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Is the System Badly Named?
Noise as the Paradoxical (Non-)foundation of Social Systems Theory

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Through an analysis of the concept of noise, this paper argues that Niklas Luhmann's systems theory is not only a theory built on binary oppositions such as system/environment, but also a theory full of paradoxical *third things* that challenges any idea of systems as stable, systematic entities. To revitalise the concept of noise I trace the concept back to the sources that Luhmann draws on, namely Heinz von Foerster and Henri Atlan. Moreover, I introduce Michel Serres's theory of noise to emphasis that noise is not just an outside to orderly systems, but the unstable ground of always changing orders. Through this synthesis I conclude that systems should not be understood as predictable entities or identities with pre-given boundaries, but rather as autopoietic processes driven by indeterminacy and paradoxes.
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Introduction

The concept of *noise* is arguably one of the cornerstones in Niklas Luhmann's theory of social systems. The fact that systems depend on noise is a well-known systems theoretical proposition. Indeed, according to Luhmann a system can only become a system by partially overcoming meaningless noise, and, thus, owes its very existence to noise (Luhmann, 2000, p. 258; Stäheli 1996, p. 8). As he states: "Without noise, no system" (Luhmann, 1995, p. 116). The concept of noise and the idea that systems depend upon noise was initially developed in information theory and cybernetics. In his seminal paper from 1960, "On Self-organising Systems and Their Environments," von Foerster famously coined the slogan *order-from-noise* (von Foerster, 1981, p. 17). The slogan describes the idea that systems construct themselves by relating to noise in their environments. What drives systems to reconstitute and re-organize themselves are meaningless disorder and noisy events. Only from noise can systems renew themselves through processes of creating order from noise (von Foerster, 1984; Luhmann, 2000, p. 258). As von Foerster put it "self-organizing systems do not only feed upon order, they will also find noise on the menu" (von Foerster, 1960, p. 43). Also theoretical biologist, Henri Atlan concurs: "the task of making meaning out of randomness is what self-organization is all about" (Atlan, 1984, p. 110). Furthermore, we find the same idea in Gregory Bateson's work. In his formulation: "All that is not information, not redundancy, not form and not restraints—is noise, the only possible source of new patterns" (Bateson, 2000, p. 140).

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In Luhmann's theoretical universe, environmental noise holds a crucial function as a source of systemic renewal. One may say that Luhmann's interest in how order is possible stems from a fundamental assumption that order is highly improbable since disorder and noise always lurk in the very processes of order formation. However, it seems as though once given such a crucial role, noise is somehow left out of Luhmann's main interest, and a focus on how order is possible in spite of its improbability is prioritized. Luhmann refers to authors such as von Foerster and Atlan for descriptions of noise (i.e., Luhmann, 1995a, p. 105; see also Clarke, 2011), and proceeds to the mysteries of order emergence. Put differently, we could say that systems theory rests on the assumption that all system formation depends on noise. However, ironically this also means that systems theory can leave the interest in noise behind and explore the unlikely creation of social order. Although the theory seems to be based upon the proposition that order is only a temporal and fragile phenomenon, order (in different forms) rather than noise receives most theoretical attention.

In this paper, I wish to revitalize the concept of noise as an important part of systems theory. I will argue that the concept of noise is one of the keys to maintain that systems theory is not only a theory built on binary oppositions such as system/environment, but also a theory full of paradoxical *third things* that challenges any idea of systems as stable, systematic entities (Karafillidis, 2013). Especially since much critique of Luhmann particularly and cybernetics more generally is often related to a reading of these as a theory of control and of stable, durable and orderly systems (see Clam, 2000, p. 63; Glanville, 2013) it might be worthwhile to highlight the ideas about noise and disorder on which the theory was initially built. In this paper, I re-visit the theoretical sources from which Luhmann imported his concept(s) of noise and the idea that systems depend upon noise, particularly Heinz von Foerster and Henri Atlan. In this journal, scholars have re-read and re-invented von Foerster, thus illuminated the potential of his work to inform contemporary social theory (Müller & Müller, 2011; Müller, 2011; Martin, 2011). However, the concept of noise has yet escaped attention. I stress how, when taking a point of departure in the concept of noise, in stark opposition to general systems theory, a contemporary theory of social systems is not a theory of predictability, influence and control, but a theory of unpredictability, indeterminacy and inaccessibility (Philippopoulos-Mihalopoulos, 2010, p. 43).

