article, Giordano also makes too much of the first claim. Luhmann also used an analytical understanding of systems. What is important, however, is that, in my view, Luhmann's system concept did not focus on the features of "systemness" but on the system–environment distinction. While Luhmann's operative constructivism directs attention to a range of different empirical phenomena when compared to Parsons's approach, such as environmental problems, planning disasters or incomprehensibility, it is epistemologically not very different from Parsons's analytical realism.

« 6 » Let me make a final comment. Parsons turned to systems theory in the 1940s and 1950s, thus not only in a period in which general systems theory was making important scientific advances, but also in a post-war socio-political setting that was receptive to systems thinking. Systems theory was at that time favored by scholars and decision-makers, who shared a belief in the "system" (Vanderstraeten 2019; see also Vanderstraeten 2024 on Edward Shils, who collaborated with Parsons in this period). In the 1960s, Luhmann also opted for social systems theory and his version of this theory is an explicit testimony to the lasting relevance of a tradition that was profoundly shaped by Parsons. However, he was also confronted with a different socio-political context. Since the "critical" 1960s, systems theory has been targeted for its (explicit or imputed) steering ambitions. It is now often depicted both as an attempt to understand parts of the world according to a system model and to reshape these parts according to the system image of the world. From the onset, Luhmann thus found it more difficult to gain broad support for his analyses. Not surprisingly, he developed ways to address problems of modern society that emerged despite the way that our society imagines itself as a system – well regulated, carefully planned and responsibly engineered. He also used the notion of system as an epistemological device to think in a way that was against the "system," to look at things that fall outside the scope of the traditional paradigm of "systemness." Paying more attention to the epistemological effects of these socio-political settings is, in my view, an important task for future research on evolutions in social systems theory.

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Transcending Ontology – Niklas Luhmann's Operative Constructivism

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> Abstract • The primary purpose of the target article is to review Niklas Luhmann's operative constructivist ontological and epistemological assumptions and evaluate whether they were influenced by or are compatible with Talcott Parson's "analytical realism." In my commentary, I evaluate the soundness of the project and reject some of the results, claiming that "systems theory" transcends the old epistemological and ontological distinction between realism and idealism.

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« 1 » In his target article, Pedro Giordano substantiates two hypotheses.

- He maintains that Niklas Luhmann's "operative constructivism" is compatible with the *sui generis* "analytical realism" advanced by Talcott Parsons and was influenced by it.
- He explains the systems' "reality" of Luhmann's system theory based on "analytical realism."

The argumentation evolves along four steps: (a) The initial characterization of Luhmann's viewpoint on themes related to Sociology and Philosophy of Science as "operative constructivism" (Introduction, §§1–3) is followed by (b) a review of the formation and core ideas of Parsons's ontological and epistemological conceptions as "analytical realism" (§§4–13), prolonged with (c) a description of Luhmann's de-ontologization (§§14–23), finally moving to (d) an account of concepts and common problems developing from cybernetics and classical theory of systems that may give an indirect proof of the "ascendancy" of analytical realism on Luhmann's operative constructivism (§§24–35).

« 2 » Despite the content of §§4–13, the notion of realism in "analytical realism" is still unclear. There are four possible standard uses of realism in theories of knowl-

edge: metaphysical substance realism, "empirical realism" of the Kantian type, ideal realism of the Hegelian type, and logico-semantical realism of the Wittgensteinian type (Ludwig Wittgenstein's logical space and logical existence in the *Tractatus*). While I cannot characterize each type here, according to the use of "analytical realism" in the target article, the best-suited standard type to embrace Giordano's claims appears to be "empirical realism," not excluding slight differences. If the author's arguments to prove that Parsons's epistemological stance was a strict realism are rigorous, then he is proving that the sociologist was an "empirical realist," a neo-neo-Kantian, which I agree would be the appropriate label for him, but not for the operative constructivist, Luhmann.

