Chapter 36
A Philosophical Framework of Shared Worlds and Cultural Significance for Social Simulation

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Abstract In this chapter, I sketch a philosophical framework of shared and diverging worlds and cultural significance. Although the framework proposed is basically a psychologically informed, philosophical approach, it is explicitly aimed at being applicable for agent-based social simulations. The account consists of three parts: (1) a formal ontology of human worlds, (2) an analysis of the pre-semantic significance of the objects of human worlds, and (3) an account of what it means for agents to share a world (or to live in diverging worlds). In this chapter, I will give a brief and concise summary of my account. At the end, I will briefly outline how the proposed framework might be put to use for multiagent social simulation of complex social interaction scenarios involving diverging (cultural) backgrounds.

Keywords Cultural significance · Shared worlds · Social context · Cultural background

36.1 Shared Worlds and Cultural Significance

36.1.1 Motivating the Problem of Diverging Worlds

Within the last few years, the idea that humans live in varying (cultural) *worlds* has gained growing attention among social scientists [1], philosophers [2], and social simulators [3, 4]. However, to date, there is no agreed-upon account of (1) *what (cultural) worlds are* and (2) *how they might or might not be shared* by different agents.

My current work focusses on developing such an account from a philosophical perspective in order to supply social simulators with a valid framework of shared and diverging worlds which might be implemented in the future to improve social simulations of complex social interaction scenarios.

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36.1.2 A Philosophical Account of Shared and Diverging Worlds

Based on results and considerations from phenomenology, biosemiotics, perception theory, and cognitive science, I developed an account of shared worlds which consists of three parts:

1. An ontology for *human worlds*
2. A theory of the *ecological or cultural significance* of the objects which belongs to human worlds
3. An account of *shared and diverging worlds*

Ad 1) An ontology of human worlds Human worlds are constituted by the objects given to human subjects in ordinary (direct) perception. It is crucial, however, not to identify the phenomenal objects of perception with the mind-independent objects causing the perceptual givenness of phenomenal objects. The objects constituting human worlds are not to be misconstrued as ontological ready-mades awaiting to be grasped by perception. The spatial and temporal boundaries of phenomenal objects are not fixed mind-independently. Rather, the objects constituting human worlds are a positive "achievement" of the subpersonal dispositions and processes underlying human perception [5–7]. Within these subpersonal processes, the sensory stimuli reaching a subject from its nearby physical environment are parsed and amended into *meaningful chunks* (i.e., things, contexts, and events) which are the phenomenal objects of perception [8]. To mark this difference between phenomenal objects given in direct perception and mind-independent physical objects, we have to discriminate two types of ontologies: *ontologies of givenness* (OGs) and *ontologies of existence* (OEs), where the former represent types of objects which constitute the world of a specific subject or a specific type of subjects (e.g., human worlds, animal worlds), while the latter aim at representing types of (physical) objects which exist mind-independently [9, 10]. Accordingly, we must distinguish two ontologically distinct types of objects: *phenomenal objects, which can (only) be given to subjects in (direct) perception* (OOGs), and *physical objects, which exist mind-independently* (OOEs). As I argue elsewhere [10], OOGs neither consist of nor are they reducible to OOEs, although the perceptual givenness of the former depends on the mind-independent existence of the latter. Under normal circumstances, the perceptual givenness of certain OOGs *indicates* the existence of certain OOEs, but OOGs are not comprised of OOEs.

As can further be shown, OOGs given in perception are almost always instances of *object types* the subject in question is already familiar with [10]. Material objects, for example, are immediately perceptually grasped as either (1) *mere material objects* (e.g., a rock), (2) as *artefacts with a certain function or affordance* (e.g., a coffee mug, a flight of stairs, or a door), or (3) as *living things* (e.g., a dog or a person), where the subpersonal classification of OOGs results in the subject having certain expectations about the way an object is normally prone to "behave" with respect to the object type it instantiates (e.g., rocks fall, liquids drip, doors open,

and dogs bark). The same goes for the perception of action and event types or for the perception of social contexts and situations: The subject immediately perceives certain types of behavior of other agents *as greetings*, *as fights*, *as a conference*, or *as a breakfast*, where, again, these different types of objects are characterized by specific horizons of expectations comprising the typical developments and "habits" [11] characteristic of the object type instantiated.

