

Relationality in Social Systems

Wolfgang Hofkirchner

TU Wien & Bertalanffy Center for the Study of Systems Science, Vienna

There are several classifications of social science and social theory approaches. One possibility is to classify them according to the stance they take regarding the interplay of individual and society or the interplay of agency and structure, which has philosophy-of-science implications for what is deemed the proper aims, scope and tools of the approaches.

A first possible stance is reductionism that, in the vein of Mario Bunge¹, can be called “social individualism”. With respect to aims, it is praxiological individualism that gives priority to the individual over and against society, which might lead to the prevalence of private concerns and self-interests and qualify as allegedly scientific justification of ideologies such as neoliberalism. It legitimates arbitrariness of agency. With respect to scope, it is ontological individualism meaning, as, e.g., Margaret Thatcher when prime minister put it, “there is no such thing as society. There are individual men and women, and there are families.”² There is agency but structure not outside and independent of agency. With respect to tools, it is methodological individualism. The necessary and sufficient conditions for society or structure are conceptualised as individuals or agency, while society and structure are conceptualised as resultants.

Social individualism is not only a central feature of Positivism but also of anti-positivist positions like Interpretivism, Hermeneutics and Constructionism that all share subjectivist assumptions.

A second possible stance is the reversal of reductionism, which is projectivism that does not reduce society or structure to individuals or agency but projects the former onto the latter. Taking a term from Bunge³, but used in a broader sense, that stance can be called “sociologism”. The praxiological dimension refers to the prevalence of society or structure over and against the individual or agency, which might prioritise values in the sense of Amitai Etzioni’s *New Communitarian Thinking*⁴. The ontological dimension is holistic, society is said to determine individuals and “holism underrates agency and overrates bonds.”⁵ And the methodological dimension considers society or structure as necessary and sufficient conditions for individuals or agency as resultants.

Functionalism, Structuralism, or Post-Structuralism pertain to sociologism.

A third possible stance is the negation of both projectivism and reductionism in that none of the relata is subsumed under the other relatum. It is disjunctivism because it disjoins individuals from society or agency from structure. Praxiologically,

¹ Mario Bunge: *Emergence and Convergence. Qualitative Novelty and the Unity of Knowledge*, Toronto 2003, p. 113.

² Margaret Thatcher in an interview to Women’s Own Magazine, October 31 1987. (<http://briandeer.com/social/thatcher-society.htm>, accessed 21 March 2016).

³ Bunge: *Emergence*, p. 164.

⁴ Amitai Etzioni (Ed.): *New Communitarian Thinking. Persons, Virtues, Institutions, and Communities*, Charlottesville 1995.

⁵ Bunge: *Emergence*, p. 112.

ontologically, and methodologically, they are looked upon as independent such that dualism – a special case of pluralism – is promoted.

Interestingly, besides varieties of Postmodernism like Post-Marxism, Niklas Luhmann's theory of social systems⁶ is embraced by that category, since individuals, as psychic systems, are outsourced to the environment of social systems.

The last possible stance is to find a way to integrate the relata without impeding their differentiation, which shall be termed here – in contradistinction to “dualism” – “dialectic”. Dialectic means that there is an asymmetrical interdependence of individual and society or agency and structure. The praxiology orients here towards unity (society, structure) through diversity (individuals, agency) as a desirable goal. The ontology assumes an ongoing shaping of society's structure by the agency of the individuals, and of the individuals' agencies by the structure of society, that is, of unity through diversity and of diversity through unity. The methodology presupposes means for investigating the emergence of the societal structure as enablements and constraints.

Approaches that belong to dialectic are Critical Theory, Critical Realism, Social Morphogenesis, and a different variety of systemism, Emergentist Systemism⁷.

The role model of Emergentist Systemism is Ludwig von Bertalanffy's General System Theory⁸. Bertalanffy took Nicholas of Cusa's idea “ex omnibus partibus relucet totum” (“each part reflects the whole”) as a point of departure. Already back in the late 20s of last century he wrote that the characteristic of the organism is first that it is more than the sum of its parts and second that single processes are ordered for the maintenance of the whole.⁹

As opposed to the analytical, summative and machine theoretical viewpoints, organismic conceptions [...] have evolved in all branches of modern biology which assert the necessity of investigating not only parts but also relations of organisation resulting from a dynamic interaction and manifesting themselves by the difference in behaviour of parts in isolation and in the whole organism.¹⁰

In retrospect, that quotation proves that, as I highlighted elsewhere¹¹, Bertalanffy

distinguishes not only between the level of parts and the level of the whole, but also between the dynamic interaction of the parts and the relations of organisation. He clearly locates the interaction on the parts' level and the relations on the whole's level. And he considers the following relationship between the interaction and the relations: the relations, on the one hand, result from the interaction and, on the other, are manifest in the behaviour of the parts in that the behaviour is different from the behaviour when in isolation. It therefore follows that there are two processes in systems:

- (1) one bottom-up in which interactions on the level of the parts result in relations on the level of the whole,
- (2) and one top-down in which relations on the level of the whole manifest themselves on the level of the parts, viz., in their behaviour.

