



Risks and Pathologies Observed with Social Systems Theory

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Detours of certainty. Risk communication and complexity management in times of pandemic

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The paper explores certain communication and action related aspects of the COVID-19 pandemic from a radical constructivist perspective. Its approach is grounded on the foundations of interpretive sociology and follows Luhmannian insights. It wishes to expose a tendency which became increasingly observable due to the unusual conditions caused by the pandemic: the broadening of the rift between the meaning-formations of social and psychic systems.

After setting the topic of the pandemic in the context of social scientific theories of uncertainty and risk, and formulating brief observations concerning the social management of the situation, we turn to the rupture between the views presented in the mass media and the thinking and action of lay individuals. The desired and taken for granted congruence between expert opinions displayed by mass communication and the behaviour of ordinary citizens is fractured.

The ever regenerating confusing medley of confident but often contradicting statements presented in the mass media shortcircuits large scale communication, and leads to a state where the latter cannot provide sufficient guidance for citizens. From the point of view of social and psychic systems, the pandemic occurs in the form of an emerging wave of complexity, calling for their urgent intervention.

The meaning-formations resulting as the output of the complexity reducing procedure of the system of the mass media, which, meanwhile has found itself in the peculiar position of a quasi-superordinate steering system obviously unable to fulfill its task, systematically fail to connect to the complexes of



individual meaning formations, thus cannot provide the right input for pragmatically oriented psychic systems to supplement their complexity management needs.

In this sense, the conduct of lay individuals is left underdetermined. After the shattering of the surface of taken for granted knowledge, actors revert to deeper layers, and attempt to complement their incomplete cognitive background by turning to alternative sources of certainty, like social media, alternative news, or the extrapolation of own or overheard experiences. The situation exerts increased demand on individual meaning establishment.

The cause of the fracture is to be found in the difference of social and psychic systems. According to Luhmann, both utilize the form of meaning to reduce complexity. The immediate transfer of meaningful selections between the two system types are however, due to their operational closure, impossible. Conscious individual behaviour can only be influenced by the statements broadcasted in mass communication if they meet the connection requirements posed by the individual actor's specific situation.

In times overshadowed by possible existential threat, a certain disparity between social and psychic systems becomes visible: the psychic system is characterized by a surplus of pragmatic motivation which manifests itself in efforts to maintain its master's biological existence – a motive, which has no true counterpart in the autopoiesis of the system of mass media. Psychic systems can barely afford the detours of certainty without consequences which the system of mass media apparently can.

Due to its all-encompassing nature and its level of theoretical development, Luhmannian theory offers a better grasp of the topic of the pandemic than most other social scientific theories of risk. Following a few systems theoretical observations related to the issue we turn to an undeveloped aspect of Luhmann's theory. This framework is built upon the insight that the complete theory of society has to be grounded entirely on communication, and all remnants of action-centered theories must be cast aside. Resulting from this theoretical decision, the action orienting function of communication has been lost out of sight. The paper shortly examines the causes and consequences of this omission.

We come to the conclusion that in order to gain a better understanding of the current situation, we have to complement the Luhmannian findings with investigations concerning the subjective processes guiding everyday action. Following Luhmann's inspiration – but stepping out of his communication-bounded framework – along with the principles of phenomenological interpretive sociology, it is possible to establish a method for the second order observation of „everyday rationality“, strictly tied to the first order observations of lay actors, which might help to shed light upon a dimension of social life which is not illuminated by Luhmann's genuine theory, and thus create a sociological theory of psychic systems, counterpart or extension of Luhmann's grand theory of society. We have to stress that this approach has to abstain from the usage of the notions of shared knowledge, common norms and other similar collectivistic concepts, as it has to focus on the subjective forms of complexity management, which by means of its „indexical“ accomplishments aid actors in singular situations, and is anchored to temporary personal motivational complexes and bound by the operational closure of consciousness. We believe that the strong phenomenological – and in his early work: phenomenological sociological – background of Luhmann's theory offers sufficient foundation for this program.



The Cyber-Gnostic Subject: The Emergence of Neo-Gnosticism in Cybernetic Social Systems

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The intention of this research is to examine the metaphysics of contemporary Gnosticism through the lens of second order cybernetics, while situating the neo-Gnostic narratives and pathological conspiracy theorizing that characterize much of contemporary western culture in relation to the development and application of the science of cybernetics itself. The latter portion of this first stage in my research will raise the question of how subjectivity is constituted within contemporary social systems (if at all). I will be using the social theory of German sociologist and philosopher Niklas Luhmann to study the conditions of the contemporary cybernetic capitalist state, focusing particularly on the formation of subjectivity and its function within such a society. After establishing an ontological understanding of subjectivity within contemporary socio-economic systems, I will then question how neo-Gnostic beliefs stimulate new forms of communicative activity among the subjects of such systems.

In an effort to reject the notion that individuals can communicate at all within social systems, Luhmann states that “only communication can communicate” (371); still though, “communication needs the environment of living and psychic systems, just as a fish needs water” (Moeller 9). As such, I suggest that the communicative activity that is generated by neo-Gnostic beliefs, activity that can be identified in online conspiracy culture among other places, can be utilized within socio-economic systems to create new lines of effective communication. This kind of activity is carried out by what I refer to as the Cyber-Gnostic Subject. Throughout this research I will be analyzing the relationship between cybernetically modelled society and neo-Gnosticism while interrogating the extent to which new patterns of socio-economic communication are stimulated by the specific activities of the Cyber-Gnostic Subject. Observing that Luhmann’s social theory locates individual human beings “outside the operational realm of society” (Moeller 9), I propose that subjects within such a society continue to operate on the contradictory assumption that the individual human is in fact the basic unit of society. As such, neo-Gnosticism has emerged as a formulation of resistance among individuals who participate in the processes of systems from which they are fundamentally excluded.

