#### **Hartmut Winkler**

# Cultural techniques for reducing complexity

#### Intro:

Nearly all social and cultural theories agree that modernity is characterized by an ever-increasing differentiation of social functions and an increase in social complexity. And here is a core of the concept of modernity as well as modernization; complexity appears on the one hand as an achievement of modernity, on the other hand as a cause for many problems that are also characteristic of the present state of affairs. And all appearances speak for this interpretation. No society of the past appears to be as complex, as interdependent, as globally interconnected as that of the present; no technology as presuppositional, no division of labor as deeply graded, no system as functionally differentiated into so many systems.

And on the problem side, no historical society appears comparably opaque. Lack of transparency and the fact that controlling interventions often fail is the second, the black side of social differentiation and complexity. That is why neoliberalism relies on the self-regulation of the market, a paradigm that always presupposes the diagnosis of excessive complexity and opacity of the socio-economic process, and scorns the alternative of a planned economy, which believes that the economy can be subjected to central control. And sociological theories agree with this; Luhmann, in particular, has repeatedly emphasized the connection between social differentiation and complexity. His key words are contingency and contingency management:

"The form of differentiation of modern society, the differentiation of functional systems, and the hypertrophy of organizations compels the renunciation of central regulation; and this precisely because this system [...] can treat all structures as changeable, all determinations as contingent. The renunciation of central control, of central contingency management, of centrally guaranteed future security is unavoidable in this social order [...]."<sup>2</sup>

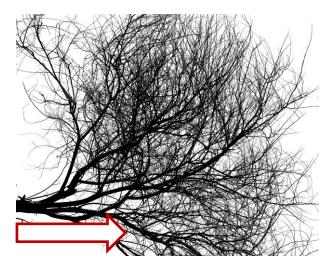
Foucault has discussed – critically-skeptically – mechanisms of 'governmentality'; and this concept also assumes that overview and central control are without chance; and again precisely because complexity can neither be rolled back nor controlled by traditional means.

Despite all this evidence, I would like to contradict the sketched picture. And there are two things that make doubts possible here: First, very many historical social formations have perceived their respective present as particularly opaque and confusing; there are corresponding reports both from antiquity, which appears to us today as the epitome of a 'classically' ordered society, and from the early modern period, where religious conflicts in particular were perceived as an overflow of diversity, an apocalyptic-existential experience of division, as the potential dissolution of the world into chaos.

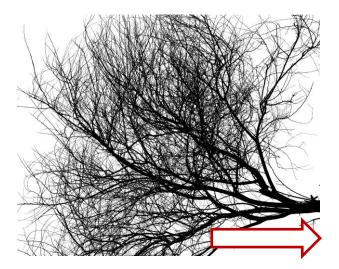
<sup>&</sup>lt;sup>1</sup> The text is based on a lecture I gave in 2013 at the graduate school 'Automatisms' of the University of Paderborn. 'Cultural Techniques for Reducing Complexity' was the topic of the second grant phase of the project (www.uni-paderborn.de/en/research-training-group-automatisms). The text has been revised for the translation.

<sup>&</sup>lt;sup>2</sup> Luhmann, Niklas: Politische Steuerungsfähigkeit eines Gemeinwesens. In: L., N.: Schriften zur Organisation, Bd. 4. Wiesbaden: Springer 2020, pp. 323-336, here: p. 332 [1993] (transl. H. W.).

The second doubt would be a systematic one. It is not at all conceivable that complexity simply increases in a linear and unlimited way.



My thesis is therefore that societies have always developed cultural techniques<sup>3</sup> that limit complexity, make it manageable or intercept it. Differentiation processes are counterbalanced by mechanisms of de-differentiation.



In the following, I will present some of these mechanisms. And I will provide – roughly gridded and unverified – a sketch, a list of examples rather than a theoretical contribution.

To use examples from different historical epochs brings with it the risk of trying to fit historically heterogeneous things into a pre-selected theoretical molding. I accept this risk; I believe that the procedure is possible precisely because it is no more than a sketch, and a structural similarity only on an extremely abstract level. I want to show that in all historical epochs there has been a systematic entanglement of increase/growth of complexity and its reduction; and that one must basically assume a conflict between differentiation and de-differentiation, increase and arrest of complexity.