Summing up, you have a kind of dialectic: the maintenance of a system functions such that the system – via downward causation exerted by the structure of the system – makes its elements – via upward causation that lets the structure emerge – produce the system itself anew. This is called self-organisation: the system (the self) refers to itself via its structure referring to its elements that refer, in turn, to the structure.

⁶ Niklas Luhmann: *Soziale Systeme. Grundriß einer allgemeinen Theorie*, Frankfurt 1984.

⁷ Poe Yu-Ze Wan: *Reframing the social. Emergentist systemism and social theory*, Farnham 2011.

⁸ Ludwig v. Bertalanffy: *General System Theory. Foundations, Development, Applications, With a Foreword by Wolfgang Hofkirchner & David Rousseau*, Eighteenth paperback printing, New York 2015.

⁹ Bertalanffy: *Kritische Theorie der Formbildung*, Berlin 1928, p. 305.

¹⁰ Bertalanffy: „An Outline of General System Theory“, in: *British Journal for the Philosophy of Science*, 1/2 (1950), pp. 134-165, here 134-135.

¹¹ Wolfgang Hofkirchner: *Emergent Information. A Unified Theory of Information Framework*, Singapore 2013, p. 121-122.

By conceptualising self-organisation in, or of, systems that way you avert getting in troubles when speaking of an alleged causal effect of the whole on its parts.

The totality consists of the components and the organising relations. Thus it seems inappropriate to say that the totality acts upon its components; rather, it acts through its components. It is the structure that acts upon the components. It is considered advisable here to understand the causal power of a system, which is a totality, as something working on the horizontal plain of interactions with the environment and (co-)systems, i.e. in the way effective and final cause are said to do; while downward causation is understood only as exerting causal power from one (higher) level to another (a lower one) in the way formal and material cause are said to do [...]; and to regard different views as making category mistakes.¹²

What Bertalanffy had first worked out with regard to the organism, holds for social systems too. As I stated in 1998¹³,

There are two levels. At the micro-level the elements of the system, namely agents, are located. They carry out actions, and by the interplay of the fluctuating individual actions they produce fairly stable relations among them which, in the form of rules, that is values, ethics and morals, and in the form of regularities which concern allocative and authoritative resources, gain a relative independence from the interactions. Structures like that emerge thus on a macro-level, where they exist in their own right insofar as they, in turn, influence the agents. On the one hand, they constrain the individual agency by setting conditions that limit the scope of possibilities to act and, on the other, just by doing so provide it with the potential for realizing options it would not otherwise have. In so far as the structures do not cause directly, and therefore cannot determine completely whether or not these options will be realized, for the actions are mediated by the individual agents, dominance cannot control the outcome, either. The structures are inscribed in the individual agents by an endless process of socialization and enculturation, but the engrams which are produced in the individuals serve as cognitive tools for the anticipation and construction of ever new actions which may or may not obey the rules and accept the values and recognize the ethics and follow the morals, and which may or may not fit the regularities and renew the allocative and authoritative resources and thus may or may not reproduce the structures. Either way, interaction reflects upon the conditions of its own emergence and may consciously be directed at the structures in order to maintain or alter them. In this sense only, that is, because in their recursive actions the agents refer to the structures, these structures play the dominant role in this relation of bottom-up and top-down causation. Nevertheless none of the relations in this causal cycle leads to plain results. Each influence has consequences which due to the inherent indeterminacy cannot be foreseen. By this, and only by this, qualitative change is possible.

Massimo Mugnai analyses in “Leibniz’s Ontology of Relations” whether or not it is adequate to call Leibniz a nominalist because of his life-long insistence on the mental nature of relations. He comes to the conclusion that,

[...] taken at face value, Leibniz’s theory of relations presents itself as an odd combination of nominalist-conceptualist and realist elements. It is nominalist-conceptualist insofar as it denies that relations have a reality in the world extra; it has ‘realist’ consequences insofar as Leibniz assumes the principle according to which the least change of denomination in a subject is correlated with a change in the internal properties of all things in the universe. Determining this situation are two different commitments: to nominalism-conceptualism, on the one hand, and to the Neoplatonic claim that every individual reproduces or reflects in itself the entire universe, on the other hand [...]

and adds that “Leibniz’s nominalism, however, has more to do with a methodological choice than with an ontological commitment.”¹⁴

However, Mugnai further discusses Leibniz’s idea of a real connection of all things. In that context, Leibniz says about relations:

Their reality does not depend on our understanding – they inhere without anyone being required to think of them. Their reality comes from the divine understanding, without which nothing would be true. Thus there are two things

¹² Hofkirchner: „Self-Organisation as the Mechanisms of Development and Evolution“, in: Margaret Archer (Ed.): *Social Morphogenesis*, Dordrecht 2013, p. 136.

