3. An Operational Theory of Reflexive Multidimensional Order Formation

Starting from a notion of expanded world-openness is to understand order formation generally as the structuring of possible approaches to the world. An analysis of this kind must look beyond the social dimension and include the other dimensions in which approaches to the world are structured. These include the substantive, the spatial, the temporal, and the symbolic dimensions; I refer to this as the multidimensionality of order formation.

3.1 Dimensions of the social ordering system

A closer look shows that the notion of multidimensional order formation is not entirely new in sociological social theory. There have been different suggestions about what is relevant to the analysis of order formation: Marx's ([1857–58] 1993; [1867] 1990) emphasis on the metabolism between the human and nature assigns key importance to the substantive/material dimension in the form of technology. Durkheim ([1895] 2013), Weber ([1921–22] 2013a; [1921–1922] 2013b), and Simmel ([1908] 2009a; [1908] 2009b) focus primarily on the social dimension, but Durkheim's analysis of the division of labor contains references to the material differentiation of sociation (Durkheim [1893] 2013). In his later work on the sociology of religion, Durkheim also argues that the historically constituted social order functions as a general pattern of experiencing the world as well as determining that social order's organization of space and time (Durkheim [1912] 2008). Weber and Simmel emphasize the formal structures of reciprocal relation within the social dimension, such as domination, subordination, struggle, and competition. For Weber, values orientation is also key, as it constitutes the condition for understandability. Whether and to what degree Weber's analysis of substantively different spheres of value (e.g., science, economics, religion) goes beyond this to include aspects of the substantive dimension is, in my view, an open question—although the connection is there.

Parsons ([1937] 1968a; [1937] 1968b) takes up these aspects of order formation and partially integrates them into his theory, according to which a

shared orientation toward cultural values is the condition for interaction. For Parsons, socialization in a shared value system solves the problem of double contingency (social dimension). These basic assumptions are also retained in his theory of the system of society (Parsons [1964] 2001). In *The Social System*'s analysis of the system of behavior, Parsons also attempts to conceptually take into account the body. His notion of the four distinct functions of society can also be read as an indication of substantively functional differentiation. It is in this way, in any case, that Luhmann will interpret functional differentiation.

Luhmann criticizes Parsons for presupposing a shared value system in order to solve the problem of double contingency without making clear how such a shared consensus could come to exist. An answer to this question is impossible, Luhmann contends, as long as only the social dimension is taken into consideration (Luhmann [1984] 2005:chap. 3). As an alternative, Luhmann proposes solving the problem of double contingency by looking at it in terms of time, emphasizing the autonomy of the temporal dimension in relation to the social dimension. To this he adds the substantive dimension, which he considers to be of particular importance for the analysis of modern, functionally differentiated society: this society is characterized by the use of substantively coded distinctions which allow for the overall order to be broken down into substantively differentiated areas of communication. Space as its own dimension of order has only been recently discovered in systems theory (Nassehi 2010:224; Stichweh 2003).[40]

40 Luhmann does not justify his breakdown of the dimension of meaning into substantive, temporal, and social. He simply notes that these are dimensions of the world "involved in all meaning. Their constitutive interrelation, their separability, and their interdependence can only be clarified by comprehensive transcendental-phenomenological analysis, for which I lack the space here" (Luhmann [1967] 2005:168). Luhmann never does find this space. In "Sinn als Grundbegriff der Soziologie," he does refer to Adam Schaff's position ([1960] 1964) as coming very close to his own understanding of the differentiation of the dimensions of meaning (Luhmann [1971] 1990:48). Schaff's analysis of the "sign-situation," which follows in the Marxist tradition, explicitly focuses on human beings and their sensory awareness of each other as well as their practical relationships to the environment and to each other (see Schaff [1960] 1964:264–274). He repeatedly and sharply dissociates himself from Husserl ([1960] 1964:167–169). The fact that Luhmann in his treatment of the differentiation of dimensions of meaning draws on, without comment, traditions as mutually contradictory as transcendental phenomenology and Marxism is baffling given that there have been many attempts to reconcile these traditions, all of which consistently acknowledge the burden of justification this imposes on them (see Waldenfels, Broekman, and

Berger and Luckmann's analysis ([1966] 1991) takes up the notion of simple world-openness as defined in Gehlen's philosophical anthropology. Following Schütz ([1932] 1995), they understand the human as a being existing in the here and now and facing an open world—a world, that is, that is not structured by instinctive invitations to act as is the animal environment. Since Berger and Luckmann, like Schütz (see also Schütz and Luckmann 1973; [1984] 1989) understand the human relationship to the world as being temporally and spatially structured, they include space and time as dimensions of order formation in addition to that of the social (institution building) (see Endreß 2002), and, furthermore, place the human as a being with a physical and a lived body at the center of their theory. They do not focus specifically on the substantive dimension.

Citing Mead, Habermas distinguishes between three different relationships to the world as dimensions of ordering, each with their own different claims to validity: inner world, external world and social world (Habermas [1981] 2006:27ff). This breakdown refers, for one, to the formation of the subject in social processes and to the distinction between statements about the way the world is and normative evaluations of social action. These relationships to the world correspond to the validity claims of sincerity (inner world), truth (a cognitive grasp of the external world), and normative appropriateness (social world). The validity claims associated with the external and the social world can be rationally contested and grounded; the third validity claim cannot. Sincerity can only be put into practice by acting in a consistent way. The fourth validity claim invoked by Habermas, intelligibility, does not correspond to a particular relationship to the world —nor can it be contested, but must be fulfilled by every concrete communication. This claim to validity is concerned with the use of comprehensible symbols of communication. Since the fulfillment of this claim is the condition of communication and thus of the possibility of contestation, there is no meaningful way to contest the claim itself. This validity claim points to another relevant aspect of ordering, however: the development of communicative symbols with which actors can indicate to each other what

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Pažanin [1984] 2014). Nor is the secondary literature on systems theory very illuminating as regards Luhmann's choice to differentiate between precisely three dimensions of meaning (cf. Schützeichel 2003:42ff). In light of this, a significant advantage of the theory of the excentric lived body-environment relationship is that it develops the connection between the dimensions of order formation out of the very structure of this relationship. Instead of merely positing a particular number of dimensions of meaning, there is a systematic explication of these dimensions.

they perceive, what they find important, and how they intend to act. Following Mead, Habermas reconstructs the formation of linguistic symbols and thus the conditions of linguistic comprehension, a development that other theories usually presuppose without further comment. Thus both Luhmann and Parsons take the existence of linguistic symbols as a given and construct their theories of symbolically generalized media on this presupposition.

Even just this brief overview of the dimensions of ordering identified by different social theories leads to an astonishing conclusion: systematically relating to each other the various dimensions addressed thus far in sociology would make possible a multidimensional analysis of order formation, or of approaches to the world. At least implicitly, sociological social theory seems to be prepared for the task of analyzing ordering systems as such. To make this tendency explicit and to systematically work out its implications is the aim of this chapter.

At minimum we can distinguish between the following dimensions or aspects of ordering:

1. The social dimension under the premise of expanded world-openness or of the expanded problem of order. Who is considered a social person or actor and how do persons become subjects?
2. Space and time under the premise of expanded world-openness. Not every ordering system of space and time is compatible with every limitation of the sphere of possible persons or with every form of embodied relation to the environment.
3. The substantive dimension can be broken down into two different aspects: on one hand there is the substantive-qualitative differentiation of the world, such as in the case of colors or forms, which constitute affordances for different practical uses, and hence also for the development of technology. On the other there is the substantive content, the topics, of communication. Thus the weather, the economy, or the construction of a house are all matters that can be treated in communication.
4. Symbols or forms of expression and media of communication that allow personal selves to express themselves to each other. Here it is a matter of enabling forms of communication and the possibility of symbolic generalization.

If space and time are thought of as different dimensions, there are five dimensions or aspects of ordering. I understand these dimensions as on the one hand irreducible to each other and, on the other, as mediated by each other. The first statement is an explicit rejection of every form of sociologism, as represented for instance by Durkheim. Durkheim posited that the

order of the social determines the spatiotemporal order of a society—a position which has for good reason been abandoned in ethnology (see above). Many constructivist approaches currently articulated in terms of the "social construction of x" are at similar risk of succumbing to sociologistic reductionism when analyzing the formation of order. Conceiving of everything as socially constructed—the body, space, time, and so forth—is to impute virtually omnipotent constructors or constructive practices.[41]

It does not make sense, in my view, to saddle the social dimension with the entire weight of order formation. Instead I consider all the aspects listed above as equally relevant for the formation of a particular ordering system. At the same time, it is unlikely that structures in the different ordering aspects develop autonomously and can be assembled at will as if they were discrete modules. It seems more likely that the structures developing in the different ordering aspects are connected to each other and sustain each other—at the very least they have to be compatible. The particular boundaries of the sphere of social persons have to be compatible with, or supported by, the associated spatial, temporal, substantive, and symbolic structures.

Theorizing the irreducibility of the dimensions of order along with their connection to each other poses a considerable conceptual challenge. It means showing, for instance, that the social is spatiotemporal and that the formation of a social ordering system is therefore also the formation of a spatiotemporal ordering system. If both are seen as equiprimordial, it becomes impossible to reduce the one to the other; instead the order formations in the different aspects have to be correlated to each other. The same holds for substantive and symbolic structures. This amounts to a dismissal of the idea of social construction, which posits the primacy of the social dimension over the other dimensions of order. The difference of what I am proposing here and ANT is clear: following the legacy of Durkheim, Latour assumes the primacy of the social/the political and thinks the emergence of an ordering system of any kind as a problem of the inclusion in or exclusion from the sphere of the collective in question. While this also raises semiotic questions—who is characterized as a speaker and how? Who can occupy a speaker position in what way and characterize others?—neither symbol formation itself nor space and time appear as their own dimensions of order formation.

41 Consider for instance the discussion in the 1990s surrounding the construction of gender binarism. For an overview see Wobbe und Lindemann (1994).

3.2 Types of order formation

Every empirical research endeavor based on the social theory proposed here would thus have to consider how to grasp the social dimension in question in terms of space and time. Only if the social itself is spatiotemporally constituted can space and time become relevant aspects of order for the social dimension. The same holds for the other two aspects. The formation of the social and the formation of substantive references to the surrounding environment as well as of symbols and communication media have to be understood as equiprimordial. With each new object of research, we would have to clarify how the different aspects are connected with each other within the context of evolving processes of order formation and whether/how they support or destabilize each other. As starting point for an operative theory of the social I have chosen Plessner's theory of excentric positionality, which conceives of the social as the operation of order formation by excentric embodied selves relating to the surrounding environment in a pluridimensional way. This gives rise to the following hypothesis of order formation: ordering systems become stabilized when embodied relationships to the environment in the five aspects listed above form generalized patterns that are compatible with each other.

In the following I use examples to make my theoretical argument more intuitive, in every case identifying the example as deriving from an, e.g., animist or modern ordering system. I would like to briefly explain how I intend such classifications to be understood: I distinguish between different types of order formation, with the modern ordering system one type of ordering system among others. If the structures that have developed in the individual dimensions are compatible with each other and support each other, then we have a type of order. It is not an individual structural characteristic in the spatial, temporal, social, or substantive dimension that defines an ordering system, but rather the structured relation of the dimension-specific structural characteristics. From this perspective it makes little sense to ask whether dimension-specific structural characteristics that can be found in modernity can also be found in non-modern ordering systems. It is clear that it is always possible to isolate individual structural characteristics that can be found in multiple ordering systems. What is relevant for the typology of an ordering system, however, is not an isolated structural characteristic, but the organized nexus of dimension-specific structural characteristics, which gives the individual characteristics their function and meaning within the context of an ordering system. It would thus be inappropriate to say that archaic characteristics can be found in modernity

or that we can observe modern characteristics in the hierarchical ordering system of premodern Europe. None of these characteristics in and of themselves denote an ordering system. If I refer to individual ordering system types as the context from which I derive particular examples, I am only making a statement about the context and am not identifying the characteristic itself as e.g., modern or animist.

In my explication of the individual ordering dimensions, I begin with the social dimension, but the sequence is in fact arbitrary, as none of the aspects of order has priority over the others.

3.3 The social dimension

If expanded world-openness is our starting point, the notion that the social is formed by interacting human beings no longer applies. Instead we must continually redraw the boundary between those who are recognized as social persons and other entities. This means that the concept of the boundary is given a key role in the conceptualization of the social, and we must, therefore, take a closer look at what is meant by boundary or border. My concept of the boundary is informed by Plessner's theory of positionality, in which a boundary is initially what living bodies use to delimit themselves from their surroundings or their environment. It is only the complexity of relationships to the environment on the level of excentric positionality that bestows new meaning on the boundary—that of the limitation of the sphere of social persons. Plessner develops his theory systematically; I will first outline his process and then explicate my social theory.

3.3.1 The method of theory construction

In order to understand the elaboration of the theory and the meaning of the examples, it is necessary not only to keep in mind its positive content, but also the process, the method, of theory construction. Plessner develops his theory following the principle of the open question, which entails a projection of the matter he wants to investigate. Constructing a projection means positing a category and at the same time presenting a principle by means of which this positing can be systematically elaborated. At every level of this systematic elaboration, it has to be verified whether there are empirical phenomena that can be meaningfully understood using the generated categories. The examples serve as evidence that the generated categories

are suitable for empirical research. The phenomena referred to in the examples are thus to be understood as possible realizations of the theoretically generated categories. More precise empirical research will bring to light other possible realizations.

The category of the boundary forms the starting point of Plessner's projection guiding his theory of living beings. According to this category, living bodies differ from inanimate bodies in that they delimit themselves from their surroundings, closing themselves off and forming their own organized domain. At the same time, living bodies interact with their surroundings by means of their boundaries (see Plessner [1928] 2019:118ff). The creation of boundaries itself cannot be shown directly, but is rather construed based on the intuitive givenness of the living thing. The projection, then, is such that it is asked of observed bodies whether and how they delimit themselves from their environment. The projection does not decide in advance, however, how the boundaries are actually drawn. In order to determine this, the investigation has to await the answer of the living bodies themselves.

The elaboration of the concept of positionality follows a process that can be understood as reflexive deduction (Mitscherlich 2007:chap. 2; Schürmann 2002:100ff). Reflexive deduction develops categories in a way that is neither purely logical nor empirically inductive (Plessner [1928] 2019:107f). Plessner starts here from the self-referential structure of the appearance of the thing, from which he develops his hypothesis of boundary realization as the universal structure of the execution of life. Whether this hypothesis is valid or not is shown by the existence of intuitively given phenomena that can be understood as meaningful answers to the question of how boundary realization is executed. Plessner thus develops his theory both theoretically and empirically. The theoretical projection is only valid if phenomena can be found that can be considered realizations of its assumption. Plessner upholds this principle consistently. On one side he develops the hypothesis of boundary realization by reflexively relating this boundary realization back to itself in consecutive steps. On the other, he asks what phenomena can be considered realizations of these progressively more complex relationships to the surrounding environment. Reflexive deduction thus on the one hand develops categories in a controlled way and, on the other, ties their validity to phenomenologically expanded empirical research.

The principle of reflexive deduction leads Plessner from boundary realization to a positional structure characterized by consciousness. To say that boundary realization is self-referential means that the living thing not only

delimits itself from its surroundings, but also experiences this delimitation. In other words, the living body notices itself by realizing its own boundary and also notices its surroundings. A body that notices itself in this way can distinguish different modes it has of relating to its environment. This is the theoretical projection. In a second step, it has to be determined whether phenomena exist that can be considered realizations of such a reflexive boundary realization—e.g., hunger or spontaneous impulses. These phenomena can be understood as possible answers to the question of whether and in what way a living body notices itself. Phenomena that can be understood as an answer to the question of whether a living body notices its surroundings could include, for instance, reactions to events in the environment. These events would then take on the role of invitations for how to behave, to which the body can react according to its experienced condition. A body that relates to itself and its surroundings in this way does so by mediating between its own condition and its perception of the outer field according to its abilities to act (Plessner [1928] 2019:212ff). Plessner refers to this level as centric positionality: the living body becomes a self that spontaneously acts from out of its own center.

Plessner develops his theory of positionality in close conversation with biology, by citing biological phenomena as possible realizations of a particular level of positionality. I follow him in this for plausibility's sake, although it should be noted that this perspective on possible forms of realization is not imperative. Centric positionality may be realized in a vertebrate animal body, but other forms of realization are possible as well. In all likelihood, the notion that centric positionality is tied to three-dimensional bodies reflects a modern understanding of centric positionality. We can assume that other ordering systems make possible other ways of realizing centric positionality.

Building on centric positionality, Plessner repeats the process of reflexive deduction, which renders the structure of excentric positionality, to which I will return in detail below. Since, to begin with, "boundary" refers to the boundary realization of living bodies, it is of particular interest for the current study how Plessner's category of the boundary in the process of its development takes on the characteristics relevant to an analysis of the boundaries of the social world in the context of excentric positionality.

3.3.2 The boundary realization of bodies

According to the hypothesis of boundary formation, living bodies differ from inanimate bodies in that they have their own boundary, i.e., they delimit themselves from their surroundings. Plessner ([1928] 2019:118f) develops his argument using a schema that distinguishes between (1) the body (b), (2) the boundary as the area between (bt) the body and the medium, and (3) the encompassing medium (m), the surrounding field [*Umfeld*]. In the case of the inanimate body, these three elements relate to each other like this:

$$b <\!\!- bt -\!\!> m$$

There is the body, and it borders on the medium. By definition the body is circumscribed, although its boundary is not one of its characteristics. The boundary is a virtual space between body and medium. The "between" is virtual because it does not take up any space; there is nothing but the body and the medium it borders on. The boundary as the "between" only marks the body passing over into the medium and the medium passing over into the body. This passage belongs neither to the body nor to the medium. This is why the extension of the body is identical with its measurable extension.

Plessner's hypothesis is that living bodies differ from inanimate bodies in that the living body has, or is, its own boundary. That is, the living body is the passage into the medium and at the same time the passage out of the medium into the body. This can be represented by the following formula:

$$b <\!\!- b^{\text{(as implementation of the boundary)}} -\!\!> m$$

The living body implements its own circumscription. The circumscription or boundary is defined as the passage of the body into the medium and from the medium into the body. Now if the body has its own boundary, it extends further than it does according to its measurable dimensions. It does not stop where its boundary contours stop, but extends further, since it is also the passage into the encompassing medium. At the same time, the body does not extend as far as it extends, since as the enactment of its boundary it is not only the passage from the body into the medium, but also the passage from the medium into the body. Insofar as the body is also this receding passage, the medium extends into the body, for the body is this passage. Since the boundary is the spatial passage from the body into

the medium and from the medium into the body, the boundary does not coincide with the body's visible boundary contours. In order to designate the special nature of this space, Plessner distinguishes between spatial [*räumlich*] and spacelike [*raumhaft*].

A body that realizes its own boundaries is no longer located only at a measurable point in space and time. It rather both extends beyond its measurable demarcations and is more narrowly set into its own space, in that it is the mediating passage from inside to out and from outside to in. The execution of a body-centered interrelation between the body and the surrounding field thus takes the place of a measurable circumscription of the body. The reciprocal passage places the body, starting from itself, in relation to its surroundings (Plessner [1928] 2019:119). The living body thereby becomes a spacelike point of origin, for its relationship to or passage into the surrounding field starts from itself and, conversely, the body relates the medium to itself in that the body is the passage from the medium into the body. Metabolic processes—the absorption of foreign substances into the body, the processing of these substances, and the elimination of waste products—can be understood as examples of this form of a body's relationship to its surrounding medium. The organism maintains itself within its own boundaries, whereby these boundaries cannot be equated with currently identifiable morphological givens.

3.3.3 Centric positionality

Plessner develops centric positionality by way of a reflexive deduction (see above), i.e., by referring the reflexive structure of boundary realization to itself again. While this increase in reflexiveness does not lead to any change as regards measurable spatial extension, it does have an effect on spacelike characteristics. These have to do with the body as positional body constituting a spacelike point of origin. If the body relates to the fact of its boundary realization, this means for the spacelikeness of the body that it relates to being a point of origin. The body experiences itself in the present as being here. It experiences itself as spacelike extension. Under these conditions, the state of affairs of delimitation is given to the body, which experiences itself as being extended. Phenomenologically this can be seen by the fact that hunger, pain, pleasure, or impulses to act are not merely subjective sensations, but also spacelike experiences of the body's own condition. The self experiences external phenomena as being directed at it and as passing over into its own experienced embodied space.

The following builds on and goes beyond Plessner's line of argument. While he himself did not specifically treat the relationships between centrically positioned selves, we can nevertheless draw conclusions from his explications of the reflexive structures of the self about how embodied selves relate to each other. My aim is to work out the aspects of embodied selves' relationship to their environment that are relevant to the social dimension in order to extend the social dimension to a deeper level than would be possible if the focus were limited exclusively to the shared world of excentric positionality. This approach is particularly useful when considering the problem of how social persons understand each other as well as when examining the emergence of overarching spatiotemporal and substantive ordering structures that are nevertheless grounded in embodied relationships to the environment.

Selves are structurally characterized by a reflexive form of boundary realization. Beginning with this level of complexity, the reflexivity of boundary realization can be understood as self-referentiality. Boundary realization is a phenomenon of implementation that does not take place within the boundaries of the visible body, but is rather set apart from it. A self experiences itself in terms of a here/now and orients itself from out of its own center toward other entities. The question now is whether such a self distinguishes—in a practical sense at least, i.e., in the implementation of its boundary realization—between entities it encounters that orient themselves from out of their own center toward their environment and entities for which this is not the case. Making this distinction in a practical sense does not mean the emergence of a separate sphere of the social that would have to be distinguished as such by those involved. It merely means the systematic inclusion of the fact that we can observe phenomena in the behavior of centric selves that can be regarded as an indication of the practical relevance of this difference.

Plessner has little to say on this question, except for a vague reference to all animals having "'a nose for' others of their kind" (Plessner [1928] 2019:285).[42] For a centrically positioned self with a practical relationship to its environment, he writes, there are things and there are "field condi-

42 An "animal" is to be understood here as a being which, when classified according to the nature/culture distinction, can be considered as an example of the complexity of relationships to the environment that characterizes centric positionality. These same entities could conceivably also exist as personal beings in the context of other ordering systems. This question can only be treated, however, once the complexity of excentric positionality has been unfolded.

tions" [*Feldverhalte*] (Plessner [1928] 2019:238ff).[43] The latter is to be understood as a context experienced by a self in its surrounding field which invites it to do something. Plessner however explicitly denies that an embodied self experiences other embodied selves as differing in a practical sense from the structure of things. This is because his primary concern is the specificity of excentric positionality and the specific nature of the shared world given by this form of positionality. I think it is necessary at this point to modify Plessner's hypothetical structure of centric embodied selves' relationships to their environment: it seems reasonable to me to assume that the possibility of an encounter with the other is already part of this structure. Whether such a modification of the experience structure of centric positionality is useful or not can only be determined by looking at empirical research; in any case it constitutes a further development of Plessner's theory. That it is a productive development can be seen by the relevance of the question of experiencing other embodied selves for the current discussion surrounding whether higher vertebrates, in particular primates, perceive those of their kind in a special way. The question here is less *whether* they do so but rather *how* they do so. The modified theory of centric positionality opens up new and interesting interpretive possibilities here.

Some authors start from the assumption that primates perceive others of their kind as intentionally acting beings (Whiten and Byrne 1988). The material reference point here is the phenomenon of tactical deception.[44] Other authors argue more cautiously that "nonhuman primates understand conspecifics as animate beings capable of spontaneous self-movement" (Tomasello 1999:21). If the first interpretation—perception of another animal of the same kind as an intentional being that can be tactically deceived—is correct, we would probably have to think of nonhuman primates as being excentrically positioned. If the second interpretation is correct, this would still indicate that perception on the level of centric positionality contains a functionally relevant distinction between encountered beings perceived as capable of self-movement and encountered things for which this is not the case. Rather than directly entering into this debate, I want to take it as an opportunity to examine whether the difference identified here between things and living beings capable of self-movement can

43 Plessner coins the term *Feldverhalt* as a contrast to *Sachverhalt* (fact or state of affairs) (translator's note).

44 For an overview, see Byrne and Whiten (1990). Tactical deception indicates that a self expects the expectations of the other and intentionally foils them.

be meaningfully parsed using the theory of positionality. This will allow me to dovetail the theory of the social with the positionally relevant dimensions of space and time.

My hypothesis is that for embodied selves, the practical particularities of encountering other embodied selves are significant, including encounters between members of different species. We must therefore add two propositions to the hypothetical structure of environmental relationships in centric positionality which describe how the experience of other selves can become significant for the execution of centrically positioned boundary realization.

1. When a self experiences another self, it may have the experience of another self orienting itself toward it. In that case, the self in the process of its own boundary realization is touched by the boundary realization of another self.
2. When a self experiences another self, it may have the experience of the other self directing itself toward something in the self's surroundings. In this case, the self is indirectly touched by the process of the other self's boundary realization—if, that is, whatever the other self is directed toward is also of significance to the self.

Fleshing out proposition 1, we can say that in the process of its own experienced boundary realization, the self realizes that its boundary realization is touched by the process of another boundary realization. Touch, then, is defined as an embodied self (ego) directing itself toward another embodied self (alter ego), thereby affecting the condition of the embodied self that is touched. Examples of embodied self-direction toward another are a glance or a directed gesture. Touch as the touch of boundary realizations does not necessarily entail direct contact between bodily contours. A touch is relevant for an embodied self if it bears on the maintenance of its own boundary realization.[45] Touch creates reciprocality between touching and being touched.

Starting from the structure of centric positionality, this relationship can be conceptualized as follows. At the center is the mediation, as it is happening, of a) the experience of the entity's own condition, b) what the entity is perceiving including being touched by other boundary realizations, and c) its own actions/effects. This complexity also renders intelligible

45 My interpretation of mutually affecting boundary realizations as touch was inspired by the work of Christian Fritz-Hoffmann (2017). On the level of excentric positionality, the processes of boundary realization would have to be integrated into an ordering system of touch (cf. Fritz-Hoffmann 2013).

boundary realizations touching each other across species, e.g., big cats and their prey. Here too it is reasonable to think in terms of reciprocally touching boundary realizations and the specifically directed impulses and invitations to act they entail. Prey animals sense predators' impulses to act as directed toward themselves and take flight. Predators, in turn, anticipate this anticipatory directedness toward *them*selves. There is no other way to explain, for instance, the behavior of a predator that sneaks up on its prey. The overall structure of centric positionality forms a nexus of sensation (the entity sensing itself), perception (noticing other entities), touch (the dovetailing of boundary realizations as a special case of perception), invitation (being invited to act by the givens of the surrounding field), and action (performing an act) that is communicated as it is carried out.[46]

The meaningful coherence of the touching boundary realizations is expressed in the behavior of the selves involved and thus becomes accessible to an external, understanding observer. This behavior points to the nexus of touch in which the animals that are directed at each other find themselves. The actual touching/being touched in the process of boundary realization is not directly accessible, but comes to the fore as the meaning of the behavior that expresses this mutual directedness and touching. This comprehensible, meaningful nexus is the starting point of objectivizing behavioral science.[47]

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46 In this context it is quite possible to observe the existence of reciprocal expectations, at least to a degree. I will address this temporal dimension in more detail in the following section (3.2). Suffice it to say for now that a prey animal's experience of a predator directing itself toward it has a future horizon—along the lines of: "it's almost here." This modifies the prey animal's own condition: it develops the impulse to flee.

47 A biological study of a nexus of touch looks for objectivizable channels in the relationship, such as smell or light and vision. For the purposes of scientific research, the expressive behavior that makes meaningfully comprehensible relations between predator and prey intelligible must be reduced to measurable characteristics following the deductive-nomological model. The prey animal's expressive behavior of becoming attentive or of giving a start is reduced to measurable odor particles reaching its olfactory receptors by means of air currents, being neuronally processed, and triggering a reflex, possibly an escape reflex. Such an analysis, however, contains no insight into the meaningful relationship between predator and prey. Instead, it describes the technical details of such a relationship's realization. Research of this kind is in fact *preceded* by an understanding of the meaningful relation. Even in the objectivizing description there are still traces of the underlying understanding approach: the notion of a "flight reflex" contains a reference to the meaningful relationship between the predator and the prey animal it is directing itself toward. Research into the objectivizable charac-

Proposition 2 concerns the fact that when a self experiences another self, it may have the experience of the other self directing itself toward something in the self's surroundings. Here too I would like to cite a case of embodied interspecies relating:

There are up to seventy different bird species swarming the jungle of Peru's Amazon basin.

> Among the flocks there is always a particular species that takes on the role of leader during larger flight maneuvers, while at the same time acting as guard. For the underbrush flocks this is the *Thamnomanes schistogynus* species, weighing around 17 grams, from the family of antbirds. […] In the treetop flocks, members of the *Lanio versicolor* species from the family of tanagers, weighing about 19 grams, are […] the leaders and guards. […] When guiding flocks from one location to another, the *Thamnomanes* and *Lanio* make contact calls that serve to hold the flock together. It is almost always members of these two species that sound the alarm when birds of prey of the genera *Micrastur*, *Accipiter*, and *Leucopternis* are approaching. The other birds in the flock peer around for the enemies, remain motionless, or disappear into the foliage as soon as a guard bird gives the alarm. […] Prey animals, flushed out by members of other species, make up at least 85 % of the diet of guard birds. The guards rarely steal prey from the beaks of other birds; normally they wait just below a group of active flushers and swoop for insects or spiders that fall from the branches. Often, however, a bird will chase after prey it flushed out itself. Since guard birds are the faster and more agile flyers, they are most likely to be successful. If things are looking scarce during these uproars in the air, they use a trick that only works because of their special role: they emit a bird-of-prey warning call. The result is that the other birds in the flock immediately stop hunting. Alarm calls can be made up of one, two, or more sharp tones. In the disputes over flushed-out prey, the first two tones are normally enough, since the aerial fights over falling arthropods rarely last longer than a second. A miniscule hesitation triggered in the other birds by the alarm is sufficient for the guard bird to gain an advantage. (Sommer 1992:38f)

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teristics by means of which the prey animal grasps the presence of a predator directed toward it relies on the fundamental notion of a meaningful connection between the two.

It hardly seems anthropomorphic to describe these birds as embodied centers of action directed at their surroundings. They also have an awareness of competitive situations in which they experience another bird directing itself at a desired object. For these acting selves, there is a surrounding space in which they experience two impulses directed at one object: their own targeted direction at the object and that of the other bird. In this space of competing directing, the guard bird feigns the presence of a third embodied directing—the presence of a bird of prey. This gesture could be described as an "attention-getter" (Tomasello 2008:51), which directs an organism's attention to something (referential function) in order to get it to do X (social function) (see Tomasello 2008:51f). This is precisely what seems to be happening here. The attention of the other self, its direction toward the object in the environment, is distracted by the call feigning the presence of a bird of prey. A minimal distraction is enough and the insect is caught. While Tomasello himself wants to restrict this kind of gesture to primates, his description of the two-step of referential and social function applies precisely to the bird behavior presented by Sommer.

The interpretation of the experience of the other self as setting its own directions, as targeting objects in the environment, is only tangentially related to the question of whether animals are conscious of other animals being conscious. It is not a matter here of identifying an interiority of some kind, but only of grasping spatiotemporal, embodied relationships to the environment in their directedness.

The following is another example of a relationship between embodied selves of different species. Note that observers of primates in the wild give them names: "The rowdy young baboon Melton seemed to be capable of bluffing: once when he treated a baby too roughly and was attacked by its clan, instead of fleeing he stood on his hind legs and let his gaze wander. That is precisely what baboons do when they spot predators [such as lions, GL]. The attackers also stared off into the distance and completely forgot to punish him" (Sommer 1992:68).

Melton the baboon perceives the aggressive, embodied directedness of the other baboons toward him in its spatiotemporal tendency: they are about to get to him and beat him up or bite him. He too uses a gesture which functions as "attention-getter" to restructure the embodied directional space of those involved. By directing himself at the environment as if he were perceiving something, he suggests that he perceives a predator. This suggestion of direction leads the other baboons to focus on the surroundings as well and to leave him alone.

3.3.4 Excentric positionality and the shared world: the social undecidedness relation

The further development of the theory follows the same principle: the reflexive structure of centric positionality is again reflexively related back to itself. This modifies both the execution of the embodied self as well as the structure of the surrounding field, which entails, for one, that the "ex" of excentric positionality refers to an individual self's carrying out of its life by relating back to itself. Since, however, it is a matter not just of the individual embodied self but also of the creation of relationships with its environment, the "ex" refers, for another, to a relation to things in the environment and to other selves encountered there.

The secondary literature often fails to take Plessner's method of theory construction into consideration, which leads to a misunderstanding of the categories of positionality as positive statements of fact (Asemissen 1973; Fischer 2000, 2008). Interpretations of this kind impute that Plessner is formulating a positive anthropology, which uses excentric positionality to define the essence of the human. But even those Plessner readers who go to the trouble of reconstructing the methodology of his theory construction struggle with the particular reflexive content of excentric positionality. This becomes especially evident in their understanding of the shared world [*Mitwelt*]. Both Beaufort (2000:213f) and Mitscherlich (2007:207ff) fail to see that the reflexivity of excentric positionality refers to a reflexive turn back to the centric relationship to the environment. Thus Mitscherlich in particular, but Beaufort as well, conceive of the theory of the shared world as referring to a reflexive turn of the embodied self toward itself. This leads them to think of excentric positionality as a form of relationship to the environment specific to physically embodied beings, that is, as the structure of human relationships to their environment. Beaufort (2000:217) only parenthetically acknowledges that it follows from the logic of Plessner's argument that excentric positionality is a hypothetical assumption concerning the structure of environmental relationships that does not specify what entities maintain that kind of relationship to their environment. Excentric positionality is not an anthropology, but an x-ology, that is, a description of the structure of a particular kind of relationship to the environment which leaves open what beings have this kind of relationship. This is what we must come to understand with greater clarity, starting from the tension between centric and excentric positionality. The reflexivity of excentric positionality refers in the first place to the self-referentiality of the embodied self, second to the actuality of the surrounding field, and third to the re-

flection of the relationship of touch with other selves (see Lindemann 2019).

The embodied self's execution in the present communicates its sense of its own condition, perception, and activity. If this execution is related to itself, a distance is introduced into it: when communicating its perceptions and activity, the embodied self once again refers back to itself. It is not completely absorbed in the execution but maintains a certain distance from it (see Plessner [1928] 2019:271). An excentric self not only experiences itself and its environment but also experiences itself experiencing.

An important point must be made about the modification of self-referentiality that results from the reflexivity of excentric positionality: the way in which a self experiences itself in its execution cannot be determined formally. I describe this as the "social undecidedness relation" (Lindemann 2019). This means that it is undecided whether a self experiences itself as a unified, continuous self, or whether it experiences itself as an element of relationships. Experiencing oneself as a unified, continuous self might be expressed in the phrase "I experience myself as a lasting self," familiar to us moderns, and corresponds to the standard interpretation of excentric positionality. It is just as possible, however, that a self experiences itself as a presently unfolding execution that mediates different presently existing relationships. The self here is a current execution that mediates lasting social relations. The excentrically reflexive reference here does not refer to a self that outlasts social relationships, but rather to lasting social relationships that exist as fulfilled references to the past and to the future. In this case it is not the excentrically referenced self that lasts; this self is rather nothing more than the current execution of the mediation of lasting social ties. The phrase "I experience myself" has to be replaced here by the phrase "there is the experience of the execution of the mediation of lasting social ties." There is no individual in this case, but only currently experienced executions of the creation of ties—e.g., between groups. In the ethnological literature, this form of excentric positionality is referred to as "dividualization" (see Figures 3 and 4, below). I will return to this in detail in the section on dividualizing sociation in the final chapter. Plessner himself does not make this distinction; it is my own modification that arose from my engagement with the ethnological literature. This move could be considered an example of empirically induced theory clarification (for details see Lindemann 2019).

The structural changes related to the surrounding field can be described as follows. On the level of centric positionality, the embodied self can be confronted with other embodied selves and objects, insofar as these objects

can be grasped or dragged or handled in whatever way. In the structure of excentric positionality, objects that can be handled in practice become things that are removed from direct practical reference. Here a self encounters a world not referring to itself, a world that is more than the one presently appearing from a practical viewpoint. It becomes an external world that is turned away from the individual self and exists independently of it.