<sup>&</sup>lt;sup>3</sup> The term 'cultural techniques' was coined by the German media theorist Sybille Krämer in the 1990s. The concept has three goals: (1.) It tries to free the concept of technology from the unfortunate limitation to hardware and insists on including technical *practices*; (2.) it wants to show that every culture is bound to certain techniques, and every cultural practice is a technical one; and (3.) it focuses especially on medial and symbolic operations. (See f. e. Monoskop: Cultural Techniques (https://monoskop.org/Cultural\_techniques); Krämer, Sybille, Bredekamp, Horst: Culture, Technology, Cultural Techniques – Moving Beyond Text. In: Theory, Culture & Society, 30(6), 2013, pp. 20–29).

The thesis itself is relatively low-risk; and yet it seems to me useful to unfold it in different directions to show that the reduction of complexity in the space of culture is firmly established and – to take it further – simply indispensable.

My second goal is to reevaluate de-differentiation. De-differentiation – unlike differentiation – has a miserable image. A low level of differentiation stands for 'simple', for 'not appropriate to the matter', for under-complex; whoever advocates differentiation is always already right; the increase of complexity appears as natural, its reduction as an intervention that has to be justified.

I will first present some 'traditional' cultural techniques for the reduction of complexity and then describe the crisis they are facing with the shift to modernity; and finally, some of those cultural techniques with which modernity itself reduces or copes with complexity. By then, at the latest, we will be talking about historically specific things.

And I will strictly limit myself to the perspective of my subject, media studies, and from there take a look at the environment in which the media operate. The aim is to clarify what contribution the media, as a very special form of cultural technology, make to reducing complexity.

# I. traditional cultural techniques to reduce complexity

#### 1. boundaries

Niklas Luhmann, as already said, has dealt with social complexity in a special way. Boldly and also relatively roughly, he distinguished between three major historical formations of society: From originally 'segmentary' societies, i. e. local, village communities, the 'stratified' societies of the early advanced civilizations have developed, in order to finally pass over into the 'functionally differentiated' societies of modernity. The first term already conspicuously names a cultural technique of reducing complexity: the technique of demarcation.

Segmentary societies are segmentary insofar as they bind themselves to a territory and to borders. Historically, this solution is particularly well established and successful; and it continues to have an effect today, as the single-family home, the gated communities, and the resurgence of nationalisms show. This solution is successful because the demarcation of borders allows a sharp line to be drawn between inside and outside, to devote all care to



the inside and to largely ignore what is behind the border. In this respect, the border represents a communication breakdown; it reduces complexity because it physically excludes it.

But is it really a matter of de-differentiation? Viewed as a whole, certainly not; rather, what emerges is a buzzing diversity of local conditions, of locally particular forms of rule, economies, cultures, languages, and dialects.

<sup>&</sup>lt;sup>4</sup> Cf.: Luhmann, Niklas: Social Systems. Stanford: UP 1995, pp. 12-58 [1984].

And yet, the segmented society performs a de-differentiation, namely inwardly. Complexity is limited by what is called the formation of a horizon; controllable spaces and a specificity of the local emerge, which as a specific context, as the familiar, as a niche and bundle of circumstances is not interchangeable. Segmentation, then, is a social strategy for managing complexity.

At the same time, the demarcation of boundaries comes at a high price; the sharp inside-outside demarcation implies that the people behind the border are 'strangers'.





And at the borders, this also applies to the family home, there is potentially war. The second price is that peace and consensus are not automatically established on the inside either; rather, on the inside, segmentation means repression, i. e. more or less violent unification, ranging from complete social control in the village to paranoid nationalism and 'ethnic cleansing'.



My sketch, of course, is too rough in every respect: Thus, even in segmented societies there is communication across borders, there is long-distance trade, travelers and nomads, as well as supra-regional commonalities and alliances; there are natural processes of differentiation 'across' the territorial divisions, and unintentional increase of complexity; and there are secessions of all kinds. The assertion that differentiation and de-differentiation contradict each other must therefore be complemented by a second one, that even in cases of dominant segmentary structuring there are different layers, which by no means all follow a logic of segmentation.

