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Extended Abstract

Critical Alternatives in Computing Scholarship: Coordinates of a Struggle to Go Beyond Capital

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Introduction

The history of computing scholarship has been marked by two narrative tropes about the work of scholars and computing professionals. Historically, these tropes go back to the 1950s, to the work of Norbert Wiener on one hand (1954), and of Shannon and Weaver (1949) on the other. Wiener was concerned with the social implications of digital technologies, centrally automation. Shannon and Weaver were more concerned with the technical characteristics of computing technologies and the smooth flow of communication. Since that time, the Shannon/Weaver program has been the dominant narrative, especially in the academic discipline of Computer Science. However, in computing practices, both narratives are recognized, as the search for technical proficiency is often framed in terms of social demands to be intercepted and translated into technological solutions, in the quest for an always "new new thing" (Lewis, 1999). Thus, from the beginning, there has been a gap between the way computing has actually developed —as a socio-technical process—and the way it is usually conceptualized—as a primarily technical activity, but one that largely takes as given the

centrality of capital. One current manifestation of this confusion is the various positions taken on what "openness" means in computing, even in corporate talk: As a force for liberation but also a platform for the reproduction of capital (Tkatz, 2009). The strange duality of computing narratives—socially and technically aware in practice, but engineering/corporately oriented in theory—has fostered an alternative domain of critical scholarship, manifest in, among other places, the decennial conferences held in Aarhus, Denmark. These conferences, as well as the closely related "Participatory Design Conferences" and "Computer Supported Cooperative Work" domain of inquiry, pay attention to the emergence of "Critical Alternatives" to the dominating computing practices, as illustrated by the title of the 2015 Aarhus Conference. Similarly, the aim of this paper is to sketch out, on the basis of our reading of the academic literature in the field of critical alternatives in computing, basic concepts for technological design that can be integrated into a leftist perspective, one that goes "beyond capital."

1. A constructivist, critical perspective, on technology design

In general, constructivist perspectives on technology need to focus on more than the interpretation of technology. Some of these perspectives have been rightly critiqued for merely replacing one form of determinism, a technological one, with another social one. That both determinisms dismiss the dynamic relations between the social and technical dynamics is a theme in Science and Technology Studies (e.g. Latour, 1993). Still, technicist views of technology remain dominant.

The important task of building critical alternatives needs to begin by identifying and promoting what Shaowen Bardzell (Bardzell, 2010) has called the "constellation of qualities" that can replace incomplete with more nuanced perspectives, ones that acknowledge social construction while still attending to the co- construction of the social and the technical. Here, we outline the implications of one such a perspective for how design and production of digital technologies are conceived. We recognize DTs as one of the main sites where future societies are being built, seeing technology as "society made durable" (Latour, 1990). Two concepts best capture the relation between an STS-inspired view of technology and the design of technology themselves. First, promoting the understanding that design comes "from somewhere" as opposed to being "from nowhere" (Suchman, 2002), or abandoning the idea of the designer as holding a form of authoritative knowledge. Second, recognizing contemporary digital technologies as infrastructures, which means questioning the designer/user opposition. This requires taking seriously the contexts of production and use of technology, as well as the already existing technological base (Pipek and Wulf, 2009). Both these concepts are essential to "infrastructuring." This concept is a direct borrowing by the design community of a concept from Science and Technology Studies (STS), in particular of the work of Susan Leigh Star and colleagues (e.g. Neumann & Star, 1996; Star and Ruhleder, 1996; Star, 1999; Star and Bowker, 2006). Their work identified the characteristics of infrastructures and the processes bringing them into existence. In infrastructuring, software designers transition away from a project-based design activity, often seen as (and encouraged by proprietary law to do so) as always starting from scratch. The new approach is to design "in the wild" (Dittrich, Eriksén,