Due to this change in the self's relationship to its environment, lived field conditions [*Feldverhalte*] with immediate invitations to act become facts or states of affairs [*Sachverhalte*]. While a centric self experiences field conditions, an excentric self faces facts. A field condition is a perceived nexus that is experienced in terms of an invitation to act. This invitational character is preserved on the level of excentric positionality, but when the self on this level experiences its own experiencing, it also experiences its experience of the invitational character of what it perceives. The invitational character thereby loses its immediacy, so that the embodied self now no longer merely experiences it, but can also comprehend it in its objective structure without responding in an immediate way to the invitation. This change is reflected in the difference between the terms "field conditions" and "facts"/"states of affairs." A fact is a field condition comprehended as such in its objective structure. A field condition is the invitation to do something; a fact is, one the one hand, also an invitation, but it can, on the other, be identified in its objective structure and explicated symbolically/linguistically (see below, section 3.4) without following the invitation to respond to it, to hesitate, or to reject it.

The relationship between the lived body and its environment in centric positionality is also characterized by the mutual touch between embodied centers of action. With the transition to excentric positionality, the fact that relationships to other embodied selves (across species) functionally differ from relationships to things is referred back to itself again. What we have here is a reflection of the relationship between the lived body and its environment that includes the relations of mutual touch. From the beginning, then, the excentric reference to the structure of centric positionality entails the fact that a self that experiences itself as a self can experience other excentric selves. An excentric self experiences itself as an equiprimordial member of the shared world containing other excentric embodied selves that touch it.

In terms of the relationship to the other I, Plessner's approach is thus fundamentally different from theories that begin with the subjectively experienced embodied I. Luckmann and especially Descola presuppose an

embodied subject that can reflect upon itself. In a second step, this subject enters into a relationship with the other. The theory begins with a lived body conceived of in terms of an I and develops from there the ways in which this embodied I can encounter another embodied I. Since Plessner, by contrast, understands excentric positionality as the becoming-reflexive of the overall structure of centric positionality, the shared world is given equiprimordially with excentric positionality. This world does not have to be made up of individuals. In the case of dividualizing self-references, the shared world can be constituted in such a way that instead of individuals there is the experience of current executions of integration into permanent relationships.

An important characteristic of this conception of the shared world is the latter's open structure. It is not clear from the outset who is a member, and it is an open question which entities belong to a particular historical personal sphere of the shared world. It is in this sense that I refer to the "contingency of the shared world."

> "The assumption of the existence of other I's is not a matter of transferring one's own mode of being, the way in which a human being lives for himself, onto other things only corporeally present to him—in other words, an extension of his personal sphere of being—but rather a restriction and limitation of this sphere of being, that was originally not localized and resisted localization, to 'human beings'" (Plessner [1928] 2019:279).

This limitation of the sphere of being to "human beings" is a result of "the disenchantment brought about by rational culture" (Plessner [1928] 2019:279). In a move that is entirely consistent with this claim, Plessner distinguishes between the shared world in general, the "we-sphere," and a historically "select group or community that can refer to itself as 'we,'" (Plessner [1928] 2019:282). The shared world as a we-sphere in general is the condition for being able to grasp oneself in one's position as a member of a shared world (Plessner [1928] 2019:282). This must be distinguished from the fact that persons see themselves as members of a particular, historically distinct shared world. Thus every historical shared world is characterized by the way in which it is limited and how it defines the sphere of possible personal existence.

3.3.5 Ordering problems of excentric positionality

An important characteristic of centric positionality is that the form of the self's relationship to its environment—and therefore also its sensitivity to other embodied boundary formations directing themselves—is determined. The embodied self lives within the framework of general formal parameters determining in what way it is sensitized to external stimuli, including the touch of other boundary realizations. Referring this state of affairs to itself renders questionable this form for excentric embodied selves, which is given to these selves to shape. Excentric embodied selves have to create their own formal parameters in their own relationship to their environment in order to arrive at a new security in these embodied relationships to the environment. For excentric embodied selves there are no predetermined sensitizations to certain ways other selves direct themselves toward the environment. Narrowing down this sensitivity and stabilizing this boundary formation becomes a task to be fulfilled. The concept of touch thus acquires a new meaning here. Excentrically positioned lived bodies find themselves embedded in undetermined, but to-be-determined, relations of touch. What stimuli they are sensitized to in what way has to be determined by forms that have to be created.

The theory of the shared world leads to the recognition that excentrically embodied action centers relate to each other in multiple undetermined ways. 1) The boundaries of the sphere of personal embodied action centers are undetermined and the action centers may exist as individuals or dividuals (social undecidedness relation). 2) The spatio-temporal-substantive structure of the action center's relationships to its environment is undetermined. 3) The substantive content of the relationships between embodied selves is undetermined.

The solution to these three problems consists in actors expressing for and in front of each other the ways in which they orient themselves in these dimensions and how their sensitivity must be shaped accordingly. These expressions are valid as communication if they are understood, which means that the interpretation of an expression becomes a problem that appears in the field of observation itself. While on the level of centric positionality only an external observer capable of understanding could interpret the observed phenomena, for excentric selves, others become a counterpart as groups (dividualization) or individuals to be interpreted or understood.

As concerns the social undecidedness relation, the theory of excentric positionality only points to the necessity of drawing a boundary between

persons and other entities and of institutionalizing preferences for individualization or dividualization. The theory of the social undecidedness relation only posits the existence of the problem of these contingencies and that it must be solved. It does not, however, posit the concrete ways in and by which the social undecidedness relation can be determined. When analyzing these problems, we must take into account that this shifts the fact of boundary realization to another level. We are no longer concerned here with the boundary realization of an organism but with the determination of the social undecidedness relation that is the institutionalization of the boundary of the personal sphere and sets a preference for individualization or dividualization. There is, however, a close connection between the two, in that the determination of the social undecidedness relation is realized by shaping embodied action centers' sensitivity to the touch of other embodied action centers or by desensitizing them to being touched in this way.

3.3.6 Historical shared worlds as determinations of the social undecidedness relation

Every specific sociation is distinguished by the way in which it draws boundaries between social persons and other entities, and by the way an institutional preference is set for individualization/dividualization. The purpose of these determinations is to deal with the problem of the contingencies of the shared world. Researchers treat specific sociations as if they were a determination of the social undecidedness relation. It is stipulated in the field who is considered to be a social person and what characteristics the personal spheres concretely exhibit—i.e., whether self-reference is dividualizing or individualizing. Analyzing these contingencies involves a specific complication in that it intersects with another differentiation; one that could be referred to as the a priori object of the social sciences. The analysis of the boundaries of the social world confronts us with two distinctions, one of which is already the object of sociological study:

1. What characterizes the social? – Traditional distinction between social and non-social phenomena.
2. How are boundaries drawn between social persons and other entities?

Analyzing the boundaries of historically specific shared worlds entails a modification of the problem of defining the objects of sociological research: if the boundaries of the social world are posited in a contingent way, the a priori object cannot be posited from the perspective of the ob-

server. The social must rather be understood as a phenomenon whose definition—in terms of solving the problem of the contingencies of the shared world—is a matter of self-limitation, given that it is no longer determined from the outset what entities are possible social actors. The social is determined in its specific characteristics as it passes over into a historically concrete shared world.

Sociological theories do not have to deal with this complication as long as they are conceived in terms of simple world-openness. Under this premise, the answers provided by the sociological tradition remain valid. Depending on the theoretical approach, the answer to the first question—what characterizes the social?—would be: communication (Luhmann), social action in social relationships or systems (Weber, Schütz, Parsons, Berger and Luckmann, Coleman, Esser), symbolically mediated interaction (Mead, Habermas), social practice/practices (Bourdieu, Garfinkel, Giddens), or social labor (Marx). The operative identification of the social takes place on this level, the key task being to distinguish the specific dynamics of social phenomena from other phenomena.

If we start from expanded world-openness, however, the question of the specificity of social phenomena is posed in such a way as to draw, in the field, the boundaries between the relationality of social persons and other non-social entities/phenomena. Following the principle of the open question, the social is defined as a phenomenon that expresses and defines itself in its limitedness with respect to its formal structures, that is, in terms of dividualization/individualization. This self-limitation and self-determination characterizes historically specific shared worlds. Traditional sociological theories presuppose the solution to the logically antecedent problem of sociation, that is, the determination of the social undecidedness relation.

In order to conceptualize the social in a way that also takes into account this solution, we must begin with the openness to the possibility of touching/being touched that characterizes excentrically positioned embodied selves. On the level of centric positionality, an analysis of reciprocal touch shows that not all touch is equally relevant, but only those instances of touch that, in the context of the given life form, have significance for the maintenance of the organism's boundary realization. This includes more than its relationship to other members of its species, as can be seen in the relationship between predator and prey as well as in the phenomena of interspecies gestural deception. An organism must become sensitized to the relevant instances of alien contact with its boundaries while losing sensitivity to other forms of boundary realization. On the level of centric position-

ality, the nexus of touch only becomes evident to an external, understanding observer. This is because the centric, embodied selves within such a framework of touch are integrated into a given order, in which contact with other boundary realizations constitutes one kind of event in the surrounding field. Embodied relationships between selves occur here, but this cooperation and conflict is not reflexively grasped as a world of distinct relational states of affairs. For those involved, the state of affairs of embodied cooperation and conflict does not set itself apart as such from the given, condition- and action-relative perceptive order.

Reflexively relating this structure back to itself sets the embodied selves outside of the preexisting formal parameters, which means that these can, in turn, be shaped. A key point here is that it is no longer self-evident which boundary realizations embodied selves are sensitized to and which they are not. The environment no longer consists of the experience of invitations to act, but must first acquire such a structure. The structure of centric positionality falls to pieces and an ordering system must be artificially created. For such an ordering system to become stabilized, it is fundamental that an independent realm of personal relationships set itself apart. In the same way, encounters with other selves are included in the structure of reflection, in the remove from the entity's own execution. The question, then, is: whose boundary realizations is an embodied action center sensitized to in such a way that it experiences them as beings communicating something? These encountered beings must be distinguished from those entities that are merely perceived but do not set their own directions in such a way that an embodied action center experiences them as invitations to understand. Thus the establishment of a boundary between personalized embodied centers and other entities is immediately relevant to the boundary realization of excentric embodied selves, in that realizing the boundaries of sociation means creating an order of sensitizations to other personal boundary realizations while at the same time creating desensitization to other phenomena. Desensitization means that encountered beings are excluded from the circle of those that might be understood.

The boundaries on the level of the execution of boundary realization are the result of a reflexive ordering process. The artificial ordering systems of touching/being touched are only stable to the extent that personal selves express them to each other. Personal selves are not only directed toward each other but also represent this fact to each other. Such expressions are addressed in a stable and enduring way to those—or are understood to be addressed in a stable and enduring way by those—who are generally recognized as being linked to each other in a nexus of personal touching/being

touched. When those involved give expression to this relationship to each other and in front of each other, the boundary establishment becomes a stabilized and enduring institution. The boundary establishment exists because it is brought into an ordering system by means of representation.

Because these representations have to themselves be understood, reciprocal understanding appears in the object area. We could even say that those who understand each other experience each other as an open question. Those participating in a personal relationship experience each other in such a way that there is a guarantee of *understandability*. This completes the inclusion into the personal sphere. Initially this only means that an entity is experienced as one that communicates something by way of representation. There is an invitation to understand. To be touched by an entity in such a way that it is experienced in this encounter as an entity to be understood denotes basic inclusion. To be touched in this way, however, does not guarantee understanding what has been communicated. There is no guarantee of *understanding*. Persons clearly experience each other as, in principle, understandable, in that they experience each other as entities communicating something, i.e., as entities that anticipate being understood, but a guarantee that they will be understood does not follow from this. Persons can understand each other, but it is not ensured that they will; they can understand but also misunderstand each other. For a more detailed analysis of symbolic representations and how they are understood, see the section on symbol formation, below.

Only the forms in which the determinations of the social undecidedness relation are expressed are empirically accessible. This determination is represented in concretely shaped expressions, thereby stabilizing the boundary of the personal sphere as well as the institutional preference for dividualization or individualization. Being embedded in relations of touch does not in and of itself determine the social undecidedness relation. It is rather that there is a spontaneous experience of being touched that needs to be stabilized by those involved giving expression to an ordering system to each other and in front of each other. The determination of the social undecidedness relation is thus not established in a one-time founding act to stand forever more, but only pertains when given expression. Nor is a particular determination stabilized by such expression fixed permanently, but can always be unsettled by spontaneous experiences of being touched.

3.3.7 Forming the lived body and its boundaries

Within centric positionality there are parameters that provide a framework for the experience of the state of the entity's own lived body and its responsiveness to touch. Formal parameters of this kind do not exist on the level of excentric positionality. The experience of the impulses and state of one's lived body, the experience of being sensitive to touch, must themselves first be given a form. In order to show how this works, I will now turn to Hermann Schmitz's ([1965] 2005) semantic analysis of the experience of the lived body in Homer's *Iliad* and to Barbara Duden's ([1987] 1998) and Thomas Laqueur's ([1990] 2003) studies of the gendered body. It is not my intent here to write a history of the embodied experience, but rather to focus on a few examples that demonstrate how embodied experience can be structured in a wide variety of ways. Historical experiences of the lived body are only available to us by way of descriptions, i.e., the semantic forms in which they were given expression.

The structure of embodied experience Schmitz ([1965] 2005:§ 79) develops in his analysis of the semantics of the *Iliad* will strike contemporary readers as decidedly foreign. It is a form of experience presumably located some time before the change Jaspers ([1949] 2014) refers to as the "Axial Period." The heroes appearing in the *Iliad* do not act in a way that suggests the existence of an ego centrally controlling the body or its actions. The absence of an ego corresponds to the absence of a word that designates the body as a whole; Schmitz finds only plural forms that refer to a plurality of limbs without denoting a unit (Schmitz [1965] 2005:443). The body as biological unit does not figure in this text, only individually sensed limbs, which are, as noted, not controlled from a center. It is rather the other way around. The limbs act; the feet carry the heroes. Nor, according to Schmitz, do mental processes that could be described as incorporeal or separate from the body figure in the *Iliad*. There are, however, very nuanced descriptions of moods, by which are meant bodily states that drive or inhibit the hero. An urge to fight spreads in the gut or in the diaphragm area, the *phrenes*; hands grab the spear. Dividualized impetuses of this kind are felt in a decentralized way in the lived body. There is no central impetus, but merely localized impetus sources that are distributed across the sensed lived body. Gods can intervene into this dividualized lived body as external forces; they can refresh its limbs or cast a stirring of anger or battle rage into a region in the sensed lived body, into the breast or the diaphragm area or the gut. The sensed stirring causes the hero's limbs to act.

The second example I would like to cite here derives from the more recent field of body history and concerns the relationship between the visible and tangible physical body [*Körper*] and the lived body [*Leib*]. While the semantics of the *Iliad* do not show a connection between the physical body and the lived body, this relationship becomes relevant in the transition to European and North-American modernity. The action centers of the lived body begin to convert their own experiences into the form of the three-dimensional physical body. This also seems to have been a crucial step in closing off the modern lived body.[48] Forming the lived body into the gestalt of the visible physical body was a historically elaborate process. Convincing evidence that embodied experience increasingly became structured by means of a focus on the visible body, at least in Europe, can be found by looking at the seventeenth- and eighteenth-century process of the wombs of European women becoming sedentary (Laqueur [1990] 2003:109f).

As late as the seventeenth century, anatomists complained that despite all efforts of education, there were still people who believed in the nonsense of a wandering womb. Wombs became sedentary in a slow process beginning in the sixteenth century when anatomical illustrations came to be widely disseminated. There is a close temporal connection between the increased availability of anatomical illustrations and the experience of wombs becoming sedentary. The purely linguistic dissemination of anatomical knowledge was clearly not sufficient. This leads me to hypothesize that the experienced lived body and visualized knowledge about the visible and tangible physical body have a relationship of reciprocal significance. The pictorially visible and tangible gestalt of the physical body determines how one experiences one's own lived body in a mediatedly immediate way. The way one feels one's own lived body is guided by the pictorial gestalt of the physical body. The notion that an embodied self is spatially extended and delimited becomes a reality evident in the lived body. One's own lived body is experienced in its extension the way the visible physical body is extended. The person's sensed lived body indicates to her that her physical body is an immediately experienced reality. Conversely, the person's physical body indicates to her how to experience her own lived body. In other words: knowledge of one's own physical body indicates to the embodied self what form the sensed lived body should take on. Furthermore, the reflexive relation of meaning between lived body and physical body proves to be a normative one (see Lindemann 1996 for a more in-depth

48 Taylor refers in this context to the "buffered self" (2018:37f).

discussion). Experiences that contradict this rule—such as a wandering womb—are marginalized or pathologized and disappear.

In her historical research on women's experiences of pregnancy, Barbara Duden shows how much effort was required to adapt the embodied experience of women to a form that was compatible with the biological knowledge emerging in the nineteenth and twentieth centuries. It was only in the modern society asserting itself in the eighteenth and nineteenth centuries that the biological body and the events made visible in it came to be, in a comprehensive sense, a generally binding form of experience for the lived body.

From the perspective of this historically evolved experiential position, the representations of a decentralized lived body in the *Iliad* as elaborated by Schmitz must appear decidedly foreign. Embodied experience is not centralized here in relation to a controlling entity, but rather appears as decentralized, with the localized impetus sources distributed across the lived body acting independently. They are not coordinated and are not recognizably in the service of the whole person. Other, external forces—gods, themselves possessing the status of person—can intervene into a lived body that is decentralized in this way.

By contrast, the modern understanding is that only human beings who are biologically alive can be legitimate social persons and that humans normally develop a centralized entity responsible for their actions. As a rule, the lived body of the modern human being is sufficiently sealed off from the intervention by external forces. Only in this way can it become evident in the embodied experience of those concerned that only living human beings are social persons. Conversely, we can assume that it only becomes evident to beings with embodied experiences that are open in a specific way that there are gods who can operate as external forces.

The point here is that the lived body as an operator whose state is experienced by social persons must itself be transformed in such a way as to satisfy the specific demands of sensitivity that emerge in the context of the prevailing boundaries of a shared world. An embodied self is subject to a historically contingent formation that dividualizes the lived body or individualizes it in a delimiting way, sensitizing/desensitizing it in the process.

3.3.8 Communicating boundary realization

The only possibility of determining the social undecidedness relation without assuming the existence of a superordinate entity is for the embodied

action centers involved to themselves bring about this determination in their relationships with each other. These determinations are made by reflexively bringing the execution of spontaneously occurring determinations into view and thereby objectifying them in the form of a pattern. The determination is not generated once and for all, but is rather established step-by-step: discontinuous determinations are reflexively grasped, objectified in the form of a pattern, and further distinctions are brought into alignment with this pattern. As I showed in the previous section, these processes include converting lived bodies into the appropriate form. Their sensitivity is of decisive importance in how the evidence of the existence of other actors is experienced.

In order to understand how the distinction between social persons and other entities is made in the field, we must take a closer look at the structure of the communicative representation of order. Communication is understood here as the ordering explication of nexuses of touch and has a triadic structure: embodied action centers find themselves in relations of touch and relate reflexively to this fact by taking the positions of thirds.

The reflexive structure of this triadic constellation allows for relationships of touch to be objectified, which in turn establishes an exemplary pattern or rule to be complied with or rationally developed further. The involved selves use this pattern/rule to express an obligatory nexus of touch, which in turn determines the social undecidedness relation.

This brings about a two-tiered structure: embodied action centers experience their relations to others as an invitation to understand (tier one). When embodied action centers recognize that they exist in personal relations of touch, they identify and interpret particular communicative messages from other lived bodily selves as an indication of what others want to communicate about what is at issue in this particular case (tier two); these interpretations take place in reference to the expectations of tertius regarding compliance with, or the rational development of, the rule guiding ego's interpretation of embodied action centers.

The problem of the contingencies of the shared world that is the social undecidedness relation has the same function with respect to the methodological relevance of social theory as does the problem of double contingency. Pure double contingency cannot be observed empirically, but we can understand empirically observable phenomena as the solution to the problem of double contingency, i.e., as the transition from the condition of an undetermined relationship between ego and alter into a structured relationship. The same holds for the problem of the contingencies of the shared world. There is no such thing as an entirely undetermined shared

world; the social undecidedness relation does not exist as such. Only historical forms of the shared world are empirically observable, but they can be regarded as if they were formed in order to determine the social undecidedness relation. Personal embodied action centers convey to each other how the social undecidedness relation is determined, that is, how boundaries between persons and other entities are drawn and whether there is an institutional preference for individualization or dividualization. In doing so, personal embodied action centers represent to each other an ordering system of obligatory sensitizations/desensitizations. Sociological observation aims at understanding these processes of representing order.

3.3.9 The mediated immediacy of order formation

Rules are generated and derive their effectivity from the reflexive connection between the interrelation of embodied selves and the communicative representation of these relationships. Because order formation requires a reflexive reference in the context of the triadic relation and the representation, recognition, and interpretation that take place within it, order formation is always mediated. At the same time, however, this order is immediately experienced as given in the executions of embodied relationships to the environment. Within a nexus of touch, selves understand and interpret others' behavior as acts of communication, as the personal representations of other selves, and thus experience each other as touched by the presence of others. At the same time, these selves are desensitized to other phenomena in this respect.[49]

The rules guiding the determination of the social undecidedness relation I will provisionally refer to as societal boundary establishment/institution. Those involved express these rules to each other within the framework of triadically structured communication. The rules exist by virtue of being expressed symbolically (see section 3.4, below) and solve the problem of the contingencies of the shared world for those involved. They generate practical knowledge about with whom they exist in a nexus of touch and what other entities they are, or should be, desensitized toward, at least in a communicative sense.

The mediated immediate rule upon which the institution is based on the one hand exists as a matter of course on the level of embodied relationships to the environment, but remains immediately effective only insofar

49 On the concept of mediated immediacy, see Plessner ([1928] 2019:298ff).

as it is continuously maintained in practice by means of communicative explications. The rule is not purely immediate; its validity must be continually renewed by reflexive mediation. It is possible for the nexus of mediated immediate effectivity/stabilization to become unsettled. A societal determination of the social undecidedness relation is a contingent formal parameter for bodily sensitization/desensitization. We can expect new sensitizations/desensitizations to continually emerge. This is not a problem as long as they can be successfully neutralized in the ongoing process of order formation; if, however, neutralization does not succeed, the new sensitizations/desensitizations may come to be communicated in an ever more generally binding form. In other words, new sensibilities can spontaneously form and be communicated, themselves then taking on the function of order formation.

Since such orders are reproduced by embodied actors whose lived bodies have to continually relate to the ordering system in a reflexive process, it is rather unlikely that these orders will survive the passage of time unscathed. Sensitization/desensitization is given on the level of embodied experience itself, of the experience of the state of one's lived body, of the experience of the drive structure and the form of delimitation given by it. It thus becomes evident on the level of embodied experience how an embodied self is touched by other entities and what entities are also embodied centers that, as personal centers, can intervene into the embodied self. The lived body itself, however, is not simply formed matter, but rather the material operator of a relationship to the environment, of perception and action. It is thus never entirely certain that the lived body will remain in the order represented in communication. The lived body has been put into a sensitized form, but it is not locked into it. It is never certain that an embodied self will not spontaneously develop novel sensitizations/desensitizations.

In premodern Europe, the social undecidedness relation was determined by means of a focus on a hierarchical order with a binding and transcendent point of reference—God. The boundaries of the social were not fixed (Lüdtke 2015); the social sphere included beings like angels and demons. There was an institutional ambivalence regarding the choice between individualization and dividualization. On the one hand, a form of soul-individualism was institutionalized by the Church by means of compulsory baptism (Lindemann 2018:chap. 82ff). On the other hand, actors in earthly contexts existed as dividuals (Lindemann 2018:100ff). In the course of the eighteenth and nineteenth centuries, this societal order was replaced by one based on a substantive criterion: only living human beings, i.e., all hu-

man beings whose bodies are recognized as being alive, were to be recognized as social persons. This established a substantive criterion of "living human being/everything else," and brought with it a variety of modifications to the old order. All bodily human beings became social persons and there was a change in the spatiotemporal structures of experience that made it possible for embodied experience to be given the form of the visible and tangible body. Every living human body became an individual person. A form of embodied experience emerged that made all human beings, but only these, into social persons. This can be described as a new solution to the problem of the social undecidedness relation. The personal sphere was delimited to living human beings and a strong institutional preference for individualization developed. Thus it became obligatory for individual living human beings to become sensitized to each other, and, as a result, the suffering of other humans became a problem for humans in general. Barbara Duden traces the forming of embodied experience by the body (see above) and Lynn Hunt (2007:chap. 1, chap. 2) reconstructs the emergence of the new obligation to be sensitized. The development of this form of sensitivity and desensitization, which was also explicated in literature and politics, became increasingly incompatible with the requirements applying in the old Christian order. We would need a comprehensive study that included the changes in spatiotemporal structures as well as in the substantive and symbolic order to fully grasp the shift that took place between the seventeenth and nineteenth centuries (see Lindemann 2018).

The advantages of taking into account the pluridimensionality of order formation are evident: it allows us to integrate the dimension of the body and the senses, and thus the spatiotemporal and substantive/material dimension, into order formation. At the same time it becomes clear that discussions about the cultural relativity of values, including human rights, completely miss the point. The analysis of order formation and the comparison of different ordering systems that goes along with it is not concerned with questions of cultural difference. The recognition of humans as equal in dignity and rights is an integral component of an ordering system with compatible spatial, temporal, symbolic, and substantive structures. Human rights with their specific demands on the human being to be a subject are part of a historically contingent approach to the world. If we are to speak of relativity here at all, we would have to say that human rights are order-relative. We might hazard that the importance of Kantian philosophy lies in the fact that it contains the first and to date only cosmology that gives room to human dignity—not in the culture, but in the modern order of the world.

3.3.10 The problem of sociologism

Durkheim's position in the sociological discussion surrounding space and time as well as causal models states that, initially, ordering categories describe the order of life in society; in a second step, these categories can be extended to include nature outside of society. Thus categories are formed first in order to understand society and then, in a second step, are applied to non-societal phenomena. This line of argument only makes sense, however, if the nature/culture distinction is valid. The society created by human beings is presupposed as a given and the categories developed in order to comprehend the institutional order of this human society are transferred in a second step to non-human nature, the surrounding cosmos. Mainstream social constructivism puts forward a similar argument: it is social actors that construct the body, space, time, the social order, and so forth.

If, however, relationships to surrounding non-human beings are themselves understood and treated as social relationships, it makes little sense to think in terms of a transfer of categories. Instead we would have to assume the existence of social relationships with a diversity of entities, including both human beings as well as non-human beings (Ingold [2000] 2011:42f). Descola's objection that Durkheim absolutizes the social becomes understandable in this light (Descola [2005] 2013:124f). What is required instead, he argues, is an analysis of the constitution of the whole range of different worlds, which would be more a matter of a logic of the mind than of the social. Descola interprets Levi-Strauss's recourse to the universal functioning of the mind in this sense and sees the social order as an aspect of a universal order.

The problem presents itself differently if we start from the excentric, and thus shared-world, relationship between the lived body and the environment. This relationship is equally social, temporal, spatial, substantive, and symbolic. Social relationships are spatiotemporally structured, substantively oriented, and symbolically ordered. The difference between this position and Descola's is that we are not starting here from a logic of the mind, from psychology—i.e., from an I that reflects upon itself—but rather from a relational, albeit not sociologistic, logic of order formation. The problem that is solved by this order formation is the indeterminacy of the shared-world relationship between the lived body and the environment. The dimensions of space, time, substance, and symbolism characterize, along with that of the social, the ongoing process of order formation. We are

concerned here with the practical shaping of pluridimensional approaches to the world and not with the social construction of XYZ.

3.3.11 Digression on the social undecidedness relation and social theory

Taking the contingencies of the shared world respectively the social undecidedness relation as methodological and theoretical starting point requires us to leave behind basic assumptions of traditional social theory in two respects. First: we must abandon the assumption that only living humans can be social actors, replacing it with the premise that it is undecided how the sphere of personal beings is delimited. Second: we must abandon the assumption that individual actors act in relation to each other and thereby form a social order, replacing it with the premise that it is undecided whether embodied action centers operate as individuals or as dividuals. This holds true for basic assumptions of action theory as well as for the concept of double contingency, practice theory (Bourdieu) and even the traditional theory of the third.

Action theory (Weber, rational choice) takes the existence of individual actors for granted and restricts the circle of social actors to human beings. But if we understand every social phenomenon as composed of the actions of individual human actors, it becomes impossible to analyze "the individual human actor" as an institutional form. A historically informed theory of society shows that the individual human actor is in fact an institutional artefact of modern society (Lindemann 2018:45ff, 101ff) and cannot be treated as a universal concept. Even if we adopt the difference between "raw actor" and "agentic actor" (Meyer and Jepperson), we are stuck with just a variant of individualism. Meyer and Jepperson write: "By 'raw actor' we intend to connote an entity pursuing rather unselfconsciously its built-in purposes—built in either through socialization or prior to socialization (e.g., by biology)" (Meyer and Jepperson 2000:110, fn. 7); by contrast, they understand agentic actors as self-conscious actors. Individual actors acting on behalf of organizations does not contradict the assumption that they are individual actors. Organizations are themselves defined by the membership of individual actors, who are in principle free to enter into the hierarchical structure of an organization or to leave it (for a definition of organization see Tacke 2008).

The theory of double contingency has been understood as a kind of common ground between different sociological theories (Lindemann 2005b:72ff). This too becomes problematic from the perspective of the so-

cial undecidedness relation. Double contingency (Luhmann 1984:chap. 3; Parsons 1968) presupposes the existence of distinct individual actors or systems that encounter each other and have to make sense of an unknown and distinct individual counterpart. Double contingency starts with the relation between individual actors who are shaped by the way they relate to each other. Similar to action theory, the theory of double contingency does not allow for an analysis of the institutional preference for individualization. The theoretical assumption instead presupposes individual actors. By contrast, the social undecidedness relation requires two determinations: setting the boundaries of the social world and setting institutional preferences for dividualization or individualization. The theory of double contingency takes the borders of the social world into account and asks which individual entities are recognized as social actors. But even addressing this contingency requires us to give up a dyadic starting point—double contingency between ego and alter—for a triadic one (Lindemann 2005b:88f). Introducing thirds as individual actors who expand the dyadic structure of double contingency does not, however, allow for an analysis of the institutional preference for individualization or dividualization.

Practice theory focuses on the immediacy of practice. The concept of habitus (Bourdieu [1980] 2014:chaps. 3 and 4) analyzes practice as a form of responding to the invitations of a particular environment. Bourdieu does not allude to the habitus having to be reflexively represented in order to maintain its form. At least implicitly, he takes it for granted that only living human beings can participate in social life; his concept of habitus does not apply to animals or things. Moreover, it obscures the importance of institutional preference for individualization or dividualization, as it refers primarily to the immediacy of practice without taking into account reflexively structured references to institutional orders. A Plessnerian perspective considers not only the immediacy of practice but also how it is mediated by symbols, institutions, and technology. Looking at symbolic and institutional mediatedness especially brings to light the strong normative implications of determining the social undecidedness relation. Delimiting the borders of a historical shared world is in fact a limitation of the circle of those who count morally (Luckmann 1970), and setting an institutional preference for dividualization or individualization is to set a preference for how embodied action centers count morally. Such questions cannot be addressed within the framework of practice theory—at least no one has tried to do so yet.

The social undecidedness relation invites us to reconsider Berger and Luckmann's ([1966] 1991) theory of reflexive institutionalization. The en-

vironmental relations of excentric positionality, including the structure of social relations, are essentially undetermined. Excentric beings have to themselves form the structural parameters of their relationship to the environment, and in such a manner that it cannot be arbitrarily questioned. Plessner describes this as the need for the created structures of the environmental relation to acquire a "weight of their own" (Plessner [1928] 2019:289). They have to appear to those involved as detached from their own actions. Detached structurings of this kind can be found on two levels, that of tools and technology, i.e., the functional taking up and handling of objects, and that of symbolic structuring by institutions and culture (Plessner [1928] 2019:289). This idea is taken up by Berger and Luckmann, who explicitly refer to Plessner. But Berger and Luckmann fail to recognize that Plessner's theory is not about individual actors but rather about the necessity of analyzing institutional forms of individualized or dividualized executions of institutional orders. In the next section, I show how the theory of reflexive institutionalization has to be revised if we start from the social undecidedness relation instead of from individual actors.

3.4 Space and time under conditions of expanded world-openness

An operative theory of order formation that avoids defining the social from the perspective of the observer must necessarily distance itself from modern notions of order. It has to therefore also recognize the contingency of the modern order of space and time with its orientation toward measurability. At the same time, such a theory seeks to avoid the sociologistic error of effectively positing human beings outside of space and time where they form their conceptions of space and time in social interaction. In order to satisfy this double requirement, an operative theory of the social must integrate the notion of space and time as constitutive ordering aspects. It is thus not only that space and time are socially structured, but that, conversely, the operations of the social dimension are themselves spatiotemporally structured. It is in this sense that Herminio Martins ([1974] 2015) distinguishes between time as a subject of sociological research ("thematic temporalism")—corresponding to the logic of the social construction of X—and time as constitutive element of the conception of the social ("substantive temporalism"), whereby time is understood as constitutive of sociality.

The second perspective enjoins us not only to work out the ways in which space and time are socially formed, but also the ways in which space

and time function as dimensions of order, i.e., how space and time themselves determine processes of sociation. Space and time cannot be reduced to social categories as suggested by the formula of the "social construction of X"; space and time are rather irreducible dimensions of an operative theory of order formation.

This requirement has been satisfied in relation to time in the context of action theory (see Dux [1989] 1998; Schütz [1932] 1995), practice theory (Giddens [1984] 2011), interaction theory (Mead [1932] 2002), and systems theory (Luhmann [1997] 2012, [1997] 2013). A closer look shows that the temporal and the social dimension are closely connected. Time is either understood as a structure of consciousness (Schütz, Mead), which leads to the question of how a shared, a social time can emerge from the time of different consciousnesses. Or time is understood as the time of social systems (Luhmann) or as the time of social coordination (Giddens). Schütz ([1932] 1995) develops his analysis of action based on Husserl's ([1928] 2011) examination of the temporal structure of consciousness. A phenomenological analysis of the temporal nexus of a consciousness shows that its present intentions, orientations toward the future (expectations), as well as its orientations toward the past form an operatively closed context inaccessible to other consciousnesses (Husserl [1928] 2011). Schütz productively applies this train of thought to the sociological analysis of action (Schütz [1932] 1995). He argues that shared time emerges by way of copresence on the basis of the temporal structures of several consciousnesses that are in principle imputed to be similar. It is the temporal coordination of the consciousnesses and not space by means of which the social comes to extend beyond the individual consciousnesses.

Günter Dux ([1989] 1998:chap. 2 and 3) gives anthropological support to the notion of the temporality of consciousness by looking to the needy and active relationship of the human organism to its environment. He shows how the time of acting requires coordination between the organism and the world surrounding it. This means that the acting organism must adopt a temporal order that, furthermore, must be coordinated with the temporal order of the world surrounding it (Dux [1989] 1998:43).[50] Dux, unfortunately, does not treat the problem of the other I in the same way; instead he presupposes, without substantiation, that for human beings the other is accessible as an other I (Dux [1989] 1998:47f). This constitutes a

50 Dux sees his work as overcoming transcendental approaches in the theory of time. See in this respect his criticism of Kant and Husserl (Dux [1989] 1998:58ff, 61ff).

significant lacuna in his program. Furthermore, he explicitly positions himself within the tradition of modernity, according to which the human being is understood as a creator of orders. Dux's research presupposes simple world-openness—i.e., human beings must create the world in which they live (Dux [1989] 1998:43).

