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Semiotics in a Regional Designer/Maker Community

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Designer/Maker communities have most often sprung first from designers, makers, and artists seeking to employ technology in their own work, but then they have often extended to embrace a larger vision of community empowerment via technology. According to John Deely, the movement from the Innenwelt of private concern, to the Umwelt of public exhibition or spectacle, to the Lebenswelt of human community forms an anthroposemiosis of social-historical significance. Following Deely, this article briefly examines the historical account of Philadelphia's Hacktory, exploring the anthroposemiosis that shaped its development as a Designer/Maker community. Subsequently, it turns to the budding Designer/Maker community near Southern Illinois University. From obscure beginnings, the varied praxes of design have always played the critical role of disseminating the existence and activities of the OpenSpace organization of the Carbondale-Murphysboro area around Southern Illinois University. Notably, the anthroposemiosis leading from the Innenwelt to Umwelt to Lebenswelt has been remarkably similar, despite the large differences in circumstances. In place of a conclusion, the article makes an abductive conjecture that Deely's philosophical semiotics, applied to the design praxes of these two Designer/Maker communities, accounts for their common anthroposemiotic trajectory, yet also clarifies their unique regional differences.

KEYWORDS Maker communities, John Deely, Umwelt, Lebenswelt

Parallel Lives

Philadephia's *Hacktory* has a fascinating history: beginning in 2007 from the informal meetings of the makers' group *MakePhilly*, it initially sought to inform artists and others on incorporating digital technologies into their work. Since then, with the help of grants and partnerships, they have evolved a broader collaborative focus in a new space named *The De-*

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partment of Making + Doing (DM+D) at the University City Science Center (which is just West on Market Street from Temple University City Campus). Through this partnership, several organizations have collaborated to create a diverse selection of programs that provide hands-on learning for a citywide cohort. As it solidifies its status as an institutional member of the Philadelphia science and technology educational infrastructure, it has applied for 501c3 non-profit status to guarantee sustainable funding and independence. What began as self-education for artists has developed into a broad educational program for the city population in general. This broadened focus and maturing institutional status is reflected on their website where they write, 'the Hacktory has continued to provide classes and events [at the *The Department of Making + Doing (DM+D)* in the UCity Science Center] that build our mission to inspire and empower people to use technology for their own personal expression'.

Seeing parallels between the history just recounted and OpenSpace, the budding maker community of the Carbondale-Murphysboro area around Southern Illinois University, is easy. It is true that the urban location of Hacktory makes possible a rich network of partnerships, whereas the rural location of the SIU makes this network much more diffuse, while retaining a sustained set of committed volunteers is made much more difficult. Yet, I am struck by the similarity in their evolving goals (their telos) over time. This reflection, seeks to understand this telic evolution through the semiotic theory of John Deely, in the hope that it can contribute to the continuing search for a sustainable Maker movement in the Southern Illinois region.

Semiotic Preliminaries

In his book, *Purely Objective Reality*, John Deely portrays 'the social construction of reality' as 'an order of post-linguistic objects as such – objects that may be perceptible as physical constructs but are understandable as cultural realities only through and on the basis of linguistic communication, understanding in its difference from perception' (Deely 2009: 114). These post-linguistic objects form part of the species-specific objective world that 'is a mixture of *ens rationis* [mind-dependent being] and *ens reale* [mind-independent being] in the presentation and maintenance of objects we need in order to survive, grow, and flourish' (Deely 2003: 144). The human-species-specific objective world consists of a way of modeling the world (*Innenwelt*), the objective world so-modeled (*Umwelt*), and the linguistic sign which aims to signify to another who 'can pick up enough clues in turn to modify its *Innenwelt*', thereby beginning 'the transformation of the *Umwelt* into the *Lebenswelt*' (Deely 2009: 101-102). Indeed, in an earlier work Deely had observed that 'the coding of the anthroposemiotic *Umwelt* – its transformation into a *Lebenswelt* – is the accumulation of marks made by the intelligence on the objective world in whatever respect and whether deliberately or as a concomitant attribute of intelligent action' (emphasis in the original) (Deely 1994: 68). All of human science, culture,

social activities, technologies, etcetera, are communicated through this ever-shifting semiotic network, a network that arises as signs are used to proportion and correlate an internal world-model (*Innenwelt*) with the experienced-world (*Umwelt*). The production of this semiotic network (*Lebenswelt)* is an intersubjective affair occurring across the human species, and termed *anthroposemiosis*.