#### 2. hierarchies

Second, Luhmann mentions the stratified societies, which emerge in the city-states of antiquity; and what begins in the segmentary societies increases here. Hierarchy, top-down rule, and the formation of a state apparatus, which are typical of stratified societies, can also be understood as cultural techniques for reducing complexity, insofar as they cast the inward repression that was just mentioned into a fixed form. In this way, larger geographical territories become controllable; and the demarcation of borders jumps from regional units to the scale of the state; now the other states are the 'enemy' (and inwardly the slaves); and the society changes its inner structure: An increased differentiation and division of labor and thus economic and technological 'progress' become possible.

## 3. religious and metaphysical systems, order, and 'meaning'

The stratified societies of antiquity were priestly dominions, and segmentary as well as stratified societies are determined by the fact that secular power ties itself to religious power. This means that metaphysical systems take on a crucial role in social integration.

Religion/metaphysics are also cultural techniques for reducing complexity, and, although there is a myriad of historical differences, probably the most universal and powerful known to history. Religion and metaphysics are totalitarian by their very nature: They claim to answer not some, but potentially all questions that confront human beings. In this way, they establish a closed structure of meaning that provides a unique orientation.

In monotheistic systems, this structure of meaning also conspicuously takes the form of a hierarchy. Whatever categories humans develop, they achieve security only by referring ultimately to the last instance, the Creator God, who is beginning and end. In religiously centered societies this structure of meaning is existential, insofar as it encompasses the entire physical and psychic,





earthly as well as meta-physical existence; with the dawn of modernity, it is virtually reduced to the symbolic, it is limited to the provision of order, orientation, and meaning. Metaphysical systems reduce complexity because they center the world and, for all their complexity/intricacies, are clearer, more lucid, and more concise than the questions they answer.

## 4. ritual and repetition

Within traditional societies, ritual and repetition play a prominent role; they are the primary means of stabilizing social processes over longer periods of time. And ritual and repetition are also cultural techniques for reducing complexity because they force practices into a particular trajectory – into a circular movement. In ritual and repetition, practices reliably return to a certain point again and again. And in this way, what would otherwise be threateningly open-ended becomes predictable.

#### 5. tradition

The fifth system of complexity reduction I want to address is tradition. It dominates the segmentary and the stratified societies parallel to religion/metaphysics, and it is closely intertwined with them. Tradition provides the stocks of experience and knowledge by which almost all

social spheres, everyday life, crafts and technology, economy, morality, and law... reproduce and stabilize themselves.

The appeal to tradition is a means of power and often in alliance with it, thus it also has a repressive side. This becomes clear when the ancient Egyptian priestly caste, in the concept of 'maat', conflated tradition and custom, rule and hierarchy, morality, virtue, and unshakable order.

At the same time, however, the formation of tradition is not repressive per se. From a present day's perspective, rather, it must be understood as an early form of 'modern' solutions to the problem of complexity because tradition-building functions bottom up, at least on one of its sides; as a blind result of distributed practices, which, because they are distributed and because they are practical, can never be completely controlled and steered.

## 6. selection, decision

Taking back one more step, another mechanism to reduce complexity is decision-making. Decisions, as Luhmann again showed in one of his early essays, have their point in the fact that they – always and automatically – eliminate alternatives.<sup>5</sup> Decisions are also a means of contingency control. From a bundle of options, a single one is chosen; from the buzzing multiplicity of the possible, only one actually becomes real. And if the decision is irreversible, one can thus actually leave the complexity of alternatives behind.

Accordingly, nowadays the manager is celebrated as the decision maker. Doubt – 'To be or not to be' – is left to the stage hero in tights, the male role is defined by decisiveness and action, by overcoming hesitation.

