Faculty of Design

2022

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Lockton, Dan

Relating Systems Thinking and Design
2022 Symposium
University of Brighton, Brighton, UK,
October 13-16, 2022

Exploring Bateson's Syllogism in Grass in Systemic Design

Dan Lockton

Eindhoven University of Technology, Eindhoven, Netherlands

Gregory Bateson's *syllogism in grass* expresses a form of abductive reasoning which can be used to generate and discuss metaphors, particularly in living systems and humans' interrelations with them. This paper tentatively explores the possibilities of the syllogism in grass in a systemic design context as a creative method of provocation and reframing.

Keywords: systemic design, metaphors, syllogism in grass

RSD: Methods & Methodology, Mapping & Modelling

This paper is illustrated throughout with examples of an AI image generator's interpretations of the prompts "men are grass" and "people are grass" and related phrases in various permutations.

Introducing the syllogism in grass

> Classical logic named several varieties of syllogism, of which the best known is the 'syllogism in *Barbara*.[1]' It goes like this:
>
> Men[2] die;
> Socrates is a man;
> Socrates will die.
>
> The basic structure of this little monster—its skeleton—is built upon classification [...]. The syllogisms of metaphor are quite different and go like this:
>
> Grass dies;
> Men die;
> Men are grass.
>
> (G. Bateson & M.C. Bateson, 1988, p. 26)

The *syllogism in grass* was used by Gregory Bateson in a number of contexts in his writings, especially in relation to living systems. It was a device for thinking with "his main tool" (Borden, 2017, p. 91) for finding "patterns which connect", a metapattern (Volk et al., 2007), or "a kind of koan, a perturbation for his readers" (Roffman, 2008, p. 250). Characteristically, Bateson even applied it to his own work, for example, describing the thesis of *Mind and Nature* (G. Bateson, 1979) as being (in syllogistic terms):

> Evolution is stochastic (able to achieve novelty by a combination of random and selective processes);
> Mental process (such as thought) is stochastic;
> Evolution is a mental process.
>
> (G. Bateson & M.C. Bateson, 1988, p. 27)

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[1] *Barbara* is a syllogism whose two premises and conclusion are all a-propositions.

[2] I have left the original "men" wording in the direct quotes from Bateson, but "*people* are grass" would be a preferable way to phrase the syllogism.

Glanville (2006: 136) illustrated the comparison between the syllogism in Barbara[3] and the syllogism in grass, using arrows, and this is perhaps the easiest way to visualise the structure, although it perhaps lacks some of the poetry[4] of the original:

Socrates men dies
men die grass

But there is *something* here—a glimpse of what could be the kernel of a creative process which links concepts across domains and scales, particularly those involving living systems (which give humans' presence in everything, means that most technological and societal systems also come within scope). It is not about logic: as Bateson (1980/1991, p. 240) put it, "it seemed that perhaps, while not always logically sound, [the syllogism in grass] might be a very useful contribution to the principles of life. Life, perhaps, doesn't always ask what is logically sound. I'd be very surprised if it did." Bateson made the "extraordinary claim" that metaphors are, in fact, "the [form of] logic on which the biological world had been built" (Goodbun & Sweeting, 2021, p. 160). This paper explores how the metaphorical "move" made in the syllogism in grass could be part of a systemic design "recipe" involving metaphors and reframing.

Abduction

The syllogism in grass is considered an example of how an *abductive* reasoning process can offer an alternative way of reasoning to deductive (and inductive) reasoning. The notion of abduction, building on the ideas of Charles Sanders Peirce, has in recent years often been invoked as a way of describing the kind of reasoning that is often part of design processes, where (even if not always formally described as such in design contexts) an "explanatory hypothesis" (Peirce, 1931) is formed after some insights or observations are made, which does not necessarily follow in a formal logic sense from

[3] ***B**arb**ara*** is a mnemonic for the "AAA" form of the syllogism, and does not refer to a person.

[4] I also feel it lacks the "directionality" of Bateson's formulation. Saying "people are grass" is different in how it directs our attention, compared with saying "grass is people". The order in which the "unexpected" part, the punchline, if you like, appears, is significant.

the observations, but nevertheless offers a way of linking them, which enables the designer to move forward. For example, Kimbell (2015) describes the value of abductive reasoning in design for policy-making:

> In abduction, we link things together in new ways. We can't say if the interference is true or not, as is the case with deduction. Nor can we say it has strong validity because of the observations we made, as with induction. But with abductive reasoning, what we do get is a new insight or concept that we can explore further with the other two logics.

