



Article

Playing with Metaphors: Connecting Experiential Futures and Critical Futures Studies

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Abstract

This paper explores working with metaphors to link Experiential Futures (XF) and Critical Futures Studies (CFS). We introduce the Systematic Metaphor Analysis (SMA) developed by Schmitt and his colleagues to reconstruct metaphors that emerge during the creation of XF and to make them explicit for critical reflection. We illustrate this work by applying SMA on metaphors of AI that emerged during an XF, namely a role-playing game (RPG). The introduction of SMA enriches Futures Studies' critical approaches. Furthermore, our contribution to playing and working with metaphors hopefully intensifies and inspires further discussions on the connections between XF and CFS.

Keywords

AI, Critical Futures Studies, Experiential Futures, Role-playing Games, Systematic Metaphor Analysis

Abbreviations

AI	Artificial Intelligence
CFS	Critical Futures Studies
RPG	Role-playing Game
SMA	Systematic Metaphor Analysis
XF	Experiential Futures

Introduction

Experiential Futures (XF) and the 'experiential turn' in Futures Studies (Cuhls & Daheim, 2017, p. 92; Candy & Dunagan, 2016; Candy & Kornet, 2019, p. 3) emphasize "engagement with possible futures through multi-sensory relationships and behavior as well as cognitive mental models" (Cuhls & Daheim, 2017, p. 92). XF aims at making often abstract futures more concrete by creating tangible artifacts and immersive spaces that allow participants to engage with and in futures (Candy & Dunagan, 2017, p. 150; Dunagan et al., 2019, p. 59; Candy & Kornet, 2019, p. 5f; Cuhls & Daheim, 2017, p. 92). Working with XF entails an exploratory and experimental spirit (Candy & Kornet, 2019, p. 5f; Cuhls & Daheim, 2017, p. 92). It invites the application of a wide array of media as well as methodological sources and approaches, amongst others from the fields of design, performance art or gaming (Candy & Kornet, 2019, p. 5f; Dunagan et al., 2019, p. 59; Candy & Dunagan, 2017, p. 138; Kelliher & Byrne, 2015, p. 37f; Kuzamović & Gaffney; 2017, p. 111; Sweeney, 2017, p. 27). [1]

The creation of XF is strongly motivated by the idea that embodied and emotional experiences of futures enhance participants' engagement with futures, which in turn contributes to collective anticipatory capabilities and makes futures work more effective, especially in terms of "exploring and shaping change" (Candy & Dunagan, 2017, p. 137; cp. Candy, 2010; Candy & Kornet, 2019, p. 5f; Bok & Ruve, 2007, p. 112). We agree with this idea. However,

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as has been discussed in the context of Critical Futures Studies (CFS), the futures we are able to imagine are strongly prefigured by how we conceptualize our present (Inayatullah, 1990; Fischer & Dannenberg, 2021). As Fuller and Loogma have stated, Futures Studies is “[...] a social process and its purpose is to construct meaning” (Fuller & Loogma, 2009, p. 73). A critical perspective aims at exploring those processes of meaning-making and the respective prefigurations that set the boundaries for what is possible to think and say (cp. Inayatullah, 1998, p. 817), and to create and experience. While XF are sympathetic towards critical approaches, more work is needed to explore how to link both approaches more strongly. Critical approaches have been embedded in the creation of XF, for example through the use of Causal Layered Analysis (CLA) (e.g. Dunagan et al., 2019). In this paper, we want to explore how to link CFS and XF further by critically reflecting an XF as a starting point for potential re-creations. Therefore, we propose to work with metaphors by drawing on Systematic Metaphor Analysis (SMA), as developed by Schmitt and his colleagues (Schmitt, 2017; Schmitt, Schröder & Pfaller, 2018).