To guide my reading of systems theory as a theory of noise, I confer with Michel Serres, who has been called the philosopher of noise *par excellence* (Brown, 2002; 2005; Paulson, 1988). In Serres' work (particularly Serres, 2007, 1995, 1991), noise is explored as the precondition of any communication, any social arrangement, any relation. Only out of fury and stormy weather can a goddess emerge as: "A naked Aphrodite resplendent in her beauty, rising fresh from the troubled water" (Serres, 1995, p. 15). By letting Serres accompany the reading of Luhmann, as well as the sources he draws on, it can be emphasized that noise is not simply an outside to orderly systems, but the unstable ground of any emergence of always-fragile and changing orders (Serres 1995, p. 13; Brown 2002, p. 7).

Luhmann and Serres may appear an odd couple, particularly as their styles of theorizing are quite different. Whereas Luhmann is careful to offer precise definitions of his key-concepts, Serres' concepts are metaphorical—as Brown (2005, p. 217) has phrased it, they are metaphors taken to the limits—and they change from page to page as he develops his theory through fables and storytelling. Whereas Luhmann strives to systematically build a theoretical apparatus of concepts, all carefully related to each other, Serres fabulates and associates (Paulson, 2000). His work may appear as meditative essays full of homologies, analogies, and unexpected almost fantastical juxtapositions (Brown, 2005, p. 216). Moreover, although both authors travel in trans-disciplinary territories, Luhmann develops a sociological theory of systems and Serres works within literature and philosophy.

In spite of these differences in style, I would argue that the two authors could be read together in a meaningful way. First of all, because both authors strive to contribute to interdisciplinary questions about what social order is and how it is made durable (see Luhmann, 1995, p. 116; Brown, 2005, p. 217). On a somewhat general level, we may say that Luhmann and Serres both build somewhat strange, counter-intuitive, and often difficult theoretical worlds out of elements eclectically chosen from a range of often surprising scientific sources (Borch, 2011; Paulson, 2000, 1997; Brown, 2005). Both authors liberally import concepts from biology, information theory, thermodynamics and cybernetics into their theoretical constructions (Esposito, 2013). Most importantly, as I will return to, both authors deconstruct a common sense notion of a system making both authors move beyond conceptual dichotomies of self and other and highlight a third thing in a relation.

In the following, I will revitalise the role of noise in systems theory in four sections. The purpose of this oeuvre is to argue against an understanding of systems theory as a theory of rigid dichotomies and of superordinated structures powerfully imposing their logics on micro-operations. First, I revisit von Foerster's slogan of order-from-noise and show how the distinction between order and noise was never a simple dichotomy. Second, revisiting Atlan's theory of noise, I argue that the concept of noise should not simply be understood as an external force imposing itself on a message. Instead, noise is always already part of any order as that which makes it possible in the first place. Third, I relate the concept of noise to Luhmann's concept of autopoiesis and argue that this gives us a concept of a system as something, which is unstable, unpredictable and constantly imposes indeterminacy into itself. Finally, I conclude that when we take a point of departure in the concept of noise, we can emphasize that systems theory is not based on binary oppositions, but on third things making systems theory a theory of paradoxical becomings rather than of coherent identities. Thus, across these four sections I strive to read systems theory, not as a theory of overarching structures, but as a theory apt to explore how any identity or coherence is continuously put at stake in the single operative events of markings of distinctions. Here, small circumstances, randomly distributed can change entire communication systems: Give or take one vibration and information becomes noise—noise becomes information.

Order-from-noise

In his monumental book, *Social Systems*, Luhmann famously draws on von Foerster's slogan of order-from-noise to argue that systems build internal complexity by relating to noise in their environment (Luhmann, 1995a, pp. 105, 171). Thereby, we get a distinction between order and noise and the idea that self-organizing is what happens when systems transform meaningless noise in their environments into order. It seems as if noise is something, which is located in the environment, and order is a product of a self-organizing system. However, it is a bit trickier than that. First, of all if we re-visit von Foerster's seminal paper from 1960, "On Self-organizing Systems and Their Environments" in which he coins the slogan of order-from-noise, it is full of jokes, paradoxes and magic tricks (don't forget, von Foerster did have a side business to his academic career as an illusionist). Von Foerster was known as somewhat of a scientific prankster. He makes sure to base his principle of order-from-noise on the workings of little "demons." He conjures up the old ghost of Maxwell's demon—in itself a personification of conceptual manipulation of rational scientific models (see Clarke, 2009, p. 37). Maxwell's demon is an unsettling little chap. He is the outcome of a strange manoeuvre of installing a fictional character in a scientific theory (of thermodynamics). The demon is disturbing since he magically "picks a hole in the in the second law of thermodynamics," as Maxwell himself phrased it in a letter to a fellow physicist in 1867 (Clarke, 2009, p. 38), thus destabilizing an—at the time—established scientific order. However, the demon is also a defender of durable order because the second law of thermodynamics describes the necessary rise in entropy over time due to dissipation of energy and dispersion of matter. Thus, Maxwell's demon produces disorder by disturbing an established theory, but he does so in order to defend the possibility of durable order. There is a bit of trickery happening in von Foerster's argumentation ("now you see it, now you don't") and one can never be too sure that order is order, and noise is noise: With the reference to Maxwell's demon, we are offered a joker, which can simultaneously be conceived of as a noisy interrupter and as a defender of durable order. The distinction between order and noise is never straightforward and von Foerster's understanding of self-organization as efforts to transform noise into order was from the outset conceived in an ambivalent and thorny manner.