The metaphysics of neo-Gnosticism operate as a basic narrative structure through which subjects of cybernetically modelled social systems can see themselves as having been imprisoned within the operations of a false reality. Employing vocabulary borrowed by Niklas Luhmann from Humberto Maturana and Francisco Varela, I examine the concepts of “irritation” and “structural coupling” in relation to Gnosticism’s dualistic metaphysical framework. Such a task will require a deeper understanding of two other concepts that form the basis of cybernetics: recursivity and contingency. These two concepts describe the looping process that defines the self-correcting system: a process that sustains the basic order of the system while keeping it open to new possibilities (Hui 4). Recursivity is what allows a system to form new patterns of communication with systems that it is coupled with, as well as to form entirely new couplings that offer new modes of becoming. In



Recursivity and Contingency philosopher Yuk Hui states: “Recursion is both structural and operational, through which the opposition between being and becoming is sublated” (4). This looping aspect of a system, which Hui suggests can be imagined as a “spiral form” (4), describes its ability to absorb unanticipated possibilities, or “contingencies”, in a way that, like the body’s immune system, does not simply attempt to block anything it considers alien but rather remains open to new integrations of external reality that would broaden its internal processes (Luhmann 150). In other words, systems of all kinds use recursive processes to respond to contingency “not to eliminate it but rather to integrate it as necessity” (Hui 11).

Hui asks the question: “If contingency is the driving force of systemization, for both technical and social systems, is it possible to have an absolute contingency, a contingency that cannot be absorbed at all and that exceeds any expectation?” (35). This question is central to my interrogation of neo-Gnosticism and its effects on subjects within contemporary cybernetic capitalist society. By attempting to resist integration into a system through the identification of hidden instruments of control and exposing manipulative narratives, the Cyber-Gnostic Subject destabilizes traditional structures of control across political domains and creates social formations that operate along new patterns of communication. Examining the recursive processes of contemporary society through the theoretical frameworks of Niklas Luhmann and Yuk Hui, I will question how the new patterns and activities carried out by Cyber-Gnostic Subjects are being absorbed into the system to form new structural couplings, and how the dualism of neo-Gnostic metaphysics relates to the systems view of reality.

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Pathologies of Risk-management concerning the private housing market in Denmark - observed from a rural perspective of the periphery

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One of the surprising effects of the pandemic is the blooming private real estate market in Denmark. In the period from March 2020 to March 2021, the sales prices have increased on average by 11,6 %, but if we looked at the bigger cities this figure is much higher. For Copenhagen and Aarhus, the average prices have increased by around 21 %. In the larger periphery, the average sales prices have increased between 5 to 9 %, and in municipalities like Lemvig-Thyborøn, there has been a decrease of 3%. An increased number of voices are avocation for political action to avoid the risk of a new real estate price bubble. But on which our present government are very reluctant to do anything about. This situation is somehow a re-exposure of what happens up to the financial crisis in 2007 and the embedded bust of the real estate price bubble. Seen from a rural perspective one of the major effects of the financial crisis was an incredible acceleration of the price differentiation between rural and urban areas, which has had an enormous negative effect on rural development, i.e., the development outside the few bigger main cities (Noe et al 2020). The election of Trump in the USA and the Brexit in the UK and the Yellow vests in France is widely seen because of this growing inequality between centre and periphery.

The drivers of this development are complex and highly systemic. In the sociology literature, it has been analysed from a financialisation perspective, driven by liberalisation and globalisation of the financial market that is seeking the mortgage market as an interesting and relatively safe business case. The economic policy sees private real estate assets as an interesting means to boost economic growth. And in line with these two, the private homeowners increasingly sees real estate from the perspective of an investment with an expected return that a goods of consumption (Fernandez and Aalbers, 2016).

In the realm of this complexity, this paper will focus on the analysis of the role of risk assessment and risk management from a systems theoretical perspective in this development. Exploring how the policy and financial systems are observing and managing risk, and how this is leading to increasing financial danger and is accelerating (self-propelling) of inequality between centre and periphery. We find that Luhmann's theory offers some interesting approaches to this analysis: the distinction between risk and danger, risk as a perspective of a system, and his time-theory in the development of Elena Esposito. Our main conclusion is that the ways both the policy systems and the financial systems are observing and managing risk is more in the aim of building trust in the Danish bonds to keep the party going than to stabilise the housing market, which is having the unintended effect to accelerate the inequality.

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Cooperative membership as social system

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Cooperatives are a special organizational typology, which pursues the mutual benefit objectives of its membership. In this, their study can be positioned within that part of social systems theory (SST) that has been dealing with organizations within the economic function-system. Classical contributions in systems theory strived to explain the internal structural conditions and functional differentiation of social systems that allow them to reach internal complexity and autonomous reproduction and development (autopoiesis) while, at the same time, retaining adaptive fitness in the interaction with the external environment. Luhmann (1995, 2013) developed a new theory of social systems and of organizations. He initially studied the internal structural conditions under which organizations are able to reduce external complexity in their interaction with the environment, for example through selectively setting organizational goals and deadlines, and to increase its internal complexity in terms of increased systemic capabilities (Luhmann, 1983). The limitation of the range of possible behaviours by the internal structure of organizations, that is the reduction of complexity through standardization, enables better coordination and achievement of complex goals such as production of goods and services and innovation (Seidl and Mormann, 2015).

In later works, Luhmann more heavily drew on some important analogies between biological and social systems. Influenced by the works on living systems by the cognitive biologists Maturana and Varela (1980), he introduced in social systems theory the concept of autopoiesis (self-production) and of operational closure of living systems. In the same way as biological systems self-produce themselves by building internal codes and evolutionary patterns, social systems emerge and develop by building their internal structures and communication flows (Luhmann, 2005). To pursue its specific goals a social system needs to achieve independence from the social environment, reduce external complexity and build internal capabilities. Operational closure stems from the recursive nature of organizational processes and, one could add, from their limited rationality, which requires that operations and communication are simplified and standardised, as they need to be repeated and operationalized, easily understood by insiders following the same selective coding. Organizational culture and values stay in the background as preconditions of the working of systems, which, nonetheless, crucially influence their emergence and development. In our case, the fundamental function of cooperative values and principles (especially the seven ICA principles) is not excluded and exerts fundamental influences, but needs to be operationalized and become recursive in the working of real cooperative organizations.

The boundary of the organization is represented by expectations concerning its internal working. Expectations are defined by a tight network of formal structures that define appropriate behaviours (Luhmann, 1964). Formal structures help managing and reducing external complexity, while supporting the formation of internal complexity through the emergence of firm-specific coding procedures. This approach does not deny the possibility of organizational change and evolution, but operational closure and selective coding are, in a static sense, necessary conditions for the reproduction of the organization and its dynamics (Luhmann, 2000). The interaction between the organization and its surrounding environment takes place through specific structures that create expectations and influence behaviours. For example, the judicial system interacts with the social environment through



tribunals and attorneys. In our approach, different organizational forms are characterized by different modalities of “structural coupling” with the surrounding economic environment.

