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## Structural Coupling and Translation – Twitter observed as Communication Medium and Non-human Actor

By Jesper Tække  
Associate Professor, PhD  
Information and Media Studies  
Aarhus University  
<http://www.jespertaekke.dk>  
imvjet@hum.au.dk

### Abstract

This paper is a contribution to the workgroup *Society and differentiation*, which in its call for papers asks for contributions that compare and discuss modern sociological theories in regard to empirical questions. To meet this request the paper address one of the major theoretical questions, namely the question of how otherwise differentiated forms of being interact and continuously adapt to each other. It presents two theories, Niklas Luhmann's systems theory and Bruno Latour's actor-network theory in regard to the question. They are outlined as theories that in two very different ways present a transformation position to the question, and not a transmission position. Both can be used, as analytical strategies for analysing how otherwise differentiated forms of beings continuously adapt to each other through transformations and become each other's possibility/limitation for new formations. After presenting the two theories the article put forward Twitter as an example making it possible to compare the two theories. Hereby the article also provides two analysis of how Twitter changes the communication milieu of modern society.

In systems theory media can be seen as the mechanisms of *structural couplings* between psychic and social systems (Luhmann 2002: 275, Tække 2011). In this way media are seen as a necessary third, making it possible for two different kinds of systems to process, using complexity from one another - leaving out the idea of direct transmission.

In actor-network theory society is described as networks binding bits and pieces together. Humans are also themselves networks of skin, bones, enzymes, cells etc. What homogenize the many heterogeneous entities in networks are processes of *translations* (Schiølin 2010).<sup>1</sup> Translation is never neutral, and is not meant like from Danish to English, but to describe: "displacement, drift, invention, mediation, the creation of a link that did not exist before and that to some degree modifies two elements or agents" (Latour 1994, 32).

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<sup>1</sup> I want to thank Kasper Schiølin for many fruitful conversations about Latour and the topic of this article.

The paper works with two aims. The first aim is to discuss what kinds of structural couplings and translations the social medium of Twitter opens for. The second, but most prioritized, aim of the paper is to present, compare and discuss the two theories: How do they understand what becomes visible in their different optics, which observations become possible in the one or the other – and is it possible to compare the semantics of their concepts.

The paper first provides an analysis and discussion of language as the mechanism of structural coupling between the levels of psychic and social systems. Then the article provides an analysis and discussion of translation as a transformation process between actors creating networks consisting in both humans and non-humans. Then the two appearing frameworks are used to observe Twitter and discuss which structural couplings and translations are made possible by this medium. In the end of the paper the two theories are discussed and compared.

## Introduction

The major theoretical problem of how otherwise differentiated forms of being continuously adapts to each other and thereby mutually enables each other, usually is seen from a transmission perspective (see Tække 2011). But already Herbert Spencer saw the problem as a problem of describing how correspondences between life and its outer milieu evolutionary seen is possible. The answer is: “The continuous adjustment of internal relations to external relations” (Spencer 1890, 293). So already here we have a theory that describes how there is no transmission from an outer world into an organism, and that it is through evolution (the survival of the fittest) creatures adapts to their environment. In the meantime Spencer’s theory not only addresses the phylogenetic question but also the ontogenetic question - also individual organisms must adjust their internal relations in accordance with the external using their own resources.

In this paper two theories about how events like actions and communications affect systems/actors. It tries to outline how we can understand social processes and using the insights from the theories it tries to analyse and understand what happens to the psychic and social systems / Actors and actor-networks, when a new communication medium / non-human actor come about.

The question has deep epistemological and ontological implications. Ontologically a theory which seeks to enlighten the question must decide whether it is fundamentally monistic, dualistic or sees the world as consisting of several forms of being. Epistemologically it is crucial how forms of being, according to the theory, can experience, or observe in its efforts to adapt to and survive in the world. We begin with Luhmann’s systems theory and then go to Latour’s actor-network theory and last to the two analyses of Twitter and the discussion.

## Luhmann and systems theory’s position<sup>2</sup>

Epistemologically Luhmann, like also Foucault and Bourdieu, can be described as an epistemic constructivist, for him it is not discourses or fields, but systems that

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<sup>2</sup> This Luhmann paragraph can also be found in Tække (2011) in almost the same form.

acknowledge (Bertilsson 1998). To attribute systems epistemic primacy gives the difference, compared to fields and discourses, that systems not only exist in the form of social systems, but also in form of psychic and biological systems. Although Luhmann is known to de-ontologicalize, he can be described as an operative constructivist, since systems on three different levels of system formation are operationally closed and autopoietic. Luhmann deontologicalizes by epistemologically observing the question of what an *element* is, by looking at an element in a system as a *process* or as an *operation*. “the unity of an element (...) is not ontically pre-given. Instead, the element is constituted as a unity only by the system that enlists it as an element to use it in relations” (Luhmann 1995, 22). That systems are operationally closed means that communication fosters communication through communication, without being mixed with consciousness or life. A communication is following as process an undividable least element, although it can be seen as consisting of three selections (of communication, information and utterance, which we later return to). Psychic and social systems have a certain world-openness as they are both meaning systems, but they are still operationally closed, one produces consciousness, the other communication (Luhmann 1995, 37). However, since both forms of systems are closed, Luhmann needs a conceptualization of their meaning relationship, and the mechanism they can cooperate through.

