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Reflection note

Finding the Ghost in the Machine

A Janus perspective

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The essays of both Hanne Cecilie Geirbo and Per-Anders Hillgren offer pause for reflection at a significant time in the progression of the information systems discipline. At first blush, one could be led astray to believe that these essays may be exactly what Orlikowski and Iacono (2001) had in mind with respect to questioning and calling for balance in our disciplinary theorizing (Weick 1995); i.e.; are these Information Systems topics? However, the somewhat pendular and undular nature of our discourse concerning Information Technology (IT) and Information Systems (IS) phenomena is a reflection of both emergence and perturbation in the context of IT and IS design, use, and promulgation. As there is a saying “you can never cross the same river twice,” the persistence of the vexing paradoxes we face (Kautz et al. 2007) is both uncanny and fascinating. Geirbo and Hillgren speak to the essence of these paradoxes. Their essays share that reflection, imagination, and metaphor are useful tools as we consider the balance and locus of agency in the design of inhabited spaces. Their thoughts are prescient given recent questions concerning our relationship to the agency we bestow upon algorithmic intelligences and their impacts (Sørensen 2016). These questions reinforce a duality in the IS discipline which is not entirely removed from Gilbert Ryle’s (2009) exposition on the mind/body continuum: are we ghosts in the machine? Utilizing the metaphors of the Janus, and of Holonic systems, I reflect on what lessons Geirbo and Hillgren offer for information systems researchers.

In their essays, Geirbo and Hillgren, reflect on the design and shaping of the environments that surround us. As such, they provide useful insights regarding design choices available for

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both planning and implementing policy and information artifacts that intervene, regulate, and govern our lived environment. As Geirbo considers the philosophical consequences of how the Internet of Things (IoT) is conceptualized, the efficacy and importance of metaphor is lauded for its capacity to abstract, transmit and transcend the constructivist components that often lead to technological determinism. Moreover, I gather from Hillgren that technical rationality often serves as a process control system to maintain stabilization on the governing variables of pervasive single loop (Argyris and Schön 1974) thinking. Thus, technically-rational thinking remains as impediment to achieving diversity and heterogeneity in community design. Rather, Hillgren favors designerly and discursive processes as valid design components (Cross 2006). Concomitantly, Geirbo favors the generative properties of metaphor to open a dialogical understanding of our designed environments as it is comprehended among various actors.

Most striking is how Geirbo and Hillgren provokes the reader to consider the duplicity inherent in the consequences of our design choices. These consequences are heightened by the clear and present realities—long discussed in the pervasive and ubiquitous computing literature—that the distinction between machines, and the prosecution of our activities of daily life amongst the machines, will become less distinct and more intertwined (Lyytinen and Yoo 2002; Weiser 1993). In turn, Geirbo and Hillgren appeal to Actor Network Theory (Latour 2005) such that we may imagine and afford agency to social, infrastructural, and information components present in in our designed environments.

From the natural attitude (Mills 2000), an understandable reaction to these essays may be understood from a lens of instrumentalism (Friedman 1953): To what end? What is the utility of these reflections? While this is a fair retort, from my perspective, these essays present opportunities for disciplinary reflection at a time when it is needed. With some measure of contrition, I propose that the role pervasive algorithmic systems and infrastructures play in shaping the discipline is paradigmatic (Kuhn 1970). Geirbo encourages us to understand that the socio-centric and techno-centric views of systems may be oversimplifications given the post-modern, blended and hybrid nature of systems as they exist today: Where do the lines between private life and public life begin and end? What are the boundaries of the firm and what constitutes the impact and reach of the authority of government? Geirbo further proposes that algorithms cannot supersede a single loop of learning and comprehension in a manner that is ultimately meaningful given the human ability to pivot. Inherent is our ability to both confirm and confound the assumptions of rationality that are embedded in the finite and discreet orientation of algorithmic ‘intelligence.’ Moreover, rapid embrace of algorithmic intelligence runs the risk of devolving into draconian control of the information and informing environment. Such control has the potential to bridle our ability to temper algorithmic decisions with metaphor, with imagination and with appreciative tacit knowing (Vickers 1983).