When the slogan of order-from-noise is imported into Luhmann's theory of self-referencing systems, the implication follows that all elements utilised by the system are produced by the system. Luhmann's self-referencing systems cannot simply transgress themselves, take a walk in an environment, harvest some noise and transform it into order on the way home. In Luhmann's theory, systems can never leave themselves. The system produces its own observations, and, thus, the assumption follows that an environment is always a construction of the system itself (i.e., Luhmann, 1995a, p. 68). Luhmann defines noise as a force in the (self-produced) environment of a system that can disturb the system if it is sensitive to this disturbance (Luhmann, 2000, p. 258). The latter part of the definition is key as it testifies that there

is never just something called noise, but that noise is always noise for an observer, and, thus, is a construct of a specific system produced as part of its continuous re-production of itself. The fact that a system is disturbed by noise, will teach us more about the system and its specific mode of operating that it will teach us about the noise. When the slogan of order-from-noise is evoked in the context of systems theory, one cannot simply assume that noise is a substance of a certain quality, which exists outside orderly systems. To play a role in the self-construction of systems, noise becomes a tricky thing, occupying an ambivalent position both inside and outside systems. Noise is not part of the system, since it lies outside of what is observed (and thus produced) by the system as meaningful information. However, neither is noise outside the system, since it is perceived by a system. Noise is a construct of a specific system produced as part of its continuous re-production of itself. This also means that for both von Foerster and Luhmann, it is not the system (as such) that is confronted by noise (as such). Rather, noise is a hindrance to be overcome by operations seeking to establish recursive connections to former operations. As I will elaborate later, noise must be understood in relation to what goes on at the operational level of the recursive self-reproduction of systems.

Noise is one of the concepts that will get in your way if you want Luhmann's theory, unambiguously, to be a theory of closed systems. The concept inevitably leads us back to Luhmann's paradoxical answer to the question of whether systems are open or closed. In Luhmann's systems theory, systems are open because they are closed and closed because they are open. Openness to an environment is openness to a self-constructed environment and in that sense a confirmation of closeness. The system never simply import elements from its environment into itself, rather it re-constructs them as internal constructions. And, as I will return to below, the closure stemming from self-referential operations is a form of closure that repeatedly introduces the environmental uncertainty into the system that the system lives off in order to renew itself. As cited in the introduction, "Without noise, no system."

In the following, in order to elaborate this ambivalent position of noise both inside and outside a system, I will trace the concept of noise back to the sources that Luhmann draws on, namely information theory and theoretical biology.

Noise in the Channel

In classical information theory (i.e., Shannon & Weaver, 1949), noise is located outside a channel as something that hinders and disturbs a message in its passage from sender to receiver. Atlan advances this theory by arguing that in some instances noise may enhance the information value of a given signal. In this section, I revisit Atlan together with Michel Serres to elaborate how noise is not an external force imposing itself upon a communication system, but the conditions of possibility of the system.

In classical information theory, noise is something that disturbs a message in its journey from sender to receiver so that the information value of the received signal decreases. Information theory presupposes a sender and a receiver between whom a

signal passes. A quantity of information is to travel from sender to receiver and the more intact the message is when it reaches the receiver, the less loss of information value and a decrease in uncertainty for the receiver. This has two related implications: First, for classical information theory, a sender, receiver and channel exist independently of information and noise. And second, in this understanding, noise is something outside the relationship between sender and receiver. Noise is what comes in the way of transporting as much information from A to B as possible. Thus, in classical information theory, noise is an external force that imposes itself upon a message and leaves it with a poorer information value.

Atlan advances this idea by emphasizing how noise in the channel may in some cases not reduce, but enhance the information value of a specific signal. Entailed in his definition is also that noise is a driver of variety and heterogeneity in a system. As Atlan (1974, 1981) has argued the effects of noise on the information content can under certain conditions result in a higher complexity of information at a different level of organization. In his scheme of *complexity-from-noise,* loss of information at one level in a hierarchical system is shown to be a gain of information at a higher level (Atlan, 1974). What, at the level where the translation takes place, appears as a loss of information due to noise may have beneficial effects at other levels of the organization in accordance with a complexity-from-noise principle (Atlan, 1981, 200). From a position higher up in a hierarchy an observer can observe both the initial message and the state in which it was received after a transmission process. The fact that a message did not reach a receiver due to noise in the channel may in itself constitute valuable information. As Atlan states:

> From the point of view of the organ or physiological apparatus [opposed to a cell and its channels between DNA and protein and thus higher in a hierarchy of an organism. JGP], this same noise has the effects of creating variety and heterogeneity among cells which allows them more adaptability. (Atlan, 1981, p. 196)

What is noise in one system may for another system, located higher up in a hierarchy and thus observing the first system as a subsystem, appear as information (Serres, 2007, p. 66; Wolfe, 2007, p. xxii).