Metaphors, understood with Lakoff and Johnson (2003 [1980]), are crucial to how we, as humans, make sense of our world. Through metaphors, we conceptualize one thing in terms of another. As emphasized by Lakoff and Johnson (2003 [1980]), this shapes not only our understanding of the world but also our experience of and actions within it. Accordingly, metaphors provide a fruitful link to connect XF and CFS. Analysing the metaphors inherent in an XF can support reflection of the future’s underlying prefigurations. As XF aims at shaping change, this reflection is crucial both for making the boundaries of what is imagined explicit, and for potentially expanding them. At the same time, building on playful and imaginative methods to create immersive futures can evoke and provoke the use of metaphors. From a critical perspective, the metaphors used by participants when invited to imagine without limits are especially interesting, as they shed a light on the boundaries to imagination. Lakoff and Johnson did not elaborate a method for analysing metaphors and, as Schmitt (2017) emphasizes, analysing metaphors is often done quite intuitively, often by focusing on single metaphors considered crucial. Such focus on selected metaphors is also prevalent within Futures Studies (e.g. Kuusi et al., 2016; Heinonen & Minkkinen, 2016; Vallis & Inayatullah, 2016; Song, 2016; Chen, 2016; Carbonell et al., 2016). While such approaches are fruitful for critical reflection and the exploration of alternatives, they do not offer a systematic reconstruction of the multiple metaphorical concepts framing a specific issue. Building on Lakoff and Johnson’s concept of metaphor and on several learnings from diverse work with and on metaphors, Schmitt (2017, Schmitt et al., 2018) proposes SMA to fill that gap.

In the following, we will present working with SMA in the context of XF and CFS to demarcate the conceptual space in which futures are placed. To test this approach, we conducted a small case study, using a role-playing game (RPG) (Zagal & Deterding, 2018) to create an XF. By inviting participants to create a future with AI through a RPG, we provoked both speculation and metaphors. The sci-fi mode allowed for the incorporation of a wide space of potential concepts, unbound from limits set by ‘realistic’ or ‘probabilistic’ thinking. Building on the transcripts and observations of the RPG, we used SMA to reconstruct metaphors of AI and tentatively explored the potential of a critical interpretation for linking XF and CFS. In the following sections, we will firstly elaborate the theoretical background of working with metaphors, including previous work done in the context of CFS (CLA-reader: Inayatullah & Milojević 2015; SI Metaphors in Futures Research: Carbonell et al., 2016; Chen, 2016; Heinonen & Minkkinen, 2016; Inayatullah et al., 2016; Izgarjan & Djurić, 2016; Judge, 2016; Kamara, 2016; Kuusi et al., 2016; Song, 2016; Tarasti, 2016; Vallis & Inayatullah, 2016). We then elaborate on SMA more in depth and subsequently illustrate its application. The latter section includes a discussion of RPGs as a method for XF and presents our own case. We conclude with a discussion on the potential of working with metaphors and SMA as an opportunity to bridge XF and CFS. With that, we hope to enrich Futures Studies’ critical approaches by introducing SMA into this field and to inspire further work and discussions on the mutual connections between XF and CFS.

Metaphors and the Boundaries of Imagination

In the field of Futures Studies, metaphors have been discussed with regard to the communication of futures, such as in scenario titles (e.g. Chen, 2016; Heinonen & Minkkinen, 2016, p. 166; Kuusi et al., 2016, p. 125); their communicative, interpretative and inspirational value more in general, especially in participatory settings (Heinonen & Minkkinen, 2016, p. 166; Kuusi et al., 2016, p. 125f; Song, 2016, p. 190f); and their functioning as a ‘Leitbild’

or guiding image (Inayatullah et al., 2016, p. 112). However, the focus in Futures Studies, as in this paper, is often on the reflexive and transformative potential of working with metaphors. This aspect has been especially linked to constructing alternative futures with the CLA as well as the 6 pillars framework more generally (see for example Bin Larif, 2015; Carbonell et al., 2016, p. 146; Heinonen & Minkkinen, 2016; Inayatullah & Milojević, 2015; Inayatullah et al., 2016; Kamara, 2016; Kuusi et al., 2016:125; Izgarjan & Djurić, 2016; Song, 2016; Vallis & Inayatullah, 2016, p. 134).

