The Autocatalysis of Social Systems and the Emergence of Trust

Referring to Michael Suk-Young Chwe's work on "common knowledge," (Chwe 2001) the question as it was posed is this: "Is there some deficit in the moment of communication in the absence of common knowledge that, because it renders communication impossible, calls institutions into being?" The question itself presupposes the answer insofar as it interrogates the properties of the vacuum created by the absence of communication, a vacuum which, we are provoked to imagine, demands to be filled by some kind of common knowledge.

Consequently, this question performs two functions. First, it makes *communication into a coordination problem* by suggesting that in the case of communication (and like all coordination problems) agreement on *any* solution is better than no agreement at all. In other words, in order to communicate, it doesn't matter whether you learn my language or I learn yours or we make up a new one *as long as* we come to agree on a way to communicate. Second, it *makes coordination into a communication problem* by reframing coordination-enabling common knowledge as the result of prior communication. Therefore, although coordination without communication may seem to be occurring, it is, in fact, only coordination without *present* communication. This kind of mutuality, while anathema to causal investigation, is the staple of constitutive theory (Berger and Luckmann 1966; Wendt 1999), including both complex systems and social systems. Using the concept of "double contingency," a

complex social systems formulation articulated by Niklas Luhmann, I will attempt to respond to the issues the question raises (Luhmann 1995).

First, Chwe's definition of common knowledge is as follows: "We say that an event or fact is common knowledge among a group of people if everyone knows it, everyone knows that everyone knows, it, everyone knows that everyone knows that everyone knows it and so on" (Chwe 2001, 9-10). Thus communication involves overcoming an infinite regress of meta-knowledge not only about what is communicated but also about the successful reception of what is communicated. Because, "two people can create these many levels of metaknowledge simply through eye contact," (what Luhmann calls "reciprocal perception") it is possible to have circumstances in which "communication is successful" (Chwe 2001, 9; Luhmann 1995, 120).

The questioner notes that the demand for coordination without communication occurs rarely in the "real world." However, in investigating the origins of social systems as communication systems, it need only have happened once, i.e. in the beginning. It is this initial dilemma that is the focus of our inquiry. Even if all subsequent communicative acts are successful due to common knowledge, the initial such act cannot be, therefore it is the initial interaction that must form the basis for understanding each subsequent act about which we assert that common knowledge is absent. In order to support that assertion, in each subsequent case, the entire edifice of social communication would have to be reconstituted anew. Nonetheless, we can avoid the particulars of that debate by sticking to the initial encounter.

In the initial encounter, all acts are noise. Without common knowledge the two individuals do not even have enough context to know which physical or verbal actions

constitute "signals," or attempts at communication. They are at a seeming impasse. Luhmann refers to this condition as "double contingency" insofar as the actions each are contingent on the other as (at this moment) Other. The problem posed by double contingency is one of radical indeterminacy. In the absence of a "system," the individuals remain individuals, i.e. the absence of a system perpetuates the absence of a system, *unless* something new emerges. At this moment, there is a dual tacit consensus that sets the stage for system emergence: 1) No communication is happening, and 2) communication is a theoretical possibility. Given that, if communication is not desired, the parties have no incentive for further interaction, we must assume that communication is desired by, or at the very least not offensive to them both. "In light of this beginning, every subsequent step is an action with a contingency-reducing, determining, effect – be it positive or negative" (Luhmann 1995, 104-105).

At this stage, then, the system forms a closed loop. If communication is to occur at all, the system must pull itself up by its bootstraps, so to speak. The term for this aspect of many systems is autopoiesis (Maturana and Varela 1980). Autopoiesis, as used by Varela and Maturana, refers to the ability of certain kinds of systems to formulate the components and structure *inherent in their own genesis* as well as to their ability to perpetuate themselves over time by the reproduction of those components and structures. In <u>Moment of Complexity</u>, Mark Taylor notes that Luhmann's view is that social systems as networks of communication "display the characteristics Maturana and Varela identify in autopoietic systems" (Taylor 2001, 91). "Social systems use communication as their particular mode of autopoietic reproduction. Their elements are communications that are recursively reproduced a network of communications that cannot exist outside of such a

network" (Luhmann 1990). Despite this, however, the system on the brink of emerging does not totalize, subsume, or repress the individuals that constitute it, for to do so is neither necessary nor sufficient. Rather, the necessity and sufficiency demanded by double contingency is one of *interface*.

The opening to this all-encompassing-but-non-totalizing autopoietic interface comes from Chwe. Not only do the participants experience double contingency, but by directly relating to each other in the moment of ambiguity, they also *know* that they are experiencing double contingency. "Social systems emerge, however, through (and only through) the fact that *both* partners experience *double* contingency and that the indeterminability of such a situation for *both* partners in *any* activity that then takes place possesses significance for the formation for structures" (Luhmann 1995, 108). The creation of common knowledge is not merely the only way out of the impasse of double contingency *for the individuals*, *but is also the genesis for higher-level system formation*. "Situations with double contingency require a minimum of reciprocal observation and a minimum of expectation grounded in knowledge to initiate communication" (Luhmann 1995, 108). There is, of course, the question implied by Luhmann's use of the term minimum. Perfect communication is not a necessity, and, as the questioner noted, Luhmann asks, "How much do the participants have to understand each other in order to communicate?" (Luhmann 1995, 108). The answer is that they must understand each other enough to mutually trust that communication has occurred. This trust, and its emergence, we will return to later.