By observing not only transmissions of information from A-B, but also how this transmission is observed from a different hierarchical level in a system, Atlan can argue that noise is not only something external that imposes itself upon a signal and leaves it with a poorer value. Noise is, instead, a trigger of heterogeneity. For Atlan, even though noise may appear as an unruly disturbance it is in fact a necessary source of renewal and variety.

The ambiguous role, which noise plays in the relationship of sender and receiver can now be emphasized. On the one hand, noise stands outside this relationship. It is in a sense the backdrop against which the communication happens. It is what gives communication its sense. It makes the contrast with the signal. But on the other hand, this also means that noise cannot be kept simply in the background. Noise, then, changes its position. It is not, as in information theory, an external force imposing

itself upon a relation, it is a part of this relation and particularly in Michel Serres' reading of Atlan, a necessary condition of possibility not just of any signal, but also of the stations—sender and receiver (Wolfe, 2007, p. xiii). The argument is that without noise, there would be no relation at all. Noise is both what disturbs in a relation by interfering with a signal, but this interfering is also exactly what constitutes the relation, because without interfering there would only be immediacy and accessibility and no relation at all. In one of his more often quoted passages, Serres write:

> Systems work because they do not work. Nonfunctioning remains essential for functioning. And that can be formalized. Given, two stations and a channel. They exchange messages. If the relation succeeds, if it is perfect, optimum, and immediate; it disappears as a relation. If it is there, if it exists, that means that it failed. It is only mediation. Relation is nonrelation. … The channel carries the flow, but it cannot disappear as a channel, and it brakes (breaks) the flow more or less. But perfect, successful, optimum communication no longer includes any mediation. And the canal disappears into immediacy. There would be no spaces of transformation anywhere. There are channels and thus there must be noise. No canal without noise. (Serres, 2007, p. 79)

The idea is that if communication could travel freely and undisturbed from sender to receiver, there would be no relation at all. If the relation were pure, the two parts of a relation would be identical. If the transfer of information could be a complete success, it would be immediate and perfectly accessible information, and no channel or relation would be observable. If nothing hinders, disturbs, or interferes there is, in other words, no relation at all (Brown, 2002, p. 7). This description is similar to Luhmann's concept of communication, which stresses that something is going on in the channel that defines communication as communication and not just a simple transmission of a message. Luhmann states: "Understanding is never identical to utterance, or else we would be talking of transmission" (Luhmann 1995a, p. 140). The fact that communication is not transmission means that what constitutes communication is the disturbance, the unpredictable transformations that occur between utterance and understanding. Noise is then a productive component of all information transmission. Without noise, interference, there could be no relations. The implication of Serres re-reading of information theory is that neither the sender, the receiver nor the channel, exist prior to noise. Precisely due to its ability to disturb a communication system, noise becomes a life-giving source. Serres writes:

> Noise gives rise to a new system, an order that is more complex than the simple chain. This parasite interrupts at first glance, consolidates when you look again. ... The town makes noise, but the noise makes the town. (Serres, 2007, p. 14)

This also means that noise cannot be eliminated from the relationship. It is always there. As Brown has put it: Properly speaking the sender and receiver are up to their neck in noise—they are themselves operated within noise (Brown, 2004, p. 385). Thus, we arrive at an understanding of noise, which highlights the intimate connection between the ability of noise to disturb communication and the conditions of possibility of communication.

I have shown how noise is not located outside a communication system, but is always already part of it and plays a crucial role in the constitution of the system. Noise, then, comes to play a specific role in relation to how systems create themselves, in Luhmann's vocabulary in their autopoiesis. In the following, I will relate the understanding of noise as something, which is not simply located outside a communication system, but (un)resting both inside and outside it and thereby occupying a constitutive role for the communication system to the concept of autopoiesis. Thereby, the concept of noise can be more clearly related to Luhmann's sharp conception of systems as nothing but recursive operations and an appreciation of systems as self-risking, indeterminacy-producing complexes rather than as stable, predictable systems can be reached.