In this paper, we hypothesize that investor owned firms interact with other function systems and with the environment in general via contracts, as theorised in the nexus of contract approach to the theory of the firm (Alchian and Demsetz, 1972, Jensen and Meckling, 1976). Cooperatives enterprises, instead, interact principally through formalized membership rights. This does not mean that contracts are absent in cooperatives and membership is absent in IOFs. Cooperatives use contracts to exchange resources and products, but the internal working of the organization (its governance and routines) and its boundaries are defined by decision making processes and expectations, which is assigned to members and their delegates (the directors). Communication holds a central place in Luhmann’s approach and, if as hypothesized investor ownership and cooperative enterprises are characterized by different internal coordination mechanisms (Borzaga and Tortia, 2017; Tortia and Valentinov, 2018) also organizational communication needs to be formed, coded and operationalized differently. This is because communication in IOFs stems from the expression of the objectives formulated by ownership of capital and its remuneration, the attached utilization of technology and the utilization of contracts to implement all economic relations that are functional to achieving the organizational objectives. In cooperatives, communication is originated by the expression of members’ needs, which required that all organizational processes are aligned with fulfilling these needs, including the inescapable role of capital (which can be owned by the organization, members, and external investors, but more often by a mix of these three categories), technology and also contracts.

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Fuzzy logic modeling of organization in Luhmann's theory. Example of how Czech restaurants faced lockdown.

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Fuzzy logic is a suitable methodological tool for Luhmann's system theory to formalize and visualize behaviors in organizations in the context of their environment. It is possible to model meanings in organizations' communication due to the transformation of stimuli from the environment. In the system theory this means how organizations refer in the primary medium to the irritations of the environment. The aim of the paper is to show fuzzy-logical modeling of semantic concepts in communication processes as constitutive of organizations.

The subject of modeling is not meanings, but Luhmann's semantic concepts, into which meanings are condensed in a certain primary medium of communication. E.g. stimuli are political, but the way of reacting is of economic meaning. As N. Å. Andersen (2011) states, in the first concept, the reference is the political system and the distinction deals with the non-political in the political. In the second concept, the reference is the state as an organization and the distinction deals with membership criteria.

The use of fuzzy logic in the social theory is mainly due to two shared conditions. First, fuzzy logic allows to model the meaning of natural language words. All characteristics of the organization can thus be defined in natural language. The second condition is that fuzzy logic negates two basic principles of classical logic. I.e. it negates the validity of only the truth or only false counterparts and



of excluding the third value, which were also held by Luhmann. In this respect, fuzzy logic works with the so-called membership functions, which express the affiliation of objects or statements to a certain property in the interval $[0,1]$. The membership function expresses the ratio in which the property unites the two opposite values. Fuzzy logic therefore focuses not just on bivalence but also on polyvalence, it doesn't result in what is probable or not but it concerns with the uncertainty among a unambiguous set of outcomes.

Starting points in the systems theory are a polyphonic perspective of organizations, the distinction, the semantic concept/distinction and the Spencer-Brown form. A polyphonic perspective means that organizations communicate in the primary medium irritations of different functional systems. The distinction between concept and distinction means focusing on the way meaning and expectations are formed into concepts. The concept condenses expectations so that many different expectations are concentrated in one concept. Communication always takes a form and in Spencer-Brown a form is the unity of a distinction that always implies a paradox, drawing an imperfect distinction. The form constitutes a kind of impossible relationship that forces communication to continue in an attempt to resolve the paradox. The constant creation of new semantics is here observed as strategies of deparadoxification (Andersen 2011).

The formalization of semantic concepts is based on the question "how do organizations communicate what". Under the element "what" are included the objects that are the subject of communication, under the element "how" are the arguments of how was decided. The initial assumption is that organizations refer to irritations in which there is great or at least greater certainty to reach profit while less certainty in loss.

Using fuzzy logic, it is possible to clearly visualize and formalize how members of an organization communicate vagueness and uncertainty in relation to an environment and what communication relationships and meanings are created. It is thus possible to increase the interdisciplinary "readability" of schematic representations of the form. Fuzzy logic is currently a widely used means of expressing economic, technical, but also social relationships and processes. At the same time, this expands the possibilities of empirical use of the form, as it concretizes references in communication. An example of the use fuzzy logic in the system theory is the behavior of Czech restaurants in times of lockdown in the so-called 2nd wave of the coronavirus pandemic. The restaurants were completely closed, but it was possible to deliver food or operate so-called dispensing windows. The most common procedures of companies are three semantic concepts, which are then the subject of fuzzy logic modeling.

The first semantic concept is the offer for food delivery and the operation of so-called "dispensing windows." Second semantic concept was the illegal operation of restaurants. This means that the restaurants "were formally closed" but behind that it was possible to arrange private party for groups of people. The last semantic concept that was formed at the time of emergency measures is political protests, primarily demanding the immediate opening of restaurants. These processes show how organizations in the primary economy referred primarily to economic, political and legal irritations, but very little or no health irritations at all.

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Crisis transformation in the World Risk Society

by: Gorm Harste, Aarhus University

The present paper was published due to discussions after the Dubrovnik conference last year on morality observed with systems theory. The occasion is the pandemic of Covid19. The paper argues that first order epidemics, such as zoonotic diseases (due to destructions of biodiversity), of health, or social breakdowns (war, overconsumption etc), lead to second order risks. Initially the paper embarks on the crisis transition theory of Habermas exposed in his *Legitimationsprobleme im Spätkapitalismus* (1973) that outlined a first answer to Luhmann's systems theory. International, economic or ecological systems in disturbances lead, if unsolved, to administrative, political or motivational crises. With Luhmann's theory series of other systems from mass media to art, research and religion are structurally coupled to these systems, yet stay blind to moral ideas. Moreover, in particular Foucault's genealogical critique demonstrate how forms of communication and ex-communication of heresies intercepted epidemics throughout history. However, in the enlightened 18th century heresies and opposition were to be coopted in order to let systems observe with immunity what they only with difficulties could observe. Still, risks of limited self-observation develop inherent to modern systems. This includes interconnected forms of moral panics.

