Apophenia As Method—Or, Everything Is Either A Metaphor Or An Analogue Computer

Abstract
Intentionally seeing patterns and drawing links or making metaphors between ostensibly unrelated phenomena could be a method for generative creativity for disruptive improvisation. This paper discusses 'no-technology' ways to create ideas for new interfaces through self-imposed constraints, and offers an event score for a kind of deliberate apophenia as a generative technique.

Author Keywords
apophenia; pattern recognition; visualization; metaphors; analog computing; generative methods

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Two Formative Moments
A couple of years ago, I was moving house, from a small damp flat to a houseboat moored on the Thames at Richmond, in south-west London (which was fun, but less fancy than it sounds). The two places were close enough together that we moved a lot of things by walking from the flat to the boat, along residential streets. Back and forth, the same journey, many times.
And when you’re carrying heavy things, you often end up looking down, to avoid tripping. The pavements (sidewalks) were bumpy, uneven, cracked, undermined by tree roots. And once, on one of those journeys, I started to notice, and become obsessed by, the patterns of the cracks (e.g. Figure 1). They reminded me of a road atlas, with patterns of settlements at intersections, straight roads and those deviating to fit the landscape. I started to take photos of the cracks, and similar patterns in tarmac, cobblestones, paint, pretty much everything. Some of them I turned into maps of imaginary places, drawn roughly using the style of 1950s–60s UK Ordnance Survey ‘One Inch’ Seventh Series maps (Figure 2). Different patterns of cracks suggested different kinds of landscapes and settlements, from British villages to the plains of the American Midwest. Sometimes tree roots turned level tarmac into dramatic mountains and gorges. The experience got me into a habit of seeing—on the face of it irrelevant—patterns in things, mapping them to unrelated things that somehow seemed meaningful through having shared elements of structure. This fits a definition of apophenia [13], “drawing connections and conclusions from sources with no direct connection other than their indissoluble perceptual simultaneity” [3], but also—as we will see—the habit led to an appreciation of the possibilities and opportunities of new kinds of metaphor.

A second moment occurred around the same time. I was on a train which decelerated as it approached Richmond station. One of the double-glazed windows had water trapped in it, between the panes. And as I watched (Figure 3), the water’s movement produced a real-time visualisation of the train’s deceleration, or rather, the jerk or even snap, crackle or pop functions (the higher derivatives of position with respect to time) [6] as it stopped at the platform. In a sense, the window was an analogue computer [4] in which the computation was simultaneously its own display, an indexical visualization [11] in Peircean terms, or a very direct form of qualitative display [10]. Equally though, the paving cracks were also an analogue computer: the cracks are a visualisation of the patterns and histories of stresses and in the stones: the computation of these functions directly produces the display.

**Figure 1 (above):** Cracks in the paving, St Margarets, UK...
**Figure 2 (below):** ...turned into a map of a fictional village in a 1950s–60s mapping style.

**Figure 3:** Water trapped in train carriage window. Animated GIF available at https://imgur.com/eXbC1Ed
Could everything in the universe be considered as an analogue computer, producing ‘reality’ as its output? What would it mean to take that metaphysical trick seriously—or at least as an inspiration? What if we observed things in the world with an eye, or ear, for them to tell us their story? What if we treat everything as a display that is visualising its own past, present, and maybe future? This is Part I of my event score.

A Research Project: New Metaphors

Another interpretation of the cracks and the water is to see these as unusual forms of metaphor: each is a visualization which represents one phenomenon in terms of another, an approach common to almost all GUI design [see, e.g. 1] (and even programming itself). The opportunity for creating new metaphors to enable novel design, and understanding the world in new ways, has been recognised by many people inside [7, 12] and outside [2] of design and HCI, but the simplest way to do it is a generative method [5]: juxtapose or bisociate [8] two otherwise ‘unrelated’ phenomena, treat one as a metaphor for the other, and see what the combination inspires. A current research project, New Metaphors (Figure 4) involves giving designers sets of (mostly technology-less) concepts, challenging them to juxtapose them to generate metaphors with some merit, and devising ways in which new kinds of interface could be designed around them [10]. This is essentially Part II of my proposed event score (Figure 5): forcing yourself to treat something found through a (meaningless?) self-imposed constraint as a metaphor for something very meaningful to you, either personally, or as design inspiration.

Figure 4: Two concepts generated by UX designers in a New Metaphors workshop at the Google SPAN 2017 conference. Above: Overgrown used plant growth as a metaphor for overwhelmedness; below: Deflection Pool used waves as a metaphor for people’s accents.

Figure 5: Event Score, inspired by form of parts of An Anthology of Chance Operations [15]. Text is at http://imaginari.es/events.score
A Concluding Note

The ideas in this paper are meant to be modest, perhaps useless, but with a hint of something that might actually enable a form of disruptive improvisation in design and HCI processes.

One goal is that they potentially require no materials, and certainly no technology, beyond what is already there in the world to be noticed, and thought about in new ways. If nothing else, they offer an academic-sounding justification for a kind of structured daydreaming.

Biography

Dan Lockton is an interaction designer and researcher, interested in how people make sense of the world. He is Assistant Professor and Chair of Design Studies at Carnegie Mellon University, Pittsburgh, and founder of the Imaginaries Lab, a new research group using design methods to explore and support people’s imagining—new ways to understand, and new ways to live. Current projects include energy sonification, speculative design around AI, and investigating people’s mental imagery and perceptions of agency around local government. Dan joined CMU in 2016 from the Royal College of Art, London, where he was a researcher at the Helen Hamlyn Centre, and a tutor in Innovation Design Engineering. During his PhD at Brunel University (2013), he developed the Design with Intent toolkit, a pattern library around environmental and social behaviour change.

Also co-authors of the paper are—if the ideas in it are true—all the things in the entire world, telling their stories, including cracks in the paving and water in the window as representative members.

References

15. La Monte Young (ed). 1963. An Anthology of Chance Operations. La Monte Young and Jackson Mac Low, New York.