Kolko (2010) sees abduction as a crucial part of the process of design synthesis:

> … a logical way of considering inference or "best guess" leaps […]. [A]bductive logic allows for the creation of new knowledge and insight […]. The various constraints of the problem begin to act as logical premises, and the designer's work and life experiences—and their ease and flexibility with logical leaps based on inconclusive or incomplete data—begin to shape the abduction. Abduction acts as inference or intuition, and is directly aided and assisted by personal experience.

Apophenia

However, while abduction is often presented as a "best explanation" hypothesis, at least in my understanding, in Bateson's use of the syllogism in grass, he does not intend to offer a "best" explanation (people being grass is not necessarily the best explanation for their dying) but rather a *provocation* which can prompt seeing larger patterns[5]—patterns that (might) help us see relationships and connect ideas across scales and seemingly unconnected parts of the living world. Mary Catherine Bateson (1984, p. 185) expressed this idea as "the same kind of looking that recognises the spirals of growth in shells as the frozen form of cyclones and galaxies". It is a kind of mechanism to facilitate an intentional apophenia (Lockton et al., 2018), a productive

[5] In design, architecture, human-computer interaction, and computer science, of course, patterns have a variety of meanings and uses. Andersen and Saloman (2010) explore parallels and contrasts between Bateson's and Christopher Alexander's approaches, as well as those of Gyorgy Kepes and Ilya Prigogine.

form of bisociative thinking or forced juxtaposition (Koestler, 1964), akin to artistic processes from the Fluxus movement perhaps (e.g. Ono, 2000), but one very much in a constructivist paradigm (Sweeting, 2016). Whether we see these links between ideas as actual "real" equivalences, or as examples of underlying processes of nature (e.g. the spirals) which connect disparate phenomena, or "the secret connections between things" in Jorge Luis Borges's phrase (Borges & Ferrari, 1986/2015), the point is that "people are grass" offers something unusual, unexpected, yet still, perhaps, profound, as we construct our own understanding of the world. It gives us a way of seeing, a lens (Lockton & Candy, 2018) for seeing the systems we are in differently.

> Cybernetics, it seems, makes poets of us, as does any formal system that allows the recognition of similarity within diversity. (M.C. Bateson, 1984, p. 185)

Metaphors: defensible or provocative?

While the underlying mechanism may be abduction, in terms of what it generates, the syllogism in grass is a way of creating (or at least considering) metaphors, particularly with an emphasis not on Cartesian forms of classification and categorisation, but on less reductionist (Nora Bateson, 2015) and indeed perhaps more poetic ways of engaging with the world (as Bateson (1980/1991, p. 240) put it, this kind of thinking "would be all very well if I were a poet, but is inelegant in a biologist").

To reiterate the point from the previous section, Bateson's approach to metaphors here is not about metaphor as translation, or as best explanation, or even as a kind of instructive allegory, but as something creative, even complicating or pluralising. Bateson (1972) noted how:

> Poetry is not a sort of distorted and decorated prose, but rather prose is poetry which has been stripped down and pinned to a Procrustean bed of logic. The computer men who would program the translation of languages sometimes forget this fact about the primary nature of language. […]
>
> Allegory, at best a distasteful sort of art, is an inversion of the normal creative process. Typically an abstract relation, e.g., between truth and justice, is first conceived in rational terms. The relationship is then metaphorised and dolled up

> to look like a product of primary process. The abstractions are personified and made to participate in a pseudomyth, and so on. Much advertising art is allegorical in this sense, that the creative process is inverted. (p. 136)

As explored further at RSD8 (Lockton et al., 2019a), RSD9 (Dudani & Morrison, 2020), and RSD10 (Dudani & Lockton, 2021; Dudani, 2021; Lockton, 2021a), and by others in the RSD community (e.g. Vink, 2017; Boehnert, 2018; Silverman & Rome, 2018; Stoyko, 2019) metaphors are an important (and unavoidable) part of systemic design, and systems more generally, partly because systems do not really "exist" – they are all constructs. As Bateson (1979, p. 30) notes, citing Alfred Korzybski (1933), "the map is not

the territory, and the name is not the thing named". There is an assumption that (better) metaphors are needed partly to help engage with invisible and intangible systems, black boxes of various kinds (even if the black box itself is a valuable metaphor (Glanville, 1982), more-than-human entanglements (Forlano, 2017; Akama et al., 2020), and indeed the mindsets, worldviews, and theories of change held by human participants in addressing systems and practices undergoing transitions and transformations (Carey et al., 2022; Chambers et al., 2022; Swat & Lockton, 2021; Trotto et al., 2021).

