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Making Metaphors Matter within Systems Oriented Design (SOD)

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This paper builds on the theme of tensions by focusing on the sub-theme of 'Value Conflicts'. The role of values and worldviews within complex systems is exemplified via the use of metaphors for associating with, embodying, materialising, diversifying and probing aspects of complex systems in relation to design work. The paper takes a relational and reflexive view on systems oriented design (SOD) and is based on an explorative study conducted as part of a systems oriented design master thesis project. The study looks at the Norwegian housing system and explores the systemic complexities by engaging a diverse set of stakeholders. The paper highlights how the use of metaphors contributed to the critical systemic enquiries in the study and supported the author's SOD explorations in imagining alternatives within housing in Norway.

Keywords: Metaphors, Systems Oriented Design, Reflexivity and Relationality, Diverse Actors, Values & Worldviews

Introduction

This paper builds on a design master thesis study at Oslo School of Architecture and Design. The study looked at the Norwegian housing system and its complex relationship with welfare policies, market economics and impact on overall citizen wellbeing. It focused on rental market and its tendencies to create long-term vulnerablities for certain residents. (Dudani, 2019a) Situated in Tøyen Gronland, an immigrant majority residential area in Oslo, the study engaged a diverse set of stakeholders such as renters, public housing residents, municipality players, housing cooperatives and associations, researchers, policy and legal experts and urban designers among others. The aim of the study was to explore the complexities, tensions, and concurrences between the interpretations, values and worldviews, and speculate a systemic design response that proposes alternative imaginations. This paper highlights the role of metaphors in enriching the understanding of the complex systems and supporting new pluraliversal imaginings.

Metaphors, Systems and Design

In Contemporary Theory of Metaphor (1992) Lakoff describes "the word metaphor was defined as a novel or poetic linguistic expression" however "[...] the locus of metaphor is not in language at all, but in the way we conceptualize one mental domain in terms of another." This is to say that a metaphor is not simply an ornamental device in language but a conceptual tool for structuring, restructuring and even creating reality (Lakoff & Johnson, 1980). These personal, internal representations of external reality can be described as mental models that people use to interact with the world around them (Craik 1943, Johnson-Laird, 1983). For ordinary people then, metaphors can represent a kind of mental model where everyday forms of speech and associations (light as a feather!) are used to help make sense of the world.

When seen from the lens of design research and practice, metaphors helps conceptualise and engage with evolving relationships in culturally situated meanings and materialities. As hybrid materialities and forms of artifacts influence how 'interaction' is perceived (Jung, et al. 2017) many examples of metaphor use can be seen within design activities. Metaphor Cards by Logler, Friedman and Yoo (2018) is an example of a toolkit treating metaphor as a generative tool, where the associative and relational qualities create opportunities for new ways of seeing objects or phenomena. This may aid designers in imagining future technologies and ways of being in the world. Similarly, Lockton et al. (2019) have created workshops to support designers exploring novel metaphors for hard-to-visualise phenomena. The use of metaphors has also been explored in the context of complex systems.

Rygh and Clatworthy (2019) demonstrate how metaphors and affordances in physical objects can be explored for design and use of tangible tools within health service-ecosystems.

This paper explores the potential of metaphors to assist a SOD view of complex systems, relations of dwelling and potential for creating shared understanding between diverse actors. I view the role of the metaphor as being able to work abductively, to bring forth the rich locally situated experiences and insights that are not so literal or tangible, but at the same time allow designers to work with the symbolic, the processual, the reflexive. Just as complex systems are dynamic, changing, always in-flux, metaphors can also be seen as negotiative, and act as communicative devices that allow designers to engage with the fuzzy, indeterminate, relational, poetic, and emergent qualities of complex systems. By highlighting five thematics that have been devised in a RTD practice, with examples of metaphors in use, the paper shows possibilities of how metaphors can support frame-consistent knowledge structures and invite structurally consistent inferences (Thibodeau & Boroditsky, 2011). The paper concludes by presenting the Design Analysis Framework (Dudani, 2020) elevating how speculative projections about possible alternative systems that can be supported through metaphorizing.

