

Zeroing in on zero-intelligence: Externalism, automaticity and opaqueness

This panel explores the notions of zero- and minimal-intelligence at the intersections between philosophy of mind, economics, performance studies and theories of rationality. The first presentation (Petracca) traces the notion of externalism in philosophy of mind and institutional economics. The second (Gallagher) examines two conceptions of zero-intelligence understood in relation to automaticity in the philosophy of performance and institutional economics. The third paper (Mastrogeorgio), using the example of market as an economic institution, argues that opaqueness can serve as a criterion of minimal-intelligence.

Zero-intelligence and human automaticity at two extremes

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Extended abstract

In my presentation I examine the concept of zero-intelligence in two research areas that help to define two extremes where zero-intelligence processes may be found. First, in the area of performance studies, the conception of minimal intelligence is pushed to an extreme in Dreyfus's analysis of expert performance. Second, in the study of institutional economics, where structural constraints do most of the work (Hodgson 2004), the idea of zero-intelligence is proposed as the result of strict institutional constraints (Gode & Sunder 1993). I'll propose a clarification of how zero-intelligence works in these two areas of study by mapping across individualist versus institutional arrangements, and across concepts of functional integration and task dependency.

I'll argue that zero-intelligence as found in these extremes, is a piece of ideal theory and captures nothing (or zero) about human performance or economic reasoning in our everyday lives.

Hubert Dreyfus is well known for thinking of action and expert performance as mindless rather than mindful. Dreyfus' conception of expertise takes expert performance to involve a highly proficient bodily coping (Dreyfus 2005; Dreyfus & Dreyfus 1985), made habitual or automatic based on practice. Experts, when they are "in the flow," do not have to think or engage in any higher-order cognition to do what they do. Rather the expert has an intuitive grasp of the situation grounded on a deep but tacit proficiency. On Dreyfus's account engagement in embodied practice leads to habit formation where doing becomes automatic, without the necessity of reflection or thought. The expert knows what to do without having to explicitly follow rules. That is, the expert practitioner, in any realm, from playing tennis, to playing chess, to doing mathematics, does not have to think about what to do – she has an intuitive and automatic insight into how to move or what needs to be done. Indeed, reflective

consciousness of one's doing may in fact disrupt the practice.

For Dreyfus, accordingly, expert performance approaches zero-intelligence, if we understand "intelligence" in the traditional way to involve thinking, memory, planning, problem solving, etc. For example, Dreyfus argues that for practiced or skillful intentional action one does not require representation. Dreyfus associates the idea of representation with the traditional concept of mind, and with a failed Cartesian philosophy – bound up with epistemic states of knowing-*that* (propositional knowledge), when everything about expert action and knowing-*how* depends on being-in-the-situation (rather than standing back and representing the world).

Dreyfus's model has been criticized on both empirical and phenomenological grounds. Studies in athletics (e.g., Sutton et al. 2011), dance (e.g., Montero 2016), and musical performance (e.g., Høffding 2019) suggest that expert performance is much more complicated, often involving various degrees of cognitive control, reflection, or at least situational awareness. Still there are documented cases of absorption or immersion during performance that seemingly approach or are equivalent to what Dreyfus describes (e.g. Høffding 2019).

Starting with Dreyfus, and throughout much of the debate, the focus has been on *individual* performance employing varying conceptions of dynamical functional integration to explain individuals coping with their environment. In debates about such cases proponents of extended cognition (like Sutton et al., 2011 and Clark 2008), posit a functional integration of brain, body and environment involving minimal representations; proponents of enactivist embodied cognition (e.g., Varela et al. 1991; Hutto & Myin 2013) posit a pure (non-representational) functional integration closer to Dreyfus. Even when attempts are made to incorporate social interactions (as in Høffding's analysis of musical performance in a quartet) other performers are treated as parts of the environment and the model remains one of functional integration, where direction-of-fit (to use Searle's terminology) is mind- (in this case embodied mind)-to-world. At best, external (environmental, social) factors are treated as constraints on the individual agent.

A second model of zero-intelligence operates in institutional economics. Again, internal cognitive or psychological processes are downplayed, but in this case external factors, that include pre-established practices or rules, do most of the work. Behavior is constrained by these external factors to the extent that they minimize the agent's thinking or cognitive effort. The automaticity involved here, in contrast to that derived from embodied practice in the Dreyfus model, is imposed from the outside, by tasks and practices defined/designed by institutions.

Individuals do what the task requires without having to think about it; they become the proverbial cog in the machine. In contrast to functional integration (involving mind-to-world direction of fit) zero-intelligence is here defined in terms of task dependency (involving world- to-mind direction of fit).

Marc Slors contrasts task dependency with functional integration, and defines it as follows.

"Task dependency" is the extent to which the intelligibility of a task depends on a larger whole of coordinated tasks. Task dependency is a notion that is connected with coordination and planning. It is a normative notion in the sense that high task

dependency means that tasks play specific roles in the overall organization of a cognitive system or a cultural cognitive ecosystem; roles that can be played properly or improperly (Slors, 2019, p. 18).

Taken to the extreme, where tasks are broken down to a simple set of steps or repetitive action pattern to be followed, unthinkingly, task dependency delivers a setting for zero-intelligence agents. The system as a whole, defined as a set of interlinked tasks, does most of the work. “The tasks, jobs and roles of others in the system co-define and enable one’s own task, but one does not have to perform them or even think about them, while nevertheless benefiting from the overall outcome of the system” (Slors, 2019, p. 30). The system is rational in a way that makes the individual rational only in the sense of rule following, which requires no autonomous intelligence. If the system is properly designed, the rational integration of tasks is automatic.

Zero-intelligence in both of these frameworks – generated in individual automatic performance *versus* generated by external institutional designs – are extremes, and perhaps simply ideal concepts that rarely or never come to reality. This is the case, I’ll argue, not because irrationality disrupts economic decision making, or because higher-order rational thought disrupts skilled

performance, but because in every case the rationality of our actions and reasoning processes is embodied and situated in environments that are social, cultural, and normative.

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