Pask's (1975, p. 13) notion of "establishing isomorphisms" in cybernetics is not dissimilar to Bateson's "pattern that connects"—finding parallels and correspondences[6] in structure between systems to enable "manipulating defensible metaphors". But whether "people are grass" is a "defensible" metaphor perhaps depends on the context in which the discussion is happening; as Roffman (2008) puts it, "That two things *can be seen as* [my italics] equivalent (via metaphor) is more important than showing they belong to a shared category." Borden (2017, p. 89) notes that "according to Bateson, the major problems in the world were the result of the difference between how nature works and the way people think", and so the "pattern that connects" should be seen as a way to connect these realms. Bateson's own double bind concept, a metaphor in itself (Bateson, 1972; see Lockton, 2018 for an application within systemic design), also tackles this idea of two apparently incompatible states both being "required" simultaneously and the effects on how a person thinks.

[6] This is also part of Nora Bateson's "warm data" approach (N. Bateson, 2017: 39), in which "comparisons of findings from one context with findings of similar patterns in other contexts [...] generate[s] hybrid information".

> The metaphysicians of Tlön are not looking for truth, nor even for an approximation of it; they are after a kind of amazement. (Borges, 1940/1962)

Creating metaphors

So, in a design context, we have the notion that perhaps the syllogism in grass could be a way for us to create metaphors – new metaphors (M.C. Bateson, 2000), which have variously been explored and proposed by futurists (Inayatullah, 1998), AI and robotics researchers (Alves Oliveira et al., 2021; Murray-Rust et al., 2022), biologists (Montgomery, 2021), and systemic designers (Dudani, 2021, Lockton et al., 2019a)

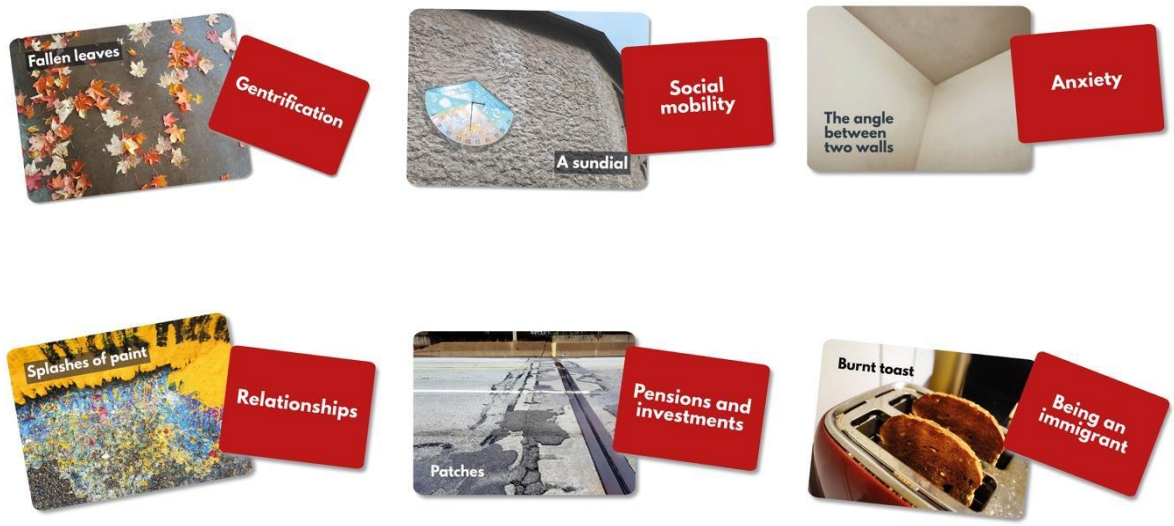
among others, as ways of dealing with problematic, harmful, or limiting metaphors in common usage (e.g. see Sontag, 1978). The "qualitative interfaces" approach (e.g. Restrepo et al., 2022; Menheere et al., 2020; Lockton et al., 2022) commonly explores the use of uncommon or novel metaphors in interaction design (indeed including another Peircean perspective on indexicality (Offenhuber, 2020). My own New Metaphors toolkit, created with Devika Singh, Saloni Sabnis, and Michelle Chou (Lockton et al., 2019b), has been applied by others in contexts such as robots (Alves-Oliveira et al., 2021), moderating online communities (Seering et al., 2022), health decisions (Kirchner et al., 2020), and augmentative and alternative communication (Valencia et al., 2021). Dudani (2021) argues that within systemic design, metaphors can do the work of associating, embodying, materialising, diversifying, and probing, enabling ideas and people (and their experiences and beliefs) to be shared and discussed, both as part of research and in the (re)design of systems.