Focusing on the reflexive and transformative potential of metaphors presumes an understanding of metaphors that does not confine them to mere rhetorical devices. Rather, metaphors are understood as foundational to how we make sense of and interact in the world. Such an understanding has been prominently proposed by Lakoff and Johnson (2003 [1980], 1999): “our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature” (Lakoff & Johnson, 2003 [1980], p. 3, see Schmitt, 2017, for a discussion of similar approaches, e.g. by Blumberg and Ricoeur, and a concise summary of the works of Lakoff and Johnson.) According to Lakoff and Johnson, a metaphor is essentially about understanding one thing in terms of another, whereby a transfer of meaning takes place. One thing, the *target domain*, is understood by (partially) applying an (often more clearly delineated) concept from the *source domain*. Lakoff and Johnson emphasize that metaphors are grounded in experience. This becomes especially apparent when looking at basic schemas such as space, object, substance or person, to name a few. By applying such schemas, abstract concepts can be quantified, located or attributed with causality (e.g. much/little love, being inside/outside society or being forced by the law). Schemas are quite generic experiential patterns that form the basis of metaphors, since early acquired concepts are sources to conceptualize less clearly delineated experiences. While Lakoff and Johnson emphasize the grounding of metaphors in physical experience, others included grounding them in socially and culturally prefigured personal and collective experiences or historic events (e.g. Schmitt, 2017, Schmitt et al. 2018; Bin Larif, 2015; Vallis & Inayatullah, 2016).

A crucial contribution of Lakoff and Johnson is emphasizing the role of metaphors in constituting reality by coherently and systematically structuring experience. Metaphors can form metaphorical concepts, namely coherent groups of related metaphors which share the same source and target domain. [2] Thus, metaphors enable a systematic understanding of one thing by transferring several aspects of another. To pick up an example given by Lakoff and Johnson (2003 [1980]), the metaphorical concept of “theories are buildings” allows one to conceptualize theories with several coherent metaphorical expressions (e.g. “the foundations of the theory”, “solid arguments”), that might each build on several schemas. Metaphorical concepts might complement or blend into each other, and they might also compete. Importantly, however, any metaphorical structuring is only partial. Any metaphor highlights some aspects, while downplaying and hiding others. In the case of “theories are buildings”, the metaphor highlights the constructive act of theorizing, whereas the discursive power struggles over claims are downplayed, as those are not part of the concept of buildings. Crucially, such highlighting and hiding influences how reality is perceived. Consequently, metaphors guide actions and, within an interplay of perception, thought, emotion and action, create realities: “Metaphors may create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such actions will, of course, fit the metaphor. This will, in turn, reinforce the power of the metaphor to make experience coherent” (Lakoff & Johnson, 2003 [1980], p. 156). Metaphors and especially metaphorical concepts thus frame discourses, thoughts, and perceptions, as well as the respective actions and decisions, with intended or unintended implications for present realities (cp. Bin Larif, 2015, p. 100; Vallis & Inayatullah, 2016, p. 138). Moreover, this kind of sense-making is not restricted to language: metaphor is also pervasive in diverse media, including interactions. Metaphors, whether used consciously or unconsciously, can naturalise worldviews, especially once they are so embedded in everyday experience that they are no longer perceived as metaphoric at all (Bin Larif, 2015, p. 92; Vallis & Inayatullah, 2016, p. 134). Accordingly, the question of who gets to impose metaphors — and employ them toward potential actions, framings of problems and solutions etc. — is a one of power (Bin Larif, 2015, p. 92f; Vallis & Inayatullah, 2016, p. 134f).

