stichweh 1990.

<sup>32</sup> Luhmann 1990.

<sup>33</sup> An interesting usage of purity is to be found in Andrew Abbotts' theory of professions (cf. Abbott 1981 and Abbott 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.

<sup>34</sup> Polanyi 1978.

<sup>35</sup> Granovetter 1985.

became an important part of globalization theory.<sup>36</sup> 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.

### 5. *Self-substitutive orders*

Function systems are self-substitutive orders. In this idea of Niklas Luhmann<sup>37</sup> 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) 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 can't be substituted for by functional 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. 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 prognosticated) or the production of novelties in physical science may come to an end (as many 19<sup>th</sup> century physicists certainly believed). But then there is no substitute for the respective system, there only arises a communicative void in society.

### 6. *Binary Codes*

All social systems, and this includes function systems as an especially prominent type, are based in information processing – and as systems of information processing they operate on the basis of differences which are binary distinctions at least which they project on states of the world, and by these projections they try to collect and generate new information about the world.<sup>38</sup> 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). Never things will “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, especially for binary codes. As Barry Schwartz formulated it, “there is a tendency for binary categories to stand out as ‘figure’ against a ‘ground’ of continuous coding.”<sup>39</sup>

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<sup>36</sup> Cf. Giddens 1990, esp. 21-9, 53.

<sup>37</sup> Luhmann 1981.

<sup>38</sup> 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’.”

<sup>39</sup> Schwartz 1981.

What is characteristic of function systems is that they base their identity on the operations of only one binary code which they succeed to establish 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 the 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 establishing boundaries of a system which demonstrates its singularity by the somehow dramatic application of its code.

### 7. *Generalized Symbols*

Function systems based on binary coding choose the code values they make use of as symbols which allow a maximum of symbolic generalization. First of all they have to be *symbols* which as always is the case with symbols have their core achievement in making visible that two divergent and heterogeneous aspects of the world really belong together.<sup>40</sup> In the history of the concept “symbol” this already was its meaning in preclassical Greece (6<sup>th</sup> to 5<sup>th</sup> 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.<sup>41</sup> The same understanding of symbol was present in the Greek law of evidence which was based on two pieces of evidence showing a close fit among one another and thereby allowing an interpretation of past events which was thought to be reliable on the basis of this 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 circumstances to which communications refer, and 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 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.<sup>42</sup>

### 8. *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

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<sup>40</sup> 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 ...“.

<sup>41</sup> Gauthier 1972.

<sup>42</sup> On the understanding of „interesting“ in science cf. Davis 1971; Weick 1989; Tracy 1993.

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 from 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*.<sup>43</sup> 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 result from it. If you only have knowledge about chances of economic intervention from which never any decisions regarding payments arise your (private) knowledge is no part of the economic system. Any statement about your rights and obligations you should make in a conflict with other participants in communications only becomes a part of the system of law if you explicitly give 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.

### 9. 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 one has 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.

### 10. 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 ever 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 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 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.<sup>44</sup> These inclusion addresses are

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<sup>43</sup> Cf. Stichweh 1987.

<sup>44</sup> Cf. Stichweh 2005b; Bohn 2006.

coupled to two alternative role patterns available in function systems.<sup>45</sup> In some cases inclusion means that you contribute 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” – J. Beuys). And, of course, there are exclusions, some of them involuntary (democratic political systems with incomplete lists of voters), 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 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<sup>46</sup> – and it is a second question if these multiple inequalities somehow coalesce to patterns which overlap the boundaries of function systems.

### *11. 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 it can be said that 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.

### *12. 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

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<sup>45</sup> Stichweh 2005b, 13-44.

<sup>46</sup> Cf. Stichweh 2005a.

*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 is the surprising emergence of the term *Die Kunst*, I already quoted above.<sup>47</sup> This represents a remarkable case of perceiving a new functional unity in society which would still have been improbable a few decades before. And this perception is still a regional phenomenon which has 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 Adress” John Stuart Mill, then Lord Rector of the University, gave at St. Andrews on February 1<sup>st</sup>, 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 ...”.<sup>48</sup> This analysis, especially if one reads 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, which was “the art”, in the case here analysed.

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<sup>47</sup> Note 8.

<sup>48</sup> Mill 1867, 42-3.

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