A crucial aspect of OOGs is that they are directly and without any conscious reasoning perceived and grasped by human perceivers. A simple example: If you buy some goods in the local supermarket, you do not implicitly or explicitly agree with the cashier that you will now perform a collective action together which consist in you paying and him receiving the money. And nevertheless, without any deferral or complication, you and the cashier realize this collective action. How is that possible? The answer should be obvious: You both immediately and without any consideration grasp *what is going on*, *what to expect of each other*, *what to do next*, and so on. The process of socialization and cultural habitualization has shaped your respective dispositional backgrounds in a sufficiently similar manner, so that you are both disposed to immediately perceive the same OOG (a "payment"), constituted by sufficiently similar (or reciprocal) horizons of expectations [12, 13]. These horizons of expectations also include your respective roles and parts for realizing the interaction type in question [14]. Buying goods is something that you regularly do, taking the money is something the cashier regularly does. That's why both of you are disposed to routinely fulfill what can generally be expected of you, as far as you were raised in a cultural context where *paying for something* is a common action. Thus, in cases such as these (recurring and familiar types of objects, events, contexts, and actions), subjects rely on their tacit cultural backgrounds which prestructure their expectations concerning possible developments of situations and anticipations of their own responsibilities and possibilities for action [10]. Subjects sufficiently familiar with the OOG types in question immediately see OOGs as manifestations of these OOG types: They see a dog *as a dog*, a cashier *as a cashier*, money *as money*, a wedding *as a wedding*, and so on. On the level of experience, the structure of this *perceiving-as* can be explicated through the specific *horizons of expectations* which are immediately (co-)perceived and thus constitutive for the respective OOG types. I call the typical horizon of expectations constitutive of an OOG type its *significance*. OOGs and their significance have thus an anticipatory structure.

Ad 2) The significance of OOGs OOGs are characterized by their *significance* which is best understood as a form of *pre-semantic meaning*. As stated above, the significance of a given OOG (may this be a material object, a social context, or an event) can be explained as the specific *horizon of typical expectations*, *propensities,* or *possibilities* constitutive of the OOG type in question. Thus, for example, part of the significance of a chair as an OOG is that you can sit on it, that it will hold your weight, and so on [15]. Similarly, the cultural significance of a certain gesture or an action type is determined by the way it is normally (or reliably) performed within a certain cultural context, for this reliability enables subjects to internalize respective

perceptual dispositions to adequately anticipate what might happen or be done next whenever a specific OOG is perceptually registered.

Generally speaking, the significances of OOGs are ontologically grounded in regularities or structural invariants which hold in a certain physical, mind-independent environment. The dispositional backgrounds of subjects continuously exposed to a specific environment are shaped by such regularities, which thus codetermine the range of OOGs a subject is able to perceive. While a lot of OOGs owe their significance to "higher order structural invariants" in the physical environment (e.g., physical laws) [16], part of the significance of some OOGs – like in the case of gestures, social contexts, and action types – is itself grounded in regularities and reliably performed patterns of human action. In a cultural context like ours, for example, a hand wave can typically be expected to be perceived as a kind of greeting (or farewell) and to be reciprocated by another hand wave of the subject addressed. This is simply the way a hand wave is reliably performed within this cultural context. Thus, the significances of OOGs are not something a subject has to infer consciously, although it must be tacitly familiar with the OOG type in question.

To explain this immediacy of our grasp of OOGs and their significance in more detail, we have to distinguish two types of concepts – *explicit concepts* (ECs) and *tacit concepts* (TCs). ECs and TCs fulfill different functions concerning our epistemic access to the world and reality. While TCs constitute the dispositional background of a subject and thus shape the way it *immediately perceives* the world and the OOGs constituting it, ECs enable subjects to *form explicit propositional attitudes and beliefs* concerning states of affairs in the world (as well as in mind-independent reality). TCs fulfill two functions concerning the way OOGs are immediately given in perception: On the one hand, they dispose subjects to immediately (re)identify different types of objects in perception – call this the *(re)identification function* of TCs. On the other hand, they prestructure the horizon of expectation which is constitutive for the significance of an OOG – call this the *projective function* of TCs. Thus, if a subject has internalized a TC of a certain OOG type, it is able to immediately (re)identify instances of the OOG type perceptively and immediately grasp the respective horizon of expectations that it calls for. This holds for TCs of types of material objects, social contexts, action types, as well as for events. Someone reaches out to you with her right hand, for example, and you directly see *a handshake* and react by immediately reaching out with your hand (where the impulse to do so is realized by the projective function of the TC).