It is this power to construct reality that is making metaphors a fruitful and potentially disruptive entry point for a hermeneutic understanding of social realities, along with their critical reflection and transformation (Inayatullah et al., 2016, p. 109f; Kuusi et al., 2016, p. 125f; Song, 2016; Vallis & Inayatullah, 2016). Metaphors are situated in specific contexts, and they reflect the values, premises and worldviews of the group using them (cp. Lakoff & Johnson, 2003 [1980], p. 87ff; Schmitt et al., 2018, p. 7; Carbonell et al., 2016, p. 149; Heinonen & Minkkinen,

2016, p. 167; Song, 2016, p. 192). Accordingly, analysing and reflecting metaphors allows one to understand – in an hermeneutic sense – the concepts used to frame an issue and to discuss their implications, e.g. in terms of questioning the connected discourses and power relationships, or the potential political and economic actions following from a specific metaphorical concept applied (cp. Lakoff & Johnson, 2003 [1980], p. 157, p. 236f; Schmitt, 2017; Schmitt et al., 2018; Vallis & Inayatullah, 2016, p. 135, p. 143). Such an analysis can make the situatedness of oneself and others explicit (Bin Larif, 2015, p. 101f), by enabling a (self)reflexivity “through which otherness is progressively embodied” (Judge, 2016, p. 118). This, in turn, opens up a space for exploring overlaps and differences between metaphors as well as their pragmatic implications, e.g. when a metaphor fosters or hinders an organization or self (Judge, 2016). In connection with reflexive and analytical work with metaphors, such an engagement can also be situated within a continuum from the reframing or altering of existing metaphors to the application of new metaphors. Those endeavors, in line with transformative research and practical attempts of shaping futures, are considered starting points for alternative futures and transformational processes. As Inayatullah states, “Metaphors thus create new personal and strategic pathways. They do not just describe reality but they constitute reality. They are foundational in disrupting the present, unlocking alternatives, and creating new futures.” (Inayatullah et al., 2016, p. 111).

Reconstructing Metaphorical Concepts via Systematic Metaphor Analysis (SMA)

Understanding metaphorical concepts as pervasive in thought and action and as a fundamental component of the constructions of realities implies that XF, too, are deeply metaphoric. The metaphors used to make sense of futures demarcate conceptual spaces that will become visible in the language, interactions, visible material etc. of an XF. In that sense, those futures offer hermeneutic material in which metaphors can be analysed to reconstruct the conceptual space applied. Such a reconstruction offers a base for critical (self)reflection, linking XF with CFS, and it serves as a starting point for further iterations and transformations of the respective futures.

SMA, a method developed in the social sciences, offers a systematic approach to understanding metaphors used in the ‘everyday language’ of a specific context and reconstructing the implied concepts that orient thought, emotion and action within that context (Schmitt, 2017; Schmitt et al., 2018). A major contribution of SMA is positioning the reconstruction of metaphorical concepts as a hermeneutic approach. Identifying, analysing and reconstructing metaphorical expressions is understood as a (self-reflexive) research endeavor, aiming at **understanding** sense making and patterns of meaning in specific contexts. By analysing **all** metaphorical expressions and reconstructing the respective metaphorical concepts related to the target domain — in a structured process that is clearly differentiated from the step of interpretation — SMA aims at mitigating the overinterpretation of single metaphors and the lack of methodological reflection prevalent in much analysis of metaphors. SMA thus aims at reconstructing the network of meaning constituted through the (non)usage of different, eventually diverging or competing metaphorical concepts. In this sense, SMA is part of a pluralizing hermeneutic that opens diverse possible interpretations rather than looking for the one (true) structure of meaning (Schmitt et al., 2018, p. 48; Schmitt, 2017, p. 108f). We consider SMA as a fruitful methodology to map the conceptual spaces opened up by XF, which allows, in turn, to link them to critical reflection in line with the work with metaphors already done in CFS.