### Interpenetration and structural coupling

Luhmann's systems theory works with two concepts that address the problem, namely interpenetration and structural coupling.<sup>3</sup> The concept of *interpenetration* weigh that a system makes its complexity available to another system, without the concept, however, implies that the receiving system is aware of how the other system functions on other basis than through its own resources (Luhmann 1995, 213). Consciousness e.g. uses the brain with its neurons, synapses, etc. when it produces consciousness, without knowing how the brain works. For Luhmann (1995, 241) socialization is always self-socialization and it occurs not because one system transfers its meaning pattern to another. The concept of interpenetration denotes a particular kind of contribution to systems building, which appears from systems in the surrounding world (1995, 213), without making autopoiesis to allopoiesis (1995, 219).

*Structural coupling* provides a more distanced perspective on how different systems build and reproduce interdependence. The concept is formulated from an external observer's point of view, while watching two systems at the same time asking how they are interconnected, and how it is possible at all, for a system to operate in an environment when it is autopoietic (Luhmann 2002, 269).

The answer is that the development of a system's structure is dependent on structural couplings and that systems can only build structures that are compatible

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<sup>3</sup> Also the concept of operational coupling could be mentioned, but it seems only to be a special case of structural coupling. According to Luhmann (2002, 268) he only distinguishes between the concepts of structural coupling and interpenetration for theory-historically reasons, i.e. they come from each their theory, the former from Maturana and the latter from Parsons.

with their surroundings (ibid.). For Luhmann (2002, 270), it is crucial that social systems are linked to consciousness and nothing else. Communications cannot perceive: "It works its way in darkness and silence" (Luhmann 2002, 271).<sup>4</sup> It takes consciousness to transform external world via perception to consciousness, "and only then a consciousness can decide to use motile energy to write or speak" (ibid.).<sup>5</sup> Communication is thus, according to Luhmann, solely influenced by consciousness and not through sound or writing. Everything communicated must move through the filter of consciousness in the environment of the social system. Everything else (physical, chemical and biological) are excluded, and has no influence on communication. This is compensated in form of communication's totally dependence of consciousness, which again is itself dependent on its brain, which in turn itself must have a body that keeps it alive. Despite this sequence of structural couplings the theory provides a paradox in the simultaneous total dependence and total independence, "communication only works through consciousness, using consciousness, but never operationally as consciousness" (Luhmann 2002, 274).<sup>6</sup>

### Language as medium

A medium seen in Luhmann's (e.g. 1999, 2000) optic is a distinction between form and medium. The medium is seen as a *loose coupling* of elements, while the form is seen as a *tight coupling* of a medium's loosely coupled elements.

In modern language, which is *double articulated*, the individual sounds (phonemes) are semantically empty and does therefore not carry any meaning. Phonemes can be combined to thousands of morphemes (words with meaning), which again can be combined to infinitely many sentences with different meanings (Tække 2006b). Here you can observe three distinctions, namely between noise (a sound that is not part of the language), phonemes (the smallest meaning separating part of the language), morphemes (the smallest meaningful part of the language) and sentences (grammatical structures). What is noise and what is language is identified on the second meaning level, the level of sentences. With the modern language we get a substrate that meets the definition of a medium, because its elements in themselves are *loosely coupled*, but which nevertheless, can be *tightly coupled* into forms. Words print themselves into the medium, which cannot resist the *in-formation*, but is left just formless behind, ready to take on new impressions (Luhmann 2000, 105).

The double articulated languages, counting all modern spoken languages, open for the self-reflexivity of social systems, because with it, it is possible to communicate about communication (Luhmann 1995, 153). It is difficult to imagine that an independent autopoiesis of communication would have come into being only through non-verbal body movements (Luhmann 2002, 278; 1999, 205). Language is the muse of society (Luhmann 1999, 225). Almost the same goes for psychic systems, first when communication emerges on the basis of language, they can become self-reflexive systems using language to reflect over thinking.

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<sup>4</sup> My translation.

<sup>5</sup> My translation.

<sup>6</sup> My translation.

Communication and consciousness systems evolve in a co-evolution, since the language makes it possible for them to differentiated themselves out (Luhmann 2002, 278). "Language is the structural coupling, that is its task, its function" (Luhmann 2002, 279).<sup>7</sup>

### Communication and language

Luhmann defines communication as the synthesis of three selections, namely information, utterance and understanding (Luhmann 1990, 3). What is decisive is that the third selection can base itself on the distinction between the first two (Luhmann 1995, 140). Every time there is an understanding we have an element in the process of communication, which makes communication a chain of processes that links back in time to previous processes (elements). Someone needs to link up with what was said before, if the contribution can be said to be part of the social. And this would not be possible without language: "Communication had emerged as an autopoietic operation producing linguistic elements via the network of linguistic elements" (Luhmann 1992, 33). This presupposed the form of events in time, and created society as a system, that could temporalize its complexity, by having the internal capacity, to adapt to transitory conditions, through transitory states in the system. The system can combine short states with structures, which organize the transition from one state to the next state. Language is the medium for phrases as forms. The perceptual acoustic medium thus provides space for the temporality required, in the coupling and decoupling of phrase-events in the medium of language (ibid.).

