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Reading Notes: IT and Complexity

- Technology is in practically everything I'm currently reading. I'm not sure yet that I want to continue to develop technology, as I have (albeit as a Web developer). That's neither here nor there. Technology is in all the social software, online community, interaction and communication applications that I enjoy thinking so much about.
- I'm also using a lot of Niklas Luhmann's work on Social Systems as a means of breaking down social software. I want to cover some higher-level claims here—claims that seem relevant given current US and world events. They concern our ability to respond to complexity, chaos, disaster, and catastrophe.

- As a culture, our faith in technology is unshakeable. Technology provides us with solutions to problems too complex for us to address otherwise.
- I'm reminded of the concept of pataphysics, which is the scientific solution of imaginary problems. Whether our problems are false or real, technology is often the means by which we apply our scientific methods and rational thinking.
- Niklas Luhmann's view of technology challenges the convention that technology will solve our problems. His challenge comes not from the environmentalist's, ecologist's, even the faith-based perspective. It comes from systems theory itself, and is thus even more compelling.
- The crux of his idea is that technological control achieves functional simplification and closure, and that in setting up technical responses to anticipated contingencies, real contingencies become greater threats to a system dependent on its own technical systems.
- I think we can see this at work in political and bureaucratic systems, and the Bush administration is a perfect example of it, as the President's leadership style has been technocratic and corporate. Bush seems to have put too much faith in the prospect and promise of perfectly functioning systems, adequate technical preparation and systemic

intelligence, business management as a political managerial style—in short, administration as governance.

- In Luhmann's systems theory, the system produces its own meaning (autopoesis). Its encounter with the "environment," or outside, is on its own terms (its own meanings). Foreclosure would then occur when the system is isolated within its own production of the world; real environmental problems have no purchase on the political system because it can't see them as such. I do think that is what's happening with the current Bush administration: its tight bureaucratic setup, its introspective and "blind" character obtains from its insensitivities; its blindspots are the consequence of it's being organized to realize an agenda of its own. Technologies are now as productive as they are observational, that is, they make reality as much as they are used to observe reality.
- Interesting link then between Baudrillard's "simulations and simulacra" and system's theory (read: The map precedes the territory).
- Question: how might one read this argument in, say, China? Are there cultural variations (of any significance) in the degree to which IT, technology, interface with the real world? Is the scientific method, and technologies that support it, so great that cultural variation is insignificant? If Swedes invent ecologically friendly waste management systems, is that a reflection of their encounter with the environment or is it an expression of their own cultural narrative (in which environmental accountability can be as important as profit itself)?

- "You cannot petition the Lord with prayer." Jim Morrison
- However, you may tend the machines….
- What do our technical sieves do to our interactions with each other? How are the binds we might create (when f2f), the friendships we might forge, the intuitions and perceptions we might have of others subjected to filtering through technology?
- How far down does technical bias reach? And what challenges it, ultimately? Human events or its own coding? What is Other to the technical: the human (in which case how does technology interface with the human such that these two system would have a relation) or the event, the contingency or another system, itself or its end?
- Film Note: is there a relationship here with Hollywood's catastrophe kick? Massive "mother of all" storms/tornadoes/volcanoes/earthquakes/asteroid strikes/alien invasions – narratives in which the individual becomes hero (is this not how such tales have always been told?), sometimes with the aid of science and technology, but usually and ultimately through simple human persistence/love etc etc… And in that narrative, is the human redeeming him/herself as human (not technology)? Are these quasi-technical films actually redemptive humanisms? Spirit over science? Spirit threatened by science or technology run amok meets the challenge and restores proper direction to humankind?

The order of technology: Complexity and control in a connected world

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Excerpts:

> Drawing on Luhmann, traditional forms of technological control are analyzed in terms of functional simplification and closure.
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> For all its significance, information that remains locally confined cannot respond to the challenge of a market-oriented, global world.
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> Drawing on Luhmann (1993), I will portray technology as a structural form that supports human action in a world beset with contingencies of every sort. Thus viewed, technology emerges as a standardized and closed arrangement of artefacts/ processes designed and deployed to produce a minimum platform of predictable relations, in an otherwise shifting and contingent world (Bloomfield & Vurdubakis, 2001; Luhmann, 1998). In a view of widespread misunderstanding, I would like to stress that the geist of technology is revealed in its reifying strategies. Or, in Latour s much quoted phrase, technology is society made durable.
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> The instrumentation of standardized, quasi-predictable relations are embodied on the twin strategy of functional closure and simplification (Luhmann, 1993). Functional simplification (funktionierende simpifizierung)1 involves the demarcation of an operational domain, within which the complexity of the world is reconstructed as a simplified set of causal or instrumental relations.
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> The conception of technology as a system premised on functional simplification and closure has therefore to be modified to account for the cognitive, sign-based constitution of ICT. In this last case, causal simplification and closure are transformed to the related strategies of procedural standardization and cognitive closure. Software technology entails elaborate systems of rules and procedures on the basis of which symbol tokens and cognitive relations are established and manipulated. The functionality of particular programs is accomplished through the painstaking elaboration of the steps involved, and the closed loops by which such steps are combined to fixed sequences.
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> The algorithmic status of programs thus suggests that the technological goals of recurrence and predictability of ICT-based artefacts are

accomplished through the selection and standardization of the cognitive operations the program entails, and their procedural execution. Automation of procedures and rules ensure the procedural standardization and cognitive closure of the program and correspond, by and large, to the Luhmannian concepts of functional simplification and closure. Functional closure is furthermore accomplished through the specification of the information requirements (the program admits only certain inputs), various forms that regulate access to the program, cryptography, protocols and other security mechanisms that function as a kind of protective cocoon.

To treat functional closure and simplification (i.e. blackboxing) as determinist is to miss utterly the point concerning the distinctive forms by which technology is involved in human affairs. Distinctiveness, it should be noted, does not imply an appeal to a technical bottom line kind of argument (Knights et al., 2002). Functional closure and simplification are not causes but formative contexts (Ciborra & Lanzara, 1994), socially constructed, under particular regimes of knowledge, and with the view of serving specific goals, interests, values or preoccupations. Their operations are similarly supported through routines, standard operating procedures and organizational models or practices that reflect wider forms of social learning but also the experience of the very contexts into which technologies find themselves embedded.

The flipside of technological simplification is loss of flexibility and contingent response that have to be re-instituted through artificial mechanisms. Technological sequences cannot handle (i.e. absorb, ignore, forget or dissimulate) unforeseen incidents at the level on which they operate, even though technologists currently attempt to construct systems that respond to emergent events on the basis of learning from experience (i.e. neural networks). Such simple behavioural characteristics as forgetfulness, dissimulation and indifference, that we often assume to be part and parcel of the limitations of humans, play an extremely important and adaptive role under conditions of emergence, complexity and unpredictability (Bateson, 1972; Luhmann, 1993, 1995; March, 1988).

These reading notes were taken while researching source material and conceptual frameworks of potential use to *social interaction design*, an approach I'm developing for use in the development and design of social software, interaction tools, communication technologies and their applications.