Protocol and Counter-Protocol

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A proposition: code only "matters" when it is understood as being the substance of a network. For the last decade or more, network discourse has proliferated with a kind of epidemic intensity: P2P file sharing networks, WiFi community networks, terrorist networks, contagion networks of biowarfare agents, political swarming and distributed dissent, guerilla marketing, MMORPGs, PANs, cell phones, "generation txt" and on and on. Often, the discourse surrounding networks tends to pose itself both morally and architecturally against what it sees as retrograde structures like hierarchy and verticality, which have their concomitant techniques for keeping things under control: bureaucracy, the chain of command, and so on. But even beyond the field of technology, the concept of the network has infected broad swaths of contemporary life. Even the U.S. military, a bastion of vertical, pyramidal hierarchy, is redefining its internal structure around network architectures, as RAND researchers John Arquilla & David Ronfeldt have indicated in their work. They describe here the contemporary mode of conflict they call "netwar": "Netwar is about the Zapatistas more than the Fidelistas, Hamas more than the Palestine Liberation Organization (PLO), the American Christian Patriot movement more than the Ku Klux Klan, and the Asian Triads more than the Costa Nostra."[1]

These in/out lists are, of course, more fun to read than they are accurate political evaluations, but it is clear that the concept of connectivity is highly privileged in today's societies. In fact it is so highly privileged that it is becoming more and more difficult to locate places or objects which don't, in some way, fit into a networking rubric. The recent USA Patriot Act and other legislation allowing increased electronic surveillance further reinforces the deep penetration of networked technologies and networked thinking. As networks continue to propagate, it seems that there will not remain any sense of an "outside," a non-connected locale from which one may view this phenomenon and ponder it critically. Today's conventional wisdom cajoles us into thinking that everything can be subsumed under the warm security blanket of interconnectivity, but it hasn't yet told us quite what that means.

All of this fanfare around networks highlights for us the continued indissociability of politics and technology. There are several sides to the debate. The technophile perspective, such as that expressed by Howard Rheingold or Kevin Kelly, is an expression of both a technological determinism, and a view of technology as an enabling tool for the elevation of bourgeois humanism in a very general sense. The juridical/governance perspective, seen in the work of Lawrence Lessig, Yochai Benkler and others, posits a similar situation whereby networks will bring about a more just and freer social reality via legal safeguards. The network science perspective, expressed in popular books by authors such as Albert-László Barabási, portrays networks as a kind of apolitical natural law, operating universally across heterogeneous systems, be they terrorism, AIDS, or the Internet.

Yet this "network fever"[2] has a tendency to addle the brain, for we identify in the current literature a general willingness to ignore politics by masking it with the so-called black box of technology. Thus a goal of our current work is to provide ways of critically analyzing and engaging with this black box, with this ambivalence between politics and technology (in which, sadly, technology always seems to prevail).

The question we aim to explore here is: what is the principle of political organization or control that sews a network together? Writers like Michael Hardt & Antonio Negri have helped answer this question in the socio-political sphere. They describe the global principle of political organization as one of "empire." Like a network, empire is not reducible to any single state power, nor does it follow an architecture of pyramidal hierarchy. Empire is fluid, flexible, dynamic, and far-reaching. In that sense, the concept of empire helps us greatly to think about political organization in networks. But while we are inspired by Hardt & Negri's contribution to political philosophy, we are concerned that no one has yet adequately answered this question for the technological sphere of bits and atoms.

To this end, the principle of political control we suggest is most helpful for thinking about technological networks is *protocol,* a word derived from computer science but which resonates in the life sciences as well. Protocol abounds in techno-culture. It is a totalizing control apparatus that guides both the technical and political formation of computer networks, biological systems and other media. Put simply, protocols are all the conventional rules and standards that govern relationships within networks. Quite often these relationships come in the form of communication between two or more computers, but it can also refer to purely biological processes as in the systemic phenomenon of gene expression. Thus by "networks" we want to refer to any system of interrelationality, whether biological or informatic, organic or inorganic, technical or natural—with the ultimate goal of undoing the polar restrictiveness of these pairings.

In computer networks, science professionals have, over the years, drafted hundreds of protocols to govern email, web pages, and so on, plus many other standards for technologies rarely seen by human eyes. If networks are the structures that connect people, then protocols are the rules that make sure the connections actually work. Internet users commonly use protocols such as HTTP, FTP, and TCP/IP, even if they know little about how such technical standards function. In the world of biotechnology, protocols are employed at many levels, from the networks of protein-protein interactions in the cell, to the mixing of molecular protocols with the Internet (accessing a genome database), to the institutional and ethical protocols for the handling of biological materials in the lab. Protocol is both an apparatus that undergirds and facilitates networks and also a logic that governs how things are done within that apparatus. While, in our current network society, protocols are mostly understood within the context of information networks, we would add that a logic of protocological control exists in biological networks as well.

Today network science often conjures up the themes of anarchy, rhizomatics, distribution, and anti-authority to explain interconnected systems of all kinds. From these sometimes radical prognostications, and the larger technological discourse of thousands of white papers, memos, and manuals surrounding them, we can derive some of the basic qualities of the apparatus of organization which we here call protocol:

- protocol facilitates relationships between interconnected, but autonomous, entities;
- protocol's virtues include robustness, contingency, interoperability, flexibility, and heterogeneity;
- a goal of protocol is to accommodate everything, no matter what source or destination, no matter what origin, definition or identity;
- while protocol is universal, it is always achieved through negotiation (meaning that in the future protocol can and will be different);
- protocol is a system for maintaining organization and control in networks.

Each of these characteristics alone is enough to distinguish protocol from many previous modes of social and technical organization (such as hierarchy or bureaucracy). Together they compose a new, sophisticated system of distributed control. As a technology, proto-

col is implemented broadly, and is thus not reducible simply to the domain of institutional, governmental, or corporate power. In the broadest sense, protocol is a technology that regulates flow, directs netspace, codes relationships and connects life forms.
Networks always have several protocols operating in the same place at the same time. In this sense, networks are always slightly schizophrenic, doing one thing in one place and the opposite in another. Thus protocol has less to do with individually empowered human subjects who might be the engines of a teleological vision for protocol, than with manifold modes of individuation that arrange and re-dividuate both human and nonhuman elements. Protocol is a mode of control, and as such it contains within itself its own resistance. As we describe in more detail elsewhere, protocological control challenges us to rethink critical and political action around a newer framework, that of multi-agent, individuated nodes in a metastable (fluctuating within boundaries) network. Political action in the network, then, can be deliberately guided by human actors, or accidentally or "naturally" affected by nonhuman actors. Often, tactical misuse of a protocol, be it intended or unintended, can identify the political fissures in a network. Examples include computer viruses (protocol as biological) and emerging infectious disease (protocol as technological). We suggest that such moments, while sometimes politically ambiguous when taken out of context, can also serve as instances for a more critical, more politically-engaged "counter-protocol" practice. Protocological control brings into existence a certain contradiction, at once distributing agencies in a complex manner, while at the same time concentrating rigid forms of management and control. This means that protocol is less about power (confinement, discipline, normativity), and more about control (modulation, regulation, network identification). Whether counter-protocol practices can develop from this situation is, in part, dependent upon how we refigure the concepts of resistance, agency, and, in the end, "network affect."

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1 John Arquilla & David Ronfeldt. *Networks and Netwars: The Future of Terror, Crime, and Militancy,* p 6. RAND, Santa Monica, 2001

2 See Mark Wigley's recent essay of the same name in *Grey Room* 4 (2001).