Autopoiesis and Noise

In Luhmann's theory, autopoiesis is a name for the self-creational dynamics of systems. The concept stresses that all elements that a system consists of are produced by the system itself (Luhmann, 2000, p. 73): Self-generated expectations, self-constructed environments, self-described identities and thematically defined boundaries (Teubner, 1992, p. 613). By taking a point of departure in the concept of autopoiesis, Luhmann makes his final departure from general systems theory, since the focus is no longer relations between parts and whole, but the relation of a system to its environment (Luhmann 1995a, p. 6; Philippopoulos-Mihalopoulos, 2007, p. 14; Esposito, 2013, p. 31). For Luhmann, the fact that systems are autopoietic means that a distinction between system and environment is constitutive: Systems create and maintain themselves by producing and preserving difference to an environment (Luhmann, 2000, p. 52, 2002, p. 123). As Luhmann states "*boundary* maintenance is system maintenance" (Luhmann, 1995a, p. 17).

With the concept of autopoiesis a thing-like understanding of a system disappears completely. When we look for a system, we find only operations marking distinctions between system and environment, seeking connections to former operations and striving to enhance their connectivity to possible future operations. As Jean Clam (2000) has convincingly argued, after autopoiesis, the system's sole constituent is the operation. An understanding of structure (as, e.g., found in functionalist theories) as a superordinated imposing magnitude is the complete inverse of flowing processes with no real anchoring. As Clam (2000, p. 73) has put it, structure reflects just the temporary redundancy tendencies of operations, with enslaving effects upon certain operative sequences. This inversion makes the core concept of systems theory, again following Clam (2000, p. 63), "a 'non-real', purely 'actual' system, containing nothing and made of nothing but operations." In this scheme of thought, an operation does not occur within, or adds a little bit extra to a well-defined, pre-existing system. Instead, each operation re-invents what the system can be. The only event is distinctions and structure is only possible through a circularity of operations, through

a play of differences. As Philippopoulos-Mihalopoulos (2010) has eloquently phrased it, in autopoiesis being is becoming.

The concept of autopoiesis also marks the place where my attempts to align Luhmann and Serres will have to pause for a moment. For Luhmann, the concept of noise is closely linked to his sharp interest in how operations connect to operations, thus making probable an improbable emergence of social order. As hinted at above, it is not the system as such that is confronted by noise as such. Rather, noise is, on a strictly operative level, that what hinders and obstructs operations in their recursive connections to former operations. In spite of the similarities between Luhmann and Serres that this paper aims to highlight, Luhmann's efforts to make the operative level the only level in which systems exists, constitute an important distinction between Luhmann and Serres' concepts of noise. For Luhmann, noise is a productive hindrance to be overcome by operations in their recursive efforts to connect. For Serres, the concept of noise marks his connections to complexity theory and the idea that the world consists of noise: "Background noise may well be the ground of our being. It may be that our being is not at rest … The background noise never ceases; it is limitless, continuous, unending, unchanging" (Serres, 1995, p. 13). For Serres, noise is an enigmatic, yet vital source of disruptions and renewal, which may constitute a counterforce when order and equilibrium threatens creativity and imagination (particularly, Serres, 1995).

However, this difference, at least to me, also marks the importance of insisting on bringing the two authors into conversation. When Luhmann sharply attunes his whole apparatus to observe the formation of social order, Serres will remind our reading of Luhmann not only about the fact that noise lurks everywhere in autopoietic operations, but also that this spot, the threshold between order and noise, is where everything happens. "Give or take one vibration, moving a hair's breadth in either direction," Serres (1995, p. 67) writes, and everything is turned around: Information becomes noise; noise becomes information. Small circumstances, randomly distributed change entire communication systems.

In my view, reading Serres alongside Luhmann helps an appreciation of at least two aspects of autopoiesis. Firstly, it can be highlighted that self-referentiality is never pure. When becoming is self-referring, the risk of tautology and of being lost in vicious circles is always present (Stäheli, 1996). And here an emphasis on the concept of noise displays the help systems get (from themselves) to disturb themselves. Luhmann writes:

> A preference for meaning over world, for order over perturbation, for information over noise is only a preference. It does not enable one to dispense with the contrary. To this extent the meaning process lives off disturbances, is nourished by disorder, lets itself be carried by noise, and needs an 'excluded third' for all technically precise, schematized operations. (Luhmann, 1995a, p. 83)

Noise is something that allows autopoietic systems to be disturbed in spite of their self-referential character. As described, noise is capable of contributing to this paradoxical process of adding something external to a self-referential system, as it