The *Lebenswelt* subsists, thus, of 'the social world, but also the cultural world ... an objective world to which only the semiotic animal has direct and full access through the species-specific channel of linguistic communication which it itself has created within anthroposemiosis' (Deely 2009: 103). This objective world, the *Lebenswelt*, is where both nature and the socio-cultural are brought together through the human use of signs. Anthroposemiosis forms a code that correlates and proportions sensibly-accessible constituents to previously understood objectivities, and moreover, humans understand the code as just such a correlation-and-proportion of their species-specific *Umwelt* and *Innenwelt* (Deely 1994: 64-65). Knowing and manipulating the code – using it to perceive, understand, and act on objects of the *Umwelt* in physical, social and cultural ways – is how humanity constructs the *Lebenswelt*, and gives rise to science, technology and ethics (Deely 1994: 48, 70).

OpenSpace in the Southern Illinois Region

The beginnings of the OpenSpace Maker movement in the Southern Illinois University are obscure. From a scattered history, it may be traced to individuals drawing from an as yet unshared *Innenwelt* that consisted of their private pursuits, including personal hobbies and student work. These early founders, mostly former Southern Illinois University at Carbondale (SIUC) or John A. Logan Community College students, had cobbled together a modeling of the world which moved beyond their collegiate experiences. They brought into being creative technology 'happenings' in the region of Southern Illinois, and by so doing, simultaneously building a semiosis of 'Maker' for their nascent community. For example, Will Blankenship was the founder of HackSI, the sole local 48-hour hack-a-thon in the Southern Illinois region, as well as OpenSpace. A native of Springfield, Illinois, Blankenship had come to SIUC in 2012 to major in Computer Science (the city of Springfield is not normally included in the region). He became the main actor in the early days of the movement that spawned OpenSpace (Crosby 2015). He graduated in May 2015, and left immediately for New York. In similar fashion, others, once critical for the OpenSpace organization, no longer have maintained involvement as they once did. However, from this early period, the anthroposemiosis within the OpenSpace organization began to point toward a community of inquiry seeking a permanence that would impart the semiotic scaffolding of their *Innenwelt* to the local area's *Umwelt* (Cam 2011: 103, Deely 2015: 341-342, Peirce 1877: §V).

In April 2014, OpenSpace received permission from the Murphysboro school board to

use the converted trailer building at 80 Candy Lane in Murphysboro, which had formerly been used as a classroom. This building provided the necessary base for the emerging organization. The shift from the private *Innenwelt* of the individual founders to an *Umwelt* of public space and equipment occurred during this period of establishment in Murphysboro. Additionally, the Murphysboro Superintendent of Schools, Chris Grode, became an ardent supporter of the project, with the hope that it would contribute to technology education in the region (Richardson 2014). Consequently, through this permission for use of classroom spaces in the public schools, the OpenSpace organization became integrated into the knowledge infrastructure of the Southern Illinois region.

Together SIUC computer science and electrical engineering students renovated the classroom building and made it ready to conduct workshops (Knight 2016, Payne 2016). Furniture was remaindered from the school — four large rectangular tables, five smaller round tables, a couch, and three large bookshelves — which allowed for basic gatherings and places to work. Early participant and SIUC student, Dean Payne, constructed a large screen for projection, although at that stage an actual projector was lacking (Payne).