SMA follows 7 steps of which the first three are preparatory, the following two correspond to the analysis and interpretation, and the last two correspond to the assessment and presentation of the findings, respectively. To our knowledge, Schmitt (2005) is the only paper on SMA in English. As it does not provide the latest adaptations and in-depth elaboration as found in the German literature (Schmitt, 2017; Schmitt et al., 2018), we will present the proposed method as described by Schmitt and his colleagues in some detail to facilitate its transfer and inspire further work within Futures Studies.

Preparatory steps

SMA starts with three preparatory steps. The first step includes activities in line with preparing a qualitative research endeavor more in general, namely clarifying the research question, assessing whether SMA is a suitable method, and if so, defining the target domain, i.e. the issue under study for which metaphorical concepts are to be reconstructed, as well as developing an adequate study design (e.g. case studies of cultural phenomena, groups or

individuals; comparative studies; state and process analyses; longitudinal studies).

The second step aims at explicating both the metaphors generally used within the context of interest as well as the metaphors applied by the researchers themselves. The former collection of a ‘comparative background’ serves as a crucial comparative horizon for the later interpretation and is generated by analysing heterogeneous material from the broader (sub)cultural context (i.e. books, magazines, protocols, ...). The latter self-analysis is based on analyzing one's own publications or a self-interview. This is crucial to prevent overinterpretations by focusing on one's own metaphors and to mitigate biases, as it allows one to reflect on their own cultural and experiential situatedness.

The third step aims at collecting and/or creating the research material which will be analyzed. As the analysis and interpretation is time intensive, a parsimonious sampling method is proposed. The corpus should be checked for authenticity of the material, especially regarding metaphors introduced by an interviewer. We propose to understand the creation of XF as a specific form of creating research material.

Analysis and interpretation

As SMA is a hermeneutical approach, interpretation and understanding are key. It is a major contribution of SMA to foster both a systematic and self-reflexive approach during analysis and interpretation. To prevent overinterpretation, a clear distinction between analysis and interpretation is made and the analysis itself is divided into two steps. Nevertheless, it is useful to proceed iteratively (applying the hermeneutic circle), i.e. returning to the material in order to work out metaphors that were not initially understood. Further suggestions to counterbalance overinterpretation are working in a group, applying reading strategies that foster a radical defamiliarization of the text, and basing analysis and interpretation strongly on the empirical material.

Word-by-word analysis of the text with collection of all metaphorical phrases: All metaphorical phrases relevant for the target domain (as well as their immediate textual context) are identified and captured in a separate list. The systematic approach emphasizes collecting all relevant metaphors, including terms with literal and metaphorical meanings, comparisons, exemplary narratives, metaphorical gestures, practices/interactions or negated metaphors.

Reconstruction of metaphorical concepts: This is the actual hermeneutic step and, as such, a synthetic and abductive process. The aim is to reconstruct concepts encompassing all metaphors identified in the previous step, to ensure competing concepts or metaphors that no longer create meaning are captured. This is done by grouping metaphors with the same source and target domains. While text passages form a starting point, metaphorical gestures, practices and the like are used to saturate the concepts. The granularity of the concepts should be suitable to reconstruct the specific patterns of meaning. Each concept is formulated either using Lakoff and Johnson's “X=Y” format or using a more detailed a scenic description proposed by Schmitt.

Interpretation: In this step, the reconstructed concepts are interpreted with regard to how they orient thoughts, emotions and actions. In line with hermeneutics, the interpretation remains unfinished, reaching a (temporary) end once new cases do not yield more insights. The interpretation incorporates not only textual context and the communicative situation, but also the pragmatic context and prior knowledge of the interpreters, which demands a self-reflexive approach. This is supported with the preparational self-analysis and the comparative background. To guide interpretation, Schmitt proposes several heuristics for creating insights, including:

- What is highlighted, downplayed, or obscured by a metaphorical concept, and who/what is benefiting from that?
- Which aspects of the source domain are (not) adopted for understanding the target domain? How is the imagery of a metaphorical concept differentiated and attributed with different moral evaluations?
- How do metaphorical concepts relate to each other? Are there any competing concepts, or – in comparison to the comparative background – any missing/special concepts?
- How does the usage of metaphors evolve during the text, in time (longitudinal studies) or across diverse sources (comparative studies)? Are there any changes, shifts, constants, repetitions, or other patterns, such as the emergence of new metaphors or a stop in using existing ones?
- What are behaviors or interactions that are resulting from a metaphorical concept?