¹³ Hofkirchner: „Emergence and the logic of explanation: an argument for the unity of science“, in: *Acta Polytechnica Scandinavica, Mathematics, Computing and Management in Engineering Series*, 91 (1998), pp. 23-30, here pp. 29-30.

¹⁴ Massimo Mugnai: „Leibniz’s Ontology of Relations: A Last Word?“, in: Daniel Garber, Donald Rutherford (Eds.): *Oxford studies in early modern philosophy*, Vol. 6, Oxford 2012, pp. 171- 208, here p. 204.

which only the divine understanding can realize: all the eternal truths and, of the contingent ones, those which are relational.¹⁵

After Leibniz, God has created the individual substances and then mutually co-ordinated “the ‘representational’ states internal to each substance with those internal to any other substance belonging to the same world.”¹⁶

So Leibniz encountered the case Bertalanffy later on confronted. The idea that relations belong to reality and are not only subjective denominations but something third – in Leibniz’s sense a product mediated by the act of God – came to the fore.

Another step to determining that kind of third was done by Charles Sanders Peirce. His idea of firstness, secondness and thirdness is worth revisiting.¹⁷

Firstness was defined by Peirce as a relation marking the lowest level of development of relations, that of individual agents. An individual agent in itself might be interpreted as a monad that has a relation to itself only. However, such a relation is far from a full-fledged relation. It’s the primordial relation, or the most derivative, if any.

Secondness was defined as a relation between two interacting individual agents. One individual agent reaches out to another individual agent. The first agent relates itself to the second one. This relation might be reciprocated by the second one or not. In any case, such a relation is not necessarily durable but volatile as it can be revoked by any side at any time. Anyway, it is a relation an agent acts out for another agent. As such, it is qualitatively different from a monadic relation. It can be named a dyad. Nevertheless, it is observable and describable and needs not necessarily a theory for explaining it. Thus a dyadic relation is not very far from the monadic one. It is more developed than the monadic but not yet fully unfolded. It is an intermediary step in the evolution and hierarchy of relations.

In social systems, as can be interpreted now, secondness is the feature of the behaviour of actors. Like the actors themselves, their behaviour, their actions, their network belong to the same systems level – the micro-level.

Thirdness, then, was defined by Peirce as a something that establishes and mediates the relation between two other things. “Das Fortschreiten vom Vielen zum Einen ist numerisch. Der Begriff eines *Dritten* ist der eines Objekts, das sich so auf zwei andere bezieht, daß sich eines dieser beiden genauso auf das andere bezieht, wie sich auch das dritte auf dieses andere bezieht.”¹⁸

According to his semiotics, for instance, the third is a sign that is relational; it might be called representamen that relates an object with an interpretant (that is, the meaning) but the sign might also comprise the object and the interpretant. Thus, there is a third that is a something that has causal power over two agents in that it is able to relate them to one another. This is a fully-fledged relation. It lends stability to the interaction of agents. It exists, so to say, as a triad: two relata and a relation that is not reducible to the mere interaction of independent agents but possesses a being in its own right. Relations like that go beyond mere dyads and instigate a qualitatively new level – the macro-level.

That’s exactly what is the function of structure in systems. In social systems it is social relations that make up the macro-level. Social relations channel the multiple

¹⁵ Quoted after Mugnai: „Ontology“, p. 206.

¹⁶ Mugnai: „Ontology“, p. 208.

¹⁷ See my discussion in section 2 in Hofkirchner: „The commons from a critical social systems perspective“, in: *Recerca*, 14 (2014), Special Issue, „New Insights into Relational Goods“, pp. 73-91, on which the following paragraphs rest. It refers to Charles Sanders Peirce: *Semiotische Schriften*, vol. 1-3, Frankfurt am Main 2000.