Methodologies and Methods

The paper builds on an exploratory, speculative and reflexive SOD study. It uses a Research Through Design (RTD) approach where the design practice is central in production of knowledge. (Sevaldson 2010, Stappers & Giccardi, 2017; Zimmerman et al, 2020). The work is concerned with situated knowledge generation with a focus on the doing or '-ing' in design research (see Lury et al, 2018) and uses mixed qualitative research methods (Edvardsson, Tronvoll and Gruber, 2011) located in Qualitative Inquiry (Denzin & Lincoln, 2005). The study also uses narrative and metaphors (Lakoff and Johnson, 1980) in order to bring in a more cultural, place-based and qualitatively rich view into the analysis of existing systemic complexities, contexts and conditions. The study's overall systems approach is influenced by Escobar's (2018) view on pluralistic futures, Vaughan's (2018) approach to 'care', and the ongoing research within Anticipation Studies (e.g. Poli, 2013; Celi & Morrison, 2018).

Design Techniques and Tools

This paper refers to a master's design thesis, author's post-graduation reflection and further analysis. The study used participatory visual methods (Gubrium & Harper, 2016) in engaging with key actors and diverse stakeholders within the Norwegian housing sector. Systems oriented design (SOD) can be defined as a skill-based approach which enables designers to capitalize on the inherent systemic nature of design by visualizing the whole Gestalt of the system (Koffka, 2013). SOD tools such as rich design space and gigamapping (Sevaldson, 2011) were used to visualise the tensions and frictional hierarchies within systems – making it possible to create holistic overviews and find ways to approach the dynamic complexities in a more pragmatic way (Sevaldson, 2013)

Table 1. A relational typology of systemic design actions, and qualities that come through by the work of metaphors within SOD

Systemic Design Actions	Metaphor Thematics	Qualities that come through
Analysing	Associating	Reveals other domains of knowledge (cultural, social)
Locating	Embodying	Elevates the experiential
Mapping	Materialising	Makes the intangible, tangible
Network-finding	Diversifying	Highlights facets of complex systems by place-based views
Suggesting	Probing	Support critical questioning and searching for the invisible

The Five Thematics: The work that metaphors do

In this section, I will elaborate on the five metaphor thematics (Table 1) which highlight the work that metaphors can do within systems oriented design projects.

1. Associating

Metaphors help us access and build associations with cultural knowledge, where different stakeholders can use familiar concepts as scaffolding to form and express their unique understandings of a complex system that is otherwise challenging to comprehend. The every-day ness of metaphors support forming a more culturally rich view of complex systems. For example, one of the residents of Tøyen Gronland described their understanding of the Norwegian housing system using the Norwegian saying "faller mellom to stoler" or "falling between two chairs" which can be equated to the English version "falling between the cracks", a common experience of certain residents when they transition from public housing to private rental market. Though it's interesting to also note that the Norwegian version emphasises falling 'between two things', bringing specificity to their discription which is missing in the generalisation of 'cracks.' As each metaphor represents a view on reality, which values are brought forth through them? How can we as systemic designers, navigate the tensions created by the many singular representations of realities, pointing to potentially conflicting values? How can they work towards building a collective one?