Validation, triangulation and presentation

The second last step aims at validating and, if suitable, complementing the findings through triangulation. In general, quality criteria of qualitative social sciences apply, with a special emphasis set on intersubjective comprehensibility, including explicit reflection of the research process and explication of one's own pre-understanding. Similarly important are the empirical anchoring of the metaphors, the coherence and saturation of metaphorical concepts, as well as the completeness of their elicitation, interpretation, and presentation. As the findings of a SMA are strongly bound to the corpus and research design, any generalization must be careful. Depending on the research question, it might thus be fruitful to complement SMA with further methods (triangulation). The last step includes the presentation of findings, often through a mixture of exemplary original passages and commenting text, which are presented as narratives, in tables and/or with visualizations.

Exploring SMA to Link CFS and XF

XF can be understood as hermeneutic material, that can be critically analysed via SMA. By reconstructing the metaphorical concepts that emerge during an XF, the conceptual space that orients the experience of a future is made explicit. Thus, we propose, SMA is a method that can support the critical reflection of XF. The hermeneutic material created in XF processes varies greatly, as XF explicitly invites working with a wide array of media and approaches. We explored working with role-playing games (RPG).

Creating XF with role-playing games

Building on performances, psychodrama, re-enactments, board-, computer- or role-playing games is common when creating XF (Kuzamović & Gaffney, 2017, p. 111; Kelliher & Byrne, 2015, p. 36; Sweeney, 2017, p. 27). A role-playing game (RPG) is a narrative-simulative drama format in which participants create and immerse themselves in so-called secondary worlds (e.g. Fernández-Vara, 2019; Zagal & Deterding, 2018; Donecker et al., 2019, p.7ff). Futures, in the case of XF, present such fictitious, secondary worlds (cp. Fischer & Mehnert, 2021). Participants come together (physically or virtually) to first invent both the world and the beginning of an adventurous, imaginative story. They then continue by immersing themselves in that world and into specific character roles, upon which they let the story unfold through their enactment. The immersion is supported by a moderator who facilitates storytelling and through the use of artifacts or tools such as maps, character sheets, or dice. Thus, the game intertwines spontaneous interactions, rule-based impulses and discussion. Participants enact the story in the role of characters, interacting with each other and the world. Simultaneously, the world poses constraints upon those interactions, as it evolves by its own rules, simulated through game mechanics, such as the dice as a generator of random events. This, in turn, stirs discussions among participants, driving storytelling and further interaction.

Working with RPGs seemed promising for several reasons. Firstly, RPGs, along with experiential futures more generally, invite participants to invent worlds in a playful and speculative mode, expanding their imagination of what could be possible (Rijkens-Klomp et al., 2017; Candy & Kornet, 2019; Rosa & Sweeney, 2019). Inviting participants to stretch their imagination, from a metaphorical perspective, means inviting them to engage in conceptual work — to actively make sense. Secondly, this process is based on the collective imagination and discussion of the participants. The narrative structure of the role-play invites not only individual imagination but also discursive processes of divergence, alignment etc. on how to create the future. That is, metaphorical concepts are negotiated, and the discussion makes the negotiation traceable. Thirdly, working with an RPG allowed us to tentatively explore transferring SMA to material beyond text. As with many critical approaches, working with metaphors focuses on analysing text, although metaphors pervade all kinds of media. The expansion of analytical tools is an often demanded and active field of exploration (Schmitt et al., 2018, p. 66, p. 150; Schmitt, 2017, p. 223, p. 467, p. 562; see e.g. the analysis of metaphors within film by Izgarjan & Djurić (2016) or architecture by Heinonen & Minkkinen (2016). To apply SMA to XF, such work is needed to include the analysis of various media and metaphorically structured interactions of participants within that XF. RPGs are situated at the intersection of narration, visualisation and performance. Within a role-playing game, players not only use words to invent a future, but they immerse themselves in it. They may start to identify with their character, sometimes to the extent that experiences of the player and the character influence each other (bleed-in and bleed-out effect) (Bowman &