In reviewing these essays, we are reminded of the inherent paradox of our discipline: to balance seemingly diametric and conflated realms of the social and realms of the technical. Thus, from Geirbo’s essay we glean that the design and implementation of infrastructure is an imposition of values and preferences against the ebb and flow of nature—a holonic blend of technological and sociological determinism coupled with the faith/belief that our credit line to wield and foist infrastructure into our surroundings is limitless and without impact or consequence. Perhaps, in the sense of Schrödinger (1935) and his thought experiments, we must conceive of our role, vis-à-vis information systems, as being both whole and whole/part. We are partially and

wholly social scientists and we are wholly and partially computer and information technologists. We indwell wholly in the realm of application context, and yet we are visitors to this world. We simultaneously hold passports and citizenship in the technical and social realms and yet never fully reside in either. Or, at least, this is a useful idealization.

Metaphors, a central theme in both essays, assist us in reconciling these dualistic views of our world. Some degree of schizophrenia exists in the very basis of what we do; it is a trait that we should not just accept but promote. Stated aptly by Howcroft and Wilson (2003), we are "... placed in an untenable and contradictory position between two camps." (p.3) In their call for a pendular shift towards embrace of reflective practice, metaphor, and imagination as valid components for systems design (in a practitioner and scholarly sense), both Geirbo and Hillgren provide input to a wider reflection on role of the researcher in the IS discipline.

That these essays are communicated via a Scandinavian voice is no surprise from an outsider's perspective. From my own experience, Scandinavian traditions of scientific inquiry in information systems—centered on what I perceive to be cultural proclivities that favor trust, transparency, and low power distance—provide a leading example of the importance reflection, metaphor and imagination in our scholarship and in practice. What resonates in both essays is the degree to which Scandinavian researchers value the public sphere as being sacrosanct and otherwise protected from excessive technical rationality. While this may be an over-generalization, there exists a *je ne sais quoi* in the narratives shared in reports on Scandinavian research that advocates for the very balance suggested by Geirbo and Hillgren, and others (Aanestad 2016).

If my own reflection has an entreaty is it this: let us embrace and promote the holonic multiplicity that is inherent in what we do in information systems. In our research and practice, we must keep an eye on the technical foundations and chemistry of the IT artifact, in addition to impacts, implications and effects. In response, let us adopt the Janus face: we see and act as a social scientist; we see an act as a computer, information, and data scientist; we see and act in a holarchy. These reflections are presented beyond the level platitude: let us be aspirant and practicing polymaths much as one pursues mastery in apprenticeship. In example, let us study deep machine learning, algorithm development, and the design of logic and data systems and yet also endeavor as ethnographers of the cultures, societies and organizations shaped by IT phenomena. In this regard, we are translators embedded in two cultures. I am reminded of what Schwaber and Sutherland (2017) describe as the T-shaped skills shared by members of Scrum software development teams. These teams possess the functional (not hypothetical) ability to work outside of their core areas and yet develop a precise, pointed, and detailed acumen of specialty. Often, we espouse these values but do not provide ourselves the infrastructure in our professional environment to accommodate this.

Metaphor holds promise to assist us in the balancing act placed before us. Schön (1983) proposed that metaphors fuel reflective practice which, in turn, drives experimentation. This experimentation requires an imagination that feeds the repertoire of experience and tacit knowing. Metaphors are the medium by which our tacit knowledge is explicated and then serves as sources for new knowledge (McGilchrist 2009). In balancing reflective practice with technical rationality, we remain reasonably fluent in both in a manner that facilitates discernment of myth, mirth, and evidence. Imagination and metaphor may also assist in knowing the value of each. In a Janus orientation, we may achieve the collaboration and community alluded to by both Geirbo and Hillgren.

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