¹⁸ Peirce: *Schriften*, vol. 1, p. 154.

and concatenated dyadic interactions by enabling and constraining the behaviour on the micro-level. It is important to see that only the triad fulfils the criterion of a system in the sense of an evolutionary, self-organising system; only such a system has, at least, two levels – the micro- and the macro-level. A dyad is not a system in this sense. It contains systems, if the agents are seen as evolutionary, self-organising systems. And, actually, an agent itself can be seen as such a system having a micro- and a macro-level too, if the focus is on the interior of how the monad works. Fully-fledged relations play the role of the Third and cannot be reduced to the interactional relations of agents or to the individual agents themselves. There is emergence on the way up from the agents and their interaction to the structure of the system and there is a kind of dominance the way down; thirdness shapes secondness shapes firstness. Driven by the co- and counteraction of actors the build-up of social systems locks in at certain structural possibilities that determine possibilities for the next round of interaction in which actors can, more or less consciously, choose to restrict themselves to the enablements and constraints given by the structure or to try to extend them and bring about a switch to another structure.

Though Peirce's idea of thirdness can be interpreted in a way that it supports Emergentist Systemism, it does not fit the realist stance of Bertalanffy's General System Theory or the social ontology of realist social theory. There are indications that Peirce qualified the third as mental.¹⁹

In 1963 the Russian logician Avenir I. Uemov published a treatise on things, properties and relations. *Dinge, Eigenschaften und Relationen*, the German edition, followed in 1965. He criticises the traditional conception of a thing as a body in space-time and contends what he calls a qualitative conception:

Das Ding ist ein System von Qualitäten.
 Verschiedene Dinge sind verschiedene Systeme von Qualitäten.
 Ein und dasselbe Ding ist ein und dasselbe System von Qualitäten.²⁰

Properties and relations are just as objective as things. And in the afterword he adds the important statement about how things and relations can be brought together: "Die in einem Ding bestehende Relation ist das, was dieses Ding aus anderen Dingen bildet."²¹ If thing is interpreted as system, then relation is what builds a system out of other systems.

There has been a trend now towards "Relational Sociology".²² One approach that is compatible with Emergentist Systemism is Pierpaolo Donati's *Relational Sociology*²³ and Donati is sided by Margaret Archer. That contribution is timely, since it deals with the practical question of the societal commons and it defines the commons as a relational good.

In order to understand how the concept of relation is used by Donati and Archer it is worth showing how they illustrate it in the example of the performance of an orchestra. Like musicians in an orchestra, individuals constitute "a collectivity that evaluates objectives (discernment), deliberates about realizing its common concerns (deliberation), and commits itself to achieving them (dedication)"²⁴. The point is "about the *orientation of all the musicians to the collective performance*. A collective

¹⁹ E.g., Peirce: *Schriften*, vol. 1, p. 345, 447, vol. 3, p. 278.

²⁰ Avenir I. Uemov: *Dinge Eigenschaften und Relationen*, Berlin 1965, p. 17 (no italics, W.H.).

²¹ Uemov: *Dinge*, p. 176 (no italics, W.H.).

²² See an overview and assessment of versions of Relational Sociology in the introductory chapter to Pierpaolo Donati, Margaret Archer: *The Relational Subject*, Cambridge 2015, pp. 3-32.

²³ Pierpaolo Donati: *Relational Sociology. A New Paradigm for the Social Sciences*. Milton Park 2011.

²⁴ Donati, Archer: *Subject*, pp. 61-62.

orientation to a collective ‘output’ is the core of collective reflexivity”²⁵. That collective reflexivity emerges from what they call individual meta-reflexivity practised by each musician. An individual is meta-reflexive if “he reflects on the orchestra’s performance and about how this performance could be improved were the musicians to relate to each other in a different way”, that is, if he seeks “to alter the performance of the whole orchestra” and “to produce a different emergent effect”²⁶. A meta-reflexive individual is different from an autonomous-reflexive individual – as Archer is categorising – who is a musician who thinks only about himself and seeks to perfect his own performance disregarding the third; and a meta-reflexive individual is different from a so-called communicative-reflexive individual who simply tries to adapt her performance to the individual performances of the other players, which disregards the third as well. The “group is oriented to the relational goods it produces, to maintaining or improving upon them – and to eradicating any relational evils detected in their collective performance”²⁷.

The orchestra example needs generalisation to the level of humanity. The solving of global problems needs to have the fate of humanity as ultimate concern and orient towards the common good for all – the *commune bonum*, which bends back to Leibniz again.²⁸

²⁵ Donati, Archer: *Subject*, p. 61.

²⁶ Donati, Archer: *Subject*, p. 61.

²⁷ Donati, Archer: *Subject*, p. 61.

²⁸ See Hans Heinz Holz: „Leibniz und das *commune bonum*“, in: *Sitzungsberichte der Leibniz-Sozietät*, 13/5 (1996), pp. 5-25.