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First thoughts for a research on a normative social systems theory

by: Gunter Bombaerts, Eindhoven University of Technology

Luhmann's theory observes and describes organisms, psychic and social systems (Luhmann, 1995; further SS). It is generally considered as descriptive and some continue to conclude from this it is conservative (King & Thornhill, 2003). This is particularly so for the system of morality (Luhmann, 2008), according to Luhmann himself, as "the 18th century developed a different, peaceful concept of moral sentiments and ethics, but on the basis of a dissociation of morality and law, the law being the last resource for solving conflicts [...] This institutional framework of the constitutional liberal state made it possible to accept ethical theories that presented the moral as a consensual domain." (Luhmann, 1996: 34)

We aim to develop a social system theory that is not normative per se but can give strong guidance for morality. We know Luhmann's view on morality in the functionally differentiated



society goes from reluctant to very critical. Nevertheless, the core of the answer for us lies in his quote “What would a developed sociology of the moral constitution of society look like? It would firstly have to be empirical and not philosophical; secondly it would have to produce an ‘irritant’ and thus a communicative learning process within sociology itself. The necessary condition for this is the interdiction of self-exemption. The proposed correlation between this negative condition and moral communication is refutable only if moral communication could be found signaling esteem and disesteem in which the communicator took the license of not applying the proclaimed standards reflexively.” (Luhmann, 1996: 27)

Luhmann considers morality as “a totality of the conditions for deciding the bestowal of esteem or disdain within the system” (SS 236). The totality of the conditions relate to several system characteristics as structure (SS 278-356), norm and cognition (SS 315), expectation (SS 96), program (SS 203-204), theme (SS 195-196), culture (SS 163). The binary schematism esteem-disesteem of the entire person is involved. This leads to socialization as “the process that, by interpenetration, forms the psychic system and the bodily behavior of human beings that it controls.” (SS p241) This then, eventually, makes the moral schematism to direct behavior: “Every schema, taken in itself, increases the probability of accumulating socializing experiences in one direction or the other.” (SS 243)

This is what is meant by us by “normativity”, a schema that socializes systems to make the behavior more or less likely in line with that what is experienced as “ought to be done”.

Let’s consider a social scientist studying a system. The psychic system linked to the observer is via double contingency, interpenetration and self-reflection in relation with the social system it describes. This is the case whether the observer speaks as an insider (e.g. a scientist self-reflecting on the system (s)he is in) or as an outsider (e.g. a social scientists reflecting on the system the scientist is in). Therefore, morality is part of the observers’ system. Also here, the schema increases the probability of accumulating socializing experiences in one direction or the other. As such, the observation influences the observer and the moral system, it strengthens moral aspects in one direction or another.

Conceptualized in this way, Luhmann’s system theory is not merely descriptive, but has potential to be normatively applied. It might add to Luhmann’s social systems theory, but it certainly will impact the universal or liberal ways of doing ethics that Luhmann is referring to (Luhmann, 1996).

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Parents as proxy educators during school closures due to the COVID-19 pandemic - observed with systems theory

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The COVID-19 pandemic has forced school lockdowns in countries all over the world, heavily disrupting learning processes for children. Furthermore, parents have faced massive challenges in coping with their responsibilities towards family and employers, but also with the new task of facilitating their children's learning at home. This was a particularly widespread phenomenon that emerged during the pandemic, described by existing research as parents becoming “proxy educators”.

This paper draws on data from a cohort survey study, which investigates how students and parents experienced school lockdowns in March 2020 and in March 2021, respectively, in one municipality of Denmark. The 2020 data consists of 1572 answers from students and 1245 answers from their parents. The 2021 data consists of 1544 answers from students and 1140 answers from their parents. Quantitatively, the study reveals the development that has taken place within a year from early in the pandemic – a period of repeated school closures in Denmark – focusing especially on how the lockdowns affected the well-being of students and parents, learning prerequisites, and parents' perceptions of the role as proxy educators. The study also contains open-ended questions where both students and parents give their qualitative view on the worst and the best experiences during school closures caused by the COVID-19 pandemic.

Systems theory by Niklas Luhmann provides a conceptual framework that makes it possible to describe and interpret the challenges that parents have encountered in the role of proxy educators, but also some positive outcomes which existing research has typically neglected. The analysis presented in this paper indicates a huge difference in how diverse groups of students and their parents experienced the situation. The complexity of role expectations was expanded, and many parents found the role of proxy educator to be unclear. Hence, double contingency emerged with regard to schools' expectations towards parents and vice versa. For instance parents expected teachers to deliver distance teaching so that their children was preoccupied with learning activities, while parents where working from home. However parents in general experienced a different



situation, where the teacher expected more involvement of the parent. Hence, parents and teachers in general had divergent expectations towards the role of a proxy educator.

Contrary to the negative effects, data also reveals that many parents gained greater insight into their children's schoolwork, they did more cozy activities together with their children than usually, and some children who did not thrive under normal school conditions found the new situation more suitable. Furthermore, many parents discovered how difficult being a teacher can be, thereby gaining more respect for the teacher profession. Hence, many students and parents found a meaningful way of coping with the situation, and new understandings emerged. Such positive perspectives are in general less dominant in existing research on the effects of the COVID-19 pandemic in terms of educational systems. Mostly, this research presents a dystopian picture of the negative effects of the pandemic. However, this paper argues that there are also positive outcomes to learn from, which should be transferred to the post-pandemic period.

Differentiation of society – the coming of the algorithmic differentiation of society

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The aim of this paper is to put forward Luhmann's theory of social differentiation as the way society as a social system has organized internally after it has differentiated itself out of its external environment. The question which it discusses is if we are facing a new form of differentiation triggered by the digital media. To do that the paper put forward Luhmann's theory and the historical forms of differentiation he described. After that the paper shows how the triggering factor, thus in a non-deterministic way, for Luhmann is communication media. A new differentiation form emerges when the dynamic and complexity of society has increased to such an extent, i.e., other forms of differentiation has grown in latency, that a new form can take over. In the paper there is identified a development where the new differentiation form can handle more complexity than the latter, and after the introductory to the theory and the interpretations of it, it is discussed if and how a new form of differentiation is under development. The discussion circle around how to interpretate coterporally developments as signs of how the new differentiation form works. After the discussion a short conclusion sum up the results of the paper.