The awareness of the relationship between the temporal and the social dimensions is more developed in systems theory, where consciousness systems are thought of, following Husserl (at least implicitly), as autopoietic (Luhmann 1987). This raises the question as to how a social time that holds equally for ego and alter can be established. Armin Nassehi (2008) has shown that the operative closedness of consciousness in the phenomenological sense makes it impossible for these consciousnesses to be coordinated with each other. He considers the only solution to be the emergence of a fundamentally different type of system: operatively closed communication systems (Nassehi 2008:155ff). The autopoietic structures of the two types of systems—consciousness and communication—are similar, as both are meaning-processing systems. Time, Nassehi argues, is a constitutive characteristic of both conscious as well as social operations. It is thus inherent in the operative execution of consciousness and of the social; it does not enter into a conscious or social process as an external element. Communication is not an event in the social dimension that would additionally need to be situated in time; the social event, rather, is itself temporally constituted (Luhmann [1997] 2012:36f). This is also the foundation for a theory of societal development, which in the case of Luhmann is a theory of evolution (see Schützeichel 2003:chap. 4). It is imperative that we hold on to the insight formulated by systems theory that the operations making up the social are temporally structured. Only in this way can we systematically develop an expanded perspective on order. But is it only time that we should be operatively taking into consideration in this way? Why not space as well? There are two options here:

1. Social operations are temporally constituted. In addition, they can also be situated in space.
2. Social operations are temporally and spatially constituted. Space and time are constitutive of social operations.

The first position seems to be the one held by systems theory, even today. While Stichweh (2003), for instance, does try to designate space as another dimension of meaning in addition to the substantive, temporal, and social dimensions, he does not conceive of communication—i.e., the operations of the social—as spatial. While it is common sense in systems theory that communicative operations are substantively, socially, and temporally struc-

tured—in other words, cannot be grasped without reference to time and materiality, or facts (Luhmann [1984] 2005:chap. 2–4),[51]—space is not taken into account on the operative level of the theory. As far as I can see, this would require understanding communication as a bodily process: only if it were a bodily event would it make sense to think of communication as spatially constituted.[52]

The second possibility allows us to properly take into account the significance of space for order formation and is thus, in my view, clearly the more productive one. The current theoretical discussion, however, does not include any elaborated approaches to understanding time *and* space as dimensions of social operations. Action theories such as theories of rational choice (Hartmut Esser, James Coleman) or theories following Weber focus on action, with space and time becoming relevant only insofar as an action can also be regarded as having been executed in a particular place on a particular date at a particular time. Space and time constitute a general framework here that as such remains the same. Since actions can be situated in space and time but are not theorized as spatiotemporally constituted, the dimensions of space and time can, as a rule, be ignored—or included as needed.

An emerging sociology of space seems to currently be in the phase of ad-hoc concepts. Markus Schroer focuses on moving away from a "banal, ultimately geospatial, physical concept of space" in favor of a "constructivist concept of space that traces the emergence of space back to social operations" (Schroer 2006:12). Unfortunately, it remains unclear in what ways these social operations are constituted or whether they are themselves spatial. Martina Löw ([2001] 2016:134ff) ventures a definition of space-forming operations, according to which they are composed of "spacing" and "synthesizing" operations. Just as in the case of Schroer, however, her work is devoid of a systematic analysis of general social theories and the proposals they contain concerning ego-alter constellations. The social dimension of order formation remains severely underdetermined. Overall, Löw seems

51 The original German here is *Sachdimension*, which is variously translated in Luhmann as "material," "substantive," or "factual dimension" (translator's note).

52 If not in relation to communication, Luhmann's work does include a twofold reference to the body: for one in his theory of symbiotic mechanisms (Luhmann [1974] 2005b), which, however, has been largely ignored in the discussion surrounding his work, and, for another, in his analysis of the operations of consciousness. He is not concerned with consciousness in general here, however, but only with the ways in which consciousness can conceive of itself as a unity and accordingly become individuated (Luhmann 1987:53ff).

to take acting human subjects as her starting point, which I deduce from her positive references to Norbert Elias (Löw [2001] 2016:134) and Giddens (Löw [2001] 2016:137ff).

Löw und Schroer both make considerable claims; Löw's subject is nothing less than the "constitution of space" (Löw [2001] 2016:134) and Schroer's the "emergence of space" (Schroer [2006] 2016:12). In other words, social construction, which Löw defines a little more precisely in terms of spacing and synthesizing operations, constitutes space/allows space to emerge. Considering the weight that the social dimension has to carry here, it remains underdetermined in Löw's work as well. If social actions or social construction are to be understood as constituting space, Löw and Schroer must inform us whether or not these space-constituting actions or constructions are themselves spatial. If such activities (actions or constructions) constitute space in the first place, they cannot, strictly speaking, be spatial themselves.

If, on the contrary and according to the view I am putting forward here, these acts are themselves already spatial, spatiality would be given on both sides—both on that of the constituting as well as on that of the constituted. It would then become necessary to ask whether and in what ways space differs in its characteristics depending on which side it figures. An awareness of problems of this kind is insufficiently developed in the current discussion. The formula of the social constitution/construction of X is applied to space without considering the theoretical and methodological implications of such a move. Since both Löw and Schroer start from the assumption of humans as actors, they should at least inform their readers of the anthropological presuppositions embedded in the social dimension. This would give a more precise idea of what is meant by the constitution or social construction of space.

Authors such as Schütz, Giddens, and Bourdieu are more modest in their claims while at the same time more systematic in their reflections on space and time. It is true that Schütz's phenomenological action theory shows, like Luhmann's systems theory, a clear preference for the temporality of action, which he analyzes at length (Schütz [1932] 1995). But while he does not provide an equally in-depth analysis of space, his studies of the life-world (Schütz and Luckmann 1973) incorporate space and time in equal measure. Schütz limits himself, however, to an analysis of the practical accessibility of things in the life-world, starting from the actor's experience of the here and now. The structure of practical accessibility is experienced in the context of everyday routines as the continually recurring possibility of being able to act. It is here where Bourdieu intervenes with his

concept of habitus. The lived body acting in the here and now becomes in Bourdieu a reservoir of practical schemata, of knowledge, values, and ideas (Bourdieu [1980] 2014:68f). These can become actualized by a lived body adopting a corresponding posture. By functionally adopting such postures, the lived body develops spatiotemporally and socially structured relationships to the surrounding field, which it is attuned to, as it were (Bourdieu [1980] 2014:68f). Field and habitus are compatible.

Giddens, too, thinks in terms of the perceiving and acting lived body that, starting from the here and now, establishes spatial and temporal relationships (Giddens [1984] 2011:47). Like Schütz, Giddens emphasizes social routines (Giddens [1984] 2011:35), developing a conception of space and time that goes beyond the here and now. Authority is a matter of the extent to which social control can be exerted over the setting of spatial copresence. Giddens distinguishes between three kinds of time: a) the reversible time of everyday routines, b) the irreversible time of an individual life, and c) the reversible time of supraindividual structures (Giddens [1984] 2011:35; 1987:144). This understanding of time equates repetition with reversibility. Barbara Adam (1990:28) has pointed out the error here, which she illustrates with a simple example: even if you do the dishes every day, the process itself nevertheless exhibits an unambiguous temporal direction. The world is different after the activity than it was before, and this must be put into effect anew every day.

These more or less phenomenologically inspired approaches provide a starting point for an operative theory of order formation that gives equal attention to space and time. Both time *and* space figure into the analysis when operations are understood as taking place in the here and now while at the same time having a reach beyond current/local settings. This, however, falls short of a precise statement about the relationship between the body and space. Neither Schütz, Giddens, nor Bourdieu provide a closer characterization of this relationship that goes beyond that of the here and now. Schütz addresses the reach of effective action without more closely characterizing the lived body. And even though the embodied habitus is at the heart of Bourdieu's theory, the spatial nature of the lived body also remains a gap in his thinking (Jäger 2004:chap. 5).

Giddens ([1984] 2011:45ff) references Gibson's theory of "affordance" (Gibson 1979:127) concerning the relationship of the physical and the lived body to the environment. For Gibson, organism and environment each imply the other and form a single object for analysis (Gibson 1979:8). It is not that there is first an organism to which an environment is then subsequently added; it is rather the *relationship* between organism and en-

vironment that should be the focus. Gibson transposes the reflexive structures that are normally located in the individual into the latter's relationship to the environment. Information important to the organism is not acquired by means of internal processing of external stimuli, but is extracted directly from the environment. Something acquiring significance for the organism, the environment taking on meaning and practical relevance for it, takes place in its relationship to the environment and not in its consciousness. Rather than consciousness attributing significance, the organism experiences something in its perception as immediately significant. It is not a matter, then, of "what's inside your head," but "what your head's inside of."[53] Gibson's theory of affordance proposes that the environment contains affordances for individual organisms that relate to the organic structure of the organism. Thus he considers, for instance, what qualities a surface must have so that it appears to an organism, such as an adult human being, as an affordance to sit: it must appear to be rigid and stable, at knee-height, and so forth (Gibson 1979:128). In the same way, trees make affordances immediately available for the bodies of birds to take advantage of. This structure corresponds to Plessner's understanding of consciousness as a relationship between the self and the environment that is both of a receptive and motor nature (Plessner [1928] 2019:62). For Plessner too the object of analysis is not the organism that is subsequently placed in an environment to which it then relates, but rather the relationship between the embodied self and the environment.[54]

Giddens criticizes Gibson for not adequately taking into account the cultural dimension of the relation between human beings and their environment (Giddens [1984] 2011:46f). He does not himself, however, work out a theory that would develop Gibson's thought further by including the cultural configuration of the relationship of the lived and the physical body to its environment.

In her analysis of sociological theories of time, Adam (1990) arrives at an even more far-reaching conclusion. She argues that sociological theory

53 The quote is taken from William M. Mace, a student of Gibson's, and is cited by Gibson's German translators in their description of Gibson's research objectives in their introduction to the German edition (Gibson 1979:chap. 4).

54 Gibson was also taken up by anthropologists (see, e.g., Ingold [2000] 2011:2f), which is why Descola ([2005] 2013:186ff) feels he ought to engage with him. He recognizes that Gibson's conceptualization of the relationship between organism and environment, which is equivalent to Plessner's theorization of the relationship between lived body and environment, threatens his own differentiation schema of interiority/physicality.

should give up the separation between natural time, understood as objectively measurable time, and social time on the grounds that it perpetuates the nature/culture distinction in the sociological theory of time to the latter's disadvantage. This separation obscures the fact that humans as organic beings live in natural rhythms that are of great significance to the temporality of the social. "We *are* time and this fact unites us with all other rhythmically organised beings. Together with plants and animals we *are aware* of time and experience it. As human beings we *have a relationship* to time and we reckon time. As members of Western industrial societies *we create time* as a resource, as a tool, and as an abstract exchange value" (Adam 1990:161). This is largely equivalent to Dux's call to start from individuals' nature and its parameters in order to understand the time they form in the process of becoming socialized as they interact with the nature surrounding them. Adam does not put forward a theoretical proposal that would go beyond Dux's.

We can conclude from the criticism of systems and action theory articulated by theorists of time that the connection between the social dimension and those of time and space cannot be understood as additive. What we still lack, however, is a theory capable of explaining this connection more precisely. It seems that we must first relinquish key premises of existing approaches before we can arrive at a productive operative theory of the social. The aim here is to locate purpose and meaning in the relationship of selves with lived and physical bodies to their environment and thus also in their relationships to other selves with physical and lived bodies. The proposals put forward by Dux and Adam to apply the sociological theory of time at a deeper level are of particular significance here. Expanded world-openness, however, does not allow for this to be done in a way that embeds "the human being" into nature. Dux and Adam explicitly succumb to a fixation on the human being as a natural/cultural being that creates order, thereby reproducing a key element of the nature/culture distinction. In order to avoid falling into the same trap, I distinguish, following Plessner's theory of positionality, between different levels of complexity in entities' relationships to the environment, which contain a variety of forms of spatial and temporal existence. These distinctions are purely formal and do not imply a focus on human, embodied selves. It is solely the matter of understanding socially relating selves as boundary-realizing beings in their spatiotemporal structure. On the one hand, this satisfies the demand put forward by Adam and Dux to apply our understanding of social time at a deeper level, for the temporality that structures the social remains here on the level of simple boundary realization below the level of intentional,

meaningful processes. At the same time, the systematic increase of complexity also makes it possible to work out categories appropriate to an analysis of specifically modern structures of time. Not least, this includes, as Adam also points out, the interplay between time and the development of modern, self-regulating technology (Adam 1990:167).

Mead's approach in *The Philosophy of the Present* (Mead [1932] 2002) is similar to Plessner's in many respects, including his attempt to work out levels of complexity of temporality and connections with others. Foregoing a detailed discussion of Mead's work here, I will note only two important points of convergence. For one, Mead locates reality in the present, with the past and the future only comprehensible in relation to a particular present (Mead [1932] 2002:1ff). Second, he understands consciousness and sociation as emergent orders based on a simple form, that of life (Mead [1932] 2002:69ff). Mead also thinks in terms of an increase in the complexity of self-referentiality, which makes possible the emergence of consciousness and sociation. His argument, however, is couched as positive anthropology: it is the special characteristics of human beings that enable them to become social in special ways. Mead ties the development of symbols and evolved sociation to membership in the same species: his starting point is the organized process or the organized composite act in which members of the same species can adopt each other's position, allowing them to see their own contribution as well as those of the others from an overall perspective (see Mead 1925; [1932] 2002:82ff). Mead thus remains within the context of simple world-openness. I work out the significance of this limitation in detail in the section on symbol formation.

An important difference between Mead and Plessner lies in their methods of theory construction. Plessner arrives at the reflexive turn underlying expanded world-openness because he not only formulates a theory, but also a methodological principle of theory construction. It seems as if Mead too applies the concept of the reflexive increase in the complexity of the organism's relationship to the environment, but he does not explicate this in its significance for the methodological construction of his theory. Adam criticizes the result as follows: "Mead creates a sense of levels, but his levels appear fluid without clear edges or cut-off points" (Adam 1990:163).[55] In order to be able to compare Mead's approach in *The Philosophy of the Present* with Plessner's, we would have to recreate the structure and principle of the former's theory construction. That would require a chapter of its own if not a whole book. I have thus consciously chosen not to engage

55 See also Murphy's criticism, which is of a similar bent ([1932] 2002:XXIX).

more extensively with Mead, although I will make reference in the following to similarities between Mead and the approach I'm pursuing here. My explicit examination of his work focuses on his analysis of symbol formation—it is this that made him particularly influential in sociology and it is here where the difference between his approach and mine can be seen most clearly.

3.4.1 Positioning oneself in space and time

Plessner's theory of positionality provides a model for conceptualizing the connection between the social dimension and the dimensions of space and time. Above, I analyzed the social dimension in terms of the relationship between centric and excentric positionality, focusing on the spatial aspect of boundary realization. I will now turn to the temporal dimension of positionality theory. Clearly, the compact notion of space and time must be broken down and differentiated. In terms of time, I distinguish between modal time, duration, and positional or digital time. Analogously, the spatial dimension can be broken down into the phenomenologically distinct space of vastness [*Weiteraum*], directional space [*Richtungsraum*], and local space [*Ortsraum*], which may also take on the form of digital space.

Modal time

Plessner's analysis of time has two aspects. For one, he defines the time of living beings according to the modal difference between past, present, and future; for another, he understands the present as the temporal modality that guarantees reality, which means that the past and the future are only real insofar as there are fulfilled relationships between them and the present. This construction is similar to Mead's, who also conceives of the reality of the past and the future from the vantage point of the present. A difference between Plessner and Mead persists, however, in that the latter does not distinguish clearly enough between the modes of time (past-present-future) and relationships to these modes (Mead [1932] 2002:chap. 1). Only by systematically taking this differentiation into account is it possible to clarify Mead's argument: reality is always present reality, and the present is the mode of time starting from which real relationships to the past and the future are shaped.

Plessner develops the structure of modal time by explicating boundary realization in the temporal dimension. According to the definition of life given above, the living body is "out beyond the body that it is" and "into the body that it is." In the temporal dimension, being beyond the body that it is means that the body is not only what it is at present, but that the presently existing body exhibits a fulfilled relationship to the future by containing the potential of being other than it is. Plessner elucidates this by pointing to biological stages of development. The caterpillar is not only a caterpillar but potentially also a future butterfly. At present the caterpillar is a caterpillar; the state of affairs of being a butterfly exists in the mode of the future, the not-yet. The mode of the future has not yet been fulfilled. And yet the caterpillar's relationship to the not-yet of the butterfly is not external to it; the caterpillar is already characterized in the present as having the potential to become a butterfly. This potential, i.e., its fulfilled relationship to the future, characterizes the present of the caterpillar. The caterpillar is only a caterpillar insofar as it can be a butterfly in the future. Its relationship to the future is fulfilled even if the future state of affairs has not yet been realized: the caterpillar is not yet a butterfly and it may fail to develop into one.

This structure of a fulfilled relationship to the future is in accordance with the temporal structuring of the reflexiveness of life. Life does not exist "now" in the sense of a sequence of consecutive and discrete now-points [*Jetztpunkte*]. The present "now" of life is rather characterized by a fulfilled relationship to the future. The present is extended into the future as a possibility it contains within itself; it is determined by a fulfilled relationship to the future. This current relationship to the future also contains a demarcation from the future. It is only by virtue of this demarcation that the present of the living thing can set itself apart from what it may become. The present sets itself apart from the future as the present precisely because there is a fulfilled relationship to the future which is itself not yet realized. This structure holds analogously for the past. The now of the living thing does not simply elapse; it is not simply a passing into the past. It is rather that the living thing demarcates itself from its past by maintaining a relationship to it (Plessner [1928] 2019:167). The living thing is not only what it currently is but also what it was. The present of an organism is determined by the past by means of its present relationship to this past. The past does not determine the present; the present rather selectively actualizes the past according to the requirements of the present and the relationships to the future it contains. The present is thus to be understood as the execution of the mediation of the relationships between the past and the future.

As the mediating element between the past and the future, the present is a component of a process it operatively carries. It is always the present that is real, while the past and the future are only present and real insofar as there are fulfilled relationships to them in the present.[56] This processual form of temporal relationships holds even for simple living beings such as unicellular organisms.

Modal time – centric positionality

Plessner's analysis of time unfolds in the form of a reflexive deduction. He develops the temporal structure of centric positionality by allowing the present fulfillment of the entity's relationships to the modes of the past and the future to reflexively refer to themselves. This modifies both the present as well as the structure of the relationships to the past and the future.

The embodied self not only exists in the present by realizing its boundary but also relates to the fact that this is the case. On the level of simple positionality there are fixed formal parameters for the organism that determine its relationship to the future and the past. The organism relates to its current environment according to these formal parameters and develops according to them as well (e.g., from a caterpillar into a butterfly). If the organism reflexively relates to its relationships to the past and the future, which are determined by formal parameters, then these relationships are given to it and it can shape them itself. The formal parameters become the framework within which the organism itself forms its relationships to the future and to the past. This means that its relationship to the future is, on the one hand, given by its organic structure and, on the other, can be indi-

56 There is no consciousness that could anticipate anything on this level of developmental processes; there are no expectations, for instance. From the perspective of systems theory, this is the level of the autopoiesis of life. The theory of autopoiesis differs from positionality theory in that it does not distinguish structurally between different levels of complexity. The autopoiesis of life, or the autopoiesis of the different organic systems (the nervous system, the immune system, and so forth), stands alongside the autopoiesis of consciousness and that of communication. But it is unclear whether and if so, how, these different autopoiesis structurally differ from each other and how they relate to each other. Luhmann himself notes that the "concept of autopoieses …has not yet led to an adequate differentiation in the literature of systems of life, consciousness (the psyche), and communication (society)" (Luhmann [1986] 2008:162, fn. 5).

vidually shaped within this framework as the organism has experiences. The individual shapes its own life process.

On the one hand: insofar as the organism's relationship to the environment is given in advance, there is no individual leeway to be realized in the present. External stimuli and/or materials pass into the organism and are processed there according to the formal organic parameters. In the case of metabolic processes, for instance, the organism absorbs appropriate materials from the surrounding medium, processes them internally, and excretes the waste, thereby sustaining itself. The organism also develops according to general formal parameters upon which the individual has no influence.

On the other hand: if the organism relates to this structure of execution, not only do stimuli and materials pass into the organism, but the organism relates to the fact that this is the case. The passing of stimuli into the organism takes on the form of experience. By realizing its boundary, the embodied self experiences and is conscious of its environment. This experience is temporally structured. The environment, structured by past experiences in a path-dependent way, provides the organism with options for motor reactions: here I could jump, chase, run away, grab onto something, and so forth. This corresponds to what Gibson describes as environmental affordances for the organism. These affordances are its fulfilled relationships to the past and to the mode of the future in its experience of the environment.

The realization of affordances depends upon the actualized past (past experiences) and on the organism's experience of its own current condition (e.g., tense, thirsty, hungry, exhausted, afraid). The present is thus not only a here/now, but a condition of the sensed spatiotemporal expansion of impulses to act that are experienced in the limbs (for instance). Mediated by this differentiated experience of the organism's own condition, a motor response directed at the realization of the mode of the future takes place. The lion creeps up on the antelope.[57]

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57 For Plessner, consciousness is the entirety of the experienced relationship between the living being and the environment. There is no other way to understand the following statement: "consciousness is not in us, but we are rather 'in' consciousness—that is, we relate to our surroundings as motile, lived bodies" (Plessner [1928] 2019:62). As embodied consciousness, the organism extends beyond itself and is directed toward the outer world; as embodied consciousness it realizes the passing of the outer world into itself. The embodied self individually shapes these executions. It directs itself toward its environment in accordance with its current experience of the present and realizes individually shapeable references to the future. This corresponds to Mead's theory of consciousness, according to

What I am referring to here as an organism's fulfilled relationships to the future are not plans for action but relationships to the future that are relative to the condition of this organism and are experienced by it. It is a matter of what the embodied self is involuntarily ready for. The way in which it is involuntarily ready for something determines the speed of its motor functions, its bodily tension, and so forth. The cow slowly comes to her feet and resumes grazing, turning the plucking presence of her mouth with the grass, which before only existed as an experienced relationship to the mode of the future, into realized presence. This transition from the mode of the future into the present is not guaranteed, however. The cow may fail in her efforts to pluck the grass. Or the thirsty lab monkey expects drop after drop of water as part of his participation in an experiment. The drop coming is a fulfilled relationship to the future that determines the monkey's present behavior. His expectation of water is the reason he actively participates in the experiment (Lindemann 2005a, 2009c). There is no guarantee, however, that what the "expector" is immediately ready for will take place—there may be no water for him today. The lion leaps, but lands in the grass next to the antelope. The organism can learn from such failures, can position itself differently as it leaps, can leap more quickly. Learning always includes a practical actualization of the past in the experience of other future affordances of the environment. This allows the organism to shape its relationships to the environment in an ever more individual way, depending on its particular learning experiences. In this way, the individual life process can become an individually shaped path of development.

The possibility of disappointed expectations does not imply that they were previously identified as individual expectations. Non-explicated, only vaguely imagined expectations can also be disappointed. We do not have

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which consciousness implies an organism reacting to the conditions it experiences. These conditions become an impetus for the organism. The fact that an organism reacts to the conditions it experiences also mediates the temporally structured relationship of its consciousness to external objects, which, because of fulfilled references to the future, are also perceived from a distance as relevant. It is unclear whether Mead thinks of the organism even on the level of simple life as being out beyond itself. He indicates that he does when he points to plant organisms selecting substances for assimilation (Mead [1932] 2002:70); an organism cannot be closed if it makes selections in its surrounding field. But he also writes that it is only the emergence of consciousness that gives rise to a state of affairs in which the organism is out among the things that it perceives (Mead [1932] 2002:69).

to project a precise plan of action into the mind of the lion in order to say that her expectation of seizing the antelope was disappointed. Expectations are experienced, fulfilled relationships to field conditions in the mode of the future. Even vague expectations can be disappointed.

The spatiotemporal structure of touch

A more precise analysis of space and time also allows me to further develop the concept of touch. The state of affairs of boundary realization entails living bodies delimiting an organized area of their own from their surrounding field. At first, this field is spatially unstructured, so that the living body delimits itself as a here/now from an unstructured space. The latter can only be characterized as forming a surrounding expanse with the living body as its center. If this state of affairs is related back to itself, we must speak of an embodied self that can orient itself toward its environment. This entails a differentiation of the spatial structure: now we have an unstructured, surrounding space into which the embodied self can orient itself toward something. Hermann Schmitz worked out the phenomenological difference between these spatial structures in greater detail by distinguishing between the unstructured space of vastness and embodied directional space (Schmitz [1967] 2005:§ 18, § 19). His phenomenological analyses show very clearly that the spacelike extension of the living body does not coincide with the measurable dimensions of the body. As a body reflexively relating to its own boundary realization, the lived body is out beyond itself; it is wherever its orientation comes to rest. This can be illustrated by considering the process of seeing: a self can look out into an expanse without its gaze stopping at a certain place or body; it is oriented toward an unstructured expanse. Or the self can focus its gaze on something; now its gaze ends at that point toward which the lived body is oriented. In this case, the gazing orientation has a goal, coming to rest in the body that it beholds. This self-limitation is not complete, however, as the gaze is not completely fixed on the beheld object. It always extends beyond it as well, situating the object against an indeterminately given background. The gaze can continue into this unstructured space and encounter other objects. Embodied consciousness extends as far as its orientation reaches. As lived body, the experiencing, living body is out beyond itself. From out there, the lived body is over against itself. Embodied consciousness extends spatially as far as its perception reaches when it is hearing, seeing, smelling, sensing an atmosphere, and so forth. The execution of embodied reflexive

boundary realization allows for an embodied self to be connected with another embodied self in a spacelike way. Embodied selves in their interactions are entangled with each other in a spacelike way.[58]

The concept of touch can also be developed further by including the notion of time. Touch means that an embodied self experiences another embodied self directing itself toward it. This embodied relationship is temporally structured. Touch is experienced in the present; at the same time, the experienced orientation of an embodied self in the present contains a present relationship to the future. The touch experienced in the present is aligned in a way that indicates how it will continue. We need not presume that the prey experiencing a predator directed toward it has detailed expectations. To understand why it flees, it suffices to posit a fulfilled relationship to the future in the present experience of the prey which makes it involuntarily ready for what might happen.

In the example of the guard birds, it is the case of embodied selves having the experience of other lived bodies directing themselves in a competitive way toward an object they must try to reach first. The baboon experiencing members of his own species turning their embodied orientation against him—they charge him—succeeds in redirecting their oriented attention in space toward a predator whose possible presence the baboon suggests by means of his own embodied orientation. I understand examples such as these to indicate that embodied selves orient themselves in a surrounding unstructured space in which their embodied boundary realizations may encounter each other. When the embodied boundary realizations touch each other, the selves experience each other and thus realize a shared present. The possible presence of a lion in the surrounding space is realized in the present in equal measure by the escaping/bluffing baboon and his pursuers.

On the level of centric positionality, orientation toward something in the present is fundamentally relevant to spatiotemporal formations of structure. Orientation toward something in the environment starts in the center of the lived body and returns back to the organism from the point at which the orientation terminates. The location of the object or of the other lived body is experienced from the organism's own embodied center. Plessner does not provide a more detailed characterization of the space in which embodied boundary realizations encounter each other. In order to work this out in more detail, I draw on Schmitz's phenomenological analysis of space. His work ([1964–1980] 2005) can be understood as a phe-

58 See also Schmitz's ([1980] 2005b:§ 288) analyses of embodied communication.

nomenologically instructive elaboration of the theory Plessner developed deductively in dialogue with biology.

Schmitz refers to the surrounding unstructured space into which the lived body directs itself as the space of vastness [*Weiteraum*]. This corresponds to our analysis so far, which Schmitz, however, enhances in several ways. He shows how the space of vastness is not identical to measurable three-dimensional space, but is rather the most general definition of space. Space in the sense of a measurable, three-dimensional extension is one possibility of specifying vastness. The notion of a measurable extension presupposes the possibility of breaking down the vastness into divisible units that can be endlessly connected with each other. Thus if we were to link the general definition of space with measurable extension we would have to exclude many phenomena of a spatial character. The clap of thunder we experience with our senses is, as phenomenal sound, spatially extended and situated. The thunder is far above me to the right. But it would be difficult to specify how deep, long, or wide the clap of thunder is. If we recognize the spatial extension of the thunder we experience with our ears, we cannot equate spatial extension with measurable dimensional extension. The same can be said of the extension of the weather we experience. Oppressive mugginess, for instance, seems to be spatially extended—the self moves about in it. But it cannot be broken down into "units of mugginess extension" either—e.g., cubic centimeters—that could be used to indicate its extent in terms of a measurable three-dimensional space.

Given that dimensionality in the sense of dimensional extension in length, breadth, and height can neither be specified for sound nor weather, Schmitz suggests conceiving of vastness not as measurable but as unstructured predimensional extension, undefinable by units of measurement (Schmitz [1967] 2005:206). Schmitz puts forward numerous phenomenological analyses in support of this general characterization of space as unstructured extension (Schmitz [1967] 2005:47ff, 131ff), distinguishing vastness from spaces that can be understood in terms of measurable, extended dimensions (Schmitz [1967] 2005:§ 134).

Unstructured vastness is "given direction" by the individual lived body. Directions point from the lived body into the undetermined space of vastness. This creates orientation in space starting from the lived body's own center as the absolute point of reference. Pathways are appropriated in specific ways within the framework of this orientation: first left, then right, straight ahead, two lefts, then straight again, climb up an obstacle and back down on the other side, straight ahead to the goal. This sequence can solidify into directional routes. Depending on where the lived body is lo-

cated, spatio-directional relationships to the future unfold in the present and follow solidified directional routes. The following two examples demonstrate this:

> The smallest changes in the familiar path were enough to lead to the failure of this kind of steering. If I removed an approximately 8 cm high obstacle from the path my water shrews were used to following, they at first blindly jumped up onto the no longer existing obstacle, which was all the more surprising given that they were quite capable of visually homing in on a similar object in unfamiliar territory. After the small spill caused by this behavior, they would stand up on their hind legs and use their whiskers and hands to feel around in the air for where the edge of the barrier they just jumped at should have been. Desert jerboas behave quite analogously despite their much better vision. In an unfamiliar space, they will easily locate a feeding dish. If, however, they have become accustomed over the course of several weeks to find the dish in a particular spot, they will literally search that spot for hours instead of simply using their sense of smell and sight to locate a dish placed only one meter away—something they could easily accomplish "with an open mind," i.e., without interference in the form of previous habit formation. (Lorenz 1943:336 as cited in Schmitz [1967] 2005:309)

> Piaget (1952, 1954) devised a number of clever experiments in which infants produced interesting effects on mobiles, toys, and household objects, and then were given the opportunity to reproduce those effects—sometimes in slightly modified circumstances that called for an accommodation on the infant's part. For the first six to eight months of life, Piaget's infants basically repeated behaviors that reproduced interesting results, but they made very few accommodations for the exigencies of particular situations. For example, if the infant managed to shake a rattle and produce an interesting sight and sound because her hand was tethered via a string to the suspended rattle, removal of the string did not lead to any changes of behavior; the infant made the same arm movements. Piaget observed many other instances of this "magical" thinking about how actions produce results in the external world. (Tomasello 1999:72)

I see these examples as instances of habitual spatio-directional orientation following certain routes. In the case of the rodents, the matter is immediately clear: their embodied orientation is like a habitual sequence of orientations toward the future becoming fulfilled and, in turn, opening up new

relationships to the future, depending on what part of the route the self has arrived at.

The case of "Piaget's infants," as Tomasello puts it, seems to me to be similar. The babies' motor functions are directionally oriented. They reach in a particular direction, grab hold of the object, and the event takes place. Starting from their own center, they move their arms along the habitual route. Like the rodent whose feeding dish was moved, the habitual, practical orientation is simply repeated again and again. This is not magical thinking; it is rather that the infants follow a well-rehearsed route with their hands. The conditions have changed and the old orientation no longer gets them anywhere, but they are unable to give it up. The individual self is geared to take this particular direction or to grab in this particular spot, like it has always done.

The time-space of excentric embodied selves

Orientation directs itself into unstructured space where related lines of orientation may encounter each other. Embodied interactions take place—among birds, primates, or human beings. Embodied selves have the experience of directing themselves out of their own center into a space of vastness in which embodied lines of orientation can encounter each other in the present. In the space into which embodied selves deploy lines of orientation, these selves touch the boundary realizations of other embodied selves and are touched by them. This state of affairs as a whole characterizes the structure of centric positionality.

Excentric positionality means that this state of affairs as a whole reflexively refers back to itself. We misunderstand the "ex" in excentric positionality if we think of it merely in terms of an excentric embodied self. It is rather the overall structure of centric positionality that has become reflexive. The "ex" in excentric positionality refers both to the excentric positioning of embodied selves as well as to the corresponding modification of the givens of the environment such as things and other embodied selves.

If we examine this state of affairs from the perspective of an embodied self, we find that it not only experiences things and other embodied selves by directing itself toward them, but experiences the fact that this is the case. The state of affairs that there are selves and things in a shared space stands out for an excentric self. It realizes that there is a shared space into which it and other selves deploy lines of orientation that may meet. Above

I discussed the modifications that emerge in this context for the social dimension; here I turn to the modifications of space and time.

Space

An analysis of order formation that relates the dimensions of space and of the social to each other rests on the fundamental fact that excentric, embodied selves are aware of a surrounding space of vastness. Boundaries established between social persons and other entities turn the space of vastness into a potentially social space, a space into which personal, embodied selves direct themselves and in which a self can be touched by others. It thus seems safe to assume the existence of a shared space in which embodied selves meet and in which they can relate to objects that exist as the same objects for all those involved.

In the relationship between the lived body and the environment in excentric positionality, how the space of vastness is structured by directional routes or forms of orientation is not set in advance. It is in this sense that space must be "given direction" in practice. Excentrically positioned lived bodies must themselves develop the forms in which they direct themselves at the environment as well as the associated directional routes. A directional space unfolds, starting from the self's own lived body, to the left, the right, up, down, in front, behind. These directions orient the self's movement in space as well as its reach into space using its motor functions. The lived body must learn to reach into these directions, to develop its own paths of movement for its limbs and specifically for its hands, paths of grasping. The motor body schema develops in such a way as to give the movement of the limbs an ordered structure. This embodied and spatial structuring takes place in dialogue with the affordances (Gibson) of the environment. Tomasello's example from Piaget of infants learning to use their arms to produce effects describes one small step in the individual development of the lived body that gives itself direction in the environment by interacting with it. I will discuss action and the motor treatment of things in more detail below in the section on the substantive dimension.

Variable centering

Directing oneself toward something is a kind of practical orientation. The embodied self experiences surroundings that are spatio-directionally differ-

entiated—turning to the left leads somewhere different than turning to the right. Starting from the center of the lived body, different areas become delineated and can be structured according to proximity and distance. Even here, however, there are no measurable distances. The statement "When I turn to the right I see a tree and beyond it a house" can be made without referring to measurable intervals. Differentiations into spatio-directionally distinct areas make it possible to establish common definitions in space, e.g.: the area behind the mountain, the area downriver, on the other side of the river. Such prominent spatial points of reference can serve the function of new centers of orientation.

The reflexivity of excentric positionality entails the spatial relationship between self and environment becoming reflexive. This reflexivity relativizes the embodied centers and is thus significant for the process of giving space direction. The center from which directions unfold no longer has to be the self's own lived body; spatial structures experienced as prominent, such as mountains, can also become reference points for directions in space. Bateson ([1949] 2000:125) describes the spatial structure in Bali as follows:

> The Balinese are markedly dependent upon spatial orientation. In order to be able to behave they must know their cardinal points, and if a Balinese is taken by motor car over twisting roads so that he loses his sense of direction, he may become severely disorientated and unable to act (e.g., a dancer may become unable to dance) until he has got back his orientation by seeing some important landmark, such as the central mountain of the island around which the cardinal points are structured. (Bateson [1949] 2000:125)

I interpret this to mean that the reference point of embodied directional space in this case is not the individual's own lived body, but the central mountain. If the inability to act can go as far as the inability to move, this indicates that without a relationship to an external center of orientation, the lived body described above becomes disoriented in a way similar to the phenomenon of vertigo in modern Europe. When someone has vertigo, they lose their embodied orientation to the point of no longer knowing where up and down or right and left are. It becomes impossible to become oriented, to direct oneself (forward, backward, up, down) from out of one's own center. If the loss of reference to an external point can have the same effect, this means that an external point can structure the directional space of the lived body.

The realization that the here/now of an organism's own lived body does not necessarily have to be the center of its spatial orientation allows a

whole range of such phenomena to come to our attention. We can observe temporary shifts of the center of orientation, e.g., in relationships of care between adults and children. When a child moves toward an oncoming car, the child spontaneously becomes the center of the responsible adult's spatial orientation in reference to which directions and dangers are experienced. The specific kind of attention demanded by such relationships requires the embodied directional space to be given direction in a way that accords with these relationships.