### Consciousness and language

The social system make its complexity available to the psychic systems, as long as it can be communicated: "The evolutionarily achievement developed to perform this transfer is language" (Luhmann 1995, 272). But mental processes are not linguistic processes and thinking is not inner speech. Consciousness is never identical with linguistic form, for instance, we use no linguistic rules when we think and often we must search for more clarifying words, etc. (Luhmann 1995, 320). Luhmann (ibid.) suggests the term *capacity to form episodes* for what consciousness's autopoiesis acquires through the use of linguistically formed thoughts. The ability means that the consciousness can differentiate and discontinue operations. It can jump from one context of linguistic thought to the next, without completing its own self-reproduction, without preventing the possibility of further thoughts becoming conscious. The psychic system can provide the difference between before and after, in the succession of thoughts, with an immense and constantly changing capacity for exclusive operations: "All this makes the unity of the continuation of autopoietic reproductive nexus compatible with the constant installation and elaboration of changing structures, which fill up and perform the autopoietic process, which produce breaks and transitions without exposing it to the risk of coming to an end" (Luhmann 1995, 273).

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<sup>7</sup> My translation.

## Meaning

Where both psychic and social systems are closed on their own processes (resp. consciousness and communication) they are world-open in terms of meaning (Luhmann 1995, 37). Psychic systems can, through the form of meaning provide the basis for social systems, and link up structurally to their communication. At the same time, communication would not be possible without social systems, through meaning could link to consciousness and its perception, memory and contributions. Luhmann (1990, 26) defines meaning as a distinction between actuality and potentiality. The actual has meaning because of what is potential, because of what could also have been selected but was not. Selection of information, for instance, in communication is an announcement of what is not selected, but which could have been selected. Meaning appears as a surplus of references to additional opportunities for experience and action and hereby forces the next step of selection (Luhmann 1995, 60). The inevitability of selection enters into the consciousness of meaning and, for social systems, into communication about what is meaningful. The structure permits, by limiting the connectivity, the autopoiesis of meaning systems. Processes must have a meaningful structure that make probable a systems next state, its next process, which makes it expected: "An operation resumes something from the past and anticipates something in the future. We consider in a particular situation, what has happened, what fits in this context, we have a selective memory and correspondingly a selective idea of what we really want to achieve, or what should be evoked" (Luhmann 2002, 329).<sup>8</sup> This is where language comes into play, since it is through the same use of signs alter and ego can be reinforced in the apprehension that they mean the same thing (Luhmann 1995, 160). The psychic and social systems are ultimately rooted in meaning: "Both kinds of systems emerge by the path of co-evolution. (...) Meaning is the true »substance« of this emergent evolutionary level" (Luhmann 1995, 98). And that they can adapt to each other is rooted in the medium of language, which can hardly be overestimated (ibid., 160).

## Communication's dependency on consciousness

Once consciousness has emerged in the psychic system, it is possible for it to proceed even without communication. In contrast, communication cannot continue without contribution from psychic systems (Luhmann 2002b, 171). Communication must therefore organize, so that it can continue its autopoiesis under such volatile conditions. The system must preserve the ability to reorganize itself,<sup>9</sup> while it also remains structurally determined internally. "Only when a system, in its autopoietic reproduction, adapts itself to the field in which it operates can it determine itself through its own structures" (Luhmann 2002b, 172). And only so long as the system is in contact with its environment through its own structures, it can continue its own operations. If the communication continues, it is adapted no matter how self-reflexive it is closed. It is not the goal of communication to adapt to systems of consciousness, rather it is communication that fascinates and occupies the mind. It is thus possible to link communication to communication and hereby activating the

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<sup>8</sup> My translation.

<sup>9</sup> Luhmann (2002b, 172) reeferes to Maturana's concept: "conservation of adaptation".

necessary and indispensable consciousness states, although they are highly unstable and diffuse, and cannot (except individual consciousness) be put together in succession. Communication reduces the possibilities for linking, but still leaves a huge spectrum open for possible linking through meaning. The autopoiesis of social systems is nothing more than this constant process of reduction and creation of opportunities for linking (ibid.). Society can only be stopped by its nonsocial conditions. Evolution of communication is only possible because of the constant connection with consciousness states.

This connection is only possible because of the spoken language and then made more efficient by writing and printing technology (Luhmann 2002b, 173). Language and script fascinate and preoccupy the mind, and thereby ensuring its participation, even though it could resist, and always keeps ready diversions (ibid.). In this way the two systems, which are separated are structurally coupled through media. Language and writing, as well as later developed media, thus guaranteeing that communication retains the ability to reorganize itself through its constant accommodation to the mind (ibid.).

### **Psychic system's dependency on communication**

The psychic systems dependency on communication is not the same as the reverse relation. Consciousness can work without communication, but only if it has experienced communication and has socialized itself. Furthermore, it is a *conditio sine qua non*, that consciousness has acquired language, which in turn is dependent on communication. Without language as a medium there would be no self-reflection, as there would be no structural coupling with the social and thus no self-understanding.