Introductory remarks

It is one of the biggest questions in sociology how to describe what society is and how it develops in theoretical terms. The theory of differentiation has long traces back in history of theory and the paper begins with a short history of the theory, just to give a starting point and so it does not look like the theory direction is invented by Luhmann. I am pleased to be able to present my interpretation of Luhmann's theory and my thoughts on a possible new kind of basic differentiation structure on this systems theory conference in Dubrovnik, as it has such strong roots leading back to Luhmann himself, and because at the last conference I promised to come up with a coherent account. Luhmann (2000; 2016) does not give a meticulous description of the theory history or for his inheritance and debt, as



well as where he differs exactly in his theory from the former theories. He does mention other earlier theories but not so you really know what he has grabbed. This is of course because Luhmann with his systems theory has some theoretical principles like the distinction between system and environment making it possible for him to build up a theory that is only loosely coupled to other theories which he only observes from within his own theoretical system. Another starting observation that I want to put forward, is that the theory of differentiation of society itself never is elaborate like in a logical order, it is always en passant even though there is chapters and articles about it in Luhmann's production. Therefore this paper, even though it is rather short, is a reconstruction of Luhmann's theory of differentiation. After the introductory paragraph with the history of the theory, the paper tries to put forward my interpretation of Luhmann's theory, then comes the discussion and conclusion. One last thing to mention is that because of the corona lockdown I have only had access to some of my books and especially not to my English Luhmann-books so mostly Luhmann (1995) "Social Systems" is Luhmann (2000) the Danish version, and Luhmann (2012) "Theory of society" is Luhmann (2016) the Danish version.

Technology as a medium

by: Jörg Räwel, Next Society Institute

The purpose of this paper is to examine the risks and pathologies of technology. To this end, a general systems-theoretical concept of technology is first presented. Namely, Technology as a medium for controlling the boundary between dangerous other-referential elements, and useful self-referential resources, worthy of protection. This concept is first explained by means of divination techniques, inquisition techniques and the general technical exploitation of resources, before it is applied in detail to current (digital-technical) social coping with the Corona Crisis.

On the structural coupling of politics and academia: Risk attribution in the face of COVID-19 in Japan

by: Kosuke Sakai, University of Tokyo

Luhmann developed the theory of risk by focusing on attribution, which is the usual practice to determine the cause of an inconvenient event. The risk/hazard distinction and the decision-maker/decision-taker distinction are conceptualized based on these attributional judgments made by social systems.

However, the subject of the attribution is also an important matter, coupled with the question of which social systems are making attributional judgments. Modern society, according to Luhmann, is functionally differentiated, with various functional systems (legal, political, religious, academic, etc.)



operating autonomously. Therefore, theoretically, functional systems can attribute risk/danger differently in terms of the same event. If this is the case, one of Luhmann's risk theory tasks is to describe the attribution problem that can vary for each functional system empirically. In this paper, I discuss the empirical description of the attribution problem among functional systems, using the case of response to COVID-19 in Japan as a case study.

The response to the COVID-19 pandemic can be described from various reference points of social systems. In this paper, I will focus on the political and academic systems. A pandemic is a political and medical issue; however, academic findings are often provided for the problem-solving and are often referred to as the basis for legitimacy for political decision-making. The response to COVID-19 in Japan offers some empirical illustration of the characteristics of various risk attributions among social systems.

The concept of structural coupling used by Luhmann helps clarify the relationships between multiple systems. According to Luhmann, although functional systems are established as autonomous systems in modern society, they are selectively linked so that each is free to construct its complexity.

Therefore, it is believed that the political system fully utilizes the stimulus from the academic system to fulfill its institutional objectives jeopardizing its intrinsic value (Eigenwert).

Indeed, in Japan's COVID-19 program, politicians and bureaucrats rely on academic discourse knowledge as the wise counsel for political decisions, but only in fragmentary references to justify the policies they deem significant. The forms of risk attribution varied between the political and academic systems due to the influence of the Tokyo Olympic Games on the COVID-19 situation.

Through a case study of Japan's response to COVID-19, this paper re-describes what kind of communicative connections are made when the structural coupling of the political system and the academic system is combined in the form of counsel. By doing so, I would like to show the potential of Luhmann's risk theory and functional differentiation theory for empirical research and analyze the problems involved in policy responses to risk and pathology.



From the Epistemic Cacophony Towards the New Epistemic Consensus

by: Krešimir Žažar, University of Zagreb

Undoubtedly, science is one of the fundamental pillars, probably the axial constituent, of functionally differentiated modern societies. Albeit being target of diverse types of criticism in the second half of the 20th century, some recent analyses (Roth et al., 2017) clearly suggest that science, besides politics, was the most important function system in the mentioned time framework. However, the main thesis examined in the paper is that the dominant position of science has recently been seriously contested especially during the still ongoing coronavirus pandemic outbreak. Namely, in the context of the vastly uncertain situations, characterized by disputable values, high risks, and urgent demand for prompt proper decisions, such as the current pandemic apparently is, the Kuhn's (1962) model of 'normal science' is suspended and 'post-normal science' (Funtowicz, Ravetz, 1993) takes its place instead. While the concept of 'post-normal science' could be normatively valuated in positive terms, the position of science during pandemic has undermined as it is being unable to deliver unambiguous answers on burning questions concerning dynamics of the virus spread, effects of epidemiologic measures, efficacy of vaccination etc. Erosion of public confidence to science opens the floor to various pseudo-scientific explanations, conspiracy theories and akin types of interpretations competing to use true/false code. These tendencies lead towards the emergence of 'epistemologic anarchism' (Feyerabend, 1975), or 'epistemic cacophony' (our own term) in the midst of which science lost its privileged role in the epistemic field. Such outcome is the product of several processes: 1) mediatization, 2) commodification, 3) politicization of science as symptoms of structural coupling of different functional subsystems (Boulanger, Saltelli, 2020), 4) 'scientization' of politics, but also terminal effects of several 5) 'structural contradictions' inherent to modern science (Ravetz, 2011). Of the latter, especially tension between 'elitist' and 'democratic' conceiving of knowledge production should be addressed, where owing to growing accessibility of technology and social media we witness widespread diffusion of knowledge production nowadays. Although such 'participatory epistemic community' at first sight might seem to contribute to general knowledge growth, it conceals severe jeopardies as on the other hand it opens the floor for conspiracy theories, fake news, manipulations, post-truth politics and re-evoking theses that were long time ago disapproved as being evidently false (like Flat-Earth thesis). In sum, we have been undergoing towards profound transformations of the epistemic fields within which science is seriously challenged to lose its dominant position. It would be most suitable to take a central position between 'elitist' and 'democratic' poles: on the one hand, in order to retain (or regain) a confidence to science, it should not allow itself to be instrumentalized for political legitimation purposes (of political elites) or serve as a tool in hands of big business and economic stakeholders, but rather aiming at fulfilling emancipatory promises to entire population; on the other hand, one needs to nurture 'epistemic democracy' with indispensable attention since clear criteria with regards to what is true/false should be stipulated otherwise we can easily revert into pre-modern superstitious phantasmagorias.