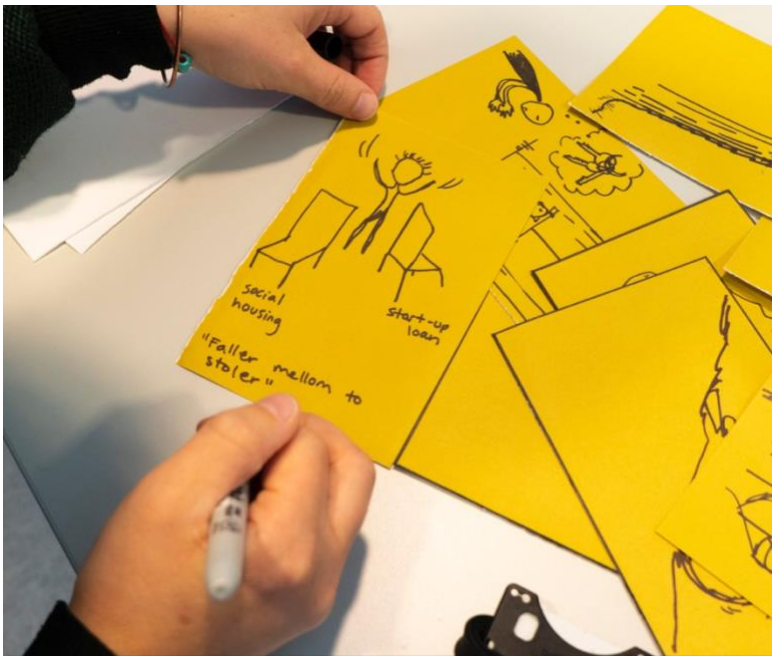

Figure 1. "Faller mellom to stoler" is a Norwegian expression that translates to "Falling between two chairs" (Dudani, 2019b).

2. Embodying

Metaphors make it possible for stakeholders to bring forward the embodied and experiential knowledge of 'knowing how to be/live' within a complex system. For example, one of the participants described the use of a ladder as way to express her experience navigating and moving within the rental housing system, saying "In the UK, you atleast have rungs at the lower part of the ladder" describing the experience of being within the housing system as a climb, where you ascend, descend or stay stuck; finishing with "in Norway it seems like it's simply missing". Different stakeholders talk through these metaphors, making their own metaphors as needed. As metaphors code the diversity of experiences, what do the paradox and commonalities reveal about the complex system?

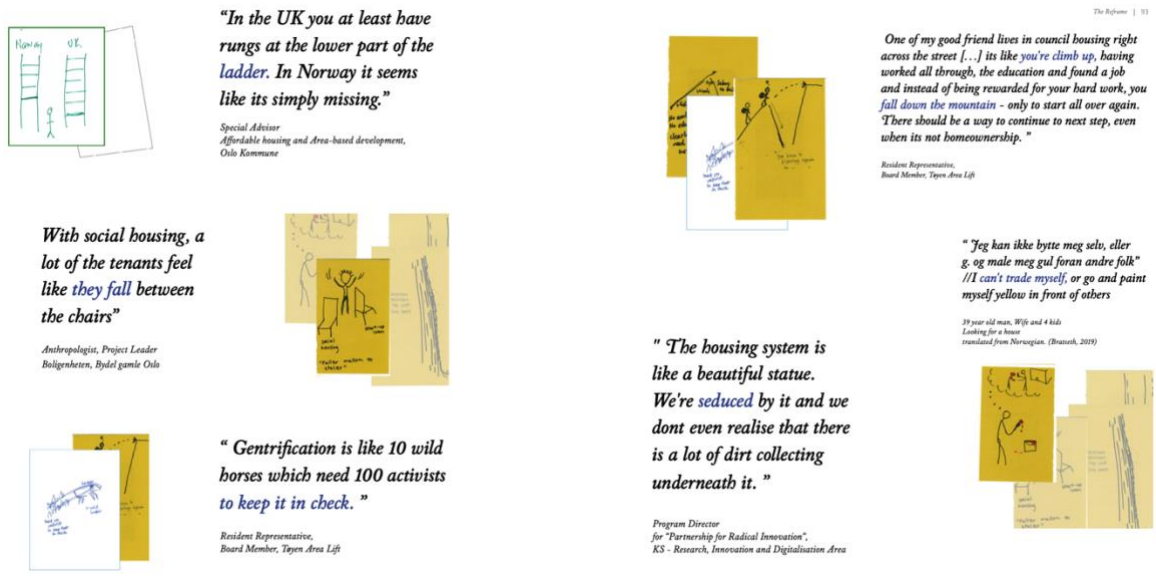

Figure 2. A collection of metaphors, representing embodied experiences communicated by the participants using stories and their own metaphorical framings (Dudani, 2019b).

3. Materialising

Metaphors make it possible to code stories and open ended narrative into tangible forms. This materialising enables a systems designer to plug them into existing systems mappings. As I collected about 20 or so metaphor cards, the mapping reveals underlying patterns where the resident beliefs' shift from feeling 'completely responsible' (complete onus) of their life outcomes, to realising that the system is not really built for them (self recognition). The trend moves towards a pacification where the residents' start giving up against the force of the system. Ultimately the system takes over in its massiveness, where descriptions like 'feeling trapped' or 'squeezed between the wood and bark' were used. While the metaphors can help make visible the (however opposing) worldviews, which elements are metaphors unable to materialise?