(un)rests somewhere in a strange position both part of and not part of the system (see also Serres 2007, pp. 71, 65). Secondly, Serres helps along an accent on how much is actually at stake in each marking of distinctions between order and noise, or between system and environment. This is where everything happens, where everything is risked. When systems are thought of through the concept of noise, their identity can at best be continuous interruptions by what they are not, namely noise. Luhmann explains that implied in the concept of self-reference is "that unity can come about only through a relational operation that it must be produced and that it does not exist in advance as an individual, a substance, or an idea of its own operation" (Luhmann, 1995a, p. 33). Although a self-referential system may sound quite self-assuring and stable, autopoietic systems are in fact systems that are constantly shaken by the indeterminacy they introduce into themselves. Systems do not exist as entities before the drawing of distinctions. It is not that a well-defined system safely adds a little bit of noise to an established identity. Rather, this form of becoming consisting of markings of distinctions between system and environment entails repeated injections of noise into the self-creation processes. Since hetero-references are a way for the systems to relate to that which it cannot fully understand by providing spaces for it within itself, autopoiesis is above all "a production of internal indeterminacy" (Luhmann, 1997, p. 67). Indeed, autopoietic systems are continuously shaken by their own operations of introducing noise into themselves. We might therefore say that rather than system stabilization, autopoiesis is at best a cultivation of a fragile self-reference. As Philippopoulos-Mihalopoulos (2010, p. 51) has phrased it: "Every time the system's identity is sought strengthened, there is a much stronger yet more diffused superego that comes between the system and itself in its self-reference, namely its environment." Thus, the understanding of systems we arrive at is a system, which constantly risks itself in order to become itself.

In the introduction to *Social Systems,* Luhmann famously grounds his theory in the assumption that systems exist. Equally famously, Michel Serres dismisses the existence of systems. Serres states: "The system is very badly named. Maybe there is not or never was a system." He continues: "The only instances or systems are black boxes" (2007, pp. 72-73). However, when stressing the crucial role of noise, Luhmann's theory of systems is very far from a theory of stable, rational entities. Rather, Luhmann's theorizing can be described as a movement of deconstructing all intuitive representations of a border-defined, thing-like system (Clam, 2000). Reading Luhmann alongside Serres reminds us, that also in systems theory, the concept of a system is quite a misnomer (see also Philippopoulos-Mihalopoulos 2010, p. 43). When Serres attacks conceptions of closure, which emphasize isolation, equilibrium and simplicity, Luhmann would concur (Stäheli, 1996, p. 12). Although Luhmann grounds his idea of autopoietic systems on the self-referential closure of systems, this is a paradoxical grounding, since, as argued, closure rests on openness. Serres's theorizing on systems is not far from Luhmann's, since he is also operating with systems of communication emerging because of noise and disturbance. Indeed, Serres and Luhmann would agree that systems owe their emergence to an always-persistent

threat of disorder (Stäheli, 1996, pp. 7-8). This means that also in systems theory the concept of system is badly named, as it highlights fragility, volatility and unpredictability rather than stability and control. If one looks for consistent boundaries, predictable operations and a systematic identity in the concept of a system, one will be disappointed. With the conceptual combination of noise and autopoiesis it can be emphasized that the system is a whirlpool of operations that constantly swamps itself with contingency from within (Philippopoulos-Mihalopoulos, 2010, p. 43).

The Third Thing

> The excluded third, or the "interpretant" in the sense of Peirce, or the operation of observation in our theory, or the 'parasite[2]' in the sense of Michel Serres, or the "supplement" or "parergon" in Derrida's sense, is the active factor, indeed, without which the world could not observe itself. Observation has to operate unobserved to be able to cut up the world. (Luhmann, 1995b, p. 46)

The concept of noise also reminds us that while Luhmann's definition of a system as the distinction between system and environment (Luhmann 2006) may sound rather binary, the dynamics of autopoietic systems is a bit more paradoxical than that. At first glance Luhmann may appear as a thinker operating primarily with binary oppositions as, for example, the binary codes of societal systems (economy, politics, love, etc.) or the distinction between system and environment. However, as Karafillidis (2013, p. 110) has noted, although Luhmann's distinctions are two-sided they are not automatically binary. Indeed, systems theory is not a theory built on simple dichotomies, but rather a reasoning, which emphasizes the role of a third thing in communicative processes.

Conferring with Serres, we find that the take he performs in his re-reading of information theory is a recast of the third thing in the relation between A and B, namely the channel. Rather than as an inactive part, just a thing that carries a message and, if functioning well, should not draw much attention to itself, the channel is put centre stage as something which calls for attention and exploration. Serres states: "To hold a dialogue is to suppose a third man and seek to exclude him; a successful communication is the exclusion of a third man" (Serres, 2007, pp. 66-67). Serres's slogan is that, as soon as we are two, we are also already three or four. In Serres's theorizing, where he moves quickly from particular almost forgotten theories and small fables to universal models and back again, the third thing in the relation, the channel changes position from being merely a modest media to that which forms the conditions of possibility of the social.