This solution is also entangled with repression because it is dependent on structures that define and secure the position of the decision-makers like an exoskeleton and make decisions actually enforceable. And worse: There is always doubt that the decision could have turned out differently. If freedom of the will is part of the definition, and certainly also the basis for the pleasure of 'free' decision-making, the accusation of arbitrariness immediately lurks like an abyss. If the decision has to justify itself and to show its reasons, it is no longer 'free'. And even monarchs have probably only been able to enjoy monarchy in 'Absolutism',<sup>6</sup> just as today the 'Autonomists' [in Germany the term for the Antifa] enjoy the illusion of autonomy.

## 7. practice

Decisions are decisions when they become practical. And here it is Horkheimer/Adorno who draw attention to the implications, among other things, again for a reduction of complexity. Where thinking opens up new spaces, reveals possibilities, and increases complexity – at least virtually – that which becomes practical, and that means actual, has radically reduced the space of the possible; backwards, insofar as – as described – the alternatives are eradicated; and forwards, because practice creates facts and thus – at least to some extent – also determines the future.

<sup>&</sup>lt;sup>5</sup> Luhmann, Niklas: Interaktion, Organisation, Gesellschaft. Anwendungen der Systemtheorie. ln: ders.: Soziologische Aufklärung 2. Opladen: Westdeutscher Verlag 1991 [1975].

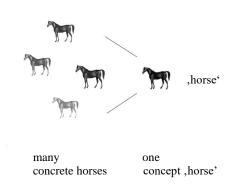
<sup>&</sup>lt;sup>6</sup> 'Absolutism' detaches the ruler (whether ideally or actually) from all interdependencies.

<sup>&</sup>lt;sup>7</sup> Horkheimer, Max; Adorno, Theodor W.: Dialectic of Enlightenment. Philosophical Fragments. Stanford: UP 2002 [1947].

### 8. language

Another, and also very powerful, cultural technique for reducing complexity falls even more clearly into the realm of culture and cultural studies, and there into the field of media; for the most far-reaching and effective reduction of complexity is probably achieved by language.

Language analyzes and organizes the world by turning its buzzing multiplicity into terms. Central to language is the mechanism of subsumption: A single term subsumes many individual things, regardless of all the differences that make these individual things individual. The term horse, for example, takes no account of the fact that there are large and small horses, white, brown, and black ones, riding horses, draught animals, and racehorses; and if language can also distinguish and analyze this, then only with the help of newly subsuming terms.



The terms of language are necessarily abstract; and language is a cultural technique of abstraction. Language reduces complexity by suggesting which differences (which complexity) one can neglect in order to accentuate certain other differences. In this way, a structure of precast distinctions emerges, a picture of the world so compact and manageable that it fits into the small heads of individual humans.

# II. crisis and transition to modernity

With the dawn of modernity, Luhmann leaves no doubt about this, almost all of the solutions mentioned become obsolete; or at least they lose their significance and power. First and foremost, this applies to the ordering system of border demarcation.

Geographical borders are increasingly perforated by growing traffic and trade. A network of mutual interrelations emerges, which reaches global scale with colonialism and world trade; the horizon as a protective space loses its significance.

The religious and metaphysical systems of order (3.) are pushed back in the Enlightenment; and likewise (5.) the orientation towards tradition, insofar as the Enlightenment explicitly turns against tradition, history, and custom, and accepts, at least programmatically, only reason as a measure. And if religion and metaphysics provide and guarantee meaning, in modernity the category 'meaning' comes into crisis, too.

Where one nevertheless resorts to tradition – in the quotation architecture of the 19th century, or currently in the re-erection of long-gone historical buildings – artificial paradises are created that bear the stigma of their artificiality.







Hierarchies (2.) – as a system of order – prove to be rather more stable. It is true that since the death of God the position at the top of the pyramid is vacant, so that the earthly hierarchies lose their central reference point; but neither the military, nor the state, nor the economy of the modern age can do without hierarchies, command, and obedience. Even in the university hierarchies there are superiors and authority to issue directives, and what was removed to some extent in '68 is currently being restored.