In terms of technology, a handful of older Dells were donated by a local business, and the non-profit organization New Blankets donated the first of a series of 3D Printers, a then cutting-edge Bukobot printer. Basic soldering and electrical assembly equipment were donated or scrounged from a variety of sources including Southern Illinois University and John A Logan Community College. Software development was dedicated to Linux-platform variants (whose usage has always been a sign of the true Maker community, and remains so to this day). It also acquired a handful of Arduinos and Raspberry Pis.

All of this innovative activity occurred in March and April of 2014. Students involved in this included Nate Knight, Dean Payne, Scott Weaver, Ben Willig, and Will Blankenship (others were involved as well, but it was not possible to track down all their names). Thus, in a relatively short time, the *Umwelt* corresponding to the founders' *Innenwelt* had been produced through a series of semiotic actions: an anthroposemiosis. But the resulting objective world so-modeled was made with the further aim of transforming this *Umwelt* into part of the *Lebenswelt* of the Southern Illinois region. Accordingly, a plan of action emerged that included both an Internet presence as well as local workshops to disseminate the knowledge of the OpenSpace founders.

The first OpenSpace website (www.openspace.io) went live on March 17, 2014 due to the efforts of two students, Dean Payne and Scott Weaver.[1] The OpenSpace facility officially opened on March 22. A news article in the *Daily Egyptian* (SIUC's student newspaper), stated at the time that '[t]he space provides anyone interested in technology with assistance, space and classes while providing a variety of hardware to work with' (Richardson 2014). It was in September, 2014, that I first became involved with OpenSpace.

OpenSpace offered its first workshop, a Web Development Crash Course, on April 26th,

2014 (OpenSpaces, FB 26 April 2014). Its goals according to the publicity graphic, was to help people 'learn how to write HTML and CSS to make a website'; 'find out what cool tools are out there to help you as a developer' and 'get your hands dirty and start coding your own website!' Subsequent workshops have included building a Bukubot 3D printer from a kit (September 27, 2014), Google Cardboard (June 25, 2015), machine embroidery, soft-material cutting using the Brother Curio cutter machine, a more advanced 3D printing workshop (January 30, 2016), SketchUp (February 20, 2016; July 30, 2016), an advanced embroidery workshop (March 12, 2016), 3D modeling for 3D printing (March 19, 2016), and 3D scanning using the Next Engine scanner (March 26, 2016). As can be seen from the growing range of the workshops, there has been a move away from those solely focused on hard tech skills such as coding and electrical construction, toward a craft-centric ground.

Such a shift reflects the skills and interests of a non-student public that most Maker movements learn to tap into, both as support for the movement, and as a genuine growth in their goals. As OpenSpace seeks to solidify its status as part of the small technology infrastructure of Southern Illinois, what began as self-education for students of computer science and engineering has developed into a broad educational program for the region's population in general. In this way, the *Umwelt* that the original founders created from their *Innenwelt*, was incorporated into the *Lebenswelt* of the broader public through exaptation to skills such as embroidery and soft-material cutting — done, however, on high-tech computerized devices.

A new website for OpenSpace came live on January 27, 2015. Coincidentally, or perhaps not so coincidentally, this website was created by Brandon Byars, who is the present director of the organization. As I noted above for the Hacktory, the broadened focus and maturing institutional status of OpenSpace is reflected on the website where they write '[t]here are a lot of great ideas out there that may never become a reality because of the lack of knowledge on how to take those ideas to the next step or the lack of equipment to make prototypes. That is where makerspaces come into the scenario. Makerspaces give people affordable access to the equipment that they will need to make their products' (OpenSpaces 2016). OpenSpace has clearly evolved along an anthroposemiosis building the semiotic network from the *Innenwelt* of the original founders, to an *Umwelt* of the physical space and equipment, and finally to the *Lebenswelt* of a functioning educational organization embedded in the region of southern Illinois.