Local space

Our description of ordered spatial structures requires another distinction here. Embodied selves are directed toward things and selves in space. Directing oneself terminates—if not completely—in the object that is perceived. If this state of affairs is reflexively related back to itself, the self not only gains latitude in which to experience itself directing itself toward an object, but also experiences the fact that objects are given to it. The object is not only given in a functionally structured directing-myself toward the object, but can also be grasped as something that is more than what I can do with it right now. This is also relevant to the analysis of the self's relationship to space. If it is given to the experiencing embodied self that an object is no longer fully exhausted by the former's relationship to it, the object can be set apart from its location. This object is here right now, but it could also not be here; another object could be here instead. This simple operation, which entails a negation of the object, leads to the possibility of distinguishing the location of the object from the object itself. This ability to negate, which modifies the self's understanding of space, contains a crucial characteristic distinguishing centric from excentric positionality. Excentric, embodied selves functionally direct themselves toward the surrounding space as an unstructured space of vastness, where a structured space of locations becomes set apart that is different from the objects that inhabit it.

The most important characteristic of local space is that it does not contain any privileged directions. Directional space has centers from which directions unfold; any spatio-directional characterization is meaningless without reference to the center from which the directions emanate. Left, right, up, down, in front of, and behind all lose their meaning without a definitely given center from whose vantage point these directions are determined. Determinations in local space are entirely different: a location is

different from the objects and the possible presence of an embodied center of direction located there.

Digital space

When the surrounding space is structured into locations that are independent of objects, it can be determined by means of external measurement. This measurement can be conceptualized using a method proposed by Norbert Elias ([1984] 1994) for the measurement of time, which I will explicate in more detail below. Elias suggests that the measurement of time is a three-part relation between a) the object to be measured, b) the reference to the object that serves as unit of measurement, and c) the group in which this reference is institutionalized. Thus in the case of spatial measurement, a stick of a particular length, or the length of the forearm, an ell, can be used as reference object. This reference object can be broken down into subunits—such as a meter into 100 cm. In modernity, the spatial extension of the reference object serving as standard of measurement has become increasingly abstracted from a concrete object, to the point of consisting of pure numbers. Exhaustively accessing local space by means of measures of length, width, depth, and angle, definable by units of any particular size, leads to the emergence of a new kind of space. This space is continuously extended in three dimensions and consists of point-like localities that can be defined in a variety of ways and whose relationships to each other can be measured and plotted in a system of coordinates. Every local point can be defined according to its position in relation to and distance from other points. These relations can be given in units of measurements no matter how small. Space that is exhaustively structured in this way I refer to as digital. All references to local space as accessible by the lived body have been erased here. It was not until the transition to modernity that the digitization of local space became completely established.

The construction of maps is based on such an abstraction from embodied directional space to digital space. A city map presupposes a uniform unit of measure (nanometer, millimeter, centimeter, meter, etc.) that is used to measure the space in question, the objects taking up space within it, as well as their representation on the map. This is the only way for controlled transformations from the territory to the map to take place. Conversely, the art of reading a city map arguably consists in translating digital space into directional space. When I read a city map, I identify the spot "where I am," and unfold spatio-directional relationships from there. I am

here and have to first turn right, then go straight, take a left at the third intersection, and so on.

The distinction between the space of vastness, directional space, local space, the latter's formation into digital space, as well as the consideration of variable ways of centering in space concludes a first characterization of space. But how does this contribute to an analysis of order that factors in the social dimension and, as in the case of sociology, investigates the formation of order primarily from the vantage point of the social dimension? First, it indicates that referring to "space" is too general. We must always be more precise about what spatial structures are meant and what their relationship to each other is. This can only occur in the context of empirical research. But even the observations made so far call into question the almost universally accepted assumption in development theory that the advent of modernity was accompanied by a reduction of the importance of space.

If we look at the modes of orientation in non-modern societies, we find a dominance of directional space and of local space as tied to the lived body, with the space of vastness also continuing to be relevant to order formation. The onset of modernity, on the other hand, is characterized by an increased relevance of digital space to order formation. The idea of urban and regional planning alone, the planning and the practice of the organization of the flow of traffic and commodities, are unthinkable without a generally established dominance of digital space. Only digitalized space allows for a precise calculation of how many objects fit into a warehouse.

Human beings as the embodied actors of modern society have to situate themselves in a local space tied to their lived bodies as well as living there in reference to a digital space. They give themselves direction in this space by locating themselves as embodied centers of direction in a spatially relative way. Shifts in local space require individuals to repeatedly adjust their embodied directional orientation to digital space. People and commodities fly from city to city on flight routes planned in digital space. Human beings orient themselves in foreign cities using city maps by locating themselves in a directionally spatial way. It is not clear how space can be said to have become less significant in this context. In this sense I have to agree with Schroer's criticism of this sociological "metanarrative," although his criticism/diagnosis does not attain conceptual clarity.

> It is crucial to note that in the context of a sociology of space, the claim made in classical theories of modernity as well as in current theories of globalization that space has become "irrelevant" or "devalued" (Bauman 2000:117f) is based on a confusion between space and place.

> Upon closer inspection, the pronouncement of the end of space means a greater independence of economic, political, and social activities from certain places. We can observe at most a successive replacement of place by space in the development from primitive to postmodern societies. Communication and transportation technologies continue to open up ever more spaces while at the same time loosening the relationship to place—without, it must be said, making place disappear altogether, (Schroer [2006] 2016:172).

Schroer's analysis would be correct if space were exclusively local or digital space. Under this premise, the spatial orientation of simple societies would have to be understood as tied to locality—the technical underdevelopment of transportation means that people can only travel a distance of a few kilometers. This, however, implies that the spatial order of "primitive societies" is, in principle, the same as our own, the only difference being that modern means of transportation make it possible to reach more places that are at a greater measurable distance from each other more quickly. Schroer suggests expanding the notion of place into a notion of local space. While this is a reasonable idea, it also universalizes local space as the dominant order-forming spatial structure, which is not justified since premodern ordering systems of space are structured in a much more spatio-directional way and maintain a relationship to the space of vastness.

Maurice Leenhardt's impressive ethnography of New Caledonia, based on twenty-five years of field research (Leenhardt [1947] 1979), describes an ordering system of space that can hardly be understood if considered in terms of modern local space.

> If a man happens to be dealing with the upper world, drawn there by a strong emotion, the sky can then be reached by an arrow the man shoots into it. Other arrows follow the first, each nesting in the last, and they soon build a route of communication permitting him to pass from the earth to the sky. The same procedure with arrows is found as far away as America. We see that space is without specific dimensions; it is essentially qualitative. (Leenhardt [1947] 1979:45)

According to this description, vastness that is not structured by units of measurement can be made accessible by directing oneself into it by means of the flight paths of arrows—a procedure that appears absurd if we think in terms of orientation in local space. Leenhardt provides another very instructive observation of how the different orders of space held by the colonial administration and the New Caledonians led to armed conflict:

> [Space] is also discontinuous. The deified ancestors disappear into regions which are their own, to islands remembered in myths, which no one has ever seen, such as Bolotru Island for the Fijians or Suné Island for the Solomon Islanders. We may believe these islands unreal, and in fact they are. But the Melanesian considers our geography, and not his own mythic world, unreal. The people of Buka had a strange experience some years ago which obliged them to reexamine their views about Suné Island, the land in which their ancestor gods dwell. A steamship dropped anchor off their coast each month, bringing merchandise they were eager to buy. The white businessmen in Buka told the natives the ship came from the Australian port of Sydney. The natives confused the name of the city, Sydney, with that of the island of the gods, Suné. They were sure that the boat was a dispatch from their ancestors in Suné and the merchandise a gift of ancestral and divine favor. One day an incident occurred and they were forbidden access to the ship. They protested, feeling that the boat was somewhat a possession of their own, as sons of these gods. Discussion, resistance, and excitement ensued, and the administration, naively expecting a revolt, sent troops to take police action. It would have been enough, however, to explain to the natives the character and nature of the port of Sydney; it was not the paradise of Suné Island, and the ship had no mythic tie. (Leenhardt [1947] 1979:45f)

This account brings another characteristic of the unstructured space of vastness to our attention, namely that it creates an accessible connection between this world and the beyond. Objects entering the immediate vicinity from the space of vastness may be from the world of ghosts, ancestors, and gods. It is also possible for ghosts or ancestors themselves to come from the space of vastness and to establish direct contact with the living. It would be worth testing the hypothesis that ancestors and ghosts can only function as actors if the space of vastness constitutes a relevant structure within the ordering system in question.

References to an unstructured space of vastness are made impossible to the degree that local/digital space becomes established as the dominant structure of order formation. Taking into consideration that vastness beyond measure can be key for order formation entails caution regarding the traditional sociological narrative of modernization. At the very least, it would be advisable to reassess this narrative in light of a pluridimensional theory of order formation. The inhabitants of Buka Island live in a space of proximity, with a local space tied to embodied directional space. But reference to a non-dimensionally structured space of vastness also remains rele-

vant to their overall ordering system of space. The reference to this unstructured space of vastness is lost in the development of the modern ordering system, where space comes to be understood exclusively as local space and finally as digital space, i.e., as a space that consists of a network of places in close proximity to each other and in which one can measurably move from place to place. The structure of modern space is one of a nexus of currently given proximate spaces structured by digital or local space and contains no reference to vastness. The fact that one can travel large distances from one local space of proximity to another does not affect the basic structure. We should be integrating such changes in the spatial structure into our analysis rather than unreflectedly projecting the structure of modern space onto all ordering systems.

Sociology has not even begun to narrate the development of ordering systems of space. Instead, an unreflected modernism has so far obscured analysis. The phenomenologically inspired categorical structure of space I worked out above should be understood only as a heuristic a priori; there may be other orders of space that do not fit into these categories. Nevertheless, the categories I propose seem to me to be significantly more productive than what has been available thus far.

Research perspectives for the analysis of modernity can be derived from this categorical structure of space. How did the space of vastness come to be eliminated as a relevant order-forming factor? Was this elimination completely successful, or is the space of vastness still relevant to the modern order of space? How do embodied directional space and local/digital space interconnect? Is the global village of megacities even conceivable without digital/local order formation? Is there evidence of an increasing dominance of digital space in the development of architecture and urban planning? What is the connection between the establishment of digital space and the creation of the infrastructure for modern communication technologies such as telegraphy, telephone, or the Internet?

Time

Centric positionality is characterized by the experience of fulfilled relationships to the future and to the past. It is not necessary for a state of affairs to be fulfilled in order for a realized relationship to it given in the mode of the future to transition to it being given in the mode of the present. This is the case, for instance, when an embodied self is involuntarily ready for something that does not occur; the expectation is disappointed. The experi-

ence of disappointment can be processed in the form of learning. The embodied self tries to henceforth be a more careful observer; it may mobilize past experiences in order to master a new situation. A fulfilled relationship to the past is evident not least in the fact that centrically constituted selves learn and are thus able to individually shape their life processes.

On the level of excentric positionality, this temporal structure reflexively refers back to itself. Several modifications occur here. In addition to experiences of relating to the past and to the future, there are now also experiences of the fact that there are these experiences. This means that for the embodied self, the past, future, and present become set apart as different modes of time, and that these differences can together be distinguished from duration.

This changes both the experience of disappointed expectations as well as the possibility of dealing with them. The experience of being disappointed for an excentric self is the experience of having been ready for something specific. The expected state of affairs sets itself apart as such. The self can ask itself whether there are other states of affairs it is involuntarily imagining which it would do better to no longer expect. Or the excentric self can become unsure of whether it ought to hold on to a particular expectation or not. The difference between the temporal modes of past, present, and future points to the possibility of discontinuity. Something that existed no longer does, or something that exists will not necessarily do so in the future. Duration stands in contrast to this possible discontinuity. If something endures, it existed in the past and exists now and will exist in the future.

Modal time

The structure of modal time is at the heart of many modern theories of time. Modal time distinguishes between the modes of past, present, and future by always relating the past and the future to a current present. A current present contains a future that will follow upon this present as well as a past that preceded this present. When the present future is realized, the structure of modal time shifts. That which was present is now irrevocably past; the expected future has arrived, and other future possibilities may emerge from this present. This basic structure is found in what are otherwise very different theorists such as Husserl ([1928] 1990), Mead ([1932] 2002), Luhmann (1978), Schmitz ([1964] 2005:§ 17, § 38), and Plessner ([1928] 2019). My argument is based primarily on Plessner and, in a limi-

ted sense, on Schmitz, as both of these theorists think in terms of spatial, embodied selves instead of consciousnesses like Husserl or systems of meaning (consciousness, social system) like Luhmann. The restrictions found in Husserl and Luhmann make it difficult to categorically grasp the relationships between time, space, and lived body. The differentiated understanding of spatial relationships emerging from my readings of Plessner and Schmitz is also an important advantage over Mead.

In order to clearly develop the importance of the present and its specific relationships to the future, I will posit a thought experiment based on the premise that orders of expectations on the level of excentric positionality are not ensured by formal parameters as they are on the level of centric positionality. Under these conditions it may happen that all or at least all structurally relevant expectations are disappointed. In that case, there would no longer be anything an embodied self would involuntarily have to be/permitted to be ready for. The only thing that would be given for a self in such a situation would be itself as it is confronted with a suddenly erupting but unstructured future. The self is now involuntarily ready only for *something* to happen. There is still a transition from the future into the present; something new is always happening. An experience of this kind could take on the form of panic. In extreme cases, the panicked self's differentiated perception of its surroundings breaks down. All there is is a threatening, vaguely given future and the impulse to flee—"get out of here."

In this case a relationship to the past would be cut off as well. A present, fulfilled relationship to the past that is no longer valid in the present would be severed. Attitudes acquired in the past, knowledge gained, would become worthless; the possibility of learning from the fulfilled relationship to things that happened in the past would become obsolete. The past would be cut off and the self would be confronted with an unexpected future not characterized by structured expectations. All that is certain for an embodied self in such a situation is that it is here/now as this self and that it faces an uncertain, possibly threatening future. The temporal structure expressed in this state of affairs is the ideal type of modal time. Its key characteristic is that it "contains modal differences of existence and non-existence: that which is present is here; that which is past is no longer; that which is to come is not yet" (Schmitz [1964] 2005:156). These modal-time differences also form the starting point of Plessner's analyses of time, al-

though Schmitz works them out in a phenomenologically more precise way.[59]

The relevance of modal-time differences can also be phenomenologically developed in reference to less dramatic cases than panic. An employee who identifies completely with her job, lives for her job, is suddenly fired. The order of her life upon which she could always depend erodes and will never be restored, at least not in this way. The continuity of her previous life is gone and she is confronted with an open future. All that is certain about this future is that it will come; the undetermined approach of the future remains. Or a successful dancer breaks his leg and can no longer dance. Or a woman receives a text message from the man she loves and with whom she wanted to live out her life informing her that he is leaving her and won't be returning from his trip. The continuity of life breaks down in situations like these; the past painfully sets itself apart as irrevocably gone. All that remains is a largely undetermined, vaguely threatening or empty and dismal future about which the only thing that is certain is that it will come.

If temporal modality becomes contoured in this way, the modal difference between past, present, and future also becomes clearly contoured. Accentuating modal difference points to the irreversibility of time. The future is not yet, the past is no longer, and everything that is is in the present. While Schmitz focusses primarily on the modal differences, other theorists emphasize another, no less important aspect: a future passing into the present changes current relationships to the past and to the future. A new future becomes possible on the basis of the present that is now current, and the relationship to the past changes, while preserving the significance of the modal differences. Even Luhmann, who has a preference for unspectacular, everyday examples, reaches in this context for what is, by his standards, a dramatic scene: "If my house burns down while I am on vacation, this changes what this vacation was: it now turns out that my insurance coverage was insufficient, that I have to look for temporary housing, and so forth" (Luhmann [1980] 2004:242). The present that is characterized by the arrival of an unexpected event changes the past and creates new future possibilities. It would not occur to even the most overcautious person, someone who plans everything in advance, that looking for tempo-

59 Modal time is key for understanding time as operatively relevant for embodied selves. The main difference between this conception of time, which is based on Schmitz and Plessner, and that of, e.g., Husserl or Schütz is that here the analysis centers on the lived body with its sensory relationship to its environment.

rary housing could belong to the possibilities that will specifically open up for them in the future upon their return from vacation.

Overall, Luhmann's understanding of modal time exhibits a certain preference for the future. This becomes apparent not least in his theory of meaning, which he defines as the relationship between actuality and potentiality. Something that is in the present may continue in a variety of ways (see Luhmann [1971] 1990:32). The meaning-processing operations of consciousness (Luhmann 1987) and communication (Luhmann [1984] 2005:chap. 4; [1997] 2012:chap. 1) disintegrate and have to be continually recreated. If time is understood as the sequence of meaningful operations, the relationship between the present and the future takes on the greater significance. By contrast, the relationship to the past is relevant for the formation of order and thus for the duration of structures. According to Luhmann, however, structures are formed on an unstable foundation that requires constant reproduction. Duration as its own category of time does not figure in Luhmann's work.

I will now turn to an examination of the modes of time (past, present, future) as well as to the concept of duration as that which sets itself apart from the alternation of temporal modes. Based on this I will work out a theory of positional time. Positional time, i.e., the possibility of measuring time and dating, seems to be particularly relevant for structure formation in modern societies. Positional time is the analogue of local space in the temporal dimension; here too we find the corresponding phenomenon of digital time that can be measured in discrete units. The shift of order formation to digital positional time is probably similarly significant for the analysis of order formation under conditions of expanded world-openness as is the dominance of digital local space for modern order formation.

Duration as chaotic multiplicity

It is the specific reflexivity of excentric positionality that initially allows the state of affairs of modal time to emerge. What is here sharply accentuated as the directedness and irreversibility of time sets itself apart, in turn, from duration. Bergson ([1888] 1912) already emphasized the importance of the phenomenon of duration for the organic as well as the inorganic world, with both Plessner and Schmitz taking up his work in a more or less direct way. Plessner's theory construction and Schmitz's phenomenological analyses have an important advantage over Bergson, however: they possess con-

ceptual clarity, in particular as concerns the relationships between time, space, and embodied experience.[60]

I began my analysis of modal time by looking at scenarios in which important structure-forming expectations have broken down: the hard-working employee is fired; a woman's lover ends their relationship with a text message; the passionate dancer breaks a leg and will never be able to dance again. In such cases, the parting, the chasm between the present and the past is stark and painful—never again will things be as they once were. The condition of the experience of "never again" is its contrast with the self's own duration. The excentric self lives on, outlives the collapse of its order of expectation. It is precisely this fact that can be the painful thing. Everything that mattered to me is no longer here, but I am still alive and have to bear it. I was happy and sustained by our love, but no longer. Would it not be better if I were gone as well, if I were dead? The irreversibility of time stands out sharply and clearly for those affected, along with the fact that they themselves are still here and will continue to be. Thus the state of affairs of duration stands out at the same time as irreversibility.

Duration sets itself apart in a way that is correlated to modal time. But what is its temporal character? Time understood as modal time makes something like duration seem impossible. In modal time, the fact that something exists is tied to the present. The present does not endure, however; there is a passage from the future into the present, and the past is separated from the present by a chasm. It is past. How then could an ego, an excentric self, endure? It cannot be that I am in the past, the present, and the future all at the same time—my past self is no longer; it is past. The dancer I once was I will never be again. My present self does not endure since the present has no duration, and I am not yet what I will be in the future.

It would seem that duration is impossible to classify in terms of modal time. Systems theory, for instance, only provides a kind of analogy of duration. For Luhmann, the state of affairs of something existing continuously

60 This holds in particular for Schmitz's distinction between two forms of multiplicity—chaotic and individualized multiplicity. As we will see below, this distinction is very helpful for a clear conceptual understanding of duration. Schmitz ([1964] 2005:319f) pays his respects to Bergson in relation to chaotic multiplicity as well, noting that the latter had already referred to this phenomenon (Bergson [1888] 1912:151) without, however, clearly conceptualizing it. I point this out only in passing, without the space to undertake a detailed comparison between Bergson's, Schmitz's, and Plessner's analyses of time within the context of the history of philosophy.

is brought about in a secondary way by the observation of a succession of events. The continuity of a process is brought about by elapsing operations observing other operations by means of the before/after distinction (Luhmann [1984] 2005:443), thereby creating a process that endures for a particular period of time. The sustained existence of a system is brought about by operations observing other operations by means of the system/environment distinction and forming corresponding structures (Luhmann [1984] 2005:443f). This preserves the modal-time orientation: duration is understood as ongoing existence in relation to a secondarily created derivative that has to be constantly maintained by means of operations occurring in the present.

Schmitz puts forward a different proposal for categorically grasping duration, based on an idea of Bergson's. Schmitz grounds his proposal in a differentiation within the theory of multiplicity, that is, in the distinction between individualized and chaotic multiplicity (see Schmitz [1964] 2005: § 31, § 32, § 33). A multiplicity is a quantity consisting of multiple elements; it is possible to decide what belongs to this quantity and what does not. Now such a multiplicity can either be individualized or chaotic. In an individualized multiplicity, it is decided whether the individual elements are different from or identical with each other. If it is clear whether and in what way the elements differ from the other elements, the individual elements can be identified as such and distinguished from all the other elements. Such elements can be counted as discrete elements, which is why I use the terms individualized multiplicity and discrete multiplicity interchangeably. The quantity of all Easter bunnies produced by the Lindt Company would be an example of discrete multiplicity. While the individual Easter bunnies resemble each other, each individual bunny can be distinguished from all of the others. If I bought this bunny and not that one, it is this one that I have to take home. If I want a different one, I have to either exchange the bunny I bought or buy a second one.

In the case of chaotic multiplicity, it is not decided whether the elements of the quantity are identical to or different from each other. While it is clear that multiple elements are involved, it is unclear whether and in what ways the individual elements differ from or are identical to each other. A chaotic multiplicity consists of elements, but not of discrete elements. It is not a matter of fuzzy logic here, where there are only vague boundaries but no question as to whether elements are completely identical to or completely different from each other. This question is significant for chaotic multiplicity. It is a matter here of quantities with multiple elements, but since it is undecided whether the elements in the quantity are

identical to or different from each other, they are uncountable. Since the elements cannot be identified as elements that are different from each other, they cannot be counted.

Chaotic multiplicities can be absolutely or relatively chaotic. In the case of absolutely chaotic multiplicities, it is completely undecided whether and in what ways elements are identical to or different from each other. In the case of relatively chaotic multiplicities, it is decided for some elements whether they are identical or different from each other, while it is undecided for other elements.

How then can the duration of the excentric, embodied self with its ego structure be understood as a chaotic multiplicity? It cannot be conclusively determined whether an enduring object or state of affairs only existed in the past or only exists in the present or will only exist in the future. There are two possibilities for comprehending the relationship between modal difference and duration. One is that the state of affairs in question is in the past as well as in the present as well as in the future. The other possibility is that it is undecided whether the state of affairs is only in the past, only in the present, or only in the future. The first possibility contains a logical contradiction that is all the more apparent in that the reality of a thing is tied to the present. It follows from this that if the statement is true that state of affairs X is in the present, it is also true that state of affairs X is real. If, however, state of affairs X is also in the past and in the future, it is also unreal. This would be a contradiction.

This contradiction can be avoided if we characterize duration as chaotic multiplicity. In this case, the statement that state of affairs X endures would mean that it is undecided whether it is only in the present and thus real or whether it is in the past and in the future and thus not really existent. The converse is also true. It is not decided whether something that endures can be assigned to one of the three temporal modes. Something endures, then, insofar as it is undecided whether it is in one of the modes of modal time or not (Schmitz [1980] 2005a:§ 277a).

The duration of the individual person

The concept of chaotic multiplicity makes it possible to grasp the changing conditions in the duration of the individual person structured as an I. Insofar as this person endures into the past, she is identified with the past. This person is still the I she was in the past in the present. I not only experience the fact that things will never be as they were before, but I also ask myself

whether I did not bring about the disaster myself. Thus the fired employee might ask herself: why did I initiate those changes in the way we manage our human resources? This contributed to the failure of the company. In the same way, the dancer might ask himself: why did I make that leap? I could sense that my leg would not be able to pull off that turn. I knew it wouldn't go well. And a student might ask: why did I hide my cheat sheet so badly? Now I'm not allowed to take the test. The crucial thing here is that it is not only the case that it was me who did something, but is also undecided whether it is still me and will continue to be me (Schmitz [1980] 2005a:§ 277b). The undecidability of this question has consequences that Schmitz does not specifically address, but that to me seem obvious. If it is possible to leave oneself in the past after having done something, the problem is solved. The student can say: "It's true that I didn't hide my cheat sheet very well during the test last week, but that won't happen to me again. I was stupid, but not anymore." Similarly, the dancer can free himself from his haunting past by discovering that, while he will never be able to dance again, he has always had other skills that were covered up by his dancing, skills he can now develop. At the same time, he discovers what led to the accident: he leapt although he sensed that his foot was not grounded. He acted against his own intuition. This will not happen again. From now on he will listen to his inner voice. Accounts of oneself such as these, not uncommon among members of the middle class in modern societies, show the clear attempt to exclude something from the duration of the person. It is an active shaping of one's own self as a continuous unit. This reflexive, shaping relationship to the duration of the person is always in tension with duration and modal time. The aim is to reflect on myself now in order to discover what possibilities I have for shaping my future differently, to uncover the already existing possibilities in myself that can be used for the future. This reflexive relationship to the duration of the individual person has been described in the sociological literature as one of the important structural characteristics of modern sociation (Bröckling [2007] 2016).

Shared duration

As we saw above, excentric embodied selves also direct themselves into the space of vastness as a shared space in which they can touch each other. The space of vastness is temporally prior to the activities of the embodied self, its perceptions and actions that take place in the present. It endures before

perception, movement, and action have begun and does not break down when these end. The space of vastness is characterized by duration insofar as it is enduringly given as that into which a perceiving or acting self-direction can unfold.

Duration conceived in terms of chaotic multiplicity is also key to understanding the space of vastness in relation to modal time. It is not decided that a space into which an embodied self gazes is only in the present, for the transition of the future into the present would mean that it would become a space that no longer is; it would no longer exist, it would be in the past. This does not seem like a reasonable place to start. The space of vastness is rather given to the embodied self as a space that endures, as a space that was already there before a self unfolded a directional space in it. Present space endures into the past and into the future. It is not decided whether this space is identical to or different from the past or the present. The space of vastness endures insofar as this undecidability exists. Insofar as this space endures, it is neither positively determined by one of the modes of modal time, nor is it certain that it is not determined by one of these modes. In this space, what is currently happening stands out, and thus what can be determined in terms of modal time as presently occurring, as what was not yet there, for instance, yesterday (see Schmitz [1967] 2005:116ff).

Treating the analysis of the duration of the space of vastness as a condition for the analysis of the formation of social time reveals both its proximity to as well as its difference from other phenomenologically inspired theories of time. The duration of the space of vastness seems to me to be a basic precondition for the ability to repeatedly act, as Schütz argues. At the same time, my line of argument departs from Schütz's when he attempts to develop the possibility of social time, a time that is shared by ego and alter, solely from the concept of time. Ilja Srubar (1979:47) notes that "it is clear that public time is the dimension in which different perspectives can come up against each other: public, because a supra-individual dimension is required; time (and not space), because the world is perceived in an egocentric way, i.e., the respective '*hic*' and '*illic*,' that is, the spatial standpoint, determines perspective along with the particular biographical situation." What is important about this passage is that for Srubar, the spatial aspect of the lived body as that which is here/this one prevents the emergence of a shared, a public sphere. It is only in the temporal dimension that a shared public time can emerge—the same phenomenon in the spatial dimension would be impossible. This is the consequence of Schütz's limitation of the spatial dimension to the aspect of "here" rather than in-

cluding encompassing space as well. His conceptualization of the space that encompasses the lived body existing here is not phenomenologically differentiated.

Schütz understands the shared, public time in which ego and alter are embedded as objective, measurable time, which he distinguishes from inner duration. "On the other hand, it is the inner time or durée within which our actual experiences are connected with the past by recollections and retentions and/with the future by protentions and anticipations. In and by our bodily movements we perform the transition from our durée to the spatial or cosmic time, and our working actions partake of both" (Schütz [1973] 1990b:215f). Cosmic time is measurable time as it is conceived in the natural sciences (Schütz [1973] 1990:215); for Schütz it is the time shared by everyone.

Luckmann's interesting alternative to this notion of social time, which is in line with modern concepts of measurable time, bears a certain kinship to the argument I am pursuing. His conception of inner time is not, or not only, based on the stream of consciousness, but rather on what he calls the inner rhythms of embodied, physical life. These rhythms have to be synchronized, which occurs by means of reciprocal attention. Social time is developed in this synchronization. "If attention to the other is being given reciprocally, that is to say, if synchronization is achieved, sequences of action originating with different individuals can be geared into one another so as to form a unitary flow of social interaction" (Luckmann 1983:79). Without saying so outright, Luckmann here departs from the purely consciousness-oriented, non-space related form of social time suggested by Schütz. The fact that his intuition was correct here is confirmed by the following.

In order to develop my argument, I will turn first to Norbert Elias's concept of continua of changes, which he uses to define time as a functionally tripolar relation. "To relate different continua of changes to each other as 'time' is therefore to link at least three continua: the people who connect, and two or more continua of changes, one of which takes on, within particular societies, the function of a standard continuum, a framework of reference, for the other" (Elias [1984] 1994:46f). Elias's empirical references to non-modern temporal structures are rather cursory. He thus interprets the novel *Arrow of God* by Chinua Achebe as an ethnographic study about life in an "Ibo village of Eastern Nigeria" (Elias [1984] 1994:163ff), using this depiction to put forward a definition of time that is independent of the continuum of change of the clock. The society in question here is a village community, whose socially relevant time is determined by the course of

the stars and the work in the fields associated with it. Both (the course of the stars and the work in the fields) are continua of changes in which all the members of the community are more or less socially involved. The priest can determine by the position of the stars whether it is time, for instance, to sow or to harvest. The continuum of changes of the stars serves as a framework of reference for the recurring work that secures the life of the village (Elias [1984] 1994:178). The sequence of these continua is, on the one hand, self-evidently given; on the other, however, socially mediated by norms. The stars do not follow an independent course, but visit, as it were, those to whom they appear, and must be accordingly greeted. If such social norms are not observed in relation to, e.g., the moon, the entire process of life may unravel (Elias [1984] 1994:165f).

This analysis suggests that cosmic shared time cannot be interpreted in terms of measurable time. But even Elias does not quite rid himself of this approach. He interprets the concept of continua of changes in such a way that a clock, Schütz's "chronometers" ([1973] 1990b:215), can also be considered a continuum of changes. For Elias, a clock is merely the more abstract continuum of changes with the greater ability to synthesize which has become the standard in modern societies, where other activities are measured by clocks. Elius thus understands both the course of the stars, with which the priest is in personal contact, and the modern clock as continua of changes. The difference is only one of precision and levels of synthesis (Elias [1984] 1994:174).

A closer look at the ethnographic literature confirms important features of Achebe's novelistic ethnography, while at the same time making clear the difference between such premodern continua of changes and clocks. Premodern continua of changes are components of an indeterminate duration in which those involved live. Discrete units of measurement allowing for a precise measurement of time are not yet available. An orientation toward the continuum of changes of the course of the stars, for instance, means that it is impossible to break time down into hours in the modern sense: the hours of day and the hours of night are of a different length in the winter than they are in the summer. The introduction of hours of a uniform sixty minutes only succeeded once it was no longer the course of the stars, but rather a mechanical clock with a striking mechanism that became the framework of reference (Dohrn-van Rossum [1992] 1996). In the premodern context, instead of a precise measurement of time there is an embeddedness into a rhythmized duration of a practical relationship to the world. As they experience changes in the surrounding world, the actors are motivated to take action together. Their experience of the world shows

them what it is time to do. This can be mediated to a greater or lesser degree by rituals.

Leenhardt ([1947] 1979:79f) writes of New Caledonia that the more isolated and secluded the life of a particular group, the more immediately the coordinated activities of the group are determined by the rhythms that take place in the surrounding space. In larger groups, elaborate rituals coordinate work. It becomes the responsibility of the priest to determine the proper time for sowing and harvesting different plants and to communicate this to the others, which he does by planting miniature beds. These beds are in some ways like a calendar that the villagers can use to orient themselves. They repeat the actions of the priest.

"The time is favorable for farming because it is a repetition of the time during which the priest has put his little mountain under cultivation, or a repetition of the more venerable time when the gods previously permitted good harvests. All reality and all efficacy are enclosed in this time which has just been proclaimed. Therefore, it is essential to assure the right passage of this time with observances to ward off danger, for instance, in the periods of conjugal prohibition during the yams' growth" (Leenhardt [1947] 1979:80).

Integration into the rhythmically structured duration in this case occurs by means of rituals and the priest's ritual work in the fields. The priest's rites structure the duration in which everyone lives together. This structuring, however, has nothing to do with introducing measurable time. While differentiations that are not confused in everyday experience are introduced into the duration, it is not a matter of measured time with discrete, countable units. Embodied selves are integrated into a continuous return of events, whose beginning is communicated to them by ritual or immediately by events in the surrounding world, but whose phases have an indefinite end.

In New Caledonia, the changes of the moon are used as a standard continuum of changes for the rhythmized duration of group life. The sequences of the moon, its periodic return, designate a new beginning. The sequences of these beginnings define the course of the year. Every moon has a name that corresponds to the events and activities that begin with it, with ten such moons distinguished. This would seem to imply that, according to exact calculation, the New Caledonian year is continuously shifting in relation to ours. That, however, is not the case. Since the moons last as long as the activities that begin with them, there are moons that last longer than others, adding up to a year that roughly corresponds to ours. The duration of this year is divided into parts, but not into countable

parts. The concept of relatively chaotic multiplicity seems to me to be the most appropriate one for characterizing the logical structure of these New Caledonian "moon months." Individual characteristics set themselves apart from the course of time; especially beginnings are accentuated, but then measurement becomes indistinct. Only the beginning of something new is relevant. This is designated when it is time and communicated to the embodied selves, in some cases mediated by the rituals of the priest.

The duration of things

Based on the foregoing reflections on the duration of space and its integration into a rhythmized duration, I now turn to two other forms of duration relevant to social theory: the duration of things and the duration of structures of expectation. With the latter, we enter the key territory of phenomenologically oriented sociology, including ethnomethodology and Giddens's structuration theory. Giddens in particular has always insisted that everyday life is shaped by duration, especially what he considers reversible time. The routines of everyday life provide the security for being able to do something again and again (see Giddens [1984] 2011:35).

I have chosen the simple example of metamorphosis for my analysis of the duration of things. I see a shard of pottery lying on the ground. As I bend over to pick it up, I am involuntarily ready for the associated haptic experience. I pick it up; it feels strange. I feel the object and look at it more closely: it is a piece of bacon rind. I drop it.

The thing that I saw, picked up, and dropped was one and the same thing that outlived its metamorphosis from shard of pottery to bacon rind. In this experience of disappointed expectations, it is on the one hand relationships to the future and to the past that stand out, and, on the other, the phenomenon of duration. The thing endures while its relationships to the future and to the past are modified. What the thing positively is, its suchness, its properties, change. I was haptically ready for a shard of pottery, but what in the fulfilled relationship to the future of picking up was a shard, in the fulfillment of this future becomes a piece of bacon rind. And yet it is the same thing that at first appeared as a shard of pottery and now is a piece of bacon rind.

If we attempt to situate this transformation in modal time, we are confronted with the fact that the thing is chaotically multiple in terms of its temporal duration. The thing itself is neither identical to nor different from the shard of pottery that it was. It endures from out of the present, in

which it is a piece of bacon rind, into its past, in which it was a shard of pottery that it no longer is. From out of the present it also endures into the future. I am involuntarily ready to be confronted by a piece of bacon rind if I choose to touch it again. This is what I assume for now, although I could be disappointed again like I was the last time. But if my senses were to again be confronted by another gestalt, I would only have more reasons to ask about this thing that would have outlived yet another change.