Figure 3. A mapping of metaphors showed different worldviews on how the rental market, and by extension the Norwegian housing system was experienced by a diverse group of stakeholders. (Dudani, 2019b).

4. Diversifying

Different actors experience a complex system differently, its effects brought forth through varied life situations, value sets and worldviews. By capturing and visualising the cultural and social richness of stakeholders' lived experiences, metaphors allow us to acknowledge the true diversities and multiplicities, representing the many facets of a complex system. During my study, I spoke with about 11 actors from Tøyen-Grønland (either living or closely associated with the area). The participants represented a diverse range of tenure status, age, gender and sexual orientation, professional affiliation (national level to grassroots level) and ethnicity (native Norwegian to immigrant born persons). As metaphors bring the more qualitative richness and diverse point of views to complex systems, how can a systems design-approach leverage the potential frictions to build common grounds? How can it foster conditions for collaborations?

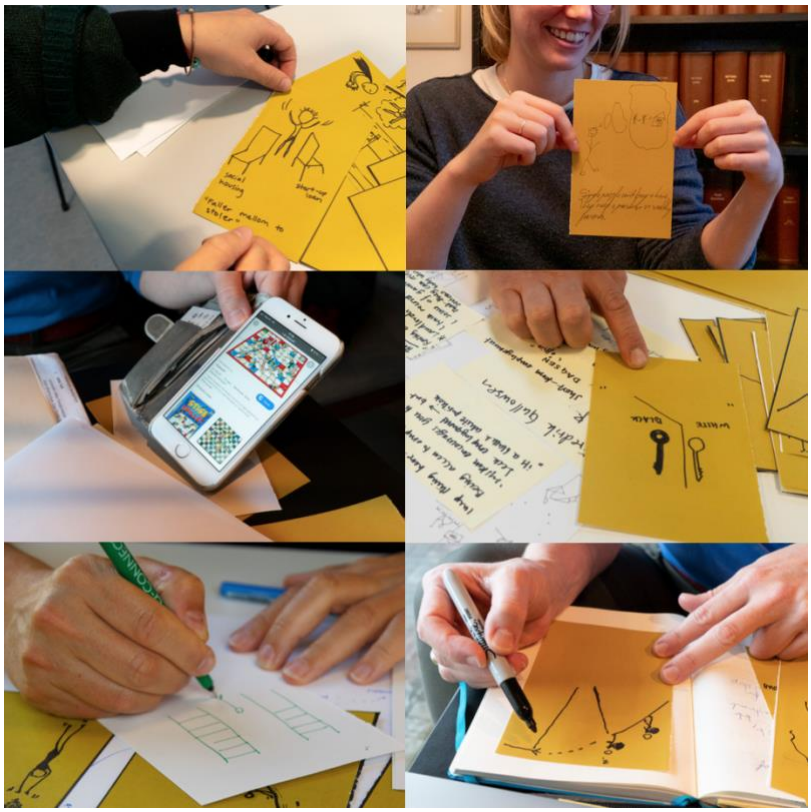

Figure 4. Image showing some of the actors who shared their metaphors with the author (Dudani, 2019b).

5. Probing

Once materialised, metaphors can be used to probe into complex systems and find underlying assumptions. During my study, I found that my own investigations into understanding the Norwegian housing system mirrored the steps described within the Causal Layered Analysis or CLA (Inayatulla, 1998). I was able to use the metaphors as way to question and demystify the mindsets and embedded values at the root of the existing housing system. This move between analysis and design resulted in Design Analysis Framework (Dudani, 2020), which makes it possible for a designer to approach and make sense of the many paradoxes and tensions within complex systems.

Figure 5. The images show workshop participats using metaphor cards to explore connections with CLA. A workshop by author at RSD8, IIT Chicago 2019. (Dudani, 2019b).