A Conjecture in lieu of Conclusion

This article has been a very brief examination of two Maker spaces, and it would be impossible to make a claim of *definitive* insight into the semiosis of another local Maker space based on these two alone. What is clear is that Maker spaces are a part of the *Lebenswelt*, that is, part of the network of signs produced over time and space that communicate the species-specific

human approach.[2] They exist to bring people together for cultural, social and technological purposes. Plainly, over time, they have effected a semiosis that adapts or exapts[3] into the broader semiosis of the *Lebenswelt* to suit the work and code of the Maker movement. For example, magazines such as *Make* (makezine.com), *Nuts and Volts* (www.nutsvolts.com), *Elektor* (www.elektor.com), *Robot* (www.botmag.com), and *Robotic* (www.roboticmagazine.com), as well as several others, provide a sample of the human use of signs within the Maker movement (while leaving out much as well). A more focused example of the semiosis across Maker communities might be the social hierarchies communicated through the use of the various versions of Linux (Ubuntu, Fedora, Debian, CentOS [RedHat], etcetera). That is, who uses which version and what that means as to their status within Maker community coders and developers. Perhaps more particularly, how the changing historical conditions of Linux usage within the Maker community may outline another example of semiotic development.

So, given the scope of the study, I end not with a conclusion, which promises definitive results, but instead with a conjecture or *abduction* on the anthroposemiosis of a Maker space community. As Peirce says, 'abduction consists in studying facts and devising a theory to explain them. Its only justification is that if we are ever to understand things at all, it must be in that way' (Peirce 1902: 197). An abduction is a guess, based on a limited number of experiences, which can only be verified over the long run (Deely 2001: 412). It provides the basis for 'a semiosis spiraling through time in what characterizes not only the action of signs as unlimited, but also the very formation and identity of the individual as a "finite conscious self" through participation in the broader semiosis of which that self forms a temporary and local part' (Deely 2001:726). In Peircean semiotic terms, beginning to understand anything comes by the formation of abductions, upon which we can then build deductive and *retroductive* inferences.[4] Ending this brief study with an abduction or conjecture, sets the stage for further research and perhaps more definitive insights in the future.

So here is my conjecture on the semiotic development of local Maker spaces: they usually begin with a narrow technological or artisanal goal; that is, provide a training place where knowledge of this or that technological skill set will be communicated to other technologists or artists through an inexpensive, hands-on process. The people who begin a MakerSpace movement perceive themselves as holders of valuable *techne5* that they need to communicate to others similar to themselves, that is, practitioners of technology. In my speculative trajectory, they correspond to an *Innenwelt,* a world-model, which has to be brought conjunction with the *Umwelt*, the world of the public *hic et nunc* which was critical in Walter Benjamín's approach to artisanal education (Benjamín 1936: 41-42). As OpenSpace (and I would argue, the Hacktory) moved repeatedly into the pattern of publically offered workshops, the communication between the founders with those whom they sought to come to their offerings, as well as communication with potential funding organizations, broadened their original semiosis beyond the purely technical or artistic, to include basic science on the one hand, and contemporary crafts on the other. This has had the

intended effect of widening the social reach of the OpenSpace (and I would argue, the Hacktory) beyond what its student founders envisioned. As the *Innenwelt* of private concern joins to the *Umwelt* of public space (for exhibition and spectacle), a new expansion of the *Lebenswelt* of human community forms, bringing together more people within the semiotic network. And so thereby it may become a semiosis of socio-historical significance.

NOTES

1 This website is now defunct.
2 This communication occurs mostly between humans, but often inter-species communication happens as well (Martinelli 2010: 41).
3 An exaptation is a trait that originally served one purpose, but then subsequently comes to serve another unrelated purpose.
4 Retroduction is also known as 'descending induction', while abduction is sometimes called 'ascending induction' (Deely 2001: 911).
5 *Techne*: skills to make; *phronesis*: skills of practical life (i.e., ethical and political skills), *poesis*: imitative skills to present things from life that may never have existed until the poet imagined them, and make experiences accessible that would come only through the poet (Aristotle [1447a]).

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