The cultural technique of 'decision' (6.) runs into extreme problems. On the one hand, decision-making is 'modern' in a specific way, and a motor of differentiation: After all, the Enlightenment had encouraged doubt, the 'no' and the 'but'. And 'no' and 'but' bring into the world those alternatives that are characteristic of modernity; at the same time, however, with every 'no' or 'but' a new branching occurs, and consequently a thicket of ever-branching, dissipative structures. To the extent that modernity provides a myriad of new options for action and thought, and the realm of the possible expands quantitatively, every decision must now appear to be arbitrary to an increased degree. The keyword is again contingency. Every decision that is made in this space of possibilities is quite obviously contingent; and that means that it carries with it the fact that it could have turned out completely differently under slightly changed circumstances, values, or presuppositions. And at the same time, the Enlightenment with its systems of meaning – this is reflected by de Sade, and Nietzsche in his Genealogy of Morals – has also undermined many codes of value formation...

The result is that decisions seem to be increasingly violent, especially when the decisions have material consequences. The bland district administrator who says 'yes' to the siting of a nuclear power plant rests in peace twenty years later. But if the following generations finally decide otherwise, they will have to bear the consequences for tens of thousands of years.

As I said at the beginning, my sketch is rough and crude. Basically, however, I am only summarizing once again in a coarse way what is common knowledge anyway – a set of common-places in theories of modernity and present-day culture. And the core should nevertheless have become clear, namely that modernity has a specific complexity problem. That is the only thing I am concerned with. To the extent that complexity increases quite naturally and the traditional cultural techniques fail to arrest it at the same time, a structural problem arises. Or rather, a structural problem would (and would have to) arise, if there were no specific 'modern' cultural techniques for the reduction of complexity. These I want to describe – just as drastically abbreviated – in the following third section of my text.

# III. specific modern techniques of complexity reduction

## 1. division of labor, functional differentiation

The most obvious cultural technique that modernity relies on to get a grip on its complexity is, if we ask Marx, the division of labor, or, asking Luhmann, functional differentiation.

Similar to what has been described for the segmentary society, division of labor and functional differentiation produce both: a drastic reduction of complexity inwardly and new complexity on the level of the whole. They reduce the burden on the individual, who carries out his work in his facet of division of labor or functional differentiation. Division of labor reduces complexity because it allows one to ignore everything that lies outside one's own area, or to trust that those who work there know their trade and are also doing their best.

The price is the "blinkered specialist" against whom, for example, McLuhan – a generalist in media studies – polemicizes, a variant of limited horizons. At the same time, as said, the division of labor produces complexity; and of course, it also falls back on the individual: Namely, when the objects do not submit to the differentiation and unexpected consequential problems arise, or when the mutual interrelation forces an excessive number of communications.

# 2. institutions, rules, procedures

Closely intertwined with social differentiation is the emergence of *institutions*. Institutions reduce complexity by appropriating certain functions of society – courts the administration of justice, broadcasters 'mass communication', and super-markets certain sectors of commerce. They take these functions out of society, so to speak, bundle them and codify them; with the consequence that the other sectors of society can – at least in principle – let go of these functions.

And something similar applies more generally wherever rules and procedures emerge. Similar to what was described above for the ritual, rules and procedures force practices into a cyclical movement; they transfer into repetition what would otherwise be incalculable variance and complexity.

## 3. technology

The third mechanism I want to mention is technology. Technology simplifies drastically, although common sense would contradict this and classify technology itself as 'complicated'. Paul Valéry could still marvel that "water, gas, and electricity are brought into our houses from far off to satisfy our needs in response to a minimal effort", the flick of a light switch replaces what was once, from finding the pine tap to lighting it, to tending and maintaining the fire, a complex sequence of actions. This sequence has now been reduced to a single act through technology.

Actor-network theory has spoken here of 'punctualization' and of 'blackboxing'. <sup>10</sup> Complexity is virtually encapsulated and thus managed. It makes sense, however, to distinguish between two roles; if there is simplification, it is only for the user, so technology itself frees up this role and separates it from that of the technician, who handles the complexity that the user blends out. Technology always has two doors: a front entrance for the audience, and a backstage entrance reserved for the specialists.