« 3 » In §1 of the Introduction, Giordano reminds us of the place of the system of science in Luhmann's general theory of systems as a functional communication system of modern society coded by the distinction between veracity and falsehood (Luhmann 1990). This symbolic binary code has evolved to preserve the autonomy of science regarding other functionally differentiated communication systems, such as economy, law, politics, or religion, ensuring that scientific statements, laws, or measurements obtain their communicative validation from a shared system of proofs of well-constructed theories, eventually giving preference to coherence rather than to representation or reference. Giordano (§§18f, 22f) claims that if the system of science is based on symbolically codified communicative operations, scientific statements' commitment to an independent, self-subsistent external world as their reference domain is minimal, which justifies the notion and the project of a "de-ontologization" of communication in Luhmann's works, and the fragilization of realism. As a terminological clarification, I wish to repeat the relevance of the previous distinction between metaphysical realism (which is a realism of the substance) and other kinds of realism (e.g., Kantian "empirical realism" compatible with transcendental idealism). The first kind entails the thesis of the "real"[1] (*de re*) independence of the underlying support (*hypokeimenon*) of material things (matter as such) and of the primary support of conscious activity ("anima" as such), establishing the metaphysical and epistemological distinction between essence and phenomena that David Hume abolished. Immanuel Kant's use of "realism" in "empirical realism" relates to the phenomenal domain of human experience and scientific explanation, excluding cognitive access to the metaphysical thing-in-itself. Parsons's views on epistemology (and the realism/idealism clash) are enclosed in the post-Kantian context, while Luhmann starts his work within the frame of Husserlian phenomenology to profit from the phenomenological concept of meaning as the primary systemic category – *neither subject nor object* –, which explains the use of notions such as world and meaning horizon in *Social Systems* (Luhmann 1984).

« 4 » Discussing the meaning of ontology and "de-ontologization," Giordano uses secondary literature, which can cause some obliteration of the sociologist's original perspectives. Using "de-ontologization," but especially characterizing second-order observations when commenting on Jacques Derrida's deconstruction (Luhmann 2001: 284), Luhmann discarded the pair being/non-being as the fundamental horizon of systems theory, notwithstanding his well-known paraphrase of Martin Heidegger[2] in the formula "es gibt Systeme." In his last posthumous work (*Die Gesellschaft der Gesellschaft*), he devoted the entire chapter 5 to what he called "self-descriptions" (*Selbstbeschreibungen*) where the socio-historical configurations of the "Semantics of Old Europe" were explained, including "ontology," the ontological categories, and where one of the problems Giordano seems to address – the attainability of society ("Die Erreichbarkeit der Gesellschaft," Luhmann 1997: 866) – was identified. The question of the attainability of society brings to the foreground the meaning and depth of the ontological categories (being, non-being, object and subject, whole and parts) and the sociological awareness of their descriptive value in accounts of social evolution. Based on Luhmann's assumptions regarding the history of ontology and its intertwinement with the evolution of society and sociological categories, the following conclusion can be sketched: sociological categories and their epistemological value are co-implicated in the crisis of the semantics of metaphysical concepts and in the crisis of traditional logic. Luhmann's ontologically neutral use of second-order observations is not only a reminder of Heinz von Foerster's second-order cybernetics (Foerster 1993). It is also explained by his attachment to the epistemological program of Humberto Maturana's theory of autopoiesis and his views on the observer's dependent "domain of existence" as the system's environment (Maturana 1990).

« 5 » In §1 of the target article, Giordano identifies some objections to the de-ontologizing project, such as underestimating lower levels of emergent systems or avoiding causal explanations. However, valuable notions such as emergence and causality should be carefully used in debating Luhmann's terminology, since they may imply ontological assumptions that a radical constructivist would want to revoke. According to constructivism, emergence and causal nexuses are predicates originating from defined observations of a system's behavior. In the case of sociological explanations, causal ascription is also embedded in semantic frames and complex motivational contexts.