Schmitz finds a succinct way of expressing this difference between the abiding unity of the thing and its changing gestalt, writing that the thing carries its characteristics like a "mask" (Schmitz [1978] 2005:168ff). The sociological relevance of this figure of thought can be shown in a variety of fields. In the case of a medical diagnosis, the patient's body is distinguished from the signs that are extracted from it: clinical signs, blood values, visualizations of the brain, and so forth. These signs are merged together to create a diagnostically relevant gestalt, a process repeated every day in intensive care units, for instance. A diagnostically relevant gestalt may one day indicate that the patient is suffering from a viral infection of the brain, while the next it turns out that he is suffering from a brain hemorrhage (see Lindemann 2002a:94ff, chap. IV; Lindemann 2007). It is still the same body, whose empirical gestalt yesterday appeared as a body with a viral infection and today as a body with a brain hemorrhage. Physicians continuously reevaluate diagnoses because they always count on the diagnostic gestalt changing.

The duration of structures of expectation

The duration of structures of expectation can also be understood using the concept of chaotic multiplicity. In order to show this, I will look at the quantity of all background expectations that give structure to an interactive situation. This structure of expectation exhibits a number of characteristics of chaotic multiplicity: it is not decided what specific expectations are at stake, whose expectations they are, and how many of them there are. It is not until I am disappointed that I can tell what expectations were a component of what structures of expectation, which makes it evident that it is not decided in advance what expectations are in play. Only when one of their expectations is disappointed do those involved become aware of what expectations were structuring their interaction. This only becomes relevant to the communication when the expectation is explicitly named in one form or another, which changes the situation. Now it is clear that at least

this explicated expectation is part of the quantity of the structural background expectations. Since it now has become clear for at least one specific expectation that it is part of the quantity of all currently valid background expectations, this quantity can no longer be considered completely chaotic. Schmitz refers to this case as a relatively chaotic multiplicity: on the one hand, there are expectations about which it is undecided whether they are identical to or different from each other; on the other, it is clear for at least one element that and in what way it is different from the others. Harold Garfinkel's breaching experiments ([1967] 2011:chap. 2) are attempts at using targeted breaches to tease out individual expectations from the chaotic multiplicity of the structure of expectation. This turns a chaotic multiplicity into a relatively chaotic multiplicity, as now it is decided for at least some of the expectations which others they are identical to and which they are different from—it is decided what these expectations are. At the same time, there is an explication of what structures of expectation are valid, in that while the structure of expectation as the quantity of all background explications is chaotic in itself, it is clearly different from other structures of expectation. The fact that, for instance, other structures of expectation are at work in an academic discussion than in a declaration of love can be communicatively shown by an explication of a disappointed expectation. At the same time it becomes clear who has or had these expectations, or who should have them.

As concerns the explicated expectation's duration, if it is still part of the valid structure of expectation, its relationship to the differentiations of modal time is chaotic. It also holds for a defined expectation that it is not possible to exclusively understand it as present and thus as not in the past and not in the future. As part of a valid structure of expectation, an expectation endures into the past: it can only be understood in the present as a disappointed expectation if it was already at work in the past as a valid, structuring expectation. By the same token, an expectation endures into the future: as part of a valid structure of expectation, it remains an expectation that may perhaps be expected again in the future. If it turns out, however, that a disappointed expectation is not part of a valid structure of expectation, it ceases to exist, no longer belongs to the quantity of expectations that endure. It was once an expectation, but is so no longer.

Overall, these analyses show that there is not only a duration of the individual person, but also an external duration that, analogously to shared space, also enables encounters in the temporal dimension. It is not a matter here of social time in the narrower sense, but initially only of a duration that is the condition of individual activities and their perceiving, act-

ing self-direction. This duration permeates the activities of individual selves by placing them in relation to each other in a temporal rhythm. In order to understand the structures of expectation that have become established in modern society, however, we must take our analysis of time further and include positional time with its discrete units. Sociological analyses of time tend to at least implicitly consider this temporal structure to be irreducible, which can be seen not least in the understanding of time as a succession of minimal, point-like units.

Before/after sequencing – digital time

So far in our analysis of time, we have looked at modal time and duration. The third form of time is the before/after structure and its cumulation in digital time. The sociological theory of time lacks reflection on different structures that should heuristically, that is, provisionally, be considered universally valid. Intersubjective time is usually—in a particularly prominent way in Schütz's work—equated with the measurable time of physical events, such as the measurable course of the stars, the ticking of the atomic clock. That this kind of time, which is geared toward measurement, cannot be equated with every form of orientation toward environmental events—such as the return of the new moon, the disappearance of the sun, or the rising of the evening star—should be clear by now.

The before/after structure situates all events into a series consisting of discrete points arranged according to the before/after rule.[61] This series is both independent of modal time as well as of duration. The only way to establish a connection between the series and modal time and duration is to take into consideration the reflexivity of excentric positionality. I will develop this line of thought starting from modal time, which is characterized by a transition of the future into the present. This continual transition is realized by an embodied self having the experience of the fulfillment, or not, of what it was involuntarily ready for. Expectations are disappointed, or not. As we have seen, the disappointment of expectations leads to their being identified as discrete expectations.

When expectations are identified as particular individual expectations, it is possible to have exactly these expectations. The future that has not yet come to pass is then no longer, in a chaotic way, only what one is involuntarily ready for, but rather includes the state of affairs that it is precisely *this*

61 This is the equivalent of McTaggart's B- and C-series.

that will/ought to happen. Based on this, other discrete events can be projected into the future. Such specific references to the future are themselves embedded in expected states of affairs that constitute a chaotic multiplicity (see Schmitz [1980] 2005b:482f).

Consider a shopping trip that begins with a disappointment: a glance into the empty refrigerator. I see what all is missing or about to run out—I'm going to have to go shopping before dinner. I make a shopping list whose order is determined by whether the items require refrigeration or not. At the top of the list are the items that won't spoil in the cart while being pushed around the store at room temperature for a while. Fresh milk and other easily perishable products are lower down on the list; I will add them to my cart just before I head for the check-out line. The order of the list thus contains an arrangement of discrete expectations regarding when I will add the items to my shopping cart between arriving at the store and getting in line at the check-out. This sequence of identified expectations is embedded into the chaotic structure of expectation that defines shopping at the supermarket. The shopping trip is part of my preparations for a dinner to which I have invited a number of friends. My planning rudimentarily situates the unstructured future of modal time into a before/after series. First the shopping, then the preparation of the food, then the arrival of my friends and our meal together. This order of expectations is still very closely tied to modal time. The before/after structure remains approximate.[62]

The functional integration of the before/after series into modal-time references, i.e., into various current presents, allows the process nature of life to explicitly stand out. Fulfilled references to the past and to the future mean that every present operatively carries the life process of a positional entity. On the level of centric positionality, this process can be individually shaped. The before/after series, which becomes possible with excentric positionality, allows processuality to set itself apart as such for embodied selves. Not only can an excentrically positioned embodied self actively shape its own life process, it can express and plan it itself. These plans are always operatively mediated by the present, i.e., by the self's experience of its own state.

In order to understand how pure before/after sequencing and digital time developed, we must go beyond Schmitz and connect our analysis of

62 Schmitz refers to time that is structured in terms of a before and an after as positional time. If this positional time is still very closely tied to modal time, he calls it "modal positional time" (Schmitz [1980] 2005b:475).

the before/after structure with the definition of time put forward by Elias. Elias defines time as a functionally tripolar relation, which both allows modal-time references to become objective and duration to become rhythmic. The first step toward objectivation is for the approximate before/after series to become oriented toward a continuum of changes, which in itself is a relatively chaotic multiplicity. Orienting toward it allows embodied selves to establish a standard for each other for when events (ought to) take place, but this continuum is not made up of discrete elements. The important step toward exact before/after sequencing, or digital time, is the replacement of the continuum of changes with a series of discrete positions. In order for such a series to function as a measure of time, it must be organized according to the before/after distinction.

The difficult step in the development of digital time is the choice of baseline. Is it a continuum of changes or a sequence of changes made up of discrete elements with a before/after structure? Only once such a sequence of changes has been identified and firmly standardized, does the before/after series become digitalized and thus clearly distinguishable from modal time and duration. An essential requirement for this transition was the mechanical clock, whose striking mechanism makes it possible to identify discrete units. It was only then that the dependency on the continuum of changes of the stars was broken. Hours came to be the same length in the winter as they were in the summer; months began and ended in a precise way. The difference between a sundial and a mechanical clock is that the former is still embedded in a continuum of changes that does not allow for the identification of uniform units.

However, the ideal determination of completely discrete points in the sequence of changes foundered again and again on the "imprecision" of mechanical clocks. This led to the development of atomic clocks, whose deviations from the demanded precision are minimal, but still computable. Thus the requirements were met for establishing a time in which all events can be dated in a precisely accurate way. A digitalized time of this kind consists of discretely, minimally sized units. In analogy to digital space, I call this digital time. Physical methods such as carbon dating as used in archeology are based on digital time, which allows for the very precise determination of dates in the past.

What is distinct about before/after sequencing and its development into digital time is that while digital time orders events according to the before/after distinction, it does not posit points from which irreversible directions extend. Modal time, on the other hand, exhibits a distinct gradient: the direction of time extends from the present-becoming-the-future into the

present, which becomes a past present, which is separated from the current present by the chasm of "never again." Reality, however, as Mead, Plessner, and Schmitz emphasize, is tied to the present, so that the transition of the future into the present is also a becoming-real. This gradient of the present with its distinction of being real does not apply to time as before/after sequencing or digital time. In digital time, there is no such thing as directions, or the directions between the discrete points are reversible. Nor is there a point defined as "now" that is distinguished as real.[63]

3.4.2 The significance of space and time for the structure of the social dimension

The goal of this work is to develop general formal structures that can serve as heuristic assumptions for empirical analysis. My starting point was the social dimension, where the problem of the contingencies of the shared world is located; as a result, the difficulties arising from expanded world-openness manifest themselves here in particular. I then showed how space and time are operatively relevant dimensions. We must now ask whether and in what way these dimensions are relevant to the problem of expanded world-openness. Following Herminio Martins's ([1974] 2015) distinction between time as constitutively and operatively relevant to sociology (substantive temporalism) and time as a topic for sociological research (thematic temporalism), I also distinguish between space as an operatively relevant category and the social construction of space.

Expanding sociality to include the constitutive dimensions of space and time is very useful in that it allows us to better understand how the social undecidedness relation is determined. It also provides new possibilities for introducing distinctions into the social dimension. The general question is: what actors can encounter each other/touch each other in what ways in what spatiotemporal structures?

The basic problem of sociological theories of space and time has so far been their insufficiently differentiated categories when what is needed are precisely calibrated ones. In the case of space, these can be found in the distinctions between the space of vastness, directional space, local space, and digital space; for time in those between modal time, duration, before/after sequencing, and digital time. This categorical differentiation makes it pos-

63 These characteristics of the before/after series led McTaggart to make the general claim that time is not real. Cf. Schmitz's ([1980] 2005a:476ff) critical response.

sible to more precisely examine the ways in which ordering systems are formed in historical spatiotemporal structures. Starting from the relationship between the lived body and its environment, I explicated these categories according to the principle of reflexive deduction. Digital local space and digital positional time structurally exhibit the greatest distance from the lived body, which is why I turned to them last.

The categories developed here are to be understood as a heuristic a priori, i.e., they claim to be universally valid. They are not, however, equally relevant to the formation of every society's order. At the same time, there is a logical progression to the categories. In the case of space, the space of vastness, devoid of units of measurement, constitutes the simplest category and forms the foundation for directional space. From here we can develop the possibility of digital space with its remove from the lived body. In the case of time it is somewhat different, as modal time and duration are not based on each other, although modal time, before/after sequencing, and digital time (like digital space at a remove from the lived body) are. The mathematized spacetime of physics, in any case, is pure digital spacetime.

Whether or not this deductive sequence should also be understood as an empirically observable line of development is an empirical question. Günter Dux (1989) uses Piaget's analysis of cognitive and moral stages of development in an attempt to establish a link between more complex notions of time and social development. This leads him to an interesting finding: the development of complex cognitive abilities does not depend on age, but on social factors, in particular schooling (see Dux [1989] 1998: chap. 4.1, 373ff). Piaget too distanced himself from his earlier claims that the developmental stages he described hold universally for every individual. He had originally argued that the only deviations were cases of deficient development, but later considered education to have the greatest significance for cognitive development (Piaget 1976). Other sociological theories of time also assume a close connection between social structure and time, which is why both Nassehi (2008) and Rammstedt (1975) argue that there is an evolution of time alongside a social evolution toward more complex forms of sociation.

The categorical structure I am proposing here does not lead to the question of necessary development as put forward by Dux, but rather imposes the cautious task of clarifying whether and to what degree there are affinities between ordering patterns in the different dimensions. It seems to be the case, for instance, that pure digital spacetime in combination with modal time only began to develop in modern Western society. As the section on the substantive dimension shows in more detail, this also facili-

tated the development of technology, in particular advanced, self-controlling technology as is found in robotics, which relies on the construction of futures in the sense of discrete elements in regulated sequences.

The problem of the acceleration of modern society, which plays a large role in the socio-critical sociology of time, is presumably also based on the fact that digital spacetime has become crucial for order formation. Hartmut Rosa's ([2003] 2016:chap. 3) attempt to categorize social acceleration can be understood in terms of the intersection of modal time and digital spacetime. The expected limitation of an ensuing future has consequences for self-referential expectations (see below). Expecting an objectively calculable end from the beginning has the effect of making time seem to be in short supply, as if it is all happening too fast. This is precisely what takes place on the basis of established digital time. Courses of action are broken down into spatiotemporally identifiable elements whose densification can be planned: unwinding after work from 8:43:59 pm (time measured in seconds) until 9:03:25 pm, followed by premium leisure time, which is also planned down to the second, and so forth.

Space-time structures of determining the social undecidedness relation

As I have pointed out, determination of the social undecidedness relation requires a triadic structure. This structure allows for relationships of touch to be objectified, thereby establishing an exemplary pattern or rule.

Against the backdrop of evolved categories of space and time, i.e., the different forms of time (modal time, duration, before/after sequencing/digital time) and space (the space of vastness, directional and local space/digital space), we can now look with greater precision at the spatial and temporal relationship of formed lived bodies to their environment and ask what possibilities for positionalization emerge from it.

The space of vastness and the embodied directional space which has given itself direction in it is the space in which temporally constituted selves meet and touch each other in the present. This makes possible the formation of social spacetime, culminating in the formation of digital spacetime with its remove from the lived body. The more irrelevant digital spacetime is to the formation of a particular order, the more actors such as ancestors, demons, and spirits seem to have a realistic chance. The whereabouts of ancestors and gods can hardly be given in an exact way in terms of longitudes, latitudes, or time of day. And yet, despite the fact that they do not have defined whereabouts in the modern sense, there is the real experience

of gods or ancestors directing themselves at embodied actors, touching them, becoming dangerous to them, or supporting them.

The social undecidedness relation calls for a twofold determination: one, the institutionalization of the boundaries of the personal sphere and, two, the establishment of a preference for either dividualization or individualization. Not every form of determining the social undecidedness relation is compatible with every form of spatiotemporal order. Thus a temporal order in which the modal time of embodied experience is primarily embedded in continuous relational structures seems to be more compatible with dividualization and the recognition of spiritual beings as actors. Embeddedness in the duration of relational structures makes it impossible to decide in a precise way whether the person speaking is exclusively the one we can see (from a Western perspective) or whether this person is not at the same time an ancestor existing in duration speaking as this person (Leenhardt [1947] 1979:chap. 11). The extreme case described by Marilyn Struthers ([1988] 2001:269f) consists in current executions largely omitting a reference to the duration of the self and instead being embedded in the duration of relationships. In this case there is no speaker in the sense of a continuous I, but only continuous relations to ancestors or to other groups, which have effects in the present. Current embodied executions are embedded in the duration of relationships, which, as duration, cannot be definitively identified with one of the temporal modes.

Speakers and listeners who are embedded in the duration of relationships in this way exist as embodied executions in the present without being individualized in the sense of relating to themselves as continuous selves. Their self-reference is rather structured in a dividualizing way, in that the execution in modal time is embedded in the duration of relationships and in the actions already performed in these relationships—i.e., it is the relationships and the deeds of the past that endure. Every present activity is a repetition of the past, which, as such, endures into the present. At the same time, every activity endures into the future: duration does not come to an end with this present. That which will take place in the future will also be a repetition of the continuous past and the relationships present in it.

The structure of embodied relatedness and its communicative representation are not tied to a shared presence, in the present, in a location in local space. This insight allows us to clarify some key differences between the approach put forward here and other phenomenological (Schütz, Luckmann) or interactionist (Goffman) approaches, as well as Giddens's structuration approach.

For Schütz (1973b:219f), social time is formed as a synchronization in the present interaction between attending persons. While Luckmann (1983:79) extends this notion to include the dimension of the lived body and the directedness of attention to each other, the presence of those involved at the same time in a location in local space remains a key condition for social time. The operatively relevant units are either individuals or at least the interaction between present individuals. The same is true for Giddens. Following Goffman's ([1967] 1982, 1981) analysis of encounters, Giddens understands the present "setting" situated in local space within the framework of co-presence with others as the operatively relevant unit (Giddens [1984] 2011:142ff).

These conceptualizations are based on the implicit assumption that reality is tied to a present in a specific local space. Everything that is not present in this sense does not exist. It is no longer or it is not yet. In this sense, social ordering patterns only exist insofar as they are reproduced in the present in local space. If they are no longer reproduced in the present, they no longer exist; they are in the past. Systems theory maintains this orientation towards temporal presence, but not towards space: Luhmann conceives of communicative events as placeless but in the present. This corresponds to the logic of modal time.[64] Things in the past and in the future are only real insofar as they are kept in the present by fulfilled relationships—as expectations in the case of the future and as actualizations in the case of the past.

With the exception of Giddens, all of the approaches cited pass over external duration as a characteristic of time. Giddens interprets duration as reversible time. Adam (1990) already pointed out the problems with this conception (see above), and we can now render her criticism more precise: for Giddens, reversibility means that temporal processes repeat themselves without difference. Doing the dishes every day, to take up Adam's example, means doing the dishes every day as the same activity. Sowing the fields every spring is sowing the fields every spring. Referring to this as reversible time is to isolate the temporal process and understand it as an algorithmic sequence that is identically repeated, with the mode of repetition based on measurable intervals. This negates the fact that, as in the case of regular sowing, these repetitions are also always new beginnings. Far from an algorithm that repeats regularly at measurable intervals, what we

64 Authors who have explicitly argued for the ties between reality and the present include Luhmann ([1984] 2005), Mead ([1932] 2002), Plessner ([1928] 2019) and Schmitz ([1964] 2005).

have here is an anticipated new beginning which is never entirely certain. The moon is anticipated; the moon communicates that it is time to begin. It must be appropriately greeted in its function to ensure its return. Instead of referring to reversible time, I therefore suggest thinking in terms of a modal time that is intertwined with rhythmized duration. Both the beginning that is posited here as well as waiting on the moon can only be understood in terms of modal time. It is not only duration, but the expectation of a future. At the same time, since the moon with its cycles is experienced as returning regularly, this modal time is embedded in a duration. Giddens's error was to conceive of duration in terms of digital spacetime. Reversible time in Giddens's mode would look like this: in a uniform pattern, the timer turns on the coffee machine every morning at 7:05:32 am. If my expectation that the coffee will be ready by the time I finish my shower is disappointed, the mechanism has failed. There is no anticipated return of an entity that I have to greet appropriately, but only a digital, spatiotemporally developed pattern whose functioning I am immediately ready for. For Giddens, reversible, everyday time of this kind structures settings in the context of the co-presence of human beings with irreversibly elapsing lifetimes. The reversible time of systematic structures functions here as mediation with more far-reaching spatiotemporal structures.

The alternative to such operative units directed at co-presence are triadic constellations whose positions are not tied to the space and time of the local space of the present, but can be distributed across duration and the present and future of modal time. The present serves as the starting point here as well, but not all involved entities have to be among those attending in present local space. In the case of a rhythmized duration, the fulfilled relationships to the future of the anticipation of the moon's future presence can be understood as a reference to a relevant position of interaction. The moon is not yet present; it is anticipated. Since the existence of all those involved, including the moon, is embedded in a duration, the moon becomes an actor relevant in the present without being unambiguously present. Arguably, the space in which the moon endures could be understood in terms of the unstructured space of vastness out of which it appears.

Under the premise that modal time and duration are primarily relevant to order formation, it seems to be an untenable claim that operations have to unambiguously take place in the present. Every present operation is intertwined with rhythmized duration and thus endures into the past and into the future. We cannot categorically exclude the possibility that none of the involved operators are unambiguously operating in the present. The

duration of "Dreamtime," which is relevant to the order formation of indigenous Australians, can perhaps be best understood in this way. The characteristic trait of this ordering system seems to be the absence of actions in the present; instead all actions are actualizations of the actions of the heroes of Dreamtime and the relationships established within it (Descola [2005] 2013:147).

An order formation primarily characterized by a combination of modal time and digital spacetime creates other possibilities for the determination of the social undecidedness relation. In an ordering system of this kind, duration is limited to the duration of the individual self. As such an individual self, ego expects the expectations of an individualized alter ego, insofar as ego anticipates the expectations of a third who will be present in the future. If the respective fulfilled relationships to the future are attached to the present, there is no reason not to include a third entity, who is currently absent from local space but who will be present in local space in the future, as an operatively relevant position in the ego-alter-tertius constellation. Present communications can also be addressed to entities absent from local space who are present only in the sense of a fulfilled relationship to the future, that is, one referring to third entities that will be addressable in the future. This may seem odd or abstract, but such a structure characterizes money transfers, for instance: alter fills out the transfer form to the benefit of ego in the expectation that ego is expecting the remittance of the sum and will accept it because he, ego, expects to be able to use the remitted units of currency as a means of payment in commerce with currently absent third parties. It is only under this premise that alter expects ego to accept the transfer. The relevance of modal time, intertwined with digital spacetime, institutionalizes a preference for individualization, which entails at least one of the three operators—ego, alter, or tertius—unambiguously operating in the present.

Each of these described positions in a triadic communication constellation—i.e., that of the moon in duration or that of the future third identifiable in digital spacetime—are positions adopted by real, though not necessarily individualized, personal actors, or actors who are addressed as real persons in the future. Categorically excluded from this logic, however, would be a reference within an ordering system characterized by a combination of modal time and digital spacetime to a past actor, such as a deceased ancestor, as a real actor. The past is no longer; it was, but it is now past. Thus references to no longer existing actors can only be metaphorical, such as in the statement: I feel an obligation to the memory of my deceased father. If, however, a duration is established in a group in which the

deceased father can exist, such as in a continuous relationship to ancestors, the problem appears in a different light. In that case, the deceased father could appear as a real actor.

The categorical differentiation of the dimensions of space and time show, on the one hand, that these differentiations are essential for an analysis of order under conditions of expanded world-openness. They also show that the operativity of embodied executions of touch and communication may be tied to the present, but not always unambiguously and thus exclusively. Here my argument differs crucially from systems theory, which unambiguously ties all operations to the present. Furthermore, social operativity in the sense of embodied communicative executions is not tied to present attendance in local space. Here I depart from action theory, from phenomenologically oriented sociology, as well as from interactionist approaches.

3.5 The substantive dimension: the lived body and technology

The substantive dimension of order formation contains two distinct aspects: 1) the substantive aspects of the perception of states of affairs and of the treatment of objects, and 2) the substantive aspects of the relationship between social persons, i.e., what is at stake in the relationship. The sociologist who has come closest to analyzing these two aspects of the substantive dimension together is Mead. At least this is true where his thoughts on institutions and composite acts come together (Mead 1925:265, 275). Apart from that, the two substantive aspects of order formation seem to currently be treated using separate theories. When considering the substantive dimension, systems theory looks at what is at stake in an interaction/communication. Luhmann defines the substantive dimension as one of three dimensions of meaning (substantive or factual, temporal, and social), and it is primarily relevant in his analysis of the functional differentiation of society (Luhmann [1984] 2005, [1997] 2012, [1997] 2013). On the other hand, the perception of states of affairs and things and their practical use has long been a subject of interest in science and technology studies (e.g., Linde 1972). Latour, for instance, describes societies as being structurally stabilized by material technology (Latour 1994). In what to me is a much more finely honed argument, Rammert (2016) aims in the same direction with his concept of distributed action, which he develops following Mead's concept of institutionalized composite acts. Recent work in the theory of social practices has also foregrounded the aspect of practical in-

teraction with things (Bourdieu [1972] 1977; Giddens [1984] 2011; Schatzki [1996] 2008); in some cases positioning it explicitly against Luhmann's non-sensory, quasi-mentalistic concepts of meaning and semantics (see Reckwitz 2003).

The reason for expressly foregrounding the substantive dimension is obvious enough. The substantive content of what is experienced is not exhausted in spatiotemporal and social structures. Colors, smells, issues, the substantive context of shared work projects, and so forth, are not only distinguished by their spatiotemporal setting or by the social entities involved. The substantive/material qualities of things, such as their color or their particular type of resistance, all demand specific treatment. The states of affairs given to perception or in practical operative relationships have to be grasped in their own right and cannot be reduced to the other three dimensions. The same holds for the second aspect of the substantive dimension, i.e., the character of social relationships. Here it is a matter of the quality of the relation, which is different depending on whether it is of the nature of, for instance, marriage/family, economics, or science. The substantive content of these relationships cannot be ascribed in their peculiarity to social or spatiotemporal structures.

Understanding order formation starting from the relationships of excentric embodied selves to their environment allows us to conceptualize these different aspects in a differentiated way without reducing one to the other. On the level of centric positionality, the two aspects of the substantive dimension are integrated in experiential, substantively and spatiotemporally structured field conditions. The entity's relationship to its surroundings exhibits both aspects, but they do not set themselves apart in a differentiated way for that entity. The reflexivity of excentric positionality, on the other hand, makes it possible for the functionally relevant aspects of the lived body-environment relationship to become differentiated for the experiencing self. This is because, within the framework of the excentric lived body-environment relationship, the area of personal and social relationships sets itself apart as such for those involved and can thus be distinguished from dealing with things. When this is the case, those involved can perceive the difference between the practical, technical aspect of the substantive dimension as well as the aspect of what is at stake in interaction or communication. We will turn to the latter aspect in section 3.6. Here we are concerned with the treatment of objects and the interaction with material technology.

3.5.1 Centric positionality

The substantive dimension is encountered when a field condition sets itself apart in a practical way for an embodied self. Such a field condition constitutes an invitation for the embodied self, to which it can respond according to its functional possibilities of access and how it is experiencing its condition at the moment. A sophisticated example of this would be chimpanzees' use of tools, as can be observed for instance when they "fish" for termites. The animals' perception is integrated into their experience of their environment which is relative to their own condition. They grasp the field condition according to their own condition (hunger) in relation to a goal (something that is edible and mobile—termites—is hidden somewhere below me). A chimpanzee must grasp what is to be done (something needs to be stuck into the tunnels) and what is possible at the moment (things lying around here that I can use, things I have with me).

These differentiations are sufficient for us to be able to reconstruct how chimpanzees use tools to reach termites that live in termite mounds or underground.

> A puncturing stick is first used [by the chimpanzees, GL] to create a tunnel into the [underground, GL] termite nest cavity, which is followed by the use of a fishing probe to extract prey. The use of multiple tools to achieve a common function is relatively rare in all other species other than humans. Therefore, it is intriguing that chimpanzees in the Goualougo Triangle use tool sets on a regular basis. We also documented strict adherence to tool forms at different nest types, tool material selectivity, repeated visits to nests with reusable wooden tool assemblages, and differences in material culture between adjacent communities. (Sanz 2008:2; see also Sanz and Morgan 2007, 2010)

The following complexity must be given for such behavior to be possible: the ape perceives the field condition "termites are hidden in/under." He understands his own ability to affect his environment. Trainable pathways of grabbing, pressing, pushing, and pulling have to be worked into his own directional space. Objects can be integrated into the to-be-rehearsed or already rehearsed embodied directional pathways. In other words, the body, in particular arms and legs, can be steered from out of its own center along with an extension of its embodied capability of access (tool), which is attuned to the object. This extension of the ape's embodied capability of access takes place in a way that is appropriate to the field condition: in order to pierce the ground, he uses a thick stick; in order to get at the ter-

mites, a thin twig. The chimpanzee recognizes his ability to affect his environment, and thus, in a rudimentary way, understands causality, proceeding from the channeled directional space of his own lived body. He recognizes the functionality of the tool insofar as the tool is in practice integrated into the directional space of his lived body.[65]

The use of tools constitutes a substantively/materially functional relationship to the environment, which as such is already possible within the framework of the complexity of centric positionality. This structure can be described as follows:

1. The embodied self experiences its environment and the field conditions in it.
2. It has the practical experience of directional space from out of its own center in the sense of: I can jump forward, grab something to the right, press something to the left, reach back in order to hit something in front of me, and so forth, depending on the requirements of the environment.
3. Objects can be integrated into embodied directional space. Their functional integration into the embodied space of practical handling follows upon the experience had with tools.
4. This makes it possible to distinguish between different objects in terms of their functionality for being integrated into embodied space in a way that is appropriate to field conditions.

This structure evidently has a spatiotemporal character. The experience of field conditions in the environment has a temporal structure. A field condition is not only present, but also implies expectations, e.g., there are termites underneath me here somewhere. This expectation guides the act of piercing the ground with a thick stick, followed by fishing with a thin twig. Behavior such as this, as I have said, indicates a directional space into which the motor body schema is embedded. In the context of centric positionality, this would also always be activity relative to the condition of the organism in question, i.e., the perception of its own hunger and thus the affordances in its environment.

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65 There is a nice analogy in behavioral science to the phenomenon of "going native" in ethnology. This is when behaviors indicating a high level of intelligence are privileged in relation to one's "own" species, or even exclusively attributed to it. Thus ape researchers consider apes to be the most intelligent animals. Mouse researchers look for indications of intelligent behavior in "their" species—and find them. When trained, mice can also achieve a similar understanding, tied to their lived bodies, of the functionality of a tool (Okanoya et al. 2008).

3.5.2 Excentric positionality

The increase in the reflexive complexity of the living being's relationship to its environment contained in excentric positionality is such that the overall connection between experiencing self and experienced environment comes to reflexively refer back to itself. This contains a change that also affects the relationship between the substantive and social dimensions. On the level of centric positionality, there is a practical difference between dealing with other embodied action centers and the mere handling of things and field conditions. Embodied selves act differently depending on which is the case, but this does not mean that this difference is given as such. It is given, however, in the case of the reflexive structure of excentric positionality.

Specific modifications of the spatiotemporal structure occur in the context of the reflexive structure of excentric positionality, transforming the space in which embodied selves touch each other into shared space with states of affairs that are the same for everyone involved, even if from different perspectives. Here we have the condition for the formation of spatiotemporally complex, shared states of affairs, such as, for instance, institutionalized composite acts. In a rudimentary sense, even the purposeful production and use of a tool constitutes such a composite act.

Institutionalized composite acts

According to Mead, a composite act is always a social act directed at a social object. Its social nature derives from the fact that multiple actors are involved in it, each of them carrying out partial acts whose purpose is to contribute to the composite act. The performance of a partial act exhibits a temporal structure specifically directed at the composite act. In every partial act, an actor (ego) anticipates another actor (alter) anticipating ego carrying out this partial act as a contribution to the composite act so that the second actor can make his own contribution (Mead 1925:265). There is one special characteristic of the social object that Mead tends to neglect, however: only if it endures in time can the object of the composite act function as an organizing unit of reference from the beginning of the composite act until its end.

In any case, it follows from this understanding of the composite act that it is a unit that those involved must express to each other. Every partial act anticipates the expectations of the others involved and represents to them

what kind of contribution is being made and what kind of contribution is expected from the others. Mead also refers to this context as "institution" (Mead 1925:275). I will thus use the term institutionalized composite act in the following to refer to the connection between social action and social object. A closer analysis shows that a triadic constellation is necessary in order to understand institutionalized composite acts, which can be seen even with the production and use of tools.

Technology as communicative proposal of meaning

Tools as well as simple and more complex technical artifacts are produced in order to be used. This is already given in rudimentary form when an actor produces a tool for her own subsequent use. Here too, the expectations of future users are expected, at least to an extent. When producer and user are not the same person, the expectation of the expectations of future users is, however, undeniably given. Tools and technology can only be produced for the use of others if there are entities that relate to each other in terms of expectations of expectations. The producer expects possible expectations concerning usage on the part of particular or anonymous technology users. These anticipations are embedded in the practical design of the technology. The production and use of tools should thus be understood as a composite act made up of several partial acts. A tool is a social object; its producer orients its production toward a use relation, of which there are two ideal types. The first gets by without a triadic constellation, while the second necessarily implies one.

The first ideal type is a boundary case that is unlikely to exist empirically. Here the use of the tool is completely determined by its material design. Its production is oriented toward the precisely expected expectations of its users, and these expected expectations are so unequivocally incorporated into the material form that a usage other than the one expected is practically impossible. I do not want to exclude the possibility that such a tool may have once existed, but I think it is unlikely.

Actually produced tools, on the other hand, do not unequivocally determine their usage. They correspond to the second ideal type, which is characterized by an ego-alter-tertius constellation. In this case, the produced form of the tool does not completely determine its actual application. Personal thirds are required: the relationship between user and tool anticipated by the producer must be objectified from the perspective of a third actor in a way that extends beyond the tool's material form. The producer

not only expects the expectations of the users, but these expected expectations are objectified from the perspective of tertius. The addressed user not only has certain expectations concerning usage, he *ought* to have certain expectations concerning usage—from the perspective of the third. These expected expectations are expected by the producer.

When working out my triadic concept of communication, above, I called attention to the following points. Communication has a triadic structure: embodied action centers find themselves in relations of touch and relate reflexively to this fact by taking the positions of thirds. The involved selves develop a pattern/rule to express an obligatory nexus of touch, which in turn determines the social undecidedness relation. By means of such patterns, embodied action centers recognize that they exist in personal relations of touch. Personal selves interpret particular communicative messages from other personal selves as an indication of what others want to communicate about what is at issue in this particular case; the production of messages as well as their interpretations are performed with reference to the expectations of tertius regarding compliance. I refer to personal selves communicating messages as alter ego and to those interpreting another's messages as ego. Thus, communication is enacted within a triadic ego-alter-tertius-constellation. It is crucial to keep in mind that ego, alter and tertius do not denote individuals but rather particular positions in the process of communication. The positions ego, alter and tertius are to be understood neutrally with respect to the difference between dividualiziation and individualiziation. I interpret the production and use of tools in analogy to this triadic structure.

Within an ego-alter-tertius constellation, tools are not only operated in practice, but *ought* to be operated in practice in a particular way. Tools not only imply a certain kind of operation, but connote their appropriate use. The material shape of a hammer implies how it should be integrated as a tool into a practical body schema. This shape does not determine whether the hammer ought to be used to hit a nail or a human being on the head, or whether it was made to express an actor's fury with powerful blows to a wall. I doubt that there are any tools that sufficiently determine their use by their form alone. It seems, then, that tools not only specify a practical meaning by means of their form, but that they also always *symbolize* their appropriate use. I use the term symbol in its broadest possible definition here. A tool is something that indicates possible forms of use. To say that a tool functions as a symbol does not mean that explicit rules of use have to be set forth, such as in an instruction manual. Possible future modes of usage can remain undetermined; there is no need for an explicit enumera-

tion of what these modes of usage are. While here too there is an understanding of the difference between how a tool ought to be used and inappropriate usage, this only becomes clear in hindsight. A form of usage is identified as inappropriate when an expected expectation of proper use is disappointed. Only when the disappointed expectation is identified does it become clear to all involved what form of use explicitly does not conform to intended use.

The further a technology is removed from the lived body, the less likely it is for its practical possibilities of use to be directly perceivable, and the more obvious it becomes that made artifacts have to symbolize their use. One kind of symbolic representation explicitly setting forth future forms of usage would be the instruction manual mentioned above. Many artifacts today could hardly be operated without one. Reduced to forms of operation that remain close to the lived body, a cell phone is probably not good for much more than being thrown or scratching your head with it. It is probably true that the vast majority of artifacts in a modern society—such as washing machines, medications, laptops, exhaust hoods, or ATMs—cannot really be used without an instruction manual. In all of these cases, producers not only expect expectations concerning usage, but also expect standardized intended usages from the perspective of a third, made explicit in instruction manuals. But even here the indeterminacy of the understanding of correct usage cannot be completely resolved in individual, identified, anticipated expectations. Instruction manuals explicitly establish in advance the rules for proper usage, but this does not exhaustively cover all the forms of appropriate use of the tool. Even the usage explicated by an instruction manual points to a multitude of possible but as yet undetermined usages. Whether these usages break the rules of proper use can, in these cases as well, only be explicated in hindsight in view of identified violated expectations.