At the same time, to have internalized a TC of a certain OOG type does not necessarily involve having an EC for and the respective beliefs about this object type. To have an EC for a certain object type, you have to be able to form propositional beliefs about the object in question, which is not a necessary condition for perceiving an object as an object of a certain kind by means of your dispositional background. Thus, a dog might have a TC of some kind of handshake while not having an EC for whatever it is doing when it is reaching out with its paw toward a human hand. TCs shape the way we immediately perceive the world, while ECs shape the way we may or may not judge the world and mind-independent states

of affairs to be. One important consequence of this idea is that there is always the possibility that the way a person directly perceives a situation and the way the same person judges the situation to be may come apart. A person might, for example, be an avowed anti-racist but still shows immediate aversive reactions toward persons who seem to be foreigners [17].

Ad 3) Shared and diverging worlds Now, the range of OOG types a subject is able to perceive depends on its individual *background of perceptual dispositions* which is, at least in part, the result of its ontogeny and habitualization. Its dispositional background shapes the way the world and its OOGs are immediately perceptually given to a subject. And it also predetermines the typical horizons of expectations which are constitutive for these OOGs. Thus, its dispositional background circumscribes the world of a subject. Now, as far as subjects have similar dispositional backgrounds, they live in the same world, comprised of the same (or sufficiently similar) OOGs bearing the same (or sufficiently similar) significances. Nonetheless, dispositional backgrounds can, at least to a certain degree, differ from subject to subject, depending, for example, on the respective environments they were socialized and habitualized in. Thus, as far as their dispositional backgrounds differ, the worlds subjects live in and the OOGs they perceive do so as well: Subjects might perceive and parse social situations differently, the expectations and tacit rules constitutive for certain action and event types might differ, as might the cultural significance of other OOGs. This, again, can lead to misunderstandings and conflicts emerging from the fact that subjects tend to implicitly assume that the OOGs *they* perceive in a given physical environment are also the OOGs *other subjects* do or should perceive under the same circumstances. On the one hand, humans often tend to reify their direct perception instead of accounting for the possibility of diverging worlds. On the other hand, two or more agents partially share their world as far as their backgrounds overlap. Thus, worldsharing *comes in degrees* [18]. It can be shown, however, that there is a *core of the human world* (or OG), which is shared by all human beings [10]. However, we should not underestimate the degree to which individual worlds of different agents can nevertheless diverge.

36.1.3 Implementing Shared and Diverging Worlds in Social Simulations

Current implementations of cultural dynamics and diverging worlds in social simulations ignore significant aspects of the way human worlds are shared, diverge, and change over time, although important steps into the right direction have already been made within the last few years [1, 3, 4]. However, to adequately model complex social interaction scenarios and cultural dynamics in groups of agents with respect to shared or diverging worlds, the agents in simulations must be endowed with distinct dispositional backgrounds (i.e., sets of TCs), which predetermine the range of OOGs and their respective significances agents are able to perceive. To simplify

matters a little bit, the function of TCs might for this purpose be spelled out in a rule-like manner, so that, for example, if an agent perceives a social context *as a funeral* (because she has internalized the respective TC), she changes her behavior (lowers her voice, etc.), while another agent, who has not internalized the respective TC and thus does not "see" *a funeral*, does not do so. By exposure to unfamiliar contexts, event types, or objects, agents might over time internalize new TCs, or the significances associated with existing OOGs might be changed, thus gradually changing their dispositional backgrounds. The second important idea to be implemented in social simulations in order to improve their empirical adequacy is the distinction between OEs and OGs. To simplify matters again, one should distinguish between the mind-independent objects (OOEs) and the OOGs, whose givenness to specific subjects is caused by the former: One and the same hand gesture (thought of as an OOE) might be perceived *as an insult* by one agent or *as an invitation* by another, if their dispositional backgrounds differ, respectively. Thus, we need to model the mind-independent object as well as the diverging OOGs perceived by the agents involved if we want to adequately account for such diversity.

Thus – depending on the specific aim of a social simulation – it becomes necessary to take into account diverging cultural backgrounds as well as their dynamics of experience-based change in order to make social simulations empirically more adequate. I am convinced that the framework, which I develop in more detail elsewhere [10], could be a solid and viable step in this direction and that it is able support social simulators in further improving their most promising approaches.

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