« 6 » Approaching the core of the article's argument (§§3ff), the reader notices that when dealing with the different viewpoints on metaphysics and epistemology, such as realism, not only does the terminology vacillate, but also the point of view of the approach changes from the initial focus on the system of science to scientific theories, to the more general framework of systems theory or to the even more general level of philosophical theories about reality. Using Parsons's "theoretical system" to describe science may contribute to some vagueness because in Luhmann's terminology, "theory" is different from the sociological functionally differentiated "science system." So, from

1| "Real" is used according to the classical metaphysical vocabulary, which opposed the distinctions "de re" to "de dicto," emphasizing the thesis of a non-modifiable, intrinsic distinction between substances, mainly matter and soul.

2| Heidegger's expression to translate the Greek original meaning of Being as ontological interpellant disclosure was "es gibt" or "es gibt Sein."

a Luhmannian point of view, the notion of a theoretical system seems vague because it is all-inclusive. The four types of realism belong to different abstraction levels: the notion of "reality" does not mean the same when used across the system/environment binary of systems' operations, in characterizing the semantic reference of scientific theories, describing "facts" (established in empirical sciences through proofs), or validating proofs for statements. One may wonder whether Parsons and Luhmann were particularly interested in a full discussion of metaphysics or metaphysical epistemology, as happens with the initial source of encouragement of Parsons's studies in philosophy of science (§§6, 7 and 12) – Alfred North Whitehead's book *Science and the Modern World* (Whitehead 1925). Systems theory could legitimately use notions such as "real," "reality," and "fact" with epistemological caution and ontological neutrality, particularly concerning the system/environment binary, avoiding metaphysical incursions by act or omission. This is not the same as saying that in the case of systems theory, Luhmann must face the alternative of skepticism and agnosticism about being (§16). This alternative presupposes that the binary being/non-being is unavoidable as the last meaning horizon, which Luhmann would not have accepted.

« 7 » Whitehead's faith in reason (§37) seems to be the candidate to bridge the logical closure of a theoretical system and the so-called "external world." The young Parsons did read and comment on Whitehead's book (Whitehead 1925; Camic 1991: xxxiv; Parsons 1991: 224, 1964: 222f). However, if Whitehead's faith was convincing to Parsons, can it be said to be well suited to Luhmann's constructivism? Q1

« 8 » To clarify the employment of terms such as "fact" (§§5, 10, 12, and 29) in systems theory and in the philosophy of science, it would be important to note that in his initial works, Luhmann's notion of meaning relies on Edmund Husserl's characterization of psychic experience (*Erlebnis*) according to the distinction between what is immediately, intuitively given to consciousness ("actuality") and what is indirectly proposed in the horizon of other possibilities ("potentiality") (Luhmann 1971a: 9, 11f; 1971b: 31f). Since the beginning of Luhmann's reading of Husserl's phenomenology (Luhmann 1968), one expected the transformation of the ontological questions into meaning questions and, through meaning, the eradication of residual substance metaphysics (Balsemão Pires 2013). Luhmann's path differs from the post-phenomenological approaches of Heidegger, Hans Gadamer, and Maurice Merleau-Ponty, who have kept a reference to being even if transgressing substance metaphysics. The use of "fact" (*sachliche*, "factual") as a meaning dimension is ontologically immune and does not entail a compromise with the empiricist distinction between substance and phenomenon or with the use of "fact" typical of Wittgensteinian or Carnapian logical semantics. One can refer to "facts" as meaning postulations to ensure the self-referential progress of meaning selections in consciousness or in communication without endorsing a representational theory of mind. Likewise, objects "in facts" are semantic occurrences in semantic type-token associations in scientific theories. According to Luhmann's *Die Wissenschaft der Gesellschaft* (*The Science of Society*), the distinction between knowledge and object ("reality") is taken as a presupposition of observation (Luhmann 1990: 493), which is impossible to remove from knowledge itself or observation. This means that this distinction emerges from the cognitive operations that use it. An external comparison between objects and knowledge (or objects and words) to grasp their coincidence is impossible (Quine 1969). It is this self-presupposition of the distinction, with its two faces, that makes cognition (and observation) a self-referential process (see also §21 in the target article) and justifies the reference to a provisional and meaning-dependent "domain of existence" of functional systems, cognitively open and operationally closed. If cognition is self-referential, as constructivists assert, is the formula of "analytical realism" enough to transcend the metaphysical frame of the old confrontation between idealism and realism, and if not, can one assume it to be a decisive influence in Luhmann's epistemology, which successfully transcended that divide? Q2