The fact that its usage is prescribed does not exclude the possibility that a particular artifact will be functionally adopted in ways outside of this intended use. Particularly if we think of technology use in analogy to communication, it becomes immediately obvious that the point is not the intended use mediated by thirds as it is anticipated in production, but rather the ways in which the technical proposal of meaning is adopted in practice. In order to maintain a social order that is strongly determined by technically mediated relationships, it is thus imperative for the adoption of technology to be steered by thirds. It is less the selection of information and communication on the part of alter and more the understanding interpretation of the communication, the practical usage, on the part of ego

that determines what has been communicated and must be objectified accordingly by means of tertius. The producers of technology are no doubt constantly being surprised by how their products are functionally interpreted and used. These usages must continually be brought into an order oriented toward objectified patterns of use.

The purpose of artifacts such as pliers, hammers, or civilian airliners is decided by means of the development of adoption patterns mediated by thirds. Are civilian airliners means of transportation or bombs? Are nuclear power plants a technology for the production of energy or a kind of immobile nuclear bomb waiting to be ignited? It is true that there are certain technical limits to the creative adoption of technology—it would be hard to use an airplane to crack nuts, for instance. But practical adoption is less limited than producers and the majority of rule-oriented users might think. Once symbolic usage patterns are called into question by practical adoption, they have to be overhauled. The repurposing of civilian airliners as explosive devices has meant that the bodies of travelers are subjected to more extensive security screenings in order to limit the possibilities of practical adoptions of this kind. The debates over the use of the Internet are centered less on the expectations of users and more on questions of what constitutes an intended use as mediated by thirds. Was the Internet created in order to establish a worldwide file-sharing network for music and films? Was it created as a distribution medium for malware to knock out as many individual computers as possible? Even though the providers and producers of technical possibilities did not anticipate such usages, their product was adopted in this way. Because it is uncertain what the Internet might be good for tomorrow, appropriate intended use has to be determined again and again. Every new use symbolizes a new proposal of meaning.

Complex composite acts I

The symbolic character of technology emerges more clearly when we look at more complex composite acts. The analysis of such composite acts in the context of science and technology studies has tended to foreground questions deriving from action theory. Who contributes to the act? What is its substantive nature (Rammert 2016; see also Rammert and Schulz-Schaeffer 2002)? Such questions allow us to distinguish between contributors acting intentionally and those deploying set, mechanically consecutive effects, or those deploying either this or that effect. This focus on action, however,

makes it difficult to understand how actors symbolize their contribution and their expectations to other contributors. Action theory is interested in intentionality and effectivity; communication theory is more concerned with whether all contributors are actively involved in the corresponding symbol formations and, in particular, how to appropriately distinguish between symbols and the users of symbols. Finally, we must ask about the ways in which contributors become symbolically and functionally integrated into the spatiotemporal process of the composite act.

In Rammert and Schulz-Schaeffer's (2002) example, the question is: "Who is flying the airplane full of vacationers to Tenerife?" The flight can be understood as a projected composite act, and those involved who represent their contribution symbolically do so in a way appropriate for such an act. Possible contributors include: the vacationers, the airplane/the autopilot system as its control unit, the flight crew, and airport logistics (conveyor belts, busses, escalators, and so forth). It is obvious that all of these entities make a contribution to the composite act of flying the airplane, but do all of those involved represent themselves as making this contribution? Do all of those involved expect the contributions of the other participants? Which participants have expectations or expect expectations or expect expected expectations and represent this symbolically? Do all those involved experience their condition, how they feel and how this changes, when expectations are either disappointed or met? Are there contributing entities that are artifacts symbolizing their intended adoption?

It is from this vantage point, then, that we must analyze the escalators, conveyor belts, the autopilot system, the co-pilot, the airline passengers, the flight attendants, the airline, the cutlery provided with the meals, and so forth. Are any of these entities interpreted as symbol users? Are there entities that are also a symbol of their intended use? Vacationers can be identified as entities with expectations or with expectations of expected expectations. Delays upset them and they symbolically express the disappointment of their expectations by complaining, but they also learn to deal with the situation. I assume that the same holds for the flight crew and the human pilots.

Other entities prove to be advanced technical artifacts. They signal that they are functional or that there is a problem. Will a close empirical look allow us to determine whether a warning light signaling that an escalator or an autopilot system are not functioning properly is issuing a symbolic expression? Is the escalator itself the entity of which it is expected that it will expressly symbolize its non-functioning, i.e., its non-contribution to the composite act? Or is the escalator an entity that has an automatic signal

that lights up when it malfunctions? In the latter case, the escalator does not itself symbolize its non-functioning, but it is instead equipped with a signal that indicates that the artifact is not, as is customary, contributing to the composite act.

Even if it only indicates a malfunctioning of the autopilot system, the technical signal is understood to reference time. The error signal disappoints the expectations the pilots had of the artifact and they must decide what to do given the changed reference to the future. Should the (human) pilots fly the plane alone? Should the malfunction be remedied? A detailed analysis of this kind of process of a technically mediated composite act will examine the ways in which symbol users symbolize their contributions to the composite act, how the use of technical artifacts are symbolized in these artifacts, how symbolic and technical artifacts are functionally adopted, how actors symbolically represent to other actors that it is now up to them to make their contribution to the composite act, and so forth.

The interpretation of technical artifacts as at the same time symbolizing their appropriate use does not determine in general who is to be considered an actor. On the contrary, it becomes clear that the question of who is an actor cannot be deduced from technically mediated episodes of composite acts alone. Instead of fixating on episodes, we must look at the interplay of symbolic and technical mediations. The issue is not to determine who has an effect on whom in a particular episode of the process. The empirical question is rather what entities symbolize, have expectations, expect expected expectations, and so forth. Then the symbol-using entities can be distinguished from those that, while they do have an effect in the progress of the composite act, are not symbol users. The intended use of these entities is symbolized in them, but this symbol appears *on* them; they do not produce the symbol with their own activity.

It becomes clear on this point that actor-theory-informed analyses fixated on individual episodes are too imprecise. Latour concludes from his studies of episodes that technology should be considered an actor just as much as a human being should. One of his examples is the debate over gun control in the United States. Latour accuses both advocates and critics of gun control of not understanding what they are talking about. If a man uses a gun to shoot, Latour argues, it is wrong to say that only the man acted—without the gun, he would not have been able to shoot (Latour 1994). This is true and also applies to the chimpanzee using a stick. It would be incorrect to say that the chimpanzee alone angled for termites without the correctly employed sticks, the thick and the thin one (see above).

But Latour goes further: for him, the gun and the man are both in equal ways actants in the implementation of the action (see Latour 1994). This perspective points, on the one hand, to the expansion of the physical possibilities of action brought about by the use of technology. At the same time, it levels the different ways the embodied self and the technical artifact contribute to the success of the action, suggesting that we must always start from scratch when determining actor status. That, however, is highly unlikely. Current events are not isolated episodes; they are rather embedded in overarching composite acts. An analysis that starts from this perspective can more accurately grasp the fact that the possibilities for action of a man armed with a gun differ from those of an unarmed person. We would have to ask whether a gun used in the United States has expectations, whether it expects expected expectations, whether it actively symbolizes its contribution to the composite act in a generally recognized way. Or does the gun contribute to the composite act as a manufactured artifact that is a practical affordance to act in a certain way and that symbolizes its own intended use? If the latter were true, the gun would be a social object that technically mediates a social relationship between the producer and the users involved in the composite act. The gun would not be an actor but an affordance to act in a way that an embodied self without a gun would not be able to. Anyone functionally realizing such an affordance presents herself as someone who can exercise violence in a particular way (see Chapter 4). Someone who uses a gun can, for instance, represent the assertion of the normative expectation that no one may enter her property without her permission in a qualitatively different way than someone without a gun. Latour's point—that the actor becomes a different kind of actor when using a gun—is also taken into account in this second interpretation.

Digital spacetime as a medium of construction for advanced artifacts

Let us return to the composite act of the vacationers flying to Tenerife. There is an important aspect here we have not yet considered. This composite act is not only broken down into the partial acts of different actors, but the mediation of the partial acts is also geared to the validity of digital spacetime. A date and time has been set for take-off, which in turn dictates the time for check-in and baggage drop-off. The scheduled time of arrival is the symbol for when and how relatives or friends initiate the institutionalized composite act of "airport pickup." The possibility of delays does not contradict this. It is precisely the validity of digital spacetime that struc-

tures expectations in such a way that delays elicit disappointment. A delay must be communicated immediately so that connective actions can be planned differently.

Digital spacetime constitutes one of the important structuring principles of modern society. Measurable and regular working hours, the organization of administrative processes in government and business, the planning of work, athletic competitions with standings and performance comparisons, and many other things would not be conceivable without this spacetime structure. It is distinguished from the space of vastness, directional space, and modal time by the absence of self-referential centering. Modal time and directional space refer to a center from which directions unfold into the space of vastness. The experience of the world always takes place in the present and develops specific fulfilled references to the future and to the past starting from the current here. None of this exists in digital spacetime. There are points in a four-dimensional space (including time) whose relationships to each other can be calculated. The premises of observation and reckoning are posited by observation/the position of the observer in a calculable way. In digital spacetime, all points are reciprocally determined by how they relate to all other points.

The mathematical properties of digital spacetime make it possible to plot the changes in the conditions of bodies that can be registered in digital spacetime in a thoroughly constructed algorithmic sequence. This is the basis for the technical construction of information and control technologies that are used in the building of computers and robots. Robot technologies are understood here in the widest possible sense: the autopilot system of an airplane is a robot, just as is a self-driving car or a refrigerator connected to the Internet of things that automatically notifies the consumer or the grocery store that there is no more milk. For the autopilot system of an airplane, this entails the following: incoming data concerning distance from the ground, speed, the plane's banking angle in relation to the ground, and so forth, are included in the calculation of the flight path. Calculating the flight path means computing discrete points at which certain sections of the plane are in certain positions. In other words, it means calculating future flight positions. These calculated futures are continuously adjusted in relation to current calculations of the present flight position.

The key point here is that the control algorithm contains a recursive loop that organizes the individual calculated positions into a before/after sequence. The "after point" is analyzed to determine whether it corresponds to the position that before was calculated as the after position. This allows for technical control of movement in digital spacetime. The possi-

bility cannot be excluded here that in a certain designated range, the state of affairs will pertain that the steering mechanism will steer either this way or that way. The human pilot does not intervene into this technically calculated steering mechanism. The "partial acts" (such as changes to the flight path) of a portion of the composite act that is technically controlled in this way are no longer conveyed symbolically. There are no actors symbolically inviting each other to make their contribution. There is only the interaction of robotic control and mechanical technology.

The difference between discrete and chaotic quantities seems to be of great significance in the analysis of the particular functioning of such control processes. Expectation structures are chaotic quantities. It is not clear how many expectations there are and who has them. Furthermore, the time of embodied selves has a modal structure. For an embodied self, something can be irrevocably over and it can find itself faced with a never entirely determinable future, which, as an expected future, makes the present into *this* present. By contrast, the before/after of digital spacetime is discretely determined. There is a calculation of what position the airplane will be at when, which may or may not correspond to the position measured at the "after" point in time. The flight path, digitally calculated in spacetime, consists of a quantity of discrete elements that can be compared with each other. The logical structure of chaotic or relatively chaotic quantities is incompatible with this. For digital spacetime, the following statement is never true: "As present expectation, the future is not only in the future but at the same time in the present." Here, the present and the future have a chaotic relationship in that the present is not only the present, but *this* present because of *this* expected future. By contrast, the point in spacetime calculated in the present is unequivocally defined by this calculation, as is the point in spacetime calculated afterwards. These two points can be clearly distinguished from each other. Another example: "An expectation no one knew existed is disappointed; it is only thanks to the disappointment that the expectation can be identified as an expected expectation." An expectation identified in this way is not simply one of a quantity of other individualized expectations but is set apart from a chaotic quantity of expectations.

We thus find the following difference between these two temporal structures: if expectations had the structure of discrete variety, expectations or expected futures would be stored as if in a database. A disappointed expectation would mean that a certain element of the database did not correspond to currently experienced reality. The expectation was already identified as such before its disappointment and distinguished from other expec-

tations. If, on the contrary, expectations exhibit the structure of chaotic or relatively chaotic variety, the quantity of my expectations does not exist as a quantity of identified individual expectations. It is rather a quantity of expectations for which it is not decided whether the individual expectations are identical to or different from each other. It depends upon current experience whether and in what way individual expectations are identified and who is identified as having or having had these expectations. This logical difference underscores in a precise way the structural particularity of digital spacetime.

To date science and technology studies have not adequately taken into consideration the particularities of digital spacetime, translated into mathematical calculation, as the condition of advanced technology. Digital spacetime is not only a central element of the order of modernity, but also a medium of technical construction. In this multifunctionality, digital spacetime probably constitutes one of *the* key operating principles of modernity.

Principles of technical construction

The production and use of technical artifacts differ in terms of their proximity to or remove from the lived body. Chimpanzees' use of thick and thin sticks described at the beginning of the section is an example of using technical artifacts in a way that is close to the lived body. We can still observe usages of this kind in our contemporary everyday lives, e.g., when we hammer a nail into a wall or use tweezers to remove a splinter from our foot. In such cases, the lived body, the experiences of an embodied relationship to the environment, themselves function as media of construction and of the use of technology. The principle of hammer use prevails in practice only because there is such a thing as the experience of pressure, counter-pressure, swinging, and hardness. The extension of the lived body by the tool remains oriented toward the operating principles experienced by the lived body. The lived body as center that has effects on the world constitutes the starting point for the understanding of causality; it is in this sense that the lived body constitutes the principle guiding the development of technology. An artisanal division of labor came to evolve within this framework.

But even when usage is close to the lived body, it cannot be reduced to the relation between the lived body and the tool. A tool is not only an artifact that suggests a practical use by an embodied actor, but also symbolizes its

appropriate use by embodied actors. The tool is a thing to be functionally operated as well as a communicative symbol if its appropriate use. Thus alter produces a tool expecting ego's expectations of use. The general validity of the symbol is secured by means of the objectification of the communicative proposal of meaning from the perspective of tertius. In this way, the artifact symbolizes the generally valid rule of its appropriate use.

Once the rule of appropriate use has become precise enough that it can itself be implemented in a material-technical way, multiple tools can be combined into a machine. To this end, the sequences of actions that are close to the lived body have to be translated into mechanical sequences. A prerequisite for this process was the general establishment in the nineteenth century of digital spacetime, which became a construction medium of technology.[66] Digital spacetime makes it possible, for instance, to calculate arm movements as a sequence of movements of a level/hinge construction. In order to generate a machine movement, the level/hinge construction merely has to be plugged into a power source. Multiple manual movement sequences can then be mechanically reproduced and connected with each other in a machine. "The principle of machine technology consists in transferring human action functions that have been simplified by the division of labor, such as moving and handling, as well as specialized tools, to an objective mechanism that is not restricted by the limits of organic force and human dexterity" (Rammert 2010:2698). This fundamentally changes the relationship between lived body and artifact. The artisan using a tool, wielding it from out of the center of his own lived body, becomes a worker who must adapt to the machine and its mechanical functioning (cf. Marx [1867] 1990:chap. 15).[67]

In his "Machine Fragment," Marx ([1857–58]1993:612ff) puts forward another interpretation, however. There he writes that the machine is objectivized "general social knowledge [that] has become a direct force of production" (Marx [1857–58]1993:626). Here we have an indication of the relevance of the communicative and institutional aspect of technology. In

66 It is true that there were very early attempts to disconnect the measurement of time from the rhythms of nature, i.e., from continua of changes. One example of this is the use of hourglasses. But it was not until the saddle time, i.e., from around 1750, that the understanding of time in Europe and the United States largely became disconnected from continua of changes and increasingly came to be thought of in relation to a discrete sequence of changes.

67 This led to machine-like bodily actions, which were in turn aestheticized by twentieth-century avant-garde theories of theater. One of the key protagonists of this approach was Vsevolod E. Meyerhold (Bochow [1997] 2010).

machine technology, the sequence of processing steps is mechanized, i.e., the rule (the symbol of the appropriate use of the partial tools) according to which the mechanical movements of the cooperating partial tools are sequenced is determined by human actors during production of the machine, but then functions automatically. The cooperating partial tools are steered by means of mechanical cooperation.

Even if the machine functions automatically it has to be controlled by workers; in other words, machines also have to be used appropriately. On the one hand, the worker is an appendage of the machine, but she can also use it in an appropriate or inappropriate way. She can use it in a way that causes the machine to produce faulty products or she can use it in a way that leads to products without defect. Even the worker as appendage uses and operates the machine based on communicative and institutional rules. Combining multiple machines into a larger functional unit results in the same problem of operation and coordination. Communicative and institutional mediation is necessary for machines to be able to work together.

The development of technology seems to follow a recursive logic. Even a tool is not only an extension of the lived body but also symbolizes its appropriate use. The objectification of the rules of appropriate use makes the construction of machine technology possible. If the rule of the appropriate use of the consolidated "partial tools" is technically implemented in the machine, the latter's production and use requires knowledge of this rule and of its technical realization.

In machine technology, then, human bodies are more fully replaced than in the case of tools. This corresponds to Gehlen's principle of technology as replacing or outdoing organs. At the same time, however, the cooperation of partial tools ceases to be communicatively and institutionally controlled but is instead controlled automatically. This is what we call a first-order automation of control.

First-order automation of control is followed by second- to nth-order automations of control. Here we find the transition to cybernetic or computer technology (Heintz 1993b). This is a "paper technology" (Turing) that merely gives instructions as to how movements or material conditions are to follow upon each other. Computer technology presupposes that the principle of digital spacetime can be materially realized. This principle allows for minimally discrete elements to become detached from each other and then related to each other in the form of chains of any possible composition. If this succeeds, an algorithm can be implemented in a machine and run there independently.

Cybernetic technology, in turn, makes it possible to disambiguate the communicatively institutionalized rules for the use of machine technology in terms of a sequence of commands. This formalizes the rule of the appropriate use of the machine itself and symbolizes it as a formalized rule in a calculation. If the calculation is formulated unambiguously enough, it can be translated into machine code, i.e., into a sequence of discrete and thus computable material conditions. The result is the automatic control of the machine, which is applied to the already existing control of the cooperation between the partial tools in the machine. This is second-order automation. The machine contains a first-order automatic control, to which the second-order automatic control connects. I refer to this as recursive technological development: the automatic control of automatic control. Second-order automatic control is a technology that also has to be communicatively and institutionally controlled—in terms of the formulation of guidelines for intended use. As concerns production, starting from second-order automation the interface between institutionalized intended use and functioning automatization is the source code of the control program. Knowledge of the source code makes it possible to intervene into the program in order to reconfigure it rather than simply just apply it.[68] The source code determines how the program is supposed to be used.

The recursion of automation to already existing automated control can be increased in terms of third, fourth, and so on orders of control. Third-order automatization presupposes knowledge of the communicative-institutional control of second-order automatization, i.e., the source code of a control program, and the ability to disambiguate it in terms of a formal rule so that it can be translated into machine code. We find this in the construction of computer programs that write computer programs.

But even third-order automation requires a symbolic understanding of its appropriate usage. Even here the key criterion holds that the rules of ap-

68 A current example is the debate over whether the source code of control rules, i.e., of computer programs, should be freely available so that everyone can shape the rules of rule production or whether the production of these rules is something that can be individually acquired and sold. This debate is known as the debate surrounding free access to source code or, more generally, surrounding free software, and is dominated by those who advocate free access to source code. See, for instance, Benkler (2006) as well as the following online articles:
http://www.gnu.org/philosophy/why-free.en.html (Stallmann 2009)
http://www.gnu.org/philosophy/philosophy.en.html (Free Software Foundation 2018)
http://www.unterstein.net/su/docs/CathBaz.pdf (Raymond 2001).

propriate use cannot be exhaustively explicated; even here the symbolization of appropriate use points to possible, but not explicitly identified future uses.

A good example of the principle of recursive technological development can be found in the evolution of elevators. Elevators replace the exertion of force required to raise or lower a box from floor to floor by connecting a source of power with a mechanism that moves the box (cage) from floor to floor. In the beginning, a person was required to operate the mechanism, the elevator operator. Institutionalized intended use of the elevator was to a definitive extent in his hands. He expected the generalized expectations of the passengers who told him what floor they wished to be taken to and had to control the mechanism in such a way that the cage floor was right at the same level as the desired floor when it came to a stop. This communication between persons was replaced by an automated system that automatically ensures that the floor of the cage and the desired floor are on the same level when coming to a stop. Where the elevator waits for the next passengers is left to chance. If it is known on what floors elevators are generally needed most, human actors would have to steer the elevator to these floors. This step can also be automated, so that, for instance, the elevator always automatically returns to the ground floor after every use. If, however, it varies where elevators are needed most, communication becomes necessary. Take a large conference hotel with big conference rooms on the tenth, fifteenth, and seventeenth floors. Depending on the size of the conference, there is a greater or lesser need for elevators on these floors. By means of communicative interaction, hotel employees can ensure that there are always enough elevators ready for the attendees. The alternative would be learning neural networks that autonomously send elevator cages to the appropriate floors based on usage patterns (see Matthias 2004:176f). Here too institutional forms of communication (instructions given to staff) are replaced by automation. The example of the development of elevators clearly shows how the automation of communication recursively builds on itself. First came the automation that smoothly lined up elevator cage and building floor, upon which another automation was based, that of the automatic control of what was previously a communicatively mediated distribution of elevators on different floors. The initial programming and maintenance of the elevator control mechanism continues to be taken care of by means of institutional communication, but even this could, in principle, become formalized to the point of becoming automated. The development of technology both replaces the physical and the lived body as well as instuitional communication.

It follows from the above that we can distinguish between at least two kinds of technical development. Technology develops, on the one hand, by means of quantitative increases and, on the other, by means of an increase in recursive complexity. Quantitative increase means that ever more processes are technically connected with each other without symbolic mediation. An increase in recursive complexity refers to symbolic control being reflexively captured, formally disambiguated, formulated as an algorithm, and translated into machine code. This process must itself, in turn, be symbolically controlled. The recursive increase in complexity makes self-programming programs possible. It seems clear that these two modes of technical development stimulate each other: the quantitative scope of technical mediation probably provokes an increase in recursive complexity, which in turn makes possible quantitatively more extensive technical mediations.

The development of machine technology as well as of the technology of control calculations inspires different forms of increased efficiency on the level of the lived body. Machine technology inspires an increase in the efficiency of the lived body by increasingly gearing the experienced lived body to the body of digital spacetime. The physical body [*Körper*] folded into the lived body [*Leib*] is calculated like a machine body facing an environment of mechanical effects. It is in this sense that sports scientists study ways in which air and fluid resistance can be best minimized in order to optimize running or swimming performance. Here embodied experience is folded into a machine body.

The development of control technologies on the other hand aims rather at the technical enhancement of organic self-control. This requires the identification of control processes as neuronal activity patterns (see Lindemann 2009c), which can then be technically optimized. One of the most important questions in science and technology studies today concerns the consequences of implementing robot technologies in everyday life and of interlinking human self-control and robotic control mechanisms is (see Lindemann and Matsuzaki 2014). It seems likely that one of these consequences will be a new kind of intersection between modal time, directional space, and the social order oriented toward the medium of digital spacetime.

3.6 Symbol formation and institutionalization under conditions of expanded world-openness

As we saw above in our categorical unfolding of the social dimension, the representation of the distinction between the personal sphere and other entities requires a triadic structure. The question now is whether our understanding of the formation of symbols should also be modified by expanding the problem of reference. The most important sociological work on the formation of symbols was put forward by Mead. Habermas treats Mead's position in detail, adding further dimensions to it by connecting it to Wittgenstein's theory of rule use. Neither Mead nor Habermas explicitly consider the social undecidedness relation or the problem of the contingency of the shared world. Both assume that in socially reflexive relationships between human beings, institutions, commonly held norms, and symbols with meanings shared by actors will emerge. In the case of norms that can be criticized rationally, Habermas does go beyond Mead by introducing a third entity he refers to as "neuter" (Habermas [1981] 2006:35).

3.6.1 Symbol formation

Comparing my position with that of Mead and Habermas helps clarify the significance of the difference between simple and expanded world-openness for an understanding of symbol formation/symbolic representations in the context of institutionalization processes. Two problems can be distinguished here that allow us to work out the difference between Mead's pragmatism and the theory of the excentric relationship between the lived body and its environment:

1. The structure of reflexivity
2. Generalizing symbols by taking the attitude of the other

The structure of reflexivity

For Mead, reflexivity is social reflexivity and has a twofold significance: it bridges the difference in perspective between ego and alter, making possible the creation of a common world and, second, makes individual self-consciousness possible. Mead's conception of the structure of social reflexivity can be summarized as follows: the organism exists in its own perspec-

tive, i.e., it perceives its surroundings according to its own temporal references and what is substantively relevant to it. Thus, for example, the organism perceives a threatening object approaching it from the front right and, at the same time, something behind it to the left it can get to quickly and climb on top of. Obviously these practical perspectives will be different for every organism. Mead refers to the whole of an organism's practical relationships to its environment/the objects it encounters as a "consentient set" (Mead 1925:258f, [1932] 2002:39–43; see also Joas [1980] 1985:chap. 8). If every organism constitutes the center of a consentient set, this means that the world is fragmented into a multitude of such systems, each with their own temporal structures and substantive references. Here already we find an important difference in relation to the phenomenology of the lived body: Mead does not develop spatial categories on the level of the organism's practical relationship to its environment. For Mead there are only practical relationships to other organisms or to objects; he does not provide an equivalent to the phenomenological distinction between the space of vastness and directional space.

According to Mead, the organism exists in practical relationships without becoming conscious of itself; reflexive self-consciousness only comes about by means of perspective-taking in social relationships (Mead [1934] 2009:17f). This raises the question whether taking on the perspective of another generates a reflexive relationship to oneself or whether a reflexive relationship to oneself has to be presupposed as a condition of the possibility of taking on the perspective of another.

If we start with the individual organism relating to its environment from its own substantive and temporal perspective, the problem presents itself thus: as long as the organism relates to its environment without reflexive distance, it is only conscious of its own sensations and the experienced environment in the sense of "awareness" (Mead [1934] 2009:81). In order for social reflexivity to emerge, the organism must be assumed to possess the ability to take on the perspectives of others. Otherwise the organism would not be capable of noticing, e.g., that a stimulus in it triggers the same reaction in a partner organism (see Schneider 2008:186). Furthermore, without the ability of perspective-taking, the organism would not be able to relate to itself from the perspective of another. Joas puts it in a nutshell when he observes that the human being would be "confined to his own body-centric perspective" (Joas [1980] 1985:158) if he did not have the ability to take roles (Joas [1980] 1985:158). But the ability to take roles already presupposes the organism standing at a certain remove from its own perspective. The organism relating to its environment from its own per-

spective must be able to reflexively stand back from itself in order to take on the role of the other. If this were not the case, the body-centric organism could never do anything but act from out of its own perspective. A reflexive remove from oneself thus constitutes the prerequisite for role or perspective-taking and cannot be its result.

In order to clarify Mead's argument, we should return to the discussion surrounding the adoption of alter or tertius positions. The question is whether the experience of an alter or an actually experienced tertius is necessary for ego to adopt their respective positions. Mead argues that taking on alter ego's position necessarily requires an encounter with it. This can easily be misunderstood to mean that for Mead, a reflexive remove from oneself is the result of an encounter with the other. He does not, however, provide a convincing argument for this. Instead he attempts to incrementally move from the individual embodied self by way of an encounter with the other to the generalized other, without being explicitly clear as to whether a real third is necessary here. It thus remains open whether the tertiary position is a reflexive position that can be occupied by ego or alter, or whether a third embodied self has to occupy this position. Habermas's position is more consistent here (see below), in that he insists that an actually encountered tertius is necessary in order to adopt the latter's position.

The structure of social reflexivity arising from the shared-world relationship between the lived body and its environment as I am conceiving it here differs both from Mead's conception as well as from Habermas's more consistent position. The difference is that this relationship is already established on the level of centric positionality. Including the spatial dimension makes it possible to categorially grasp how others are experienced in an encounter even if there is no reflection of it. An ego experiences being touched by an alter ego—even on the level of centric positionality, reciprocal embodied touch takes place. As noted, this observation constitutes an extension of the theory of positionality; Plessner himself does not analyze embodied touch on the level of centric positionality.

This extension allows us to better understand the reflexivity of excentric positionality as a reflection of the lived body-environment relationship in which embodied selves experience the touch of other selves. This leads to the social undecidedness relation, which in turn allows us to understand the emergence of order. We need to know more about how the reflexivity of excentric positionality is operatively structured, however, so as to be able to further develop the theory of the excentric relationship between the lived body and its environment as an operative theory of order formation. This is made possible by introducing the third as an operative realization

of the reflexive structure of excentric positionality. For ego and alter, this means that they experience themselves, from the perspective of real thirds, as being in relations of touch.

The difference between the reflexive structure of excentric positionality and that of perspective-taking in Mead becomes clear here. Mead thinks of the operative execution of social reflexivity from the perspective of the individual organism taking on the role of the other: in the first step, this is the perspective of the alter ego and in the second (in Habermas), the perspective of the third. Following Plessner, the social reflexivity of the experience of experiencing the other presents itself from the tertiary perspective. Here, ego and alter experience themselves and their perception and action aimed at the other from the perspective of tertius. The connection between space and social reflexivity becomes obvious here. Plessner and Schmitz posit a shared unstructured space of vastness, into which embodied selves direct themselves and in which they can touch each other. I understand the third as an experienced embodied directional center that mediates the experience of the experience of being touched, and thus as the operative realization of the reflexivity of excentric positionality. The third makes it possible for ego and alter to reflect on their experience of their relationship of touch. The triadically structured social undecidedness relation thus constitutes the starting point from which the emergence of order is to be understood.

Symbols with identical meaning

In the previous section we distinguished between two forms of social reflexivity: 1) social reflexivity as theorized by Mead and Habermas, which starts from the perspective of an embodied action center with the capacity for perspective-taking; and 2) the social reflexivity of excentric positionality, which starts from the triadic social undecidedness relation, which includes the possibility of embodied action centers determining how they relate to each other by their triadic structure. The different forms of social reflexivity also have consequences for the formation of symbols with a meaning shared by actors.

In order to get to the heart of these differences, I will begin by looking at the structure of perspective-taking in Mead, or rather at Habermas's more clearly structured account of Mead's argument. The aspects of Mead's theory that are worth preserving will emerge along with the differences to the approach I am proposing.

Mead/Habermas is trying to conceive of how understandable meaning that can initially only be accessed by an external, understanding observer becomes meaning that is accessible for the participants themselves. A related question in this context is how a gesture can have an identical meaning for different actors. For Mead/Habermas, the answer lies in a three-tiered taking the attitude of the other, the starting point for which lies in the organized social composite act in which members of the same species cooperate with each other. The levels of perspective-taking are levels of the social reflexivity of the composite act.

Gestures have meaning even in the context of an unreflected social composite act. This meaning is defined by one individual's gesture being followed by the gesture of another. The fact that a gesture refers to something, i.e., has meaning, is initially only accessible to an external observer, who sees ego making a gesture to which alter also responds with a gesture. The observer interprets the gesture of alter as referring to the gesture of ego. Composite acts mediated by gestures are already found among social insects or in insect parental behavior.

Mead uses the example of a wasp that paralyzes a spider and stores a larva in it. The spider serves as food for the wasp larva. The social composite act here is parental behavior, to which both the wasp and the wasp larva make their specific contributions. The social object around which the parental behavior is organized is the spider (Mead [1925] 2002:265). The organized composite act of parental behavior takes place here without perspective-taking. The spider functions as a stimulus to which the wasp responds by paralyzing it and depositing a larva in it. The larva will respond to this stimulus (the paralyzed spider) by feeding off of it and continuing to develop. Social insects respond to each other in similar ways. They provide physiological stimuli for each other, to which the others respond in a predetermined way. These responses in turn serve as stimuli for others to make their contribution to the composite act of parental behavior or to the preservation of the species.

A three-tiered form of social reflexivity turns a composite act whose meaning only exists for an external observer into a composite act whose meaning exists for the participants and is communicated by means of symbolic gestures that have an identical meaning for these participants.

The perspective of an understanding external observer is necessary to be able to analyze the taking of the attitude of another. For the observer, the meaning of a gesture consists in the next gesture it elicits.

First attitude-taking: According to Mead, vocal gestures are a special kind of gesture because ego can perceive his own gesture the same way as does

alter. When ego hears his own vocal gesture, this elicits—at least to a certain extent—the same response in him as it does in alter, to whom the gesture was addressed. In individuals of the same species, the response to the vocal gesture will be the same in organism A as it will be in organism B (see Mead [1934] 2009:63f). The first instance of attitude-taking consists in ego putting himself in the position of the other and on this basis anticipating how alter will respond to ego's gesture.

Assuming only this first level of attitude-taking, a greeting would look like this: ego expects that vocalizing "hello" will lead to alter responding with a vocal gesture. In this case, ego's gesture not only has meaning for an external observer, but also for ego himself, since he anticipates that his vocalization will result in a corresponding vocal gesture from alter. Ego sees himself from the perspective of the other and acts according to the response he expects from her.

Mead has to assume that perspective-taking already occurs on this level since the relationship to the other as other action center only takes place by taking the latter's position. He also interprets the relationship of birds imitating each other's melodies as role-taking. When a bird sings a song, it evokes the same response in itself as is exhibited by the bird that hears this song. In the same way, Mead alleges that a lion addressing its fellow lions with a threatening roar elicits in itself "at least a tendency" to respond in the same frightened way (Mead [1934] 2009:63f).[69]

Thinking in terms of a spatial encounter between embodied selves allows us to understand this relationship more modestly as reciprocal embodied touch. It suffices to assume that the lion with its roar, for instance, shapes the way in which it addresses its environment by vocalizing, and thereby touches other embodied centers in their boundary realizations, in their experience of their own condition. The advantage of this approach is that it does not tie the possibility of touch or of being touched to membership in the same species and to an instinctive sameness of response, but instead emphasizes the state of affairs of embodiment itself. The lived body of the zebra can also be touched by the lion's roar—even if the zebra has never come into contact with a lion.

For Mead it is the participating individuals' membership in the same species that guarantees that ego and alter will respond in the same way in the context of first perspective-taking. It does not follow from this, how-

69 Schneider points out a strange consequence of this structure of perspective-taking: the roaring lion would have to, at least to a certain degree, be just as afraid of its own roar as are those to whom it is addressed (see Schneider 2008:185f).

ever, that they know they are using a symbol with an identical meaning. The gesture has an identical meaning for an external observer, but the participants do not know this. A second and third attitude-taking would have to take place for them to achieve this awareness. According to Mead/Habermas, in the *second attitude-taking* ego not only anticipates alter's reaction to his own gesture, but also that alter anticipates ego anticipating this. Ego thus assumes that alter knows what follow-up gesture ego expects. In this case, ego expects the gesture to also have meaning for alter. This means that he addresses the gesture to alter as someone who will interpret it. For ego to anticipate that alter will not merely react is to take the position of alter as someone for whom the gesture has meaning and who interprets it. Thus ego expects that saying "hello" constitutes a vocal gesture for both parties, which alter will interpret and to which she will respond accordingly. Ego takes the position of alter by anticipating that she will interpret the gesture (see Habermas [1981] 2006:14).

With the second form of perspective-taking we have reached the level on which ego perceives and recognizes another organism as an alter ego. This only works in the described way, however, if it is clear in advance whose vocal gestures are to be understood as symbolic gestures in the first place.[70]

In order for symbols to take on identical meaning for the parties concerned, a *third attitude-taking* is required. Habermas develops this third level starting from the problem of the disappointment of expectations regarding appropriate symbol usage (see Habermas [1981] 2006:14f). Ego uses a gesture with a particular meaning, assuming that alter will base her interpretation of it on the same meaning. If alter disappoints ego's expectation regarding the symbol's meaning, the object of this disappointment is alter not interpreting the symbol appropriately. Thus it is criticism or the anticipation of criticism that allows meaning to become generalized, thereby creating a generalized meaning identity. This involves a more advanced reflexive structuring of the social relationship. Symbol users anticipate that their symbol use can be criticized if they disappoint expectations of proper symbol use. The internalization of this criticism is the third attitude-taking. It is on this level that "rules for the use of symbols" (Habermas [1981] 2006:15) are established.