Wherever a solution succeeds in being cast in hardware, it gains all the persuasive power of the factual, which eliminates its alternatives, similar to what has been described above for practices (7.). The solution itself becomes solid and fixes whole sequences of actions; thus technology is – paradoxically – a cultural technique primarily in relation to practices; and the fact that this solution is effective produces the avalanche of technology that characterizes Western modernity.

<sup>&</sup>lt;sup>8</sup> McLuhan, Marshall: Understanding Media: The Extensions of Man. MIT Press 2001, pp. 7ff. [1964].

<sup>&</sup>lt;sup>9</sup> Cit. by: Benjamin, Walter: The Work of Art in the Age of Mechanical Reproduction. In.: B., W.: Illuminations. NY: Schocken 1969, pp. 217-251, here: p. 219 [1936].

<sup>&</sup>lt;sup>10</sup> ,Punctualization' cf.: Law, John: Notes on the Theory of the Actor-Network: Ordering, Strategy and Heterogenity. In: Systems Practice 5, pp. 379-393 [1992]. 'Blackboxing' cf.: Latour, Bruno: Die Hoffnung der Pandora. Untersuchungen zur Wirklichkeit der Wissenschaft. Frankfurt am Main: Suhrkamp 2002, p. 373 [1999].

### 4. rationalization, economy

The fourth mechanism is economy. Economy – complex as it is – favors the simple over the complex. We call a solution economic if it saves effort; and at this very general level, economy is a kind of automatism: the economic will always prevail over the less economic; just as it is hard to get water up a mountain, but easy to get it down.

The term for the simplifying side of economy is, interestingly enough, 'rationalization'; a self-given honorary title that endows the simply commercial with a reference to ratio, concealing the fact that it is a ratio strictly limited to rationality of purpose.









And the core of the capitalist economy, the commodity form, is also an extremely effective cultural technique for reducing complexity. Wherever it is possible to reduce the whirlingly complex social relations to the formula 'goods for money', that which was previously their volume implodes. The old man telling about his grandson at the supermarket checkout did not understand this clearly enough; economic transactions are wordless-scarce in a unique way.

That reduction is not equally unproblematic in all cases becomes clear in the border areas of the world of commodities: for example, in the case of human trafficking, which we regard as generally condemnable, in the case of bribery, prostitution, or drugs; and the question of whether third-party funding from industry is really compatible with the universities' commitment to truth seems equally worthy of discussion. The universal medium of exchange, money, is therefore by no means simply universal. The fact that it appears to be universal and the extent of its power, however, show how effective this means of organization is and how captivatingly simple the form of simplification it offers. Money reduces complexity by bringing the qualitatively most different things into a common scheme.

#### 5. standardization

Institutions, rules/procedures, technology, and economy have in common that they cause standardization. This is particularly evident where standards and norms are explicitly formulated; whether top-down, as in the case of the National Institute of Standards and Technology (NIST),<sup>11</sup> or bottom-up, in that certain solutions become accepted as standards.

Standardization reduces complexity by drastically diminishing the number of variants in circulation. And at the same time, it is the necessities of traffic and exchange themselves – think of the interchangeable parts of serial production – that force standardization.<sup>12</sup>

#### 6. aesthetic reduction

A special case, because it is of little importance for the overall functioning of society, but nevertheless interesting as a special case, is the reduction of complexity on the terrain of the aesthetic. If modern art is characterized by 'abstraction', then this abstraction begins with a drastic reduction, in Constructivism, for example, to primary colors and to simple geometric shapes; in Malevich's case to the famous black square.

And it is precisely the reduction, the power to get rid of everything superfluous and to distill a kind of essence from the multiplicity of visual appearances, that is perceived here as 'modern'. The same applies to the specifically 'modern' architecture, which virtu-



ally exhibits the function of each technical component, makes us feel the statically acting forces, and reduces the supporting structure to the technically possible minimum – down to the 'skeleton'.





The fact that artistic modernism at the same time branches out into a multiplicity of extremely individualized, unique, incommensurable 'positions' and causes anew an explosion of complexity is also in this case the other side.