What is so significant about Luhmann's radical recontextualization of the problem of the emergence of social order is that, like a zen koan, it unasks the question. Instead of

presenting social order as an improbability to be explained, under Luhmann's formulation social order is now "inevitable wherever double contingency is experienced" (Luhmann 1995, 125). The persistence of the condition *prior to* social order is what becomes improbable, because it is an unstable equilibrium waiting to be perturbed by any chance encounter between two individuals open to the possibility of communicating.

> **"Under the condition of double contingency, every self-commitment, however accidentally arisen or however calculated, will acquire information and connective value for the action of others. Precisely because such a system is formed in a closed and self-referential way – namely A is determined by B and B by A – every accident, every impulse, every error is productive [of the social system]…. Without 'noise,' no system" (Luhmann 1995, 116)** .

"Thus the problem of double contingency has the properties of an autocatalytic factor: without itself being 'consumed,' it enables the construction of structures on a new level of ordering…" (Luhmann 1995, 120). Essentially, "as long as ego cannot act without knowing how alter will act and vice versa, the system is underdetermined and thereby blocked" (Luhmann 1995, 131). Thus, the system becomes "highly sensitive to almost any determination," and double contingency acts as an "accelerator of system construction" (Luhmann 1995, 131).

After system emergence, we must turn to the question of system perpetuation, which is to say, after communication, what prevents the system from dissolving, thus requiring the initial double contingency to be surmounted every time communication is

initiated? For the system to persist, it must be ordered in such a way that the repeated experience of double contingency serves as a catalyst for the "transformation of chance into structural possibilities," a "state of conditional readiness" (Luhmann 1995, 120, 122). "Wherever one encounters another under the condition of reciprocally experienced double contingency, a continuation of contact can be achieved only be agreement between selective behavioral determination, and this is achieved only by forming systems" (Luhmann 1995, 120-121). *Thus the system is autopoietic because it preserves double contingency and perpetuates a context where, because individuals reciprocally experience double contingency, they reproduce the structure of the system.*

It must be noted that autopoiesis does not guarantee system persistence: a creator of possibility, certainly, but a guarantor, never. Social autopoiesis places the system at the disposal of the individuals for the resolution of double contingency, but at any point individuals could opt not to communicate, and thereby to let the system unravel for want of reproduction.

This avenue of dissolution is vital insofar as it constitutes the basis for the formation of trust in systems. Chwe asserts that individuals experiencing common social events, from tribal dances to Superbowl Sunday, "know" that others are experiencing them also. Unfortunately, because he misconstrues what I can "know" about my own experiences with what I can "know" about others' experiences, he makes a crucial error. All that can be said about others' experiences is that I "assume" that they are like mine. The presence of common knowledge presupposes these shared social assumptions. In fact, if it is not common knowledge per se, it might be better called "common assumptions." Moreover, we make these assumptions because *not to make them* would

be considerably worse, insofar as we would be required to perform immense amounts of information gathering before committing to any communication or action. "*Through their mere assuming* they create certainty about reality because this assuming leads to assuming the alter-ego's assuming" (Luhmann 1995, 110). In the endnote to the previous quote Luhmann clarifies that "what emerges in this way is not the recognition of a reality 'out there,' but merely the constitution of a reality relative to the emergent level of an order of reciprocal understanding (which each person alone can see clearly)" (Luhmann 1995, 524). This process also explains the emergence of trust over distrust.

As strategies for the reproduction of social structure, both trust and distrust widen the scope of individual action – individuals can interact trustingly, or they can interact distrustingly – both reproduce a social system. However, distrust requires constant vigilance and protection against the consequences of a distrustful social system, whereas trust enables a wider landscape for action in which occasional social breaches only necessitate ad hoc adjustment and not *a priori* protection as a rule. Furthermore, in Chwe's sense, it is the common knowledge that the social condition of shared trust is desirable, i.e. it is to be preferred to a system of distrust, that provides the basis for the ongoing choice of trust over distrust, which, as was mentioned before, is precisely the choice in the face of double contingency that acts to reproduce the social system itself (Luhmann 1995, 128). Trustful and distrustful social systems can both emerge, but distrust is an unstable equilibrium, like double contingency, such that any chance event will move the system towards trust.

To sum, we have articulated a social situation containing a communication and coordination dilemma whereby "the appearance of the problem comes to initiate a

process of solving it" (Luhmann 1995, 117). But the solution is not a terminal one that eliminates double contingency, rather it is an autopoietic solution that calls into being a system that relies on double contingency to reproduce its component parts and its systemic structure. In conclusion, as Chwe himself has noted, citing Luhmann, "there is a need, which social institutions help fill, to stabilize 'expectations of expectations'" (Chwe 2001, 18). Thus, since every act of communication is also an act of coordination, which perpetuates a social system founded on common knowledge, the dilemma is inverted, and instead of asking how communication and coordination are possible, we are forced to acknowledge their omnipresent success as well as to wonder how they ever fail.

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