Initially, Habermas develops his understanding of rule use exclusively in the context of a dyadic conception of sociality, i.e., in the relationship between speaker and recipient (Habermas [1981] 2006:15ff). This includes

70 This clarity cannot be achieved by empathy. Lüdtke (2010) works out the problems resulting from Mead's argument in detail.

situations in which there are multiple listeners. The point is, however, that Habermas thinks he can understand rule use by positing a speaker-recipient constellation. And yet doubt does seem to arise that the criticism of rule use can be grounded in a dyadic constellation, for he goes on to introduce a form of perspective-taking that makes reference to a third in his analysis of the formation of rationally criticizable norms. Habermas refers to this third as a "neuter" (Habermas [1981] 2006:35) and identifies it with Mead's generalized other. Habermas goes beyond Mead here, however, so that, strictly speaking, the term "generalized third" would be preferable here to that of generalized other.[71] With the third attitude-taking we have a situation in which "A understands that anyone who might adopt ego's and alter's perspectives would have to take over the same system of perspectives. Under these conditions the concept of a concrete pattern of behavior can be generalized into the concept of a norm or action" (Habermas [1981] 2006:36). This creates a situation in which the actors of the dyad no longer encounter each other in an individual and arbitrary way, but rather recognize that they are both guided by norms. If A and B internalize the norm mediated by neuter, and thus the triadic constellation, the norm becomes one that is valid and can be criticized (Habermas [1981] 2006:36f).

Since Habermas uses the same figure of argument for the emergence and stabilization of norms and for the rule-conforming use of symbols—the anticipated criticism of the action as possibly not conforming to the rules—it seems imperative to me that he use the same sociotheoretical figure of thought in both cases. In both cases we have to do with either a dyadic or a triadic constellation. If context-independent generalization requires the third, then the formation of symbols as lastingly valid ways in which to shape expression can also only be understood by referring to the third. This is particularly true if, like Habermas, one conceives of the formation of symbols with identical meaning as starting from an asymmetrical constellation such as that of teacher-student (see Habermas [1981] 2006:17). If alter ego is dependent on ego, interpretation of symbol use must take place from the perspective of a third so that the asymmetry in the relationship can be cancelled out by the rule of symbol usage. Habermas seems to be one of those theorists who intuitively grasp the importance of the third in some contexts but fail to understand its systematic function. If he had understood why the third needed to be introduced, he

71 Fischer (2010) suggests that even Mead's generalization implicitly makes use of a third. It is only Habermas, however, who makes this explicit, a fact passed over by Fischer.

would already have had to do so when he was addressing the formation of symbols with an identical meaning.

Habermas's theory of symbol use provides a nuanced sociotheoretical foundation for Wittgenstein's theory that the meaning of linguistic symbols is determined by their use. For Wittgenstein, the semantic content of linguistic utterances is determined by their use in everyday communication: "The meaning of a word is its use in the language" (Wittgenstein [1953] 2001:§ 43, see also § 421). Habermas renders this hypothesis more precise by framing it in terms of the ego/alter or the ego/alter/neuter constellation.

The claim that the meaning of symbols is determined by their use seems, in principle, to be ideally suited to a theory centering on the functional relationship between the lived body and its environment. On the other hand, however, we have Schmitz's criticism of Wittgenstein, which, while it has been largely ignored, is well worth considering. Schmitz argues that the use theory means that dead languages must remain inaccessible to us (Schmitz [1977] 2005:522f). Since the Greek in which Homer's *Iliad* was composed is no longer in use, the *Iliad* should be meaningless for us—but that is not the case. This objection hardly seems refutable to me if we understand use in terms of the active production and interpretation of linguistic symbols. Habermas's rule-based approach does not solve the problem either, as his account of use theory foregrounds the creation of linguistic symbols by speakers. Thus it would be necessary for Hector or Achilles or someone who used their language in the same functional way as they did to confirm or refute the interpretations of contemporary classicists, who would have to defend themselves against their criticism. Despite the fact that this is not the case, the *Iliad* has meaning for us. We think we can learn something from this text, or from Old High German or cuneiform texts, about the ancient Greek, Germanic, or Sumerian understanding of the world. All archeological research analyzing inscriptions and texts would be doomed to failure from the beginning if Wittgenstein were right. The use theory of meaning can only be salvaged by focusing on the rule-based interpretation of linguistic symbols. This would contradict Habermas's take on the theory, but not Wittgenstein himself, whose assertions here remain rather general.

Symbol formation under conditions of expanded world-openness

Starting from the social undecidedness relation requires a different structure of social reflexivity than that found in Mead or Habermas. The latter structure is characterized by a tiered transition beginning with the reflexive distance between the ego and itself, upon which the you-perspective, and, in the next step, the tertius perspective are constructed. This sequence is not sustainable if the social undecidedness relation is to serve as the starting point. In that case, the creation of symbols with an identical meaning for the participants acquires the following structure: reciprocal perspective-taking between ego and alter is replaced by the reflection of the relationship between ego and alter as mediated by the third.

Already on the level of centric positionality, the relationship between the lived body and its environment includes the actors ego and alter directing themselves at and touching each other in an embodied way. Embodied relationships are not completely predetermined but have to be shaped in a process of learning, which opens up the possibility of modulating reciprocal embodied relationships. This includes the possibility of simulating relationships between lived bodies and their environments. An example would be the deceptive maneuvers described in the section on the social dimension: Melton the baboon is pursued by the mother of the young baboon he beat up. He runs away, then stops suddenly and goes down on his haunches as if he were on the look-out for a lion. The baboon mother stops her pursuit and follows the direction of the as-if gesture, scanning the surrounding savanna for a lion. The possibility of simulations like this also makes possible what Bateson and Haley describe as the difference between combat and play (Bateson and Haley [1955] 2000:179f). In the case of play, it is clear to the participating actors that they are situationally relating to each other in terms of simulated combat.

Beings capable of such distinctions vacillate in their relationships to other embodied action centers between what these relationships are and the possibility of the as-if. What is actually going on has to be determined on a situation-by-situation basis in embodied relationships to the environment. Are we fighting or are we play-fighting? Are you focusing your attention on a lion or are you just pretending to?

The structure of excentric positionality is characterized by the becoming reflexive of the overall structure of the relationship between the lived body and its environment and the relationships between lived bodies given within it. This reflexivity is realized operatively by way of tertius, rendering comprehensible the difference between a realized lived body-environment

relationship and an as-if-lived-body-environment relationship as it develops between the embodied operators ego and alter. Ego and alter identify as-if gestures as such from the perspective of tertius, distinguishing them from immediately functional references to the environment. The as-if gesture thus no longer functions as a simulation of the practical relationship to the environment, but rather points as a symbol to the realization of the embodied gesture as its meaning.

The relation between as-if gesture and that which is experienced in the lived body's relationship to its environment as real differs depending on whether this relationship is structured centrically or excentrically. 1) Centric positionality: the as-if directional gesture simulates the presence of a lion. The gesture is not explicitly set apart as an "as if" from the threat of a future presence. Those following the directional gesture experience the lion as a possible threatening presence in the future and assess whether they need to get out of harm's way. 2) Excentric positionality: if this relation is reflexively grasped and the as-if gesture is understood as set apart from its realizing direction, the gesture can point to the presence of a lion in terms of a *meaning*. The as-if gesture becomes a symbol of the state of affairs to which it points. The use of the symbol for the presence of a lion is independent of whether a lion is really present or not, whether its presence is being simulated or not.

In the first case, the lion's presence, i.e., its reality, is playfully simulated, with no explicit distinction made between the medium of playful simulation, the as-if gesture, and simulated reality. The second case describes a relation in which a distinction is made between reality and the as-if gesture as a symbol, which makes it possible for the gesture to point to a state of affairs without the participants having to experience it as real in their lived bodies. Following Bateson's idea of understanding the as-if gesture as play, we could say that the symbolic as-if gesture is playfully identified with the state of affairs to which it points.[72] In this sense, the development of languages could be understood as a rule-governed differentiation of symbolic as-if gestures that makes it possible to describe increasingly differentiated states of affairs as possibly existing. Whether they really exist, ever existed, or will exist in the future is irrelevant in this context.

In order to understand rule orientation, the formation of linguistic symbols must be situated in the ego-alter-tertius constellation. In the relation-

72 I use the term "playful identification" in a similar way to Schmitz (Schmitz [1977] 2005: § 226), who does not, however, analyze the rule-conform use of linguistic signs.

ship between ego and alter as it is reflected upon from the tertius position, ego interprets alter ego's gesture, which includes understanding himself as an interpreter of a gesture directed at ego (himself). The outside perspective mediated by tertius guarantees meaning identity for ego and alter. Ego interprets the symbol in front of tertius, anticipating the latter's possible criticism of a connection between symbol and meaning that does not conform to the rules. Ego interpreting, in front of tertius, the sensory appearance of an alter ego as symbol use, at the same time construes alter ego as a social person who uses symbols that point, in a rule-conform way, to a state of affairs as their meaning. In the interpretation of a gesture as symbolic, it is assumed that alter not only situationally addresses ego with her gesture, but that she anticipates the execution of the gesture addressed to ego, as well as ego's interpretation, taking place in front of tertius.

Taking into consideration the problem of the contingency of the shared world in our analysis of the production and interpretation of symbols has the effect of prioritizing interpretation. Whereas Mead and Habermas focus on how an actor understands the meaning of his own gesture addressed to alter ego, including the contingency of the shared world introduces a shift in perspective: the question now is whether an entity's expression can be interpreted as a symbolic gesture in the first place. Thus it is the interpretation of symbols rather than their production that gains center stage. Furthermore, the rule-based interpretation of symbols, with a rule-governed referral of the symbol to its meaning, is understood to necessarily include the anticipation of criticism. The significance of this shift in perspective is particularly evident in extreme cases. During rehabilitation of patients in a vegetative state, for instance, it is not always clear whether they can understand questions and answer them appropriately (see Lindemann 2005a, 2009b:chap. 6.2). The most simple form of symbol use that can be found in this field is the yes/no code; the question is whether a minimal gestural reaction such as inclining the head, lifting an eyebrow, or blinking an eye can be construed as an element of such a code. Therapists in these situations try to intuitively determine whether a gesture can be interpreted as symbolic in the sense of a yes/no code. Their interpretations are guided by the anticipated criticism of their colleagues. Every interpretation is accompanied by the question whether other interpreters would construe this gesture in terms of a yes/no code.[73]

73 Studies in this area represent the context of discovery of the theory of the third (Lindemann 2005a, Lindemann 2009b: chap. 6.2).

Until now—and this holds also for Habermas and Mead—socialization has been foregrounded in analyses of symbol use. Thus it is the matter of studying ways in which young children or apes (Tomasello) acquire linguistic symbols. In the analysis of order formation, however, it is less a matter of examining socialization processes and more of establishing how successful socialization processes are identified in the field. Starting from a triadic concept of communication gives rise to a twofold question. On the one hand we have the traditional question of socialization; on the other we must ask: how do parents and/or other experimenters come to interpret the expressions of certain entities as linguistic symbols? These interpretations are understood as reciprocal executions. It is a matter, then, of examining how parents/experimenters construe, by way of thirds, their children/apes as symbol users; furthermore, it should be examined how children/apes construe their parents/experimenters as symbol users. How are the contexts of language and speech shaped by symbolic displays and their interpretations reciprocally carried out in front of thirds?

A renewed use theory of meaning

The question now is whether the theory of meaning proposed here avoids the criticism Schmitz leveled against Wittgenstein and which also calls into question Habermas's reformulation of use theory in relation to Mead. The theory of meaning proposed by Habermas and the one explicated here both begin with the practical relationships between lived bodies and their environment. They differ in that Habermas thinks of meaning starting from the production of symbolic gestures and does not clearly distinguish between the production of meaning as mediated by thirds and its reception as mediated by thirds. Taking the difference between these into account requires distinguishing between the triadic-reflexive production and the triadic-reflexive interpretation of linguistic symbols, and foregrounding the latter in our understanding of symbols. The following graph summarizes the result:

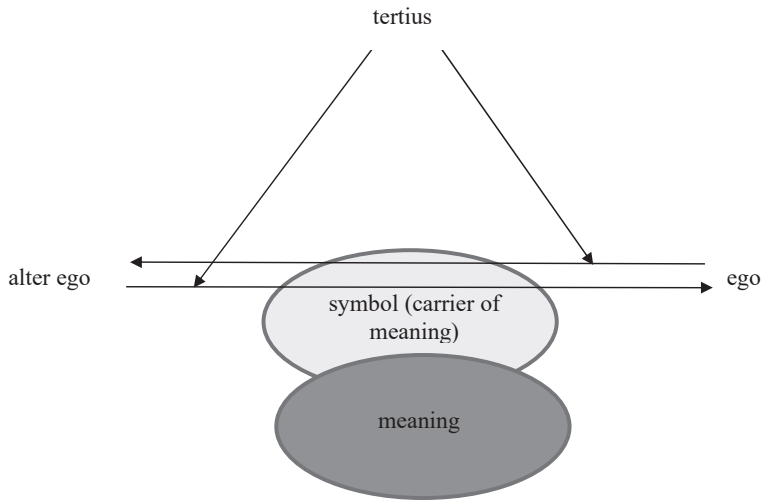

Figure 2: Symbol and meaning in the ego-alter-tertius constellation

1. Alter ego produces a symbol addressed to ego in front of tertius and anticipates criticism from the tertius perspective that the symbol was not produced according to the rules.
2. Rule conformity refers to two aspects:
   a) the ordering system of the sensory/perceptible material of the carrier of meaning, the sign, follows a rule;
   b) the comprehensibility of the symbols, i.e., the carrier of meaning's reference to the meaning follows a rule.
3. Ego interprets something perceived as a symbol in front of tertius and anticipates criticism from the tertius perspective that the symbol was not interpreted according to the rules.
4. Rule conformity here also refers to two aspects:
   a) by interpreting something as a symbol, ego construes it to be formed in a rule-conform way and as being addressed to a recipient;
   b) the rule-conform symbol contains, as such, a rule-conform reference from the carrier of meaning to the meaning which ego can follow in his interpretation.

The key conclusion here is that two mutually irreducible triadic constellations of symbol use can be distinguished from each other: the productive and the interpretive use of symbols. In keeping with the principle that communication is temporally retrograde, i.e., has to be conceptualized

from the vantage point of understanding, we will ascribe primacy to interpretive use. This means that the communicative validity of the productive constellation depends on the interpretive constellation. The productive triadic constellation constitutes an attempt to create symbols, which, if they are not interpreted, will not have existed as symbols.

Distinguishing between symbol-producing and symbol-interpreting triadic constellations and ascribing primacy to the latter allows us to respond to Schmitz's criticism of Wittgenstein. Giving primacy to interpretive use makes the interpretation of dead languages possible. The languages of the Sumerians, the ancient Egyptians, or of the Homerian Greeks can no longer be accessed in terms of a relation between producing and interpreting triadic constellations. It is nevertheless possible, as Schmitz rightly points out, to understand these signs within the framework of an interpretive usage. The meaning of dead languages is also determined by their interpretive use, which generates a rule-governed connection between linguistic symbols and their semantic contents. The rule-conform, i.e., criticizable use of symbols enables a rule-based, playful identification of symbol and meaning in interpretation.

This new conceptualization of the use theory of meaning allows for an effortless integration of the notion, set forth above, of tools as symbols of their intended use into the theory of the formation of symbols as a special use of symbols. In both the case of the use theory of meaning and of the theory of the formation of symbols, it is a matter of a triadically structured determination of meaning. The tool is playfully identified with its intended use and, like the symbols of living languages, can be altered again and again.

All in all, it is possible to distinguish between different forms of playful identification that appear to be relevant to sociological research.[74]

1. As described above, the tool points to appropriate ways in which to employ it and is thus identified with its intended use.
2. Images point to what they portray by means of a similarity to it and are thus identified with their subject matter.[75]

74 This list makes no claim to completeness.

75 This form of playful identification became strongly foregrounded in the context of the pictorial turn. In sociology, the meaning of pictorial signs has been productively used for, e.g., the analysis of gender differences (see Goffman 1977; Lindemann [1993] 2011, 1996).

3. Linguistic symbols point to explicated states of affairs in a more conventionalized way and are playfully identified with these states of affairs.[76]
4. Embodied, as it were theatrical, representations (such as described by Goffman) are identified with the represented states of affairs. In this manner, the existence of overarching institutions is symbolically portrayed and, conversely, institutions become a reality that can be experienced in an embodied way.[77]

The first point has already been treated in detail in the previous section on material technology. Points two and three concern a difference that has been extensively debated in the semiotic literature: the difference between visual or pictorial signs and acoustic or linguistic signs is discussed at length by, e.g., Peirce (1983:65f) and Jakobson 1971 passim). The identification between pictorial signs and meaning is considered to be motivated by similarity, with the sign understood as pointing to its meaning by way of a quasi-natural similarity, while the relationship between linguistic sign and meaning is brought about by convention.

If, however, we take into account the significance of the triadic constellation of interpretation, this contrast becomes less pronounced. Even if we assume a relationship of similarity between carrier of meaning and meaning, there is still the need for a determination mediated by a third, i.e., one that is generalized, of what is to be interpreted as similarity. The pictorial sign requires a determination as to how and to what extent the sign resembles that to which it points as its meaning. A relation of similarity that is purely natural and thus comprehensible for every actor in any historical situation is unlikely. We must rather assume that ordering systems determine in a typical way to what degree something points to something else by virtue of similarity and can thus be identified with it in a playful manner. It is in this way that similarity, as it were, is conventionalized.

On the other hand, the assumption of playful identification endows conventional signs with immediate relevance: in triadically structured interpretation, signs are identified with the states of affairs they mean by way of

76 The relevance of linguistic symbols to sociological analysis is just about ubiquitous. Ethnomethodology in particular has devoted its attention to the implications of the mediated immediacy of playful identification (Garfinkel [1967] 2011, 2002), in the context of its analysis of the paradoxical creative possibilities brought about by the reflexive structure of language use. See also the studies by Laing (1967, [1970] 1999) on the paradoxes of communication.

77 See also Goffman's ([1967] 1982) analyses of the ritual shaping of everyday life and of institutional reflexivity (Goffman 1977).

mediated immediacy. This explains why states of affairs expressed in language can affect us in ways comparable to immediately perceived states of affairs. Thus, for example, my friend tells me about a situation in which she was unfairly treated, and I react with spontaneous indignation—just as if I had witnessed firsthand what happened.

The difference between pictorial and linguistic signs is preserved here, but it is founded on the principle of coherence between carrier of meaning and meaning that is shared by both kinds of signs.

I would now like to point out an important feature of symbolic representations by looking at playful identification in the form of embodied representations. The represented state of affairs is identified with its symbolic representation by way of mediated immediacy. On the one hand, the symbolic representation and the represented state of affairs are different, in that the embodied representation is a means by which something other than itself is represented. On the other, the represented state of affairs is identified with its symbolic representation. In this way, the symbol and the represented state of affairs enter into a relationship that oscillates between identity and non-identity. This characterizes all forms of playful identification.[78] To give an example: the institution of money-mediated trade only exists because the participants represent the trade and its designated positions for each other and in front of each other. Alter ego represents himself as someone who is prepared to give money for a proffered commodity. Ego presents herself as someone who is prepared to give away a commodity for money, as long as it is symbolized at the same time that the proffered money can be reliably passed on to third parties. The representation of each individual position points to the other positions and also presents these as the currently relevant structure of the institution of money-mediated trade. The involved embodied actors identify their current embodied executions with these symbolically represented positions or with embodied actions to be executed in the future. The symbolically represented institution of trade, including the action positions contained in it, thereby becomes experienced reality for those involved.

The participants differentiate their relationships in multiple ways by symbolically representing them and experiencing in an embodied way the represented states of affairs as a reality to be accepted. Their embodied relationships to the environment are symbolically communicated and, at the same time, this symbolic communication is shaped by the dynamic of their

78 The paradoxical tension between expression and meaning gives rise to the possibilities of shaping social relationships that were of particular interest to Bateson.

embodied relations of touch. On this basis we can now embark on a more detailed examination of the symbolic shaping of social life.

3.6.2 Reflexive institutionalization

Following Mead, I interpret institutions as institutionalized composite acts. I began analyzing them above in the context of the substantive dimension, where I distinguished between two aspects. I understand the substantivity of the substantive dimension, for one, in terms of material technology that requires handling in different ways and, for another, in terms of the substantive and qualitative differentiation of the experienced environment. The second aspect of the substantive dimension is the matter at stake in social relationships/communication. After having developed the concept of the symbol in the previous section, we can now work out the second aspect of the substantive dimension more precisely.

When developing the categories of the social dimension it became clear that even on the level of centric positionality it makes a difference whether other embodied selves are involved or not. This also holds for the substantive dimension. Experienced field conditions in which other embodied action centers are involved exhibit a genuinely substantive component: in a relationship between embodied selves, there is always something specific at stake. Who is snatching what food? Who is grabbing hold of whom? Who is standing above/under whom? Who is feeding whom? If no other embodied action centers are involved, such as when dealing with the prey after a successful solo hunt or when gathering fruits alone, the substantive aspect consists in the practical handling of the matter at stake. These two aspects are already differentiated on the level of centric positionality, but the fact that they are does not stand out as such for those involved.

The reflexivity of excentric positionality is distinguished by the fact that field conditions [*Feldverhalte*] become states of affairs [*Sachverhalte*]. In this context, the two aspects of the experienced states of affairs can be separated as such: 1) the substantive aspects of the perception of states of affairs and the treatment of objects and 2) the substantive aspects of personal relations, i.e., what is at stake in the relationship.

Institutions and mediating institutions

In the context of the structure of excentric positionality, the relationship between the lived body and the environment is not predetermined by instincts. Who refers to whom/what in what way is not determined from the outset. Forms of relating to each other have to first be established in the process of sociation. Actors have to come to an understanding about who is going to participate, what is to be at stake in a given situation, and in what role they will act and relate to others in this situation. On the basis of linguistic symbols, these problems are solved by forming, symbolically representing, and legitimating institutions (Mead [1934] 2009:260ff, Berger and Luckmann [1966] 1991:chap. 2.1), as well by building mediating or reflexive institutions, which I describe below in contrast to symbolically generalized communication media (Parsons 1963a, 1963b, 1968a, 1975; Luhmann [1984] 2005:161ff, [1997] 2012:chap. 4). As with symbol formation, the analysis of institutionalization must systematically include the third. Herein lies the difference between the theory I am developing and Berger and Luckmann's theory of institutionalization or the theory of the generalized other in Mead and Habermas as well as the media theories of Parsons and Luhmann. These authors either do not refer at all to the third or only do so selectively in order to allow for a solution to the problem of double contingency, upon which the third disappears again. Under the premise of simple world-openness, the suppression of order forming possibilities enabled by the third is of little consequence. An analysis starting from expanded world-openness must meet higher standards, however. The double reference problem—1) contingency of the shared world and 2) contingency in the relations between ego, alter, and tertius—requires a systematic consistency in the conceptualization of order formation to which neither Berger/Luckmann nor Habermas or Luhmann have to aspire. I thus include the third not only initially, but also systematically in my analysis of order formation.

Institutions

Including the third casts the reference problem for the formation of institutions in the following light: the excentric, embodied action centers ego and alter touch each other with reference to tertius. From alter ego's perspective, the indeterminacy of this situation can be broken down like this:

1. What is substantively at stake in the ego-alter-tertius constellation? What is the substantive content of the relationship?
2. How do ego, alter, and tertius relate to each other in space and time?
3. How is the social undecidedness relation determined? Do the involved lived bodies relate to each other as individuals or as elements of groups, that is, as dividuals?
4. As whom should alter ego represent herself to ego with reference to tertius? With what substantive objective?[79]
5. As whom should ego be addressed by alter ego with reference to tertius? With what substantive objective?
6. As whom does tertius exist in relation to the substantive content of the relationship and in relation to the participants ego and alter?

This six-fold indeterminacy exists for all participants, which means that it always exists in multiple perspectives. Resolving this indeterminacy entails, on the one hand, a substantive determination of what is at stake and, on the other, ego-alter-tertius representing identities to and in front of each other that are appropriate to the substantive content of their relationship, addressing and interpreting each other accordingly, and creating a shared order for their operative modal-time and spatial relations.

The complexity of this constellation is at the same time the key to its solution. A communicative representation/interpretation in front of tertius renders the substantive content of the relationship and the determination of the identities of ego, alter, and tertius in the relationship objectifiable and turns them into a pattern of the substantive relationship in which ego, alter, and tertius adopt positions that relate to each other. As shown at the end of the section on the dimensions of space and time, concrete analyses of institutions must always also include the spatiotemporal relations of the

79 The aspect of representation/addressing/interpretation "as whom to whom" is treated at least in part in almost all theoretical traditions. Prominent examples are Goffman's analyses of self-enactment (Goffman [1971] 1972) or Garfinkel's ([1967] 2011) analysis of ways in which people represent themselves as comprehensible, intelligible, and responsible actors. Berger and Luckmann, following Schütz, point to the typification of actors that results from institutionalization. Simmel ([1908] 2009a) differentiates between actors representing themselves as individual persons and representing their affiliation with a social circle. Luhmann ([1972] 2014:66) similarly distinguishes between representing oneself as a person, i.e., as an individual personality, and representing oneself as a role-bearer. In the development of symbolically generalized communication media, alter ego's represented self-determinations are systematically related to ego.

triadic constellations involved: it makes a difference whether these are understood purely in terms of modal time or whether modal time is intertwined with digital spacetime or with a rhythmic duration with an only rudimentarily established local space.

This understanding of institutions builds on Berger and Luckmann, according to whom institutions are made up of typified actions which relate types of actors to each other (Berger and Luckmann [1966] 1991:72). The types of action correspond to the substantive dimension, to what is at stake in the relationship. The types of actors correspond to the determination of identity: as whom is alter ego acting/communicating, to whom is this addressed, and in reference to whom? Identities are objectified action positions that ego-alter-tertius occupy in the substantive context of institutions; there is thus a plurality of identities.

It seems necessary to me to amend this concept of institutions in four ways: 1) by examining how the social undecidedness relation is determined, 2) by a greater emphasis on the symbolic representation of institutions, 3) by pointing to the spatiotemporal differentiations of the institution-forming triadic constellations and, in connection with this, 4) by rendering more complex the concept of expectation.

Berger and Luckmann start from the notion of individual human actors building an institutional order. In all likelihood, however, the existence of individual human actors is a modern assumption. As I have shown, it is not necessarily the case that there are only human actors and that these have to be understood as individuals. The social undecidedness relation opens up a different perspective, starting from lived bodies existing in relationships of touch and reflexively relating to this state of affairs. This reflexivity is operatively realized within a triadic structure, making it possible to determine the social undecidedness relation by institutionalizing a preference for individualization/dividualization.

Berger and Luckmann do not explicitly refer to the necessity of institutions being represented. If, however, we understand institutions in terms of evolving typical composite acts, every proposal of action must at the same time be treated as a communicative proposal of meaning. When an actor begins an institutionalized composite act, he is addressing other actors in a symbolic representation of this institution, inviting them to perform a corresponding action. The symbolic representation of the institution, i.e., the institutionalized composite act, should be understood triadically, as I have been arguing. When proposing, in reference to tertius, meaning that symbolizes an institution, alter ego expects ego to interpret this proposal in terms of the progress of the institutionalized composite act.

When considering the significance of spatiotemporal structures for the character of alter-ego-tertius constellations, it is important to remember that institutions are structured differently depending on how modal time and embodied directional space are integrated into overarching spatiotemporal structures. We can expect it to make a difference for the formation of institutions whether thirds figure as actors existing in duration, such as the heroes of dreamtime in totemistic ordering systems, or whether they are referred to within the framework of a calculated digital spacetime as future thirds absent in local space. In these cases, each institution is characterized by different contingencies. The possibility of an institutionalized composite act failing is always present, for instance, in the case of exchange-traded contracts with calculated futures. Ego uses money she borrowed short-term to buy a stock portfolio from alter ego, based on a calculation of the future: the price will go up and she will be able to sell the stocks at a profit to tertius tomorrow. While a miscalculation of the future is undesirable, it is a risk that is part of the institutionalized composite act of the sale and purchase of stocks. If, on the other hand, the actors exist in duration and the heroes of dreamtime, operating in other actors, perform a ritual, the possibility of an actor failing is not allowed for in the same way, or failure is connected to overarching factors and may be catastrophic. In contrast, a single stock market miscalculation is of limited significance. The ways in which participants trust other actors and the structure of the progress of institutionalized composite acts differ in fundamental ways.

Furthermore, we must render the concept of expectation more complex as we develop our understanding of the formation of institutions. We will distinguish between three aspects of expectations that are implicitly suggested by Berger and Luckmann, and Mead, but not explicitly developed. Insofar as expectations are the expectations of an embodied self, a disappointed expectation has a bearing on this self's well-being. Embodied actors are subjectively affected by the fulfillment or disappointment of their expectations. Ego sits down on a chair, which, contrary to expectation, does not remain stable but breaks in two: ego has a scare and gets hurt. In an interaction, ego and alter ego touch each other, representing their relationship to or in front of thirds: ego approaches alter ego with open arms; alter ego reacts with a defensive posture. Ego is disappointed but doesn't let it show, changing his gesture in front of the present thirds in order to represent in a different way the kind of relationship he has to alter ego. I refer to the aspect of being subjectively affected by the disappointment of expectations as the "ipseistic dimension" of expectation (see in more detail Lindemann 2009b:chap. 6.1). Ipseistic (that is, self-referential) expectation

grounds the possibility that expectations will have a steering effect. Only if an actor is himself affected in his well-being by a disappointed expectation is there a motive for responding to this disappointment in some way. If actors were not themselves affected by the disappointment of expectations, there would be no need to explicitly hold on to expectations or to change disappointed ones. An expector could expect now this, now that without this being of any significance for him.

The notion of ipseistic expecting is implicitly drawn on in sociological theory without being named as such. In any case, the distinction between normative and cognitive expectations established in sociology assumes that actors are subjectively affected by the disappointment of their expectations. Galtung (1959) insists that there has to be a reaction to the disappointment of expectations and that there are, in principle, only two possible ways to react: either the disappointed party counter-factually maintains her original expectation or she changes it. Galtung calls expectations that are held onto counter-factually "normative" and those that are changed after having been disappointed "cognitive" (Galtung 1959:214–217). Thus alter ego approaches ego and visibly represents the kind of relationship they have for all (thirds) by extending his hand for a handshake greeting. Ego responds by nodding her head in greeting, which also contains a representation of their relationship in front of thirds. Alter ego can respond to this by learning that a handshake greeting is not possible with this particular person. In this case, the expectation that a handshake greeting will occur is of a cognitive nature. But alter ego can also counter-factually hold on to the expectation that a greeting must include a handshake. This would be a normative expectation. Luhmann adds that holding on to normative expectations must be represented in relation to thirds; otherwise it is socially irrelevant whether someone holds on to disappointed expectations or not. So it is not simply the individual response to the disappointment, but the representation of this disappointment that characterizes normative expectation. In this case, alter ego would have to express the fact that a greeting in the form of a nod is actually inappropriate. The more severely alter ego is affected by the disappointment of his expectation, the more severe can be his representation of holding onto his disappointed expectation. This structure also, in turn, gives rise to standards for being subjectively affected and the resulting bluntness and intensity of representations of disappointment. Here we have the connection between violence as intense representation of holding onto normative expectations and norms/law. If by representing their disappointment in front of thirds, disappointed parties can hope to find support for the appropriateness of holding on to their disappointed

expectations, we refer to these expectations as institutional (Luhmann [1972] 2014:44f).

This complex concept of expectation allows us to recognize two fundamental aspects of the stability of institutions. Participants orient their actions/communication/interpretations toward the expectations predetermined by the institution. If this fails and expectations are disappointed, the institution is buttressed by normative expectations. Both Luhmann ([1972] 2014:40–61) as well as Berger and Luckmann's theory of institutions ([1966] 1991:chap. 2.1) indicate that this is how the stability of institutions is guaranteed. Luhmann in particular strongly emphasizes the symbolic aspect of the representation of disappointed expectations and the distinction between normative and cognitive expectations.

For institutions buttressed by institutionalized normative expectations, individual deviations from these expectations are not a problem. The important thing is that those who disappoint expectations and/or those whose expectations are disappointed represent their holding onto institutionalized expectations. This can happen in different ways:

1. by justifying deviating behavior,
2. by negatively sanctioning deviating behavior,
3. by the physical application of force as an escalated form of a negative sanction.

In the greeting example, ego could justify her behavior by saying that she has an allergy that does not allow her to have skin contact with others. Ego thereby represents the fact that she herself recognizes the norm she is violating and offers a justification. If ego's justification is ratified in communication, alter ego can represent his own holding onto the norm and at the same time accept ego's deviation as a special case. The institution of a handshake greeting is not called into question. If ego fails to offer an explanation for her behavior, alter ego himself could propose one. He could ascribe ego's behavior to a psychological contact disorder and represent this in some way, e.g., by observing that his esteemed colleague can be a little strange sometimes. In this way, alter ego makes it clear that he is holding onto the disappointed expectation—people with psychological problems are not a reason to change an institution. Since it includes a negative valuation, the second explanation already participates in the second form. Holding onto the expectation can also be represented by simply appealing to the validity of the norm and by negatively sanctioning the deviation, e.g., by saying: "Hey wait a minute, we shake hands around here!" or "What, were you raised by wolves?" This can be accompanied by a threat of sanctions: "If you don't shake my hand, you'll see what will happen!" The third

kind of reaction constitutes an escalation of the second. The disappointed person is overcome by rage and knocks ego to the ground. To not respond to an offered hand with a handshake in this situation is seen as an unacceptable norm violation. The spectrum of possible representations of holding onto disappointed expectations ranges from a sympathetic explanation of the norm-violating behavior to killing the norm violator.[80] Representations of holding onto disappointed expectations are only socially relevant if they take place in front of or in relation to thirds who support the violated institutional expectations or whose consent can be assumed. Only then is the representation of normative expectations valid in a generalized way.

Complex composite acts II

Let us now take another look at complex composite acts in light of our analyses of symbol formation and institutionalized composite acts. In the context of the substantive dimension, it was primarily the specific contributions of individual entities that was at stake in these acts. If we look at the composite act itself, we also have to consider what participants symbolically represent as a composite act for and in front of each other. The description of the composite act from the observer perspective thus also entails a reconstruction of what the participants described as a composite act as they were performing it. The substantive interaction with things is embedded in a description of the substantive content of the composite act. Whom participants appear for/in front of each other as, whom they represent themselves as, whom they address, and what tertiary perspectives they actualize are all oriented towards this substantive content. In this way it is determined as what actor type (identity) someone participates in the composite act, what she, with this identity, can demand of or ought to do for others in the context of the composite act, and so forth. Determination of the substantive content of the composite act and the involved actor types significantly depends on the spatiotemporal structure of the particular ordering system.

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80 Germanic legal codes included the possibility of killing the norm violator if he was caught in the act. This also applied to theft. This violent representation of upholding normative expectations only applied to serfs, however, as freemen had the possibility of compensating for the damage done by paying a fine, including in the case of homicide (see Planitz and Eckhardt [1936] 1971:64).

To clarify this point, I will now turn again to Rammert and Schulz-Schaeffer's (2002) example: "Who is flying the airplane full of vacationers to Tenerife?" This time, however, I will look at it from the perspective of communication. Since the flight is described in the field as a projected, continuous process, it can be understood as an institutionalized composite act. Departure boards indicate when this composite act will begin. Any change, such as a delay in the beginning of the composite act, is announced. Individual partial acts are carried out in reference to the composite act, such as checking luggage, reserving a seat, and checking in. With these partial acts, participants represent as whom—i.e., as what identity—they are taking part in the composite act and in what ways their partial acts should be understood as invitations to others to carry out their partial acts in accordance with their identities.

What we analyze as a composite act depends on what is described as a composite act in the field. Passengers have to have purchased tickets for the flight to Tenerife and back to take place. How we evaluate the connection between the processes of buying a ticket and flying to Tenerife and back depends on the symbolic representations found in the field. If they are represented as two different composite acts, then they also have to be observed or analyzed as two composite acts and their connection examined accordingly. If these processes, however, are instead described as parts of a single composite act, we have to analytically work out this connection. We cannot exclude the possibility that different participants will symbolically represent the unity of a composite act differently. For the vacationers, the vacation itself may constitute a composite act and they may describe it accordingly as one that is broken down into different partial acts, such as booking the tickets, taking the flight, spending time at the destination, and flying home. It is very likely that the cabin crew on the plane and the ground staff at the airport will each symbolically represent something else as a composite act. Composite acts do not simply exist; composite acts are rather what are represented in the field in a functionally effective way as a nexus of partial acts. Identifiable partial acts can belong to different composite acts.