Returning to Luhmann, also the distinctions on which he grounds his theory rely on a third thing. Luhmann draws on Spencer Brown's concept of form (see Baecker,

2. In Serres' work on noise, he makes use of the fact that the word parasite has a threefold meaning in French, namely an abusive guest, an unavoidable animal and a break in a message (Serres, 2007, p. 8). The concept of noise and the concept of the parasite are mirrored as he draws attention to how each of these three things has the same function within a system (Pors, 2011).

2013; Esposito, 2013; Karafillidis, 2013). According to Spencer Brown a form can be understood as the space cloven by any distinction together with the entire content of the space. He suggests to "call the space cloven by any distinction, together with the entire content of the space, the form of the distinction" (Spencer Brown, 1969, p. 4). We are not only dealing with the two sides of a distinction, but also the distinction itself. This cannot, however, be observed in the moment of the operation of drawing the distinction, but only by a second order observation. One sees the ball, but not the light that is the precondition for seeing it (Borch, 2000, p. 117). The operation of observation depends upon a distinction by help of which something can be distinguished from something else (Luhmann, 1995b). In a manner similar to Serres, the distinction is the third thing that makes communication possible, precisely by not drawing attention to itself. The third thing (the distinction itself) is what makes observation or communication possible. To do this, however, it must remain in the background. For Luhmann this is the *blind spot*—a distinction to which an observer must remain blind if she is to carry out the operation of observing. Luhmann refers to Spencer Brown:

> We may take it that the world undoubtedly is itself (i.e. indistinct from itself), but in any attempts to see itself as an object, it must, equally undoubtedly, act so as to make itself distinct from, and therefore false to, itself. In this condition it will always partially elude itself. (Spencer Brown, 1969, p. 105 quoted in Luhmann, 1995b, pp. 46-47)

To observe something, an observer must escape the observed; separate herself from it. Thereby, her observation of the world is no longer of the world. Luhmann (1995b, p. 46; emphasis in original) states: "The world is observable *because* it is unobservable." Only becomes something is left out can the world be observed. Or put differently, it is the operation of making something unobservable that makes it possible to observe at all.

When a third thing enters the equation of system formation the only ground or final reference of a system is a paradox. As Luhmann states: "When observers (we, at the moment) continue to look for an ultimate reality, a concluding formula, a final identity, they will find the paradox" (Luhmann, 1995b, p. 46). Luhmann and Serres follow a similar strategy of analysis in terms of seeking to identify and describe how social processes rely on a paradoxical tension. The point of departure for both authors is that it is not simply that any identity owes its existence to an Other. Rather, the analytical focus is tuned towards third things. For Luhmann this third thing is the distinction itself rather than its two sides, and, for Serres it is the noise that imposes itself upon a relation. When a third thing is positioned center stage in a theoretical apparatus, it follows that what makes the world tick is a paradox. There is no one underlying mechanism or rationality that in any causal manner may determine societal developments. There is only a paradox. For Serres the slogan of "systems work because they do not work" (Serres, 2007, p. 79) emerges from the argument that a relation owes its identity as a relation to its identity as a non-relation. It is exactly disturbance and interferences that make a relation and thus communication possible at

all. As Serres (2007, p. 79) states: "Non-functioning remains essential for functioning." For Luhmann any observation is paradoxically made possible and restricted by the blind spot. Luhmann writes: "One thing the observer must avoid is wanting to see himself and the world. He must be able to respect intransparency" (Luhmann, 1998, p. 111). The only invitation to take part in communication is the blind spot—the fact that to observe the world, one must (knowingly or not) accept the impossibility of observing the world (Philippopoulos-Mihalopoulos, 2010, p. 100).

Thus, the focus on a third thing relieves systems theory from being a theory of dualisms. It is not simply the existence of an Other that make systems possible, it is also the devices utilized in observations such as channels and distinctions. For both Luhmann and Serres, when we open the black boxes that systems constitute we find the paradox that functioning relies on non-functioning. The conditions of possibility are intimately entangled to the conditions of impossibilities.

Conclusion

In this paper, I have sought to revitalize the concept of noise in Niklas Luhmann's theory of social systems. First, I indicated that von Foerster's famous slogan of order-from-noise does not constitute a simple dichotomy between order and noise, where order is the product of systems and noise something in the environment. Second, I argued that noise should not merely be understood as an external disturbance, which forces itself upon a communication system with the result that the informational value of a given signal is diminished. Rather, by reading Henri Atlan, I stressed that noise can also be a source of renewal and variety. Furthermore, by engaging with Serres's work on noise, I argued that noise is a necessary condition of possibility not just of any signal, but also of the stations (sender and receiver). Without noise, Serres states, there would be no relation at all. Noise is both what disturbs in a relation by interfering with a signal, but this interfering is also precisely what constitutes the relation, because without interference there would only be immediacy and accessibility and no relation at all. Thereby, we get a concept of noise, which highlights the ambiguous role played by noise in the relationship of sender and receiver and the idea that noise is intimately connected to the conditions of possibility of communication systems.