But how do we create new metaphors? The process used in many computational approaches, e.g. by Gero and Chilton (2019), involves algorithms applied to knowledge graphs, such as ConceptNet, to extract and match words that are close in meaning (low semantic distance). However, in the more analogue approach described in Lockton et al. (2019b), we use a much less structured process, finding that it is often the unguided, semi-random juxtaposition which produces the most interesting results, the "pleasant surprise" of a new metaphor (Kintsch, 2000, p. 261) or "amazement" in Borges's term.

Taking a sample of random[7] permutations, we have metaphors including

gentrification is fallen leaves
social mobility is a sundial
anxiety is the angle between two walls
relationships are splashes of paint
pensions and investments are patches
being an immigrant is burnt toast

[7] Using the generator at http://imaginari.es/new-metaphors, which draws from a pool of 50 'concepts' and 100 images, randomly juxtaposing them. The physical card deck suitably shuffled, would provide a similar type of result.



Of course, none of these is “right” in itself; the point is to use the new metaphors as provocations to discuss in which ways they do, in some way, “work”. Anxiety might feel like being pushed into a corner – trapped or squeezed. Relationships might be thought of as comprising “splashes” of memories, a palimpsest of moments and meanings created together. Being an immigrant might often involve getting new social practices “almost right” (like burning the toast) in a way which may be very conspicuous (the burning smell). And so on.

The more structured approaches involve deconstructing existing (problematic) metaphors for particular relationships (e.g. “data is the new oil”, “the economy is a household budget”), usually through listing (often adjectival) qualities or properties that existing metaphors have, and swapping the harmful or limiting ones out for “more desirable” properties, then finding other things (from the images on the cards, or elsewhere) which have these desired properties or something close to them, then re-equating the original concept with the new metaphor. For example, this kind of process could lead to a revision of “data is the new oil” by noting problematic properties of “oil” (exploitative, extractive/consumable, polluting), replacing these with something more desirable (e.g. cooperative, growing/regenerative, nourishing) and then finding something else with these desirable properties (e.g. perhaps “data is the new soil”, as proposed by McCandless (2010)).

Verbing weirds language

However, in practice (at least from my experience in running 20+ workshops using these methods over the past four years), this process of deconstructing and then reconstructing via properties is not always easy or enjoyable for participants to do in a creative way; it lacks the element of Kintsch's "pleasant surprise" (2000, p. 621) and instead starts to become more of a process of equating or mapping (or, if not successfully, critiquing the mapping of) specific features of the entities. Depending on the participants, I suspect that a mapping such as "people are grass" would have become bogged down in specifying exactly which properties should be mapped and how good or bad the fit was. The need for the metaphor to be defensible, in Pask's terms, takes away the fun.

And so what many participants do is to short-cut the process, serendipitously picking something ostensibly unrelated ("data is a waiting room" or "people are tree rings" or "love is an overgrown greenhouse") and then work backwards from the inspiration triggered by the new metaphor. Participants seem to enjoy the provocation itself, and this is perhaps why Bateson's "people are grass" is powerful: it invites speculation and discussion about the ways (beyond "dying") that people and grass are similar and different, connected or not connected. The "dying" bit is more like a way to unlock the initial provocation than the core proposition of the metaphor. "People are grass" leads us to think about other ways in which humans are part of nature, but also aspects of the human experience (being in a crowd, being ostensibly identical from a distance, being (figuratively) crushed or mown, going from being an individual to realising our ultimate place in a lawn of millions of others, flourishing for only a brief period as an individual blade yet contributing to an overall persistence of the lawn, and so on).

But another thing that Bateson's approach seems to offer is that it emphasises the dynamic aspects of relationships and interactions—as Goodbun and Sweeting (2021, p. 159) put it, "Here, there are no subject-object relations, just correspondences between predicates, between actions, between verbs. It is a verb-based logic!". Concentrating on verbs rather than (static) properties (and certainly not on classification) enables a focus on interrelations: there are parallels with Nora Bateson's (2016, p. 173) notion of "conglomeration of interactions that form a living entity". It is not just that people are grass, but both are living parts of the same system, living, dying, being crushed, proliferating, and so on.