Following Luhmann (2002b, 81) the more radically the mind is understood as a subject, the more difficult it is to understand another subject as an *alter ego* - it takes communication to do this analogy. If communication emerges, it may split itself into an observing element (communication) and an observed element (the utterance, the expressive action of a speaker or writer) (1992, 27). Consciousness can participate in communication, only if it can distinguish between utterance and information: An utterance selected from a spectrum of possible actions, and information as a selection within a spectrum of facts about the world: communication combines them into one event. One must be able to master this distinction in order to participate in communication and draw the analogy of the other as another self. If the mastering is missing or is less accurate than today, we might also include plants, animals and gods, and perhaps even exclude more distant humans (Luhmann 2002b, 181).

After this solution to the articles question where closed systems through media can adapt to each other and thereby mutually enabling each other, it is time to look at the theory of Bruno Latour.

### **Latour and Actor Network Theory' position**

Epistemologically Latour, like Luhmann, Foucault and Bourdieu, can be described as an epistemic constructivist, for him it is not systems, discourses or fields, but actor-networks that acknowledge. To attribute actor-networks epistemic primacy gives

the difference, compared to fields and discourses, that actors cannot be substituted, because an actor is one who means a difference (Latour 2008, 184). In relation to systems, the difference most importantly is that actor-networks are open to all kinds of categories both humans and non-humans as members. This means that for Latour the social includes also non-humans and that he does not differentiate between forms of beings, e.g. if they are biological or psychic, but focuses on if they cause actions. Ontologically seen, for Latour, there is no society as such, and especially not as a causal power that can explain what *is*. On the contrary there exists translations between mediators, which can generate associations, *which can be traced* (Latour 2008, 60; 133). What we can observe and is *real*, using Latour's (2008, 71) 'practical metaphysics,' is anything that an actor claims as a source of motivation for action. So for Latour there is no operationally closed systems functionally described, but an unlimited number of different kinds of actors (e.g. gods, speed bumps and seat belts) that make other actors act. The point is that the relations, called associations are never neutral. To explain how this none-neutral associations functions, keeping up the social processing, Latour need a conceptualization of how such associations works through transformation and not transmission between the actors.

### Actor Network Theory

Bruno Latour (2008, 62-63; 82), like Luhmann, is explicitly against the idea of transmission, he even accuses every other sociologists (he calls them for the social's sociologists) for the transmission position (if they, of course, do not agree with him like, e.g. John Law and Michel Callon do). In the writings of Latour there is no neutral way of transporting anything. In this sense Latour distinguish between a *transmitter* and a *mediator*. The first seems to mean what he accuses the rest of sociology to claim, namely that there are neutral ways of transporting, for instance, ideas, energy and power. The latter, the *mediator*, means exactly that transmission cannot be neutral, because the transporter has an influence on what is transmitted, why he would say transformed. He defines *mediator* as some kind of relation, or association, which means that mediators *make others do unexpected things* (Latour 2008, 131).

The most central concept for Latour and the actor-network theory school is of course the *actor-network concept*. The first part of the term, the *actor*, is inspired of Greimas' actant model where actants does not have to be human (Latour 2008, note 61; Callon 1986, note 21). This means that actors count not only humans but also non-humans (Latour 2008, 95; 2006b, 208; 1992, 232). Actually the actor concept includes everything that can be ascribed an action no matter if it is human, artifact, institution or for instance a god (Schjølin 2010). It looks like that the actor and the mediator is the same for Latour (e.g. 2008, 83). The network part of the concept is not defined like as in relation to the Internet, or as in relation to social networks, but to describe essences instead of surfaces so we get *threads*, like rhizomes in the writings of Deleuze (Latour 2006b). It is important for Latour (2008, 158) to claim that the network is a *concept* and not a thing in the world, but a tool used to describe something - not what is described.

So we can describe something in the world as actor-networks consisting of actors, respectively mediators, in relations to each other, or associated to each other

in some or another way. You could ask what difference this makes and the answer is that using the actor-network theory framework researchers may call attention to the influence of also non-humans in the social process. An example is a man with a gun in the political discussions in the USA. 'Guns kill people' is the slogan of those who try to control the unrestricted sale of guns. To which the National Rifle Association replies with another slogan, 'People kill people, not guns.' (Latour 1994, 30). Following Latour both slogans are myths, and they are symmetrical. The first is the myth of the autonomous destiny that no human can master, the latter is the myth of neutral tools under complete human control. "But a third possibility is more commonly realized: the creation of a new goal that corresponds to neither agent's program of action. (You had wanted only to hurt but, with a gun now in hand, you want to kill.)" (Latour 1994, 32). Latour calls this uncertainty about a-man-with-a-gun for *translation*. Translation is not meant like from Danish to English, but to describe: "displacement, drift, invention, mediation, the creation of a link that did not exist before and that to some degree modifies two elements or agents" (Latour 1994, 32).