Systemic risk in Newfoundland: how difficult is a 'reset'?

by: Kristof Van Assche, University of Alberta and Bonn University

in our presentation, we compare two key documents which recently appeared, and give starkly different assessments of the state of the Canadian province of Newfoundland and Labrador, the structural risks facing the province, and the ways out. One document is called 'the Big Reset', by Moya Greene, chair of the provincial government's economy recovery team, and the other one is the final report of the Commission of Inquiry respecting the Muskrat Falls project, a massively expensive hydro-electricity project which could cause a provincial bankruptcy.

The 'Big Reset' draws on the 'Great Reset' thinking espoused by the World Economic Forum, and is optimistic about a strategy to get out of debt in ca 5 years, by cutting, by institutional redesign, by selective investment in green futures after maximizing the income from traditional resources, ie oil, gas, minerals. The Muskrat falls report sketches a more bleak picture, not directly of the future, but of how things worked and work in the province (and what led to the massive blunders of the previous hydro project, Churchill Falls, how it led to the new massive blunder of Muskrat Falls)

The images of past, present and future governance differ, the concomitant ideas of risk and how to tackle it, differ. The different nature of the documents of course have something to do with that (one looking back, the other one looking forward), but nevertheless, links between past, present, future in both perspectives, both documents, can be reconstructed to a sufficient extent to allow for a comparison. The belief in re-engineering governance and through governance the economy and society as a whole, which can be found in the Greene report, seems to ignore many of the path and interdependencies observed by the Muskrat Falls commission, and, while the Greene Report focuses on and argues for swift action in cutting costs (so as borrowing can continue), the assumptions regarding positive choices for the future are underpinned by analysis which do not seem to observe new risks created by embracing the 'green lean' future presented. That future still features Muskrat Falls prominently, and, while questioning expenses, is not questioning some of the other organizational and political features which have been found in the Muskrat Inquiry and by other observers, academic and otherwise.

While it does appear that, by all measures, some form of drastic change is needed in Newfoundland, and while it might be ok to use the term of a 'reset' for that, the actors asking for that are located within Provincial politics to such an extent that this creates its own blind spots. The risks facing the province need an ambitious strategy, including a restructuring of governance, and such strategy will be risky: it needs resources, insight, a narrative, leadership, legitimacy. The existence of Canada mitigates risk to an extent, but the traditional insistence on difference, autonomy, sometimes opacity and closed networks, the strong provincial pride and very localized governance, make it difficult for truly different observations to enter governance, and for actors to emerge which are sufficiently disconnected from old power structures and the associated narratives to come up with a strategy which transforms the perception, assessment and management of risk.



To rule is to ride. Centaurian legacies in systems theory

by: Lars Clausen, UCL University College and Next Society Institute

For more than 5000 years, man has cohabitated with horses. While man was attributed an active role in the evolving social systems, horses were relegated to the outskirts of communication as passive, or even ignorant onlookers. Famously, Aristoteles declared that horses and all other animals were devoid of reasoning as a consequence of the absence of a soul. A concept, that was all to compatible with the Christian doctrine throughout antiquity, the medieval age and early modernity.

The intensity of human-horse collaboration necessitated development of a technical knowledge and corporeal competence in the training the training and rising a horse; be it to market, to war or in ceremonial matters. Anyone who has tried to mount a horse knows instinct my, that this is no easy task to become a master in.

Outside philosophical and doctrinal discourse, the learning developed a mostly oral tradition of what constitutes good horsemanship.

The historian and college to Luhmann at Bielefeld coined the phrase of man and horse entering a 'centaurian pact', that only with the widespread mechanization of agriculture, transport and warfare has all but vanished.

Today, we are left with the horse as a recreational and therapeutic creature for teenagers, backcountry traditionalists or an expensive investment objects for equestrian competitions (Raulff 2018: 290).

The waning of the horse as a cohabitating creature has left us with only the semantic remnants and symbolic forms developed throughout the last millennia. The equestrian statues plastering cities and museums across the world, the expressions such as "galloping" inflation or 'switches' and the symbolic forms such as the four horsemen in the apocalypse (Rev.), who continuously are invoked in movies and theatrical performances to people, who might never have seen a horse and most definitely have never taken seat in a saddle.

The historical and cultural artifacts, and even the societal consequences of the collaboration of man and creature have been widely researched, whereas the developed practices and techniques of relating man and horse have not been studied in regard to their applied concepts and potential influences on concepts of interrelating systems with the saddle, bridle and switch as structural couplings.

The founding father of cybernetics, Norbert Wiener, defined cybernetics as the science of 'Control and Communication in the Animal and the Machine' (Wiener 1948). The vision of a theory, applicable to both machine and creature alike, creating cybernetic 'Design for a Brain', are insofern fascinating, as they emerge at the same time, as the horse finally is substitutes by machines.

The 'new' discipline of cybernetics struggles with exactly the same concepts, that hippological treatises from the ancient historian, politician and genera Xenophon wrote so magnificently about: the communication and control of the horse as an endeavour of double contingency.

This paper identifies concepts and theories of practice in the literature by learned ecuyiers and horsemen from the Baroque period to the invention of cybernetics as precursors and inspiration for primary distinctions ingrained in general systems theory as conceptualized by Niklas Luhmann. By



trotting down through an hitherto unused path, challenging Carl Schmitt, for whom ‘To rule is to ride’, and still its thirst for knowledge from the through filled with historical practice.

William Cavendish, 1st earl of Newcastle, published his magnum opus in 1658 with the title ‘A general system of Horsemanship’, while he lived in exile in Rubens house. The book, beautifully illustrated by one of Rubens pupils.