« 9 » "Analytical realism" is a formula close to the Kantian "empirical realism," both stressing the difference between the two domains of the phenomenal world and "reality as such" (the thing-in-itself), tracing a dividing line between "facts" and values and preventing epistemological access to the metaphysical being. The beginning of Parsons's epistemological themes may explain a lot about his later philosophical concerns. In 1936, he reviewed Alexander von Schelting's 1934 book on Max Weber's "Theory of Science" (Parsons 1991: 123–131) for the *American Sociological Review* in the context of a neo-Kantian wave of stimulating contributions to the philosophy of science and to Heinrich Rickert's (1926) "sciences of culture." In this book review, Parsons confronted himself with Weber's theory of ideal types and the associated concept of rationality applied to science and action. Valid objective knowledge was, for Weber, the basis for establishing practical and theoretical rationality, granting a proper foundation for rational action. In social sciences, two fundamental orientations should become fully articulated. On the one hand, the orientation towards the "historical individual" gives sociological descriptions an immediate empirical content. On the other hand, the theoretical rationality that is attainable by constructing theoretical systems through "abstract generalization" guarantees the logical validity of general laws (Parsons 1991: 126). Thus, scientific sociological knowledge interrelates the relative (individual and historical) and the nonrelative (universal and abstract) aspects of social reality through "construction" (Parsons 1991: 125). The tension identified between historical individuality and the laws' generality is the same as that opposing genetic and logical-methodological reasoning. At the end of the article, confronting Karl Mannheim's relativism of sociological theories, Parsons transferred the tension between the "genetic" and the "logical" to sociology as a science. Anticipating the context of what Luhmann would later call society's self-descriptions, Parsons did not conclude his promising reasoning on the genetic and logical intertwinement. Luhmann's originality consisted in situating in self-descriptions the self-referential circle of the structure of society, semantic evolution and social differentiation. Thus, he redefined Weber's divide between the "genetic" and the "logical."

« 10 » Giordano uses the concept of complexity following its meaning in the physical and biological sciences to characterize the increase and dissipation of energy levels (cf. §§26f on "homeostasis"). This may not be suitable for Luhmann's approach, though. From Luhmann's perspective, society is a closed autopoietic system of communication. The elements that compose society's communicative reproduction are communications. This means that energy transferences can occur in the biophysical environment, but not within society as a system. So, complexity in Giordano's sense cannot be applied to individualize the communicative systems of Luhmann, who viewed science as a functionally differentiated communicative system. Nor is it suitable to explain the sociologist's definition of the operative closure of systems and the poly-contextural (Günther 1973) environments of functionally differentiated systems. This is even the case if some of these physicalist categories were important for the epistemological affirmation of the concept of system regarding the physical and biological sciences, from Ludwig von Bertalanffy to Parsons. The application of Parsons's AGIL model to what Giordano calls a "theoretical system" in the "double cybernetic hierarchy" (§§28f), which would be apt to incorporate science as an autopoietic system, is not immediately evident, since the notion of theory does not have the same extension of science as a social system in Luhmann's vocabulary. Moreover, AGIL is a functional integrative model valid to sub-systems of personality, action, and the "social community" (Parsons 1966: 28f, Table 1 and 2), combining "Behavioral Organism," "Personality System," "Social System," and "Cultural System." The definition of society as an autopoietic system of communication, which entails a degree of relative interruption and autonomy between communication and consciousness, does not obey the same logical coherence as AGIL in dealing with complexity. Luhmann's systems theory looks at the environment of the system of society as already shaped by other operationally closed systems (psychic systems) and to the inner environment of society as an already codified and operationally closed poly-contextural milieu. Parsons's influence on Luhmann is palpable in describing the "double contingency" in action systems (Luhmann 1984: 148–190; Parsons 2001: 3–27). Regarding this theme, there is still work to be done. However, regarding epistemology, Luhmann's constructivist stance went much further than what could be directly inspired by "analytical realism."

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