and Hansson, 2002), which meant dealing directly with the mass of already installed software applications and technological working practices (Hanseth and Lundberg, 2001). The concept of infrastructuring contributed to another direction in the design community leveraging the constructionist approach of Lucy Suchman (1993, 2002a, 2002b). Suchman drew upon feminist theory, in particular the work of Donna Haraway (Haraway, 1988), to question the way design was done. Suchman questioned the role of authoritative knowledge, which meant conceptualizing design as an activity detached from actual work practices. She referred to this view as "design from nowhere" as opposed to being "from somewhere" (Suchman, 2002a). Design activities came to include both the entry of the professional designer into the working relations of users as well as accounting for the forms of local improvisations shaping the technology in use (Suchman, 2002b). In short, Suchman was overcoming the dichotomy "designer/user" by incorporating the actual reconfigurations of working relations that take place when introducting DTs. The connection between these streams of thoughts in the design field becomes especially clear when an infrastructuring approach is applied to the design of large scale entities. Design becomes seen as the ensemble of activities making possible, maintaining, and redesigning digitally-mediated things (Pipek and Wulf, 2009). The concept stresses both the dynamic characteristics of infrastructures and their emerging trajectories, underlining the articulation work of all actors involved in creating the infrastructure itself. Recently, with the emergence of large-scale infrastructures outside of the workplace (e.g. social media and web based applications in general), the infrastructuring perspective has been articulated as public design (Ehn, 2008; Le Dantec and DiSalvo, 2013; Teli al., 2015). The connection here is to other trends in STS, attending to "matters of concern" (Latour, 2004) while also focusing on "making things public" (Weibel and Latour, 2005). Focusing on matters of concern means acknowledging that "things" are forms of gathering, assemblies within which controversies are solved. "Making things public" opens up space to examine them as part of the issues people are concerned about. These scholars then relate such issues to Dewey's concepts of public and publics. Specifically, Di Salvo and colleagues have clarified how design can be relocated as "public design" (DiSalvo, Lukens, Lodato, Jenkins, and Kim, 2014). When these two perspectives are attended to, a society becomes understood as being constituted by many publics and groups of people interested in specific issues, and thus design can both support existing publics and participate in their formation.

2. Constructivism beyond Capital

In the context of a "Beyond Capital" (Hakken, et.al. forthcoming 2015) perspective, the discussion and promotion of public design and infrastructuring becomes particularly relevant. First, it recognizes the contestable role of technologies, dismissing any deterministic view in favor of the politicized view of technology. Second, it stresses how technology design can start with the concerns of people, as in Scandinavian Participatory Design, involving people not only in the interface with design but also in the definition of the goals of the design project (Ehn, 2008). Third, these approaches obviate a vision of technology designers as having a god-like view, replacing this with a more situated perspective that leads to a variety of changes in how technological projects should be carried out. Most basically, the idea of the technology

designer (as well as of any other intellectual in society) as somebody who is a person primarily with design (or sociology, anthropology, philosophy, etc.) skills needs to be promoted. Projects would become seen as combining the skills and needs of the main beneficiaries of the project itself with the design, intellectual, and communicative skills of the professionals involved.

Such a shift will require change in the way projects are funded, to favor open ended, socially based, projects over projects that presume that the answers to research and design questions are already known. Public design and infrastructuring are particularly open to another recent approach to DTs, what is called "digital social innovation". This expression, promoted by the European Union through its research funding, encompasses "a type of social and collaborative innovation in which innovators, users and communities collaborate using digital technologies to co-create knowledge and solutions for a wide range of social needs and at a scale that was unimaginable before the rise of the Internet" (DSI, 2015: 9). Without specific measures being taken to guard against it, the practices described appear to provide space for the subsuming of collaborative practices into the processes of capital valorization, extending the ability of capital to extract value from life (Morini and Fumagalli, 2010). However, when articulated in terms of public design, digital social innovation is re-articulated as innovation that addresses societal challenges properly. This puts at the center the concerns of people and their collective ability to address issues. However, the perspective depends on integrating nuanced understandings of the capital relations in normal design practices, something that can be fostered in interdisciplinary teams that, include sociologists, anthropologists, etc. Achieving interdisciplinarity makes another institutional move necessary, restructuring the career opportunities of scholars now trapped in strictly disciplinary career paths in academia, while expanding possibilities to do effective interdisciplinary work in organizations. Such restructuring is what will make possible for scholars to engage in open ended projects, contributing to the interdisciplinary thinking that is needed to promote a constructivist, beyond capital, perspective on technology.

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