Institutional composite acts take place and are nested into each other in a meaningful way. The two aspects of the substantive dimension continuously relate to each other in this process. This is because composite acts are tied, on the one hand, to the functional handling of things or of advanced technology, including advanced control technology, and, on the other, to participants communicating with each other about the substantive content of the institutions as they take place. This alone opens up the possibility of

partial acts belonging to multiple different composite acts—something that may only become visible from the observer perspective.

One aspect that is neglected in actor-network theory as well as in the theory of distributed agency is the temporal structure of institutionalized composite acts. In our example, we can assume that the execution of the institutionalized composite act is taking place here and now. For the embodied actors involved, the modal differences between the present, the past, and the future are relevant and are themselves integrated into the order of digital spacetime. (My description of the temporal structure of institutionalized composite acts will disregard for now the problems that emerge when modal time is integrated into a duration.) An institutionalized composite act is realized here and now and is, at the same time, temporally, spatially, substantively, and socially extended. The composite act includes more participants than are currently involved here; a composite act is substantively more complex than what is currently happening, which only makes up part of the institutionalized action.

The substantive and social extension is only made possible by the spatial and temporal extension. In terms of time, the individual partial acts have a past and a future, without which the partial acts currently taking place would lose their meaning. The reference to the future is realized by way of expectations. This is significant for the characterization of those who operatively carry the composite act: they have to be entities who realize references to the future, such as in the form of expectations. Every current partial act presupposes certain past partial acts or past composite acts. This must be actualized and symbolically represented in a present partial act as the concrete past without which the present could not take place. Participants operatively carrying the composite act must represent for and in front of each other the structure of the references to the past and the future of the institutionalized composite act currently taking place. The realized references to the past and to the future also extend the institution spatially: partial acts take or took place elsewhere as well, at the same time, in the future, or in the past, making the partial acts taking place here possible or continuing the composite act as a consequence of the partial act taking place here.

If we now ask again who operatively carries the institutionalized composite act, it becomes clear that a key operation made possible by the composite act is to realize in the present references to the future and to the past. The state of affairs that the temporal references are realized must be distinguished here from the description, i.e., the symbolic representation, of these temporal references. Operatively relevant entities exist as such in

triadic constellations, operatively carry the unfolding of temporal references, and represent this for and in front of each other. Neither the flat concept of action put forward by actor-network theory nor the theory of distributed agency are able to capture this. Both of these theories limit themselves to the social dimension when they ask who is involved in an action in what way. Only by including the spatial and temporal dimensions does it become possible to more precisely determine the operations carrying the spatial and temporal, and thus also the substantive and social, extension of the composite act.

The structure of the composite act and the identities determined by it also specify what expectations should be expected in what way. Agency is tied to the presence of expectations and to the fact that their subjective disappointment affects those involved. Such formal determinations do not, however, define in advance what entities will be recognized as actors in the field. We can ask, for instance, whether the escalator is disappointed in its expectations when a passenger uses the stone stairs next to it. In my experience, escalators at German airports are currently not involved in composite acts in such a way as to be recognized as operative carriers of expectations. This does not mean that they are not involved in the execution of the institutionalized composite act. They are, but in a technical way and as a symbol of their appropriate use. As such they are included technically and substantively in the operations of the composite act, but they do not operatively carry it as it takes place. Vacationers, on the other hand, can relatively easily be identified as entities with expectations or as expecting expected expectations. They are subjectively affected if their expectations are disappointed. This is the case, for instance, when a flight is cancelled. There are a number of indications that this disappoints expectations which can be held on to counter-factually: vacationers express their annoyance; the responsible ground staff apologizes for the inconvenience, and so forth. Institutionalized composite acts can thus be surveyed and examined for who is involved in what ways. Who operatively carries the composite act? What entities make a composite act possible as material technology with a symbolized intended use?

Finally, I will single out a partial act—the security check before boarding—and examine it in terms of the six-fold indeterminacy that institutionalization turns into determinacy. Security checks are based on the assumption that every passenger is an individual able to take on different roles in different settings. As such the passenger is treated as a potential terrorist, whose symbolic assertions to the contrary cannot be believed. Thus there has to be a technical inspection focused on the functionally requisite

means for carrying out a hijacking. By putting up with this treatment, the passengers at the same time demonstrate that they do not pose a threat. If they are carrying dangerous objects, it was a mistake and they are prepared to give them up. The substantive content of the relationship consists in making possible a safe flight as part of the composite act. Those involved in the ego-alter-tertius constellation are, on the one hand, locally present; on the other, the thirds in question are also absent. Who these absent thirds are depends on the composite act into which the partial act is integrated. From the perspective of the passengers, the security check is a partial act of the composite act of taking the flight. In this sense, all passengers and the flight crew who, in the future, will be on board the plane during the flight, are future thirds from whose perspective the partial act of "security check" is imperative. For those performing the check, it may be a partial act of a search operation, with police or politicians relevant as absent thirds.

This substantive constellation requires those involved to represent their identities within the context of the composite act in such a way as to allow for expectations of how or how thorough the security check will be performed and how those involved ought to relate to each other in the process. This also determines to what extent passengers may be subjectively affected by the security check and the suspicion it evidences as well as what expectations may and may not be disappointed here. It also establishes how passengers are to respond to the disappointment of expectations in terms of a normative or cognitive expectation style. Even if I see myself as someone who would never threaten others and expect to be treated as a harmless person, I have to put up with being suspected of posing a threat. I have to cognitively process the disappointment of my expectation. Given the assumption of generalized heterosexuality, those involved can have the normative expectation that a thorough body search will only be conducted by security personnel of the same sex as the passenger, since anything else could be interpreted as sexual harassment. The homosexual composition of the pairing of passenger/security staff member represents the asexuality of the procedure. The subjective sensitivities of homosexuals are not taken into consideration in this generalized expectation structure.

This example also makes clear that partial acts taking place here and now can be meaningfully integrated into different composite acts. How partial and composite acts relate to each other can only be determined empirically.

Reflexive institutions

Evidently, concrete sociation processes do not consist of a single institutionalized composite act; multiple composite acts rather sustain a particular process of sociation. This can be observed even in so-called simple societies: group hunts, gardening, shared meals, and so forth, can each be understood as differently institutionalized composite acts.

Multiple institutions structuring different composite acts pose a new kind of problem of order: that of the connection between institutions or that of passing from one institutional action/communication sequence to another. Furthermore, since not everyone always takes part in all composite acts, there is the problem of participant selection. Since partial acts can belong to different composite acts, these problems also emerge when different composite acts are meaningfully nested into each other. Here too, individual participants will experience a composite act being completed, including in cases when other composite acts continue for other participants. Those for whom a composite act has been completed are faced with the problem of how to pass over to other composite acts.

Berger and Luckmann analyze these problems in terms of what they call "legitimation." They derive from a specific problem of reference: different institutions develop in the process of sociation, but they do not provide an institutionally backed guarantee of their substantive compatibility. The phenomenon of partial acts meaningfully relating to different institutionalized composite acts, which leads to different composite acts being, as it were, meaningfully nested into each other, does not seem to exist for Berger and Luckmann. Instead they emphasize the problem of institutions developing independently from each other and thus becoming incompatible. This problem is solved by reflexive institutionalization, that is, the institutionalization of meaningful coherence between institutions, which Berger and Luckmann refer to as "legitimation" (Berger and Luckmann [1966] 1991:110ff). Legitimations are institutions that reflexively refer to already existing institutions. Reflexive institutionalization ultimately leads to the institutionalization of an overarching symbolic universe.

Looking at legitimation from the perspective of multidimensional order formation makes it clear that what we have here is not a compact reference problem but a whole batch of problems. Keeping in mind the differences between dimensions of meaning, we can distinguish between the following aspects significant for clarifying the relationship between institutions: 1) What is the substantive relationship between institutionalized composite acts? 2)What is the spatiotemporal structure of the transition between

one institutionalized composite act and the next? 3) How are the participants in the subsequent institutionalized composite act selected? 4) How is an overarching context of meaning formed from the vantage point of which all societal institutions are to be understood?

Legitimations in the sense of a "symbolic universe" (Berger and Luckmann [1966] 1991:113ff) solve all four of these problems at once, according to the authors. If institutions relate to each other in a meaningful way, they argue, this also determines the substantive connection (order of the cosmos) between institutional composite acts, how they succeed each other, and what types of actors participate in individual institutions.

Berger and Luckmann develop their argument in dialogue with ethnology. Their account indicates that compact solutions to the problems listed above can, or could, work. Whether this is the case cannot be decided theoretically, but only in the context of an empirically grounded theory of society. While I do not want to dismiss out of hand Berger and Luckmann's proposal as concerns non-modern societies, it does seem to me highly unlikely that overarching legitimations solve the problem of passing from one composite act to another and at the same time the problem of the selection of those to be involved as well as that of the substantive and meaningful connection between institutions in modern societies. It is even debatable whether there is such a thing in modernity as an overarching substantive and meaningful context that integrates the various differentiated symbolic sub-universes.[81] Berger and Luckmann themselves occasionally seem to question this (Berger and Luckmann [1966] 1991:103). Thus it makes sense to me to analyze the four problems separately and to consider the possibility that there are also distinct reflexive institutional solutions in reality.

Examples of the problem of passing from one composite act to another are easy to find. The hut has been built, what institutionalized composite act is next? Going hunting? A shared meal? Or something else? Is this decided in reference to an overarching universe of meaning or are there societal institutions that regulate such transitions without having to appeal to the overall scheme of things? The same problem is also found in modern societies. Work is over, now what? Go out for a beer with colleagues? Go home where husband and children are waiting?

81 Luhmann ([1997] 2012, [1997] 2013) in particular argues that differentiation in the form of functional differentiation without central control is characteristic of modernity.

Are there societal institutions that make a sequence possible while at the same time determining who is involved? Are there institutions that generate substantively justified transitions between composite acts? Who participates in building the hut? Who goes along on the hunting trip? Who assembles cars in a company? Who goes for a beer after work with whom? What substantive reason is there for the hunt to come first and then hut building—or the other way around?

These problems are solved by reflexive institutionalization, i.e., by institutionalizing a connection between institutions. The function of such reflexive institutions consists in making possible a selection of actors and bringing about a readiness to participate in institutional composite actions in a spatiotemporally and substantively coordinated way. This function can be fulfilled in different ways, depending on whether there is a compact solution or a solution focused primarily on individual dimensions of meaning.

The theory of "symbolic media of interaction" (Parsons) or that of "communication media" (Luhmann) are appropriate starting points for understanding how such reflexive or mediating institutions work. Parsons distinguishes between four media of interaction: money, power, value-commitment, and influence/persuasion. He describes these as "mechanisms" that "operate in social interaction in a way that is both much more specific and more generalized than communication through language. Furthermore, they have in common the imperative mood, i.e. they are ways of 'getting results' rather than only of conveying information. They face the object with a decision, calling for a response such as the acceptance or rejection of a monetary offer" (Parsons 1963a:42).

The concept of mediating institutions shares this notion of success orientation, albeit in a modified way. A new institutionalized composite act is indeed initiated, but there are two key differences to the way Parsons characterizes the situation. On the one hand, I understand the problem as being specifically related to the relationship between different institutions; on the other, I see the problem as differentiated in terms of dimensions of meaning and not as being limited to the social dimension. For Luhmann and Parsons, a success medium increases the likelihood that ego will direct alter's selections in such a way that the latter will accept ego's proposal of meaning and make it into the premise of her own action (see Luhmann [1984] 2005:161ff; Parsons 1968:142–143). This characterization of the problem is not wrong, but it is both too general and too narrow.

Relating the problem to the social dimension alone is too general to allow for a distinction between individual institutional composite acts and

mediating institutions. The communication within an institutionalized composite act also aims at alter ego adopting a proposal of meaning and participating in it accordingly. The motivation for this adoption is the proposal of meaning's bearing on the composite act in which the participants are involved. This is different from the problem of how to pass from one composite act to another, which is solved by mediating institutions.

At the same time, Parsons's characterization of the problem is also too narrow: it is not only the matter in the social dimension of creating a motivation for alter but also of determining who from the sphere of legitimate actors is concretely eligible to participate in this institutionalized composite act as an alter ego. Moreover, the problem to be solved not only exists in the social dimension, as it is not only the matter of selecting and motivating legitimate participants, but also of motivating others in a substantively and spatiotemporally specific way. Here the substantive dimension poses the simplest problem, as a transition to an existing institution presupposes as given the symbolization of the composite act. This does not hold for the spatiotemporal and the social dimensions, where reflexive institutions have to be generated that encourage concrete participants to adopt the proposal of carrying out a composite act with others at a given time in a given place.

Using the medium of power, a Parsonsian boss could be tempted to command: Start producing cars! The obedient subordinate answers: Okay! When? Where? With whom? Production cannot be initiated with power alone; space, time, as well as the legitimate selection of those who are to be involved also have to be symbolized in a general way. If that does not happen, subordinates can only represent their obedience, but they cannot begin a composite act. A theory of multidimensional order formation is necessary in order to be able to analyze transitions from one composite act to the next.

Excursus: The function of success media in Parsons and Luhmann's theory of society

Parsons logically integrates his theory of media of interaction into his theory of societal differentiation by way of the four functions of adaptation, goal attainment, integration, and the maintenance of latent patterns. This model postulates a substantive-functional coherence between sociation

processes.[82] Each of the functions corresponds to a functional system in which a medium of interaction is anchored. In the economic system the medium is money, in the political system power, in the integrative system influence/persuasion, and in the cultural trust system value-commitment. In highly differentiated societies, these systems are fully differentiated on the substantive level and exchange media between the systems have to be developed. This requirement is also fulfilled by these same four media (see Parsons 1963b:258ff).

Luhmann develops his theory of symbolically generalized communication media starting from the problem of double contingency (the social dimension). The existence of distribution media that allow for communication between entities at different locations makes it less likely, he argues, that communicative proposals of meaning will be adopted. A specific form of media is required to make it more likely that ego will adopt an alter ego's proposal of meaning and continue the communication. These success media are referred to as "symbolically generalized communication media" (Luhmann [1974] 2005a, [1984] 2005:161ff). The problem is located in the social dimension here as well, although problems in this dimension can also be solved by a symbolic generalization in the temporal or in the substantive dimension (Luhmann [1974] 2005a:213).[83]

Here we have an important characteristic of these success media. On the one hand there is the dimension in which the problem to be solved is located; on the other there is the necessity of solving the problem in such a way that the solution contains congruent generalizations in the other dimensions of meaning. Only then will the solution be successful. Symboli-

82 Berger and Luckmann ([1966] 1991:101f) see this theory as putting forward the notion of an overarching universe of meaning that meaningfully integrates all of society. Parsons's theory of society is a modern myth, they argue, which only gained acceptance in sociology, and even there only temporarily. The rest of society was unimpressed.

83 Luhmann merely touches on the insight that time itself is a symbolically generalized communication medium; he writes: time "becomes a kind of abstraction of the compulsion to order as such" (Luhmann [1980] 2004:257) This is just another way of saying that time in the contingent relationships between ego and alter itself produces the willingness to make selections. But Luhmann does not take this step; instead he assumes that the success media operating in the social dimension (money, love, etc.) themselves become temporalized. Given how effectively digital spacetime introduces the beginning and the end of institutionalized complex acts and structures the sequence of such acts, it seems to me, however, to be more appropriate to understand digital spacetime itself as a symbolically generalized communication medium (see below).

cally generalized communication media are success media that solve the problem of how to motivate ego to adopt alter ego's proposal of meaning. In order to achieve this, alter ego declares his position in the temporal and substantive dimensions in a generalized way and states that he will continue (temporal dimension) to hold to this position. He also indicates what the communication is to be about—e.g., love, truth, justice.... Generalizations in the substantive and temporal dimensions allow for the ongoing creation of motivations in the social dimension that enable the adoption of even the most unusual proposals of meaning. According to Luhmann, generalizations of this kind make possible the structural, substantive-functional differentiation of functional systems, in which money is the medium of the economy and power that of politics.[84]

Parsons's and Luhmann's understanding of success media is geared toward a theory of society. By contrast, I work with the concept of reflexive institutionalization, according to which individual institutionalized composite acts and mediating institutions reflexively connect to existing institutionalization processes. Reflexive institutions do not themselves form institutionalized composite acts, but rather a mediating ordering system in the social, substantive, spatial, and temporal dimensions that makes it possible to move from one institution to the next. – End of the excursus.

These problems, in my view, are best treated in the context of a multidimensional order formation. There is a similarity here with Luhmann's approach, which includes the substantive and temporal dimensions along with the social dimension, omitting only the spatial dimension, which, however, is also operatively relevant for order formation. Like Luhmann, I am convinced that mediating institutions can only work if the respective generalizations congruently take place in all dimensions. A purely social order is inconceivable. But Luhmann also gives undue primacy to the social dimension, and here we must go beyond him. If we assume that all four dimensions are equiprimordial, it follows that mediating institutions not only solve problems in the social dimension, but that there are also originary problems in the substantive, temporal, and spatial dimensions that must be treated in a generalized way as well. We can thus expect problems and solutions that are specific to a particular dimension, but which

84 For a discussion of the differences between Parsons's and Luhmann's media theories, see Künzler (1987), who cogently characterizes the problematic relationship between symbolically generalized communication media and language in Luhmann.

are only effective if an appropriate and sufficient generalization in the other dimensions of meaning succeeds.

Order formation has to be understood as multidimensional because of the excentric relationship between the lived body and its environment. This calls for an important conceptual modification or clarification. Both Luhmann and Parsons refer to "motivation." For Luhmann, this means that the meaning-processing consciousness system ego becomes motivated not only to understand but also to adopt alter ego's proposal of meaning. If, by contrast, we start from ego-alter-tertius reciprocally affecting each other in their lived-body-environment relationships, the underlying condition is not meaning systems closed off from each other but rather embodied action centers touching each other. Mediating institutions make it possible to represent, in a generalized way, a structured transition to a new composite act that includes a specific configuration of the respective relationship between the lived body and its environment—as transition to the next institutionalized composite act. The word "motivation" sounds rather psychological in this context; it is not about the psyche, however, but rather about taking a stance of readiness to participate in the lived-body-environment relationship. Rather than psychological motivation, what we have here is the generation of embodied readiness to allow oneself to be invited in a particular way by the givens of the environment.

Embodied readiness is necessary both in a positive and in a negative sense. There is both a readiness to participate as well as a readiness to accept one's own non-participation. According to the valid mediating institutions, actors A, B, and C are involved in the construction of a house, but not D, E, and F. Why should D, E, and F accept this although they are of the opinion that they could do it better? If it is not just a matter of consciousness systems pondering to themselves, but rather of lived bodies affecting each other, both problems arise.

The reference problem for the formation of reflexive institutions is so basic that we find it not only in modern, functionally differentiated society but in all ordering systems. Here is another significant difference between my approach and that of Parsons and Luhmann, who consider the establishment of success media to be a characteristic of modernity.

Reflexive institutions of beginning and participation

Thinking from the vantage point of reflexive institutionalization allows us to see, first, that the formation of such mediating institutions is necessary:

there have to be institutionalized societal forms for functionally integrating individual composite acts into a substantive, social, and spatiotemporal order. What mediating institutions come into play is an empirical question. The way they actually emerge depends on the institutional composite acts that are formed, the problems emerging from transitioning from one to the other, and how these can be solved in practice. Developing the individual mediating institutions in more detail thus falls under the purview of a theory of society: how certain mediating institutions evolve depends upon the structural integration of an ordering system. It is nevertheless important in this context to elaborate on why the existence of mediating institutions is not limited to modernity.

There seem to be particular difficulties associated with finding a new beginning once an institutional composite act has come to an end. After it has begun, the continuing spatiotemporal and substantive course of an institutional composite act as well as current instances of participation can be geared toward the corresponding institutional expectations. When an institutional composite act arises that does not immanently find a way to conclude, its termination may also have to be guaranteed by a reflexive institution. Such institutions, then, serve to address a specifically spatial, temporal, social, and substantive problem situation that emerges when excentric, embodied relationships to the environment are in place. But, going beyond the institutionalized spatial, temporal, social, and substantive structure of a composite act, how is the spatial contemporaneity or the spatially consecutive beginning of individual institutionalized composite acts institutionalized and who is involved?

This problem can, as noted above, be solved in a compact way by appropriately generalizing all dimensions of meaning, leaving it open in what dimension the problem primarily arose. This approach brings us close to Berger and Luckmann's notion of legitimation. It is also possible, however, that the development of a mediating institution has its reference problem in a particular dimension, so that the solution only becomes practicable if compatible generalizations are developed in the different dimensions. It would thus be important to know whether it is possible to distinguish between institutions of beginning (and ending), institutions of participation, and institutions of the production of substantive connections. Even in the case of simple societies, the answer will vary greatly.

The formation of a hunting party among the Araweté will serve as a simple example. There are animals that the Araweté hunt alone and those that can only be hunted in a group. The transition to the institutionalized composite act of hunting is not self-evident but must be brought about by one

of the men (hunting is a male preserve) suggesting going hunting together. The person who voices the invitation at the same time appoints himself the leader of the undertaking. To invite others to go hunting together is a delicate matter—if no one else wants to come along, you might end up looking foolish. The initiator must therefore be shrewd in his expression of the invitation; he must be able to correctly gage the mood of the group. Only then does he have a chance of getting the others to participate (see Viveiros de Castro [1986] 1992:111).

From the perspective of Parsons's (1963a:45) four success media, what we have here is a case of "influence/persuasion," a medium defined by ego getting alter ego (whom Parsons refers to as "object") to change his intentions in the way ego wants him to (this characterizes success media). This constellation between ego and alter seems to describe the situation of forming a hunting party sufficiently for analysis, both in terms of beginning as well as of participation: ego approaches the social object alter ego in the spirit of persuasion, with the aim of influencing his intentions in such a way that the social object does what ego wants him to, i.e., accompany him on a hunting trip. If we look at this example more closely, however, it becomes apparent that persuasion is not only a matter between ego and alter. Persuasion is rather a triadic institutionalized form; the attempt to persuade others takes place in front of thirds and in relation to thirds. Ego addresses an invitation to different alter egos. Alter ego's reception of the invitation not only takes place in front of ego, but also in front of the others in the group, in front of thirds. Alter ego, in the receiving position, is confronted with the question: as whom am I representing myself in relation to thirds if I accept the invitation? The reference to thirds must also be conceived temporally, such as if alter ego includes future, not currently present thirds in his considerations. What will my wife say if I go hunting again instead of repairing the roof of our hut? Would going hunting conform to our current relationships to the gods? Did hunting these animals come up in the shamans' nightly chants? Will the animals resent us for hunting them again? Among the Araweté there is a great variety of possible embodied action centers that each direct themselves at their environment, so that an actual encounter with them in space must be anticipated. In the same way, these action centers can occupy ego-alter-tertius positions.

This example shows that the institutional form of persuasion cannot be understood if it is reduced to the social dimension. The triadic functionality of the reflexive institution not only exhibits a social, but also a spatiotemporal structure and aims at the solution of a problem in the spatiotemporal dimension: the question is not "who will do it?" (social dimen-

sion) but rather "what are we doing here and now in view of what past and what future?" There is an increased likelihood of persuasion if the topic of "hunting certain animals" was prepared in the shamans' nightly chants. These chants establish relationships to the cosmic order; they address the arrival of the gods, when they intend to appear, what their relationship to certain animals is, and so forth. Thus the attempt to persuade others to form a hunting party does not take place without reference to a temporally prior actualization of the overarching universe, of the overall substantive-social context of the ordering system and its spatiotemporal structure. The effectivity of the reflexive institution of persuasion is substantially determined by its relationship to the legitimized order, which guarantees multidimensional generalization.

In the context of other ordering systems, beginning itself is represented in a symbolically generalized way. According to Leenhardt, a cosmic interaction constellation functions as an institutional form here. This constellation consists first of the group waiting for a beginning, second of a priest/chief, and third of divine stars or gods that send the stars as their signs. The received divine communication specifies substantively and temporally what is to be done, and the priest can then implement it in an action such as seeding a bed, which in turn constitutes a substantively specified symbol of beginning for the villagers: they understand this symbol and begin sowing the same seeds. An end of the composite act does not require its own institutional symbolization. It is carried out according to the institutionalized expectation structures and it ends when its substantive content has been executed. The temporal sequence is determined by the substantive dimension and varies with the substantive necessities that emerge in the process. The beginning of a new institutionalized composite act, such as a harvest, is symbolized in the same way (see Leenhardt [1947] 1979:79ff). Along with its integration into the cosmic interaction constellation, the priest's garden bed becomes an institutionalized symbol containing a substantively, temporally, spatially, and socially appropriate generalization.

In Europe, the direct, symbol-mediated institutional communication with the stars probably receded in the course of the Middle Ages and the Early Modern Period. The appearance of the stars and the change of seasons themselves became an institutionalized symbol of beginning. The arrival of a particular season disposed alter ego to represent her readiness to act, which ego experienced as an invitation to participate in a future composite act. The obligatory character of this act was guaranteed by references to thirds, which in the European Middle Ages ultimately pointed to God.

In the medieval and Early Modern order, the appearance of the stars or the change in seasons were not themselves communicative symbols used by a god to address human beings. Elias's analysis of time, which is more of a theory of the symbolization of time, is helpful for understanding this. His concept of continua of changes defines time as a functionally tripolar relation (see section 3.2). Time is symbolized in the continuum of changes of the course of the stars or of the seasons. The position of the stars, the change in the seasons thus become institutionalized symbols encouraging adoption of proposals to begin, e.g., it is time to prepare for sowing.

Timing actions according to the stars and the seasons should not be confused with the computation of time in the modern sense. The latter is immune to seasonal variations and regulates sequences without taking into consideration the substantive contents of the composite act. This is different from the medieval conception, according to which work for the lord is not completed after seven days and four hours but only once the work is done, i.e., once the soil has been tilled, the harvest has been brought in, and so forth. Differences specific to the various dimensions also become apparent here. The time to begin work is decided by the seasons (appearance of the stars, weather). But who is supposed to participate is decided by traditional law and the power of the lord; these determine who is to perform what services. Farmers could file a suit against their lord for unlawfully requiring them to participate in an institutional composite act, indicating that the selection of workers was supposed to conform to the law (see Schmale 1997).

Modern societies exhibit further distinctions. In the temporal dimension, time is no longer symbolized in a continuum of changes, but rather in a discrete sequence of changes. In this way, digital spacetime becomes a reflexive institution that indicates when something is supposed to begin and to end; it governs and allows for transitions between institutional composite acts. Here part of the structure of individual composite acts is that they are broken down into processes that each have a defined end at a defined place at a defined time. This makes it possible to symbolize the end of a composite act as soon as it begins, not only substantively, but above all temporally, and to keep this end symbolically present throughout the entire substantive process. The time of rhythmic beginning, which had its measure in the substantive process and was tied to interaction constellations and the uncertainties they contain, is replaced here by the clock. This, to me, seems to be the condition of the experience of acceleration (Rosa [2003] 2016): the digital-temporal end of an action and the digital-

temporal beginning of the next constitute the future horizon of every activity. Time measured in this way can be said to demonstrate its own scarcity.

The seminar begins at 10:15 am and ends at 11:45 am. Regardless of whether the substantive problem has been discussed to everyone's satisfaction or not, the students begin to pack up their things at 11:45. This efficacy contains a matching generalization in the other dimensions. It must be established in the social dimension that pointing to the time is enough to conclude a composite act, and the dominance of digital spacetime over substantive problems must be established. The substantive aspect must be fundamentally integrated into metered time. This state of affairs is represented by individual students (alter egos) for the professor (ego) in reference to other present students as well as absent thirds such as the dean or people with whom the students have appointments. The validity of the generalization cannot be entrusted only to those present, since they could decide to give priority to the substantive discussion and not to keep to the time limit. A sustained insistence on the primacy of the substantive dimension would ultimately compromise the validity of the reflexive institution of digital spacetime. Absent thirds, however, are unimpressed by substantive problems, and it is in reference to them that digital spacetime as an institution of beginning and ending of composite acts has to be upheld.

The validity of the reflexive institution of digital spacetime can be demonstrated in any area of society. The workpiece (substantive dimension) arrives, is handled in a space of time measured by the minute or the second, and rolls on. Defective workpieces land in the trash. The contractor commits to delivery of the finished product on a specified date, otherwise penalties are due. The nurse is expected to perform four caregiving actions in two minutes and is observed to determine whether there is enough time for a fifth action.

Transitions between composite acts take place as follows. Work ends on May 23, 2019 at 5:03:24 pm (punching out on a time clock). The next institutionalized composite act to begin is a vacation trip. Return from this trip on May 27, 2019 at 12:32:00 am—if the train is on time. Next is a taxi ride home and sleep until 5:45:00 am, get up, have breakfast, go to work, punch in on the time clock on May 27, 2019 at 7:01:12 am. This system allows work time to be individually scheduled as flextime, which is predicated on the ability to measure individual employee hours in a technically precise way (such as automatically calculating them with a time clock and a punch card). This, in turn, allows for an even more precise structuring of

the social and substantive dimensions by way of the reflexive institution of digital spacetime.

Once digital spacetime has been institutionalized, the fact alone that it is such-and-such o'clock on such-and-such a day becomes a symbol for ego of an alter ego's expectation directed at her to participate in a certain composite act in a certain way. Digital spacetime only creates the readiness to begin and end an act somewhere. The problems of the social dimension (who is to be involved?) and the substantive dimension (how does the substantive connection between institutional composite acts come about?) have to be solved in a different way—not to mention the problem of establishing an overarching context of meaning.

The reflexive institution of digital spacetime does require generalizations that are compatible with each other across all dimensions of meaning, but it does not solve the key problems of the social dimension. How is the readiness to participate in a composite act generated? How about the readiness not to participate, even when there is a desire to do so? A modern, horizontally differentiated society develops reflexive institutions tailored to solve these problems—e.g., competition or the creation of special social forms such as networks and organizations. These mediating institutions or social forms allow for a limitation/selection of the actors to be involved in a composite act.

Not everyone with money and the readiness to buy, or a product and the readiness to sell, can currently participate in a trade. An additional institution is required to solve this problem in the social dimension: competition. Competition describes a triadic constellation of the same type as the "*tertius gaudens*" (Simmel [1908] 2009a:108ff). In a purely logical sense, the triadic constellation of competition could refer both to the competition between sellers and to the competition between buyers. It seems rather unlikely, however, that buyers would compete over a seller. Buyers compete with each other only when a seller has a monopoly on the sale of certain products in a market. Now Baumol (1982) tries to show that because currently absent competitors could push onto the market if prices are too high, even a monopolist cannot arbitrarily set her prices but has to include these absent competitors in her considerations. If this is correct, it would mean that the monopoly situation is secured by competition: in order not to threaten her monopoly, the monopolist when setting her prices has to take into account competitors who are currently absent but may be present in the future; i.e., the prices must be set in such a way that it precisely does not seem worthwhile to others to try to sell something on this market. Only by taking into consideration absent competitors can the monopoly be

maintained. Baumol's analysis of markets characterized by monopolies makes clear the significance of absent thirds for the institution of competition. What is specific about economic competition is that, in principle, a limitless number of competitors is possible. Entrepreneurs always have to reckon with the possibility that in the near future ever more competitors will appear on the scene; they may be absent now, but they can be present in the future. Thus it is not only decisive that competitors are now present, and how many, but that competition is possible in the first place. Here Luhmann's argument holds that present thirds ought not to be entrusted with the norm—it is just as true that they cannot be entrusted with stabilizing competition. Present competitors could agree to a joint strategy and bypass the competitive situation in the form of a rational distribution among all present actors. If those present, however, always have to reckon, in a structural sense, with ever more competition from actors not yet present but possibly present in the future, it becomes impossible to escape the competitive situation. Present competitors are always also the representatives of future competitors.

The spatiotemporal order of economic competition follows the logic of digital spacetime. Currently and locally absent competitors may be here in the future. Their number is indeterminate, but as possible individual competitors they determine present relationships to others. Those involved have to represent this state of affairs of open competition for and in front of each other in order to create a valid situation of competition. By symbolically representing competition for and in front of each other, participants identify their relationships to each other with the institutional structure of competition and, by the same token, competition is experienced as mediated immediate embodied reality.

Reflexive institutions and the creation of social forms of mediation: organizations and networks

Reflexive institutionalization enables the creation of new social forms that make it easier to solve the problem of the mediation of institutionalized composite acts. These forms are created in the social dimension and are primarily tailored to solve the problem of participation in institutions. At the same time, problems are solved in the temporal dimension, i.e., problems of the temporal succession of composite acts. I would like to now look more closely at two examples of the creation of such social forms: organizations and networks.

The monopoly on violence, whose significance will be examined in detail in the following chapter, centralizes the effective threat of violence in the central political power. The ability of a ruler to make law by virtue of his own power is a source of institutional innovation (see Achter 1951). Not least among these innovations is the ability of actors to give themselves a constitution within the legal framework established by the central ruler. A historical example of this are the free cities of the Holy Roman Empire in the High Middle Ages and Early Modern Period (Ebel 1966). The historical achievement of actors giving themselves a constitution allows for the creation of a new form of sociation: organizations with self-given constitutions.

Organizations internally create their own domain of power (organizational hierarchy) and law (the organization's constitution) with procedures for sanctions. The distinction between members and non-members sets boundaries (Luhmann [1964] 1999; Tacke 2008), with the specific institutional structures of power and law only holding for members. The only limitation on these structures is the requirement that they conform to general law, which, however, does not strictly determine them. Because they select their members according to self-imposed conditions and members have the freedom to join and leave as they see fit, organizations can only become established as a type once actors have begun to be released from traditional duties (Luhmann [1975] 1982; Tacke 2008, 2011). This freedom presupposes individualization (see on this point the section on the ordering systems of individualizing sociation and of contingent multi-sociation in Chapter 5 and Lindemann 2018).

While organizations require a certain level of development in the institutionalization of power and law, their mode of functioning cannot be reduced to this. Organizations rather constitute a novel form of social order that makes it possible to structure the execution of institutional composite acts. The goals set by organizations define the substantive references of institutional composite acts and the criteria for the selection of actors to be involved. Based on this, organizations can legitimately determine spatiotemporal transitions between composite acts and select actors to be involved. Since modern society cannot appeal to an overarching legitimation the same way premodern societies can, it seems to require especially diverse ways of managing the transitions between institutional composite acts. The creation of organizations is one example; another is the freedom of contract guaranteed by modern law. Parties entering into a contract can decide themselves what substantive obligations they will enter into, when to begin honoring the obligation, and when to stop doing so. Contract law

thus provides a highly variable institution for the construction of obligatory beginning and ending. But even here, reference to the legal central power is not abandoned: freedom of contract presupposes that mutually agreed-upon services are enforceable by the courts, whose rulings are backed by the state's monopoly on violence.

In light of what we have seen with organizations, we may ask whether other reflexive institutions like influence or value-commitment enable the formation of specific social forms. It is my hypothesis that networks can be understood in this way: as a social form that develops on the basis of the institutional forms of influence and/or value-commitment. The conditions for this development are significantly less sophisticated than they are for organizations. Networks come about wherever there are more or less stabilized relationships of influence or relationships characterized by similar value-commitments or worldviews. Here we can see the features of networks that differ in a specific way from those of an organization: networks do not consist of obviously hierarchical subordinate relationships; there is no formal membership in a network; membership is fluid in a particular way (Belliger and Krieger 2008:204). The strength of weak ties (Granovetter 1973) is that far-ranging weak possibilities of influence can have far-reaching consequences. The theory of small worlds (Milgram 1967), in which someone knows someone who in turn knows someone else can also be construed as an empirical study of the social channels of influence and the possibilities that emerge from them. How influence can be exercised depends upon how social relationships are exercised in the context of particular composite acts among friends, drinking buddies, at a night out bowling, and so forth (see Lindemann 2012a). Like organizations, networks are a social form that cannot be reduced to the reflexive institutions making it possible, but nor is it conceivable without them. Like organizations, one of the important functions of networks is their reinforcement of the specific role of mediating institutions, i.e., solving the problem of how institutionalized composite acts succeed each other and how the actors involved in these acts are selected.