Mary Catherine Bateson (2000) makes a similar point in relation to metaphors for people's lives – actions and interactions between people offer a more meaningful and generative set of observations about interrelations (although it's interesting that she suggested such a mechanical metaphor for something so organic):

> In the search for new metaphors we will need to emphasize the way lives mesh, transmitting direction and power. As important as the metaphor of a cycle or a wheel has been in thinking about lives, we would do well to extend it and think in terms of gears, circular forms with varying radii, the ratios shifting and energy newly applied.
>
> From the shriek of gears grinding together at times of rapid change, it seems clear that our species does not come equipped with synchromesh. (p. 246)

A recipe

So, putting these ideas together, what could this offer us as systemic designers? A creative process, or recipe, for generating and exploring new metaphors, using the syllogism in grass[8], focused on verbs, might look something like this:

1. Start with a concept that we are seeking to explore or think about in new ways.
   example: humanity's future
2. Consider some things it "does"– what are verbs (active and passive, transitive and intransitive, obvious or potentially contested, phrases or single words) associated with the concept?
   example: humanity's future exists or will exist (even if we can't see it yet); humanity's future is plural rather than singular; humanity's future will be different to how we expect; humanity's future scares us; humanity's future motivates us.
3. What is something else (perhaps in the natural world) which shares one or more of these verbs or phrases? (it might not be its defining characteristic)
   example: underground fungal networks exist (even if we can't see them); ghosts scare us
4. Propose that one thing is a metaphor for the other (not equating them as identical, but offering a provocation).
   example: humanity's future is an underground fungal network; humanity's future is a ghost
5. Taking this as a starting point, what else does it offer as a metaphor?
   example: If humanity's future can be thought of as an underground fungal network, what might that suggest or how we approach it as a system? Perhaps we can think about our future as being more like a system which transfers resources to places (people?) in need, much like mycorrhizal networks do (Tsing, 2015)—perhaps in

[8] I previously attempted a Twitter bot, https://twitter.com/SyllogismBot, which uses the "X verbs, Y verbs, therefore X is Y" format, once per hour, to generate a random permutation, but the word/phrase lists it draws from don't actually match the nouns X/Y and the verbs in a meaningful way. Hence it produces (mostly) useless outputs such as "boxes of Q-tips bellow at you; picture frames bellow at you; therefore picture frames are boxes of Q-tips" or "candy wrappers stun with their intellect; washing machines stun with their intellect; therefore washing machines are candy wrappers" with the occasional profundity entirely by accident. This is ripe for improvement.

times of need such as climate-related disaster or social inequity. Perhaps our future involves "collaboration" with other species, as mycorrhizal networks do. Perhaps our future involves a form of decentralisation that seems strange to us now. And so on.

6. Using these new ideas and relationships as a starting point, design (or propose design), which treats these as possibilities, models, or "truths" (for want of a better word).
   example: Designing (speculative or real) food production/distribution or healthcare services around a model of transferring resources from people or places with an excess to people or places in need in times of disastrous conditions (or in anticipation of them).

And, of course, continue to iterate and modify and provoke in other ways: the idea of the recipe is that it is more like a heuristic than an algorithm. Here, I developed the "humanity's future is an underground fungal network" idea, but picking the "humanity's future is a ghost" metaphor would have proceeded in a similar way.[9]

Discussion

What does this recipe offer that we don't already have as systemic designers? I am not claiming any special advance in knowledge, but rather that the syllogism in grass, and this kind of recipe derived from it, could be a useful way to reframe our thinking abductively if we embrace exploring metaphors creatively as part of our process. The syllogism in grass gives us a way to do that, which is provocative but also potentially profound. Of course, a recipe like this could be useful at some stages of a systemic design process and potentially harmful in others; metaphors can damage or muddy our understandings of complexity just as they can illuminate them.

Bateson (1980/1991, p. 241) suggests that "metaphor was not just pretty poetry, it was not either good or bad logic" but was rather the "organizing glue of this world of mental

[9] I'm minded to address this in a more comprehensive way in a future paper, also looking at how concepts from haunting and hauntology (Byrne et al, 2022; Lockton, 2021b) which link pasts and (imagined) futures (Fisher, 2014), and juxtapose memory and place, as in many of W.G. Sebald's works (Wylie, 2007), can be relevant within systemic design.

process which I have been trying to sketch for you in some way or another." Whether or not this paper has been successful in its aim, it too has been a kind of sketch, an exploration of an idea, to be developed further.

Perhaps the last word should go to Mary Catherine Bateson (1972, p. 284), who, on the last day of the 1968 Burg Wartenstein conference on "The Effects of Conscious Purpose on Human Adaptation", organised by her father, declared that "Each person is his own central metaphor", explaining her meaning in four ways related to the ways in which our internal complexity and the complexity of the world around us can be understood. Gertrude Hendrix, a "teacher of teachers" from Indiana, asked (M.C. Bateson, 1972, p. 295) whether, in Mary Catherine Bateson's statement, the word "metaphor" was itself a metaphor. Her answer: "Yes. Yes and no".

AI image generator responses to “humanity’s future is an underground fungal network”.

Note: The ”AI images” were created in June–July 2022 using Midjourney: http://midjourney.com

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