Lieberoth, 2018, p. 254). As the case illustrates, participants started to enact the verbally initiated concepts, adding gestures and sound. This showed how metaphors pervaded and aligned both the explicitly formulated, verbally expressed meanings, and the enacted, experienced behaviors and interactions. As the RPG contains both discussion and enactment, we were able to analyse the transcribed discussion and thus maintain the well-known, text-based starting point for the analysis. Simultaneously, we could stretch SMA beyond language by incorporating gestures or tone used during the interactions between the participants.

A case: exploring links of XF and CFS by creating and analysing futures with AI

We designed a small, exemplary case study to explore the use of SMA to reconstruct metaphorical concepts of AI used by a group within an RPG setting. Our twofold aim was to (i) explore the conceptual space of AI that would emerge during the game and demarcate the deliberately broadly set, sci-fi like context, and (ii) on a methodological level explore the use of SMA within an RPG setting to link such a critical approach with an XF. We present this case to illustrate the productive work with metaphors at the intersection of XF and CFS, and to elaborate SMA with some examples. The concepts and interpretations presented in the following are thus meant to be illustrative, not a concise presentation of our SMA's findings. Afterwards, we will conclude the paper with considerations on the interplay of both RPG and SMA, as well as XF and CFS.

Creating hermeneutic material with XF using a RPG

Following the SMA process, our preparation included collecting a comparative background based on publications on narratives and metaphors of AI, as well as a rough analysis of newspaper coverage. For the self-analysis, we interviewed each other and jointly analysed and reflected upon the concepts we applied.[3] A learning here was that starting with self-analysis, and then collecting a comparative background seems to be the better sequence. We found that engaging with a variety of metaphors when collecting the comparative background made it more difficult to spot our own metaphors.

To create the research data (third preparatory step), we engaged in XF, more specifically, we invited 4 participants to role-play a future with AI. The group itself was homogenous: The participants were all considering themselves male, lived in Germany, were in their mid 30ies to mid 40ies and all familiar with RPGs. They did have different academic and professional backgrounds. We deliberately refrained from inviting computer scientists in order not to let metaphors be colored by technical terminologies on their part. To structure the game, we built on Nathan Russell's (2010) Freeform Universal RPG. The participants and the moderator (Konstantin Marquardt, one of the authors) met for roughly 5 hours. During that time, participants engaged in creating the future (worldbuilding), immersing themselves into the characters (character design) and initiating the storytelling process of the adventure (scene-playing). We finished the session with a feedback discussion.

Through the RPG, participants explicitly and, more importantly, implicitly engaged in conceptualizing a future with AI, and thus used and created metaphors of AI. Participants storytelled and immersed themselves in characters as well as their human-human and human-machine relationships. The RPG provoked both individual imagination and joint speculation about fictional objects, situations and imagined interactions. Engaged in their future with AI, participants spontaneously enacted their imaginations, that is, they lived the concepts used to make sense of this future. We captured the play with an extended transcript including notes on gestures, tone and interactions. This provided the hermeneutic material for our SMA. Our learning here was that good documentation is key for the further analysis. To capture XF and the variety of media they come with, such documentation should entail notes on behaviors, gestures, tone etc. and, if possible, a filmed documentation along with a transcript.