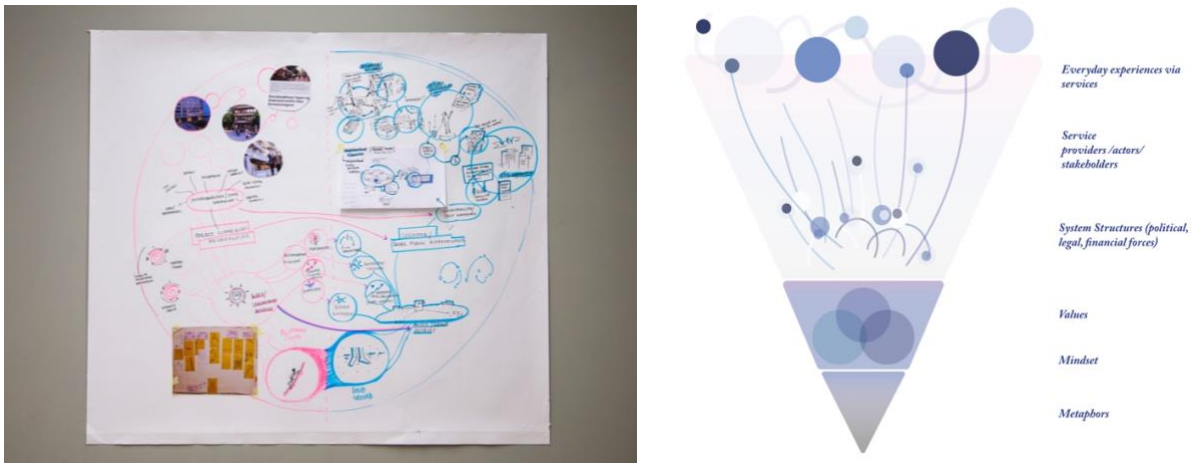

Figure 6. A sketch an analysis framework in progress, showing the role of metaphors in elevating worldviews and values (left), the Design Analysis Framework (right) as presented by the author at RSD9 Symposium, 2020. (Dudani, 2020)

Reflections: On designing with systems oriented view

In this section, I reflect on the five thematics and highlight their role and contributions within an SOD view.

Associating brings forth socially and culturally rooted mental models of sense making for working with complex systems while **embodying** highlights the ability of metaphors to grasp lived experiences, fostering a localised and uniquely place-based understanding of complex systems. **Materialising** ability of metaphors can make tangible the otherwise intangible qualities, making it possible for systemic designers to deliberately bring the softer, fuzzier and the poetic into the (too often) logical or pragmatic systems visualisations and framings. As systems oriented designers, we know our systems representations such as gigamapping etc, can only express a singular (and rather incomplete) view. As systems are layered and complex, they're also experienced differently depending on the angle of view or the vantage point**. Diversifying** highlights how metaphors allow us to take into account the situatedness of many angles and facets of a complex systems. **Probing** using metaphors allowed me to form my own understanding of how I can approach complex systems within my study. Metaphors made it possible to question and dig deeper into underlying worldviews, mindsets and values held by stakeholders, but more over, reveal the embedded assumptions that's at the root of it all. Capturing that essence into a metaphor also made it possible for me to ask – what if we flipped the metaphors of the current housing system – what might the alternative system look like then?

Building on my reflections and learnings on metaphors, I've developed Design Analysis Framework (Dudani, 2020) which was presented at RSD9. As part of my last research project, I also designed the BALLUSION workshop which explores words as design material for working with metaphors that may shape our imaginings of futures. The metaphors (seen as yellow cards in the Figures 1-5) are currently in production and set to be used by local anthropologists within their ongoing housing projects. This will be shared in the presentation. As I move to an industry role, I would like to open up this up for discussion with conference attendees on their experiences and learnings on how such use of metaphors can be brought into a design studio/commercial design space.

Conclusion

This paper highlights the role of metaphors in working with complex systems using a systems oriented design view. Though the five metaphor thematics, the paper exemplifies how the softer, transient, dynamic and emergent qualities of complex systems can be elevated. From only one exploratory study case, I have tried to suggest that metaphors can have a meaningful contribution towards systemic design approaches in understanding existing complex systems as well as imagining alternative ones. I share my reflections and learnings and welcomes further discussion on how these can be taken forward.

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