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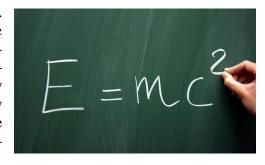
<sup>&</sup>lt;sup>11</sup> Cf.: https://www.nist.gov/.

<sup>&</sup>lt;sup>12</sup> Cf.: Winkler, H.: Diskursökonomie. Frankfurt am Main: Suhrkamp, p. 188.

#### 7. abstraction in the natural sciences

The keyword of abstraction can be found – of course – in other fields as well. And perhaps most prominently and most effectively in the natural sciences, which, along with economy and technology, are probably the most reliable pillar of Western-dominated modernity.

Science aims to capture the processes of nature in laws. And this means in essence reduction again, because where the processes of nature are themselves overwhelming and exuberantly complex, the laws, once formulated, are uniquely compact. What E=mc² actually means, I (socialized in the humanities) have never fully understood; the mere fact that the formula relates space and time, which Kant still considered irreducible 'categories', exerts a unique fascination.



That the laws of nature are nevertheless not simply 'construction', i. e. man-made or a glass bead game<sup>13</sup>, becomes clear when natural science hands over its laws to the technicians for practical utilization. Then nature is forced to verify what has been achieved; verified, however, again in a reduced sense; as in the case of economy, brought down to an instrumental rationality.

# 8. formal languages

If language was mentioned above, and if it fell under the 'traditional' cultural techniques that reduce complexity, then formal languages are certainly to be mentioned among the specifically 'modern' ones. Formal languages (mathematics, computer languages, algorithms/software, etc.) achieve a reduction of complexity which is even more effective and radical than that of 'natural' languages.

Formal languages arise at the intersection of the system of numbers (the quantification), secondly, mathematics, which provides the rules of transformation (the algorithms) and determines which operations are permissible and which are not, and thirdly, formal logic, which is a deduction of certain aspects of the natural language.

Formal language systems have unique properties: They are – quite unlike natural languages – free of contradictions, and this freedom from contradictions can be checked and ensured by formal means; they can be mechanized, i. e. handed over to machines, and they combine representation and operationality, insofar as world aspects can be represented in models, and programs formulated in formal language can be practically executed.

How powerful formal languages are is proven by the fact that billions of computers are working worldwide. Deeply interwoven into our everyday life, they perform their reduction of complexity by matching the most diverse practices and making them compatible with the pre-programmed formal models; in doing so, both sides mutually optimize each other: The scarce and sparse models are tested to what extent their simplifications – although scarce and sparse – are *valid*; the practices, vice versa, are increasingly adapted to the models.

<sup>&</sup>lt;sup>13</sup> Note on translation: a German idiom based on Hermann Hesse's eponymous novel that denotes a theoretical-abstract intellectual game devoid of practical utility.

#### IV. Conclusions

My thesis was that processes of social differentiation have a necessary complement in cultural techniques that specifically reduce complexity. That this is the case has certainly become clear.

And closely related to this, that it is extremely heterogeneous cultural techniques that fulfill this function. If my reconstruction is rude and grossly summary, it is primarily on this point, in passing through social practices that have little more in common than this very function of reducing complexity, and which even the broad concept of 'cultural techniques' has difficulty encompassing. And then it has become clear that while complexity may arise by itself, it apparently takes *work* to get it back under control.<sup>14</sup>

This leads to another point: If I pleaded at the beginning to evaluate processes of de-differentiation less pejoratively, this happens almost automatically as soon as one takes a look at the cultural techniques in question. With the insight that processes of de-differentiation are ubiquitous and, moreover, functionally necessary, de-differentiation transforms into a descriptive category.

And perhaps – one could argue – there is even a need for *more* de-differentiation than the current culture provides. Is there possibly a crisis after all? Too much complexity? I will leave it at that. I announced to deliver something that has the form of a sketch, and a sketch is – of course – also a cultural technique to reduce complexity.

<sup>&</sup>lt;sup>14</sup> One is almost tempted to think of the laws of thermodynamics: Complexity (disorder) increases naturally, reduction of complexity (order) requires the supply of energy...