This paper inverts the challenge and invites you for a show of The Horsemanship of General Systems Theory. Turning back to the imminent future of the emerging next society, the paper ends with a short discussion of the risks of systems theory continuing to be pathologically ignorant of its heritage and origin in the challenge of man-creature cohabitation, as the contemporary society is in the midst of a cybernetic transformation with the inclusion of digital machines as active, non-human participants in societal communication.

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Continuities and disruptions in the incorporation of algorithms in case management – a case study of the Brazilian Superior Court of Justice

by: Luisa Teresa Hedler Ferreira, Copenhagen Business School

The introduction of algorithms in case management is one of the most concrete applications of AI in Law, and the deployment of such tools gives rise to concerns about their effect on fundamental procedural guarantees. This paper analyses the potential disruptive impact of this automation within the legal system, using the Brazilian Superior Court of Justice as a case study. The theoretical lens of temporality allows for an assessment of the demands that led the system to seek algorithms as a solution, comparing them to the features offered by the new tools. This is used to shed light on the discussion about the disruptive potential of algorithms within this context, where many of the perceived disruptions are a symptom within socio-legal structures that are subjected to other forms of disruption.



Functional differentiation of professions

by: Michał Kaczmarczyk, University of Gdansk

The goal of the proposed presentation is a reassessment of Luhmann's sociology of professions in the context of contemporary populism. Although Luhmann elaborated the topic of professions in a rather unsystematic way in different works devoted to other issues, his theory of professions constitutes a coherent and novel contribution to sociology. The theory might be summarized in three fundamental points: 1. Professions are functionally differentiated along with social systems who deal with persons and cannot make use of generalized media of communication; 2. Professional activities are differentiated into three levels: a) interaction, b) learning, and c) reflexion; 3. Professions are respecifications of functional goals of social systems into ways of solving personal problems. As such, they have to deal with a growing deficit of knowledge that is required to understand unique situations of clients. In social systems that are working on problems that transcend purely communicative effects this kind of uncertainty cannot be relieved by media of communication. Thus, the main task of professionals - lawyers, physicians, therapists, teachers - is to mediate between two sides of social codes of communication by applying abstract knowledge to personal needs in various contexts. As opposed to Andrew Abbott, who defined professions by their spheres of jurisdiction, i.e. monopolies of expert knowledge, Luhmann recognized both functionality and the inherent instability of professional skills and expertise.

In the presented paper I am going to argue that recognition of the levels of learning and reflection are indispensable for an explanation of the evolution of professions and their adaptation to unexpected challenges of contemporary politics, law and economy. In particular, social, environmental and technological changes do not allow professionals to rely on inherited knowledge. As social change becomes rapid, even long training and individual skills might turn insufficient or irrelevant provoking a profound redefinition of professions and their relations to social systems. At such turning points, professions are being reflected both in the relations to clients and to other social systems. In my presentation I will describe these processes on the example of the Polish judiciary whose independence has been significantly diminished by the national government. During the popular mobilization in defense of the judicial branch of political power the processes of reflection come to the fore. Although the discourse of common values has played a major role in this context, it has nothing to do with the Parsonian „value consensus“ because it is the very functional differentiation and the principle of difference that is being defended. At the same time the clash of executive and judiciary powers allows us to look at functional differentiation in a much less neutral way than Luhmann did. My argumentation will be partly based on my large-scale empirical research on Polish judiciary conducted in 2015-2017.

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Maintaining Ignorance: Dynamics in the Communication of Knowledge and Non-knowledge

by: Morten Knudsen & Sharon Kishik, Copenhagen Business School

The Covid-19 pandemic has illustrated that new zoonoses create an abundance of social situations that involve uncertainties and the lack of knowledge. This raises the question of how societies and organizations manage the (intensified) condition of non-knowing (Beck and Wehling 2012). Inspired by agnotology (Proctor and Schiebinger 2008) and the sociology of ignorance (Gross and Mcgoey 2015; McGoey 2012a, 2019), we analyze the production and maintenance of ignorance related to the spread of livestock-associated MRSA in Denmark. The paper examines how the government of non-knowing is connected to strategies for governing through non-knowing. We contribute to studies of strategic ignorance as we apply a communications-theoretical analytical lens that allows us to demonstrate how ignorance is produced and maintained. This happens communicatively by continuously connecting to non-knowledge in situations where both knowledge and non-knowledge are marked in the communication. We show how knowledge and non-knowledge create different possibilities for connectivity and thus for the management of non-knowing. Communicative connections to knowledge create possibilities for taking corrective and preventive action, while connections to non-knowledge constitute a centripetal force generating more non-knowledge. Furthermore, we contribute to studies of strategic



ignorance by investigating how communicative dynamics are connected to interests. Finally, we discuss the implications of our findings for the future societal and organizational management of non-knowing.

Public campaigns in the crisis and risk management of COVID-19

by: Pernille Almlund, RUC

(in process)

Design melancholia – or implausibility of designing

by: Piotr Michura, School of the Art Institute of Chicago

Design is a future-oriented activity attempting to influence the course of action and arrive at the preferred future state of things. As seen through a systems theory lens, design may be considered a functional system of society. Its re-production is based on communications and meaning. Design implies an innovative approach by an evolutionary change in meaning, which creates opportunities for richer connectivity and increasing complexity of society. Design as an operationally closed system observes its environment according to its own terms following a self-induced program and is blind to other aspects. In the context of designing, the question of "which pasts for which future presents are of importance for the observer?" - might be referring to the inherent relativity of design decisions.

From a vantage point of the systems-oriented approach, the second-order observer is able to see aspects of designing leading to potentially unexpected consequences and disillusionment. This view makes explicit that:

- no designed models of a future are to be fulfilled (actual future states cannot be predicted as the very act of prediction changes the future conditions;)
- the increasing complexity of society, in which design takes part, do not necessarily lead to better adaptation to the environment;



- the disintegration of a notion of a person allows speculating on design prospects when "a user" is not a central focus of designing;
- the notion of an object is questioned - distinctions become central focus;
- it is impossible to control and directly influence trajectories of systems development.

Illuhmannating Technological Innovation Systems

by: Richard Pretorius, Eindhoven University of Technology

Emerging from innovation studies, the technological innovation systems (TIS) framework assumes a systemic approach innovation, technological development, and economic change. In doing so, research into TISs seeks to inform policy development and shape research agendas in support of specific technologies, usually with the profile of higher sustainability (Bergek, Jacobsson, et al., 2008; Hekkert et al., 2007).