Third, I related the concept of noise to Luhmann's concept of autopoiesis and discussed the implications the concept of noise has for the understanding of systems in systems theory. I argued that with the point of departure in noise, the instability, fragility and uncertainty of systems is highlighted. This means that although Luhmann has famously stated that his theory takes a point of departure in the assumption that systems exists and Serres equally famously has stated that systems do not exist, their understandings of the concept are not as different as they may seem. Indeed, none of the authors conceive of systems as pre-given entities or identities and they both stress the precarious form of becoming stemming from fragile and temporary domestication of noise.

Finally, I have elaborated how noise leads us to the third thing in binary relations and how this third thing means that there are no final reference, no safe ground on which systems can rest. As shown, Luhmann and Serres share an understanding of what makes the world tick: foundational paradoxes and excluded thirds. They offer the point of departure that the basic mechanisms of sociality (i.e., communication) only function due to paradoxes.

Thus, I have elaborated how emphasising the role of noise in autopoietic becomings of systems leads to an understanding of systems as self-risking, indeterminacy-producing whirlpools of operations rather than as stable, predictable systems. Noise occupies the paradoxical role as that which on the one hand threatens the fragile emergence of systemic order, but on the other hand also relieves a self-referential system from being lost in vicious circles by bringing something other to processes of becoming. When we take a point of departure in the concept of noise, it is not only Serres, but also Luhmann who is occupied with the question of whether a "system is badly named" (Serres, 2007, p. 72). Neither Serres nor Luhmann take a point of departure in a pre-given system. Rather, the existence of a system is something that calls for exploration and explanation. It calls for struggles to open the black box of how social order emerges—as unlikely as it is—due to noise. And, when the black box is opened what is found is a frightening, yet life-giving paradox; that the possibility of order rests on noise. Thus, to the question: Can we rewrite a system? The answer becomes: Only as the book of differences, noise and disorder (Serres discussed in Wolfe, 2007, p. xiv).

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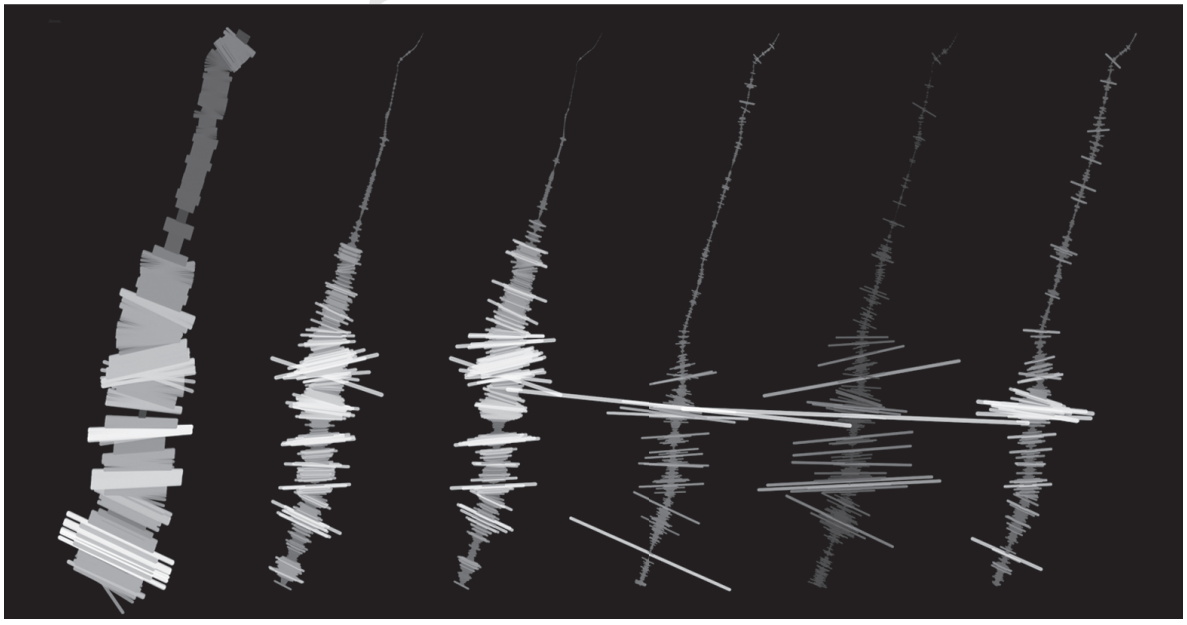

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