Reconstructing and interpreting metaphorical concepts of AI

Our analysis focused on metaphors with AI as the target domain to map the conceptual space that emerged during the RPG. We firstly collected all metaphors as direct quotes in a separate table, noting (potential) source domain and speaker. We also collected schemas as well as metaphorical gestures, interaction, imitated sounds and the like in the same way. For the reconstruction of metaphorical concepts, we restructured the table according to common source domains. We used color coding and visual structuring on a whiteboard to draw connections between

metaphors and relate the emerging concepts. The visualisation also helped us to understand internal coherences and, above all, to integrate competing or single metaphors and metaphorical concepts in an attempt to reduce possible biases on our part. This step proceeded iteratively, returning to the original transcript several times. Our learning here was how crucial (self)reflection is for conducting a SMA. This especially includes reflection on the framing set when creating an XF, as the setting and moderation influence — and might even manipulate — the usage of metaphors. Working in at least a team of two is helpful in that regard, both to mitigate overinterpretation and to facilitate reflection. We reconstructed a variety of metaphorical concepts. In the following, we state some exemplary concepts using Lakoff and Johnsons' "X=Y" description, partly complemented with a scenic remark and with exemplary quotes from the transcript. We also sketch directions of our interpretation.

One concept used by the participants during the RPG was DATA ARE WATER ("information overflow", "source code"), which related to the concept of AI IS AN OCEAN of data, an all-encompassing surface with mysterious depths ("I am everywhere", "on my phone"). This concept seemed to be strongly linked to metaphors with nets and networks as their source domain, as well as to nautical metaphors. It was used frequently when conceptualizing how AI would be present in that future, imagining it as tangible only at the surface of devices, things and infrastructures, while simultaneously being those devices, things and infrastructures.

This concept, however, seemed to at least partly compete with the following two, which were mainly used by the participants to conceptualize interactions with 'Vitra', the AI invented in the game. One dominant concept was AI IS PROPERTY, a valuable possession to be created, adapted and sold ("you are my AI"; "everybody has a proprietary AI assistant"). AI here was a human creation, and a customizable and valuable product. On the other hand, there was the concept of AI IS A HUMAN BEING. This concept included two versions, namely AI IS A 'MATURE' PERSON, ("autonomous AI", "she's thinking on her own and consequently develops her own personality") as well as AI IS A WORKER, a physically strong servant ("At strength I wrote down [in the character sheet]: number-crunching, which means that I have processing power", "personal assistant"). The program 'Vitra' was attributed with personality traits and, moreover, was considered a character that one participant would actually enact during the game.

One of our most intriguing insights during the reconstruction was the connection between the metaphorical concepts AI IS PROPERTY and AI IS A MATURE HUMAN WORKER and how it evolved over time. During the game, both first emerged as potentially competing concepts, but later started complimenting each other and finally seemed to merge. There was a moment during the game, when the AI (played by one participant) started to act, according to other players, "too self-empowered". In a combination of the serving function and the concept of AI IS PROPERTY, the players implicitly elaborated the metaphorical concepts, imagining the AI as a "proprietary personal assistant". In the subsequent discussions, the group (including the person playing the role of the AI) jointly reframed the AI's behavioral range, confining it to more subordination. The human "owner" (a female character) was attributed full control over her property, while the AI was restricted to "not too human" personality traits and bound to a limited decision space. The participants also started to enact a kind of master-slave relationship. This included the use of a dominant, order-giving voice and a subordinate, smooth tone respectively, as well as specific wording, such as the AI referring to her owner as "mistress". Towards the end of the game, the two concepts of PROPERTY and PERSON had been merged into what could be, pointedly, labelled as the concept of AI IS A SLAVE. More precisely, the AI was conceptualised as a female human in a serving role.

According to the steps of SMA, the reconstruction of metaphorical concepts is followed by their interpretation. As illustrated above, the reconstruction allowed us to make the conceptual work that happened during the XF explicit. The interpretation offers an entry point for critical reflection in line with CFS. To highlight this potential, we illustrate some highlighting and hiding aspects of the AI AS A SLAVE concept. [4] This metaphorical concept highlights an inter-human relationship of dominance and control. This