As with innovation studies, TIS research was founded in Schumpeterian economics (Fagerberg et al., 2012; Martin, 2012), promulgating its inherited micro-level approach to studying the process of technological and economic change (Carlsson & Stankiewicz, 1991). This micro-level approach assumes methodological individualism, understanding social phenomena as resulting from individual actions taken by intentional actors (Heath, 2020; Schumpeter, 1909; Udehn, 2001).

However, several benefits can be found in shifting from the current mode of investigation towards Niklas Luhmann's systems theory, employing a communication frame of reference to better understand innovation in social systems.

For example, seeing communication as the autopoietic mode of operation for social systems allows innovation systems to be causally linked to their wider environment through structural coupling (Luhmann, 2002, pp. 86–87) – thereby responding to common criticism of innovation research (Bergek, 2019; Weber & Truffer, 2017). Additionally, Luhmann's autopoietic systems are operationally closed (Luhmann, 1995, pp. 200–207), making systems the source of their own change – better explaining systemic change that can be separated by scale (Siegenfeld & Bar-Yam, 2020). Finally, by employing Luhmann's perspective, a focal TIS can be understood to possess its own formulae for contingency (Luhmann, 1995, p. 23), allowing for a better understanding of how systems have taken the shape they possess, and how to steer these systems through irritation, or at the programme



level (Luhmann, 1990).

While great incentive exists for incorporating Luhmann's systems theory into innovation investigation, empirically describing social systems in these terms remains challenging. Of note are the methodological implications for assuming this approach to social systems. Luhmann's view sees an observer as distinguishing between options, with a researcher operating as a second order observer, observing the observer (Luhmann, 2002, p. 111) - how, then, should we describe the observation of an observer? How can we establish a system's meaning when the observer is blind to unselected distinctions (Luhmann, 2002, p. 50)? Which types of empirical data would be best incorporated into this line of inquiry? And how should those data be collected and related to one another?

In our paper, we ask the question how can Luhmann's general theory of complex systems improve our understanding of TISs? We answer this question by exploring observation and distinction, autopoiesis and meaning, before integrating these into the TIS framework, providing a new perspective of TISs as complex systems.

The challenge we now face is illustrating how a researcher could empirically enact this approach to TISs.

NOTE: This is a dual author submission, by Richard Pretorius and Gunter Bombaerts

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Literature and systems theory in periods of crisis

by: Stijepo Stjepović, University of Zadar

Is there a possibility of cooperation between systems theory and literary theory? Literature is a human product, usually considered subjective. But literature also has its theoretical approaches which manifest themselves through literary theory which intends to demonstrate literature as a system, showing various subdivisions of genre but also giving a certain philosophically coherent system of aesthetics which purports to permeate the entire literature giving it an integral explanatory note. We can ordain the literary system in diachronic or synchronic way, i.e. looking for historical developments of certain genre or we can try to see what is literature offering in a certain moment, present or past and explore the interactions connecting different genres. More complex approach would offer an interaction between these two paths, especially having in view the periods of crisis and great social changes.

Framework law's destabilisation of normative expectations: Is framework law to be considered as a legal pathology?

by: Stine Piilgaard Porner Nielsen, University of Southern Denmark, department of law

From a systems theory perspective, the function of the legal system is to stabilise normative expectations. This paper argues that framework law may be considered a legal pathology as it, to follow Parsons' coining of social pathology, causes disorder to the functioning of the legal system. Framework law challenges the function of the legal system as its procedural and purposive programmes lead to incalculability and, thus, unpredictability. Framework law does to a large extent characterise the area of social law, i.e. the area of law that regulates the welfare state's handling of social cases, i.a. that of employment case handling and case handling related to persons who experience social situations as homelessness and substance abuse.

As coined by Teubner, the law of the welfare state is characterised by "ill-defined standards and vague general clauses" which may be considered a result of the evolution of law where procedural and purposive programmes are increasingly integrated into social law. Social law has a social function as being instrumentalised by the political system to bring about societal change. From this it follows that social law is purpose oriented which is reflected in general clauses that outline the purpose of the specific law in question. The purpose is sought achieved through the regulation of procedures; thus, purposive, and procedural programmes complement each other in social law.



From a temporal perspective, the introduction of purposive and procedural programmes indicates a tendency of instrumentalising welfare law to absorb risks and uncertainties of the future. This result-oriented legal practice, which follows from the application of law as a means of state intervention, may however cause an increased complexity as it invites for other semantic couplings, thereby blurring systemic limits and resulting in unintended side-effects. The concepts of hybrid law and hybridisation of law seek to encompass this complexity of social law as a form of law which must both consider its context as well as its function of stabilising normative expectations.

In the beginning of the 1990s, Luhmann described moral as disintegrated from law, arguing that law could be considered “as the guarantor of freedom from moral and immoral behaviour”. This paper, however, questions the description as the systems theoretical analysis of social law points to a tendency of an increased focus on the willingness of citizens to want the improvement of their social situation. From a systems theory perspective, the paper argues that the increased focus in social law on the caseworkers’ assessment of citizens’ goodwill as a means to evaluate the citizens’ internalisations of the purpose of the social case handling process and as a means for measuring the citizens’ eligibility for support reflects an integration of the moral code esteem/disesteem in social law. The reflection of the moral code in social law may contribute to a further destabilisation of the legal system’s function as caseworkers’ assessments of citizens’ willingness, and thus their eligibility, is indeed difficult to calculate and predict.

Thus, the paper analyses the consequences of framework law’s procedural and purpose orientation and the integration of the moral code in social law, discussing framework law as a reflection of a pathology of the legal system.

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KEYNOTE: Risks and Pathologies of/in/with Statistical Evidence

by: Søren Möller, University of Southern Denmark

Starting in the 1950s, and much accelerating during the first part of the 21st century, results from statistical analyses have become a frequent argument for policy makers and scientists - moreover, in areas far away from the natural and agricultural sciences for which many of the statistical methods



were originally developed. While this, in many cases, has improved the available quantitative knowledge on which decisions are based, this development has not been without its risks. Assumptions, both mathematical and conceptual, that lie behind these statistical approaches, and are necessary for the statistical evidence to be trustworthy and applicable, are often lost in this development from controlled laboratory environments to society at large. This presentation will discuss some of these assumptions behind statistical evidence, and how disregarding these has led to risky and pathological conclusions based on this evidence.

Communication never ends in Dubrovnik ©