### Translation

Latour (2008, 133) defines translation as *a connection that transports transformations and makes two mediators coexist*. If a given causality seems to be transported in an expected and routineized way it proves that other mediators are placed in a way so they make such a displacement smooth and expected. This chain of reasoning let Latour give a definition of his sociology, which he calls *sociology of association*: There is no society, none social empire and none social ties. On the contrary there exists translations between mediators, which can generate associations, which can be traced (Latour 2008, 133). An example on how to use this form of sociology, tracing associations, which also Latour mentions, comes from Michel Callon who even talks about: *a sociology of translation*. The example helps to understand how non-humans become actors in a network with human actors. We can begin with asking ourselves, if there is anything, which are not social - in the sense that it belongs to a world beyond associations. Latour (2008, 131) and Callon (1986) says NO! Scallops makes fishermen do things, nets in the Japanese waters tempts the scallops to anchor themselves, and researchers bring the scallops and fishermen together in the oceanography (Callon 1986). In the example both the fishermen and the scallops end up being represented by the researchers who speak and act in their name. This role in the network Callon (1986, 14) names the *spokesman*. It is through a long process of translations and displacements, which little by little reduce the number of voices, so the heterogeneity is, altered so only the spokesmen are heard. "The larvae anchor themselves and are counted; the three researchers register these numbers on sheets of paper, convert these figures into curves and tables which are then used in an article or paper." (Callon 1986, 13).

That also *articles* are seen as actors bring us on track again, discussing communication media, which Latour and Callon does not say much about explicitly. How does actors understand, that is how does they make their translations? Maybe media does not have a special category within actor-network theory? But even if that is the case we must try to understand how not neutral transformations through

mediators work. That is not understanding how it functions, but understanding the consequences of a specific medium. Actors can be associated in such a way that they make others do things by generating transformations that manifests in the many unforeseen events, which are brought about in the mediators that follow them through the process. Latour provides some examples on a medium being an actor, for instance the telegraph: The British Empire does not only stand behind the experiments with the telegraph, it also gets a range, an extended reaction time, and a social cohesion it would never had had if it had not been for the small cables that was placed in the ocean (Latour 2008, 132). Before turning to observations of Twitter lets take a look on an older article where Latour actually gives a medium his attention.

### Transported inscriptions

Latour (1990) shows how power is coupled to knowledge and how knowledge and science are dependent on *inscriptions*. Latour concentrates on the components in his definition of the concept of inscription and focuses his explanation on the invention of perspective and the printing press. The core concept is *immutable mobiles*. Latour (1990: 32) refers to Eisenstein (1983) and writes that immutability is ensured by the process of printing many identical copies, and that mobility is ensured by the number of copies, the paper and the moveable type. Before the printing press knowledge always was temporary and local, but with the printing press knowledge could now be moved around in time and space. Another example on immutable mobiles is the European invention of the map based on geometry and coordinates. When the Europeans travelled around in the Pacific Ocean they considered the longitudes and latitudes and the scale when drawing the perspectivistic maps of the islands they found. Then they transported the maps home to Europe again where they could be integrated as an organic part of their knowledge about the world. Because the inscriptions are based on geometry, perspective, are in scale etc. they can represent everything (even phenomena we cannot see), and present them via diagrams and columns, which can be reshuffled and recombined and incorporated in other inscriptions. Inscriptions provide optical consistency and are able to move information about things from their context so they can be interpreted under other conditions. Since their logic is widely known and the method by which they transmit their knowledge is generally accepted. Immutable mobiles can be arrayed in cascades: "files of files can be generated and this process can be continued until a few men consider millions as if they were in the palms of their hands" (Latour 1990: 54). For Latour it is hard to overestimate the power that is gained by concentrating files written in homogeneous and combinable form. "A man is never much more powerful than any other – even from a throne; but a man whose eye dominates records through which some sort of connections are established with millions of others may be said to *dominate*" (ibid: 56).

For Latour inscriptions harmonize heterogenic basic conditions so they determine our social structures and totalize our perception. If we take Latour's immutable mobiles into consideration in regard to digital media it is clear that the effects of the inscriptions are intensified: The compatibility, the possibilities for representation, the calculation power, the speed, and the optical consistency etc.

runs automatically controlled by software. In this light the digital media and their software are not neutral actors, for example in regard to surveillance (see Tække 2009).

### Twitter observed as a medium (structural coupling)

The structural coupling based on language has since the emergence of language been extended through the acquisition of new communication media. Luhmann suggests a logical, evolution-dependent connection between writing and printing, on the one hand, and symbolically generalised communication media on the other, because they presuppose: “writing before they can begin their process of being separated out and also printing before they can be fully developed” (Luhmann, 1999, 322).<sup>10</sup> Further, Luhmann (1999, 358, 1990, 91) sees writing, printing and symbolically generalised communication media as generating the functional differentiation of society. The last part of the paper cannot, because of the limited space, give a fully depiction of how Luhmann sees the evolution of society in relation to the evolution of media.<sup>11</sup>

What is important here is that the media (language, writing, printing, electronic media and digital media) creates a media matrix or a communicative space, extending the structural coupling between psychic and social systems. Through the media based social evolution each and one added medium extents the scoop of the structural coupling, providing and demanding higher complexity on both sides of the distinction between psychic social systems.

Twitter is a digital medium, and Luhmann did not live to see it, and also only rarely wrote about digital media at all, so we are free to use the theory in an observation of how this medium opens for new psychic and social possibilities.

First on the interaction level Twitter opens for a network like form of near synchronous communication without the heavy framework of other social media like Facebook. This medium is also freed from forced reciprocal relations. You only have 140 characters in a tweet, but it is possible to send links to other places on the Internet, like to a weblog, pictures on Flickr or other sources. If we say that this is the possibility space of the medium the interesting thing is how it is actualized. First of all it looks like Twitter is used by people who publishes or produces materials which can be linked to, for instance, a newspaper article written by you, about you, or just about a topic or a person you think is important. Also we see many questions and answers, invitations, proclamations, and information, for instance, about new software or election results. Persons can contribute to the communication on Twitter using a computer, a smart phone and even a cell phone via SMS. This means that you can stay in contact with the Twitter community where ever you are whenever you want. Also Twitter has a special cyberspaceical configuration because you through the hashtag ‘#’ can participate in the communication of a topic with everybody else on Twitter following the same hashtag. Together with the possibility for retweeting (sending another person’s tweet to them who follows you) this makes the communication space of this medium, on the one hand one big arena, on

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<sup>10</sup> My translation.

<sup>11</sup> For an overview see Tække & Paulsen 2010 and Tække 2006.

the other, a very complex arena to navigate in. Another interesting thing on the interaction level is that Twitter's possibility space is actualized to form a parallel interaction system on conferences, for instance, making it possible for the public attending a lecture or a keynote, to communicate about the topic and its points, finding sources about it on the Internet, sharing it with the others in real time. This also opens for the possibility for the audience to confront the speaker with general questions, which are already consolidated through negotiations on Twitter. This is a new coupling between the psychic and social systems. It allows people not physical present to participate in the discussion and demands that psychic systems present can oscillate their concentration between the spoken and written discourse. This means that Twitter communication, between people who at same time are also in physical based social contexts, selects persons who can and are willing to extent their psychic level of complexity (oscillating their concentration between the two co-existing interaction systems). As long this is possible the social level of systems formation can extent its complexity because not only one contributes to the social at a time. The social system can use (select) every body's contributions, everybody's links to sources, the notes from everybody – even input from participants who are not physical present, but who participate via the chosen hashtag and the live reporting from them who are present (or from a streaming).

On the societal level in Luhmann's theory we have the function systems and the protest movements. Protests like conflicts influence the public meaning, but public meaning only has influence if it succeeds in effecting one or more of the function systems. Looking at the situation in the Northern Africa, *the spring of the Northern Africa*, it looks like Twitter (and other social media, plus mobile phone-SMS) Have played an important role gathering people to demonstrations. Also in the yeas before the revolutions social media was used by the rebels organizing them self. During the revolutions Twitter-users seem to have played an important role reporting to mass media like Al Jazeera and also to Western media about the situation, making it transparent what was happening. This did partly put a pressure on the Western governments (mostly because of public meaning), so they put pressure on the North African dictatorships, partly because it became transparent to the many citizens in those countries who did not participate directly in the Twitter communication. So using this new structural coupling between the psychic and the social, which Twitter provides, an effect chain from the social media through mass media, through the public opinion (both here and there), the protest brought political changes in Tunisia and Egypt. One thing that is important and which is not mentioned over here (in relation to interaction), is that you can make an anonym Twitter account so you can report what is going on without being found by the dictatorship. Another central aspect is that the social media through the network like communication form, creates a self-organizing system. This means that the old trick from dictatorships, just to kill the leaders of the rebels, did not work out. Thus, at the same time this means that the old opposition, who now is in power, has no clear leaders.

The conclusion is that this new medium, brings about a new dimension to the structural coupling between the psychic and social level of systems formation. This dimension provides new possibilities for psychic and social systems with big

consequences for how the psychic systems can include in the social, and as another side of the same case, for how the social can self-organize both on the interaction level and on the societal level.

### Twitter as an actor or mediator

As Actor-Network Theory has no *societal level*, social categories or consecutive historical theory about a media based social evolution, such an analysis that I just provided using Luhmanns framework is not possible. One possible way of analyzing Twitter therefore is to deconstruct my Luhmann analysis of Twitter, another is to just jump into a context, where Twitter is used finding actors, mediators and examples on translations. Here I will try to something in-between, because even in a deconstruction using Latour to be concrete seems like a must. For Latour there is no macro level only the micro level where some actors gain more power, becoming spokesmen in a process of translations and displacements.

For Luhmann the macro level is created on the micro level, in the communications, but latour would say that Luhmann in the first place has social macro categories and therefore can hypostases events on the micro level to the macro level. But let us anyway look at the interaction level where Twitter opens for a network like form of near synchronous communication. Twitter must be seen as a mediator or a non-human actor, creating a new situation where human actors now become not gunmen but *twittermen*. Twittermen can participate in communications where they do or do not bring their body. In the first case they, for instance, can point at their weblog, drawing others attention to their work, to their meanings (translations). Unlike Facebook there is an asymmetric relationship between the twittermen because relations do not have to be reciprocal, why some (them with many followers) becomes what in the common network theory is called *super notes*, using Latour's theory we will just say *more powerful*. This is because they will have better possibilities for dominating others with their *translations*. But as even translations are transformations, this does not mean that we get a situation of hegemony. But they will have more attention than others and therefore better possibilities for defining situations. Every twittermen can tweet and retweet what they want to be highlighted. A twitterman can tweet where ever he is, why he can stay in contact, inform and be informed, providing him with skills of a spokesman. For example he can define the situation, translating what is happening at a university meeting to all of them who are not present. Such a power may grow even bigger including masses of receivers when he uses hashtags opening for every twittermen interested in a given topic.

When twittermen are at conferences they, besides the possibility for twitting to not present persons, also, when they constitute a group, alter the whole situation.

Twitter enables the audience to communicate during a lecture or keynote. Fahey & Meaney (2011) call the format of professional conference public speaking for “the public speaking technology,” meaning: (a) gathering people in a room, (b) giving the speaker(s) a microphone and a projector, and (c) allowing the audience to ask questions at the end.” It is this situation or association between the audience and the speaker, which is translated in to a new situation. Being in the actor-network theory way of doing things we must now have an example, which is found on Danah

Boyd's weblog November 24<sup>th</sup> 2009:

*When I showed up at the conference, I realized that the setup was different than I imagined. The podium was not angled, meaning that the paper would lie flat, making it harder to read and get away with it. Not good. But I figured that I knew the talk well enough to not sweat it.*

*I only learned about the Twitter feed shortly before my talk. I didn't know whether or not it was filtered. I also didn't get to see the talks by the previous speakers so I didn't know anything about what was going up on the screen.*

*When I walked out on stage, I was also in for a new shock: the lights were painfully bright. The only person I could see in the "audience" was James Duncan Davidson who was taking photographs. Otherwise, it was complete white-out. Taken aback by this, my talk started out rough.*

*Now, normally, I get into a flow with my talks after about 2 minutes. The first two minutes are usually painfully rushed and have no rhythm as I work out my nerves, but then I start to flow. I've adjusted to this over the years by giving myself 2 minutes of fluff text to begin with, content that sets the stage but can be ignored. And then once I'm into a talk, I gel with the audience. But this assumes one critical thing: that I can see the audience. I'm used to audiences who are staring at their laptops, but I'm not used to being completely blinded.*

*Well, I started out rough, but I was also totally off-kilter. And then, within the first two minutes, I started hearing rumbings. And then laughter. The sounds were completely irrelevant to what I was saying and I was devastated. I immediately knew that I had lost the audience. Rather than getting into flow and becoming an entertainer, I retreated into myself. I basically decided to read the entire speech instead of deliver it. I counted for the time when I could get off stage. I was reading aloud while thinking all sorts of terrible thoughts about myself and my failures. I wasn't even interested in my talk. All I wanted was to get it over with. I didn't know what was going on but I kept hearing sounds that made it very clear that something was happening behind me that was the focus of everyone's attention. The more people rumbled, the worse my headspace got and the worse my talk became. I fed on the response I got from the audience in the worst possible way. Rather than the audience pushing me to become a better speaker, it was pushing me to get worse. I hated the audience. I hated myself. I hated the situation. I wanted off. And so I talked through my talk, finishing greater than 2 minutes ahead of schedule because all I wanted was to be finished. And then I felt guilty so I made shit up for a whole minute and left the stage with 1 minute to spare.*

*I walked off stage and immediately went to Brady and asked what on earth was happening. And he gave me a brief rundown. The Twitter stream was initially upset that I was talking too fast. My first response to this was: OMG, seriously? That was it? Cuz that's not how I read the situation on stage. So rather than getting through to me*

*that I should slow down, I was hearing the audience as saying that I sucked. And responding the exact opposite way the audience wanted me to. This pushed the audience to actually start critiquing me in the way that I was imagining it was. And as Brady went on, he said that it started to get really rude so they pulled it to figure out what to do. But this distracted the audience and explains one set of outbursts that I didn't understand from the stage. And then they put it back up and people immediately started swearing. More outbursts and laughter. The Twitter stream had become the center of attention, not the speaker. Not me.*

First we see that the podium as an actor made it harder for Boyd to read her paper, then the light blinded her so she could not see the audience. Last but not least we here get an example of how this new actor, Twitter, empowers the audience displacing the center of attention from the speaker to the audience. If the twittermen in such a situation for one or another reason dislike the speaker, they can choose not to work together with the speaker, but to tweet negatively about the speaker. Anyhow this does not have to be the result, Twitter can also be used fruitfully to let twittermen find sources, or in cooperation find relevant questions or comments contributing to the speech. What generally can be said, is that Twitter as an actor or mediator enables audiences to make associations – that is couplings to each other negotiating the speaker and the topic of the lecture during it. This blurs who is the spokesman, changing the odds from the speaker as the clear spokesman to a more open case if it is her, or the audience who's translation will dominate. In the case-example, Boyd maybe with her weblog, which she draws peoples attention to, using Twitter and Facebook, maybe does bring herself back in position, but surly not for all: The Internet is a very complex cacophony of different mediators, and even in the single medium, like Twitter, you do not have one audience like in a broadcast medium. In regard to the attention-span Twitter makes people draw their attention from the speaker to the written communication forcing them to try to do two things at the same time, which is a big problem for many. This means that many people who try to pay attention to both twitter and the speaker will understand only a little of both communications. This put another group in the position of spokesmen – them who simultaneously masters to both listen to the speaker and write inscriptions, which are mobile in the sense that the digital medium Twitter let all the communicator's followers and also them who follow the hashtag used, read their translations.

Lets now turn our attention to *the spring of the Northern Africa*. Like the telegraph changed the British Empire Twitter or twittermen now has changed Egypt and Tunisia. The tweets by which the rebels reported to both the mass media of the Arabic countries and the western countries can be seen as *immutable mobiles*. This means that twittermen became spokesmen for the opposition within their countries. Twitter as a mediator started a process of translations and displacements in a chain where each and one of them broad their translation of the situation. *The multiple heterogenic views were homogenized in each tweet*. These translations were then translated differently by the different mass media meaning that different interpretations, aspects, nuances, sympathies and angles were broad in the different newspapers, and television stations in the different regions. Then different

translations can again be identified in the different public spheres in the different regions putting pressure on the governments forcing them to change their viewpoints. All in all we see that Twitter as a non-human actor or mediator together, of course, with multiple other human and non-human actors (political parties, weapons, other social media, demonstrations etc.), meant a difference.

## Discussion

This article has presented two theoretical views on the question of how otherwise differentiated forms of being interact and continuously adapt to each other. The Luhmann view provides an explanation of how psychic and social systems through media as structural coupling reproduce and maintain themselves extending each their complexity in an interdependent relation. The Latour-view does not provide a framework explaining how such a relationship functions, but how actors, not only humans (psychic systems), but also non-human actors in networks of associations through translations and displacements produce and reproduce the social consisting in these associations. There is a high degree of equality between the two theories: Latour's 'follow the actors' could be said by Luhmann like 'follow the communications'. That a technology or medium is not neutral but means a difference in actor-network theory, lies in the systems theory's analysis of what differences a medium of communication means to communication, as possibilities that if the communication actualize them means a difference. One thing that fell into my mind while giving the Latour exemplification is that it is impossible, not to use one's categorical insight when *following the actors*. But also it fell into my mind that using the Latour concepts made me more critical and nuanced in the analysis.

So my conclusion is that the Luhmann view contributes with a framework explaining *what is blowing in the wind* for Latour. For instance how language works in the consciousness and how it functions when it becomes used socially. Luhmann also provide us with an evolutionary explanation of the interplay between communication media on the one hand, and social and psychic possibilities on the other. Last Luhmann contributes with a link between the micro level and the macro level explaining how interactions, respectively communications on the micro level produces the macro level (function systems). Here Luhmann actually are in line with Latour,<sup>12</sup> because, of course no function systems, hierarchies, or organizations exist if nobody communicatively contributes to them. So Luhmann provide us with categories, which are only maintained on the micro level, and which has emerged only because of, and in the evolution of, communication media. The Latour view on the other hand provide us with *concepts* that open for analysing how none non-humans are neutral within the communication process. Concepts that highlights a blind spot in the pure Luhmann analysis, which is that it is not only the social itself that produces the norms. Of course it is included in the possibility space of a given medium, for instance, that now an audience can communicate during a speech, but using Luhmann's theory you cannot see how this potentiality, like a theme in Luhmann's theory, include respectively excludes contributors. It is not in the focus of the systems theory that the ownership of a medium, the skills to use a medium, or

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<sup>12</sup> For Latour something is only real if it is observed, like the scallops are observed by the researchers.

even that, or how a specific medium or technology influences a given social situation. It is only possible to see how such a communication processes – not the influence of non-humans with in it. Also Latour's theory contributes with an almost methodological doubt on categories like Luhmann's.

This means that together the two theories are very strong, each providing important concepts, insights, categories etc. for the design of an analytical strategy.

Now the last question of this article is to find out how the concepts of *structural coupling* and *translation* semantically are in a comparison: When language emerged the hominoid Homo Sapiens emerged as what we today understand as a human being. Language opened for the separating out of the psychic and social systems from the total biological control by enabling the *structural coupling* between them. This was a *translation* of the biological determined hominoid into a human being, or into what we could call a Language-man. *The structural coupling enabled the translation, or is the process of translation.* In the co-evolution psychic and social systems reciprocally increased each their complexity in the acquisition of new communication media, which we can see as a long sequence of new translations. *Each new communication medium meant a new translation.* In the Luhmann theory we can say this like: Each new communication media opened for new social and psychic possibilities, because the scope of the structural coupling got a more and more extended milieu for formations. So we, for example, got the translation of man and writing, the Writing-man, who in Luhmann's terms, could contribute to communication without presence in time and space. In Luhmann's theory we can see that this translation demanded more internal complexity of the psychic system because and/or so, society now became (or could become) more complex (see Tække 2011).

In Luhmann's theory individuals cannot direct the social and in Latours both humans and non-humans cannot help directing the social. In Luhmann's theory the speed bump communicates 'take your speed of' – but the choice is your's. In Latour's theory the speed bump is itself an actor trying to slow you down - of course the choice is still yours. In Luhmann's theory it is the legal system, which is the effect medium that communicates through the bump, in Latour's theory the bump itself becomes an actor with only some skills of a policeman (a translation of policeman and asphalt). Again Luhmann's theory is blind regarding actors, because there are no actors in his theory, but this theory helps making it meaningful how translation may be understood. It is a name of what the result of the structural coupling between the psychic and social is, with a precisely defined relation or association consisting of a range of media with a special or unique result – that is, meaning a difference, triggering actions which we would not have seen without. Shortly we could say, a special structural coupling providing a new subject with new skills. If we give it a name it is the name of a new actor, for instance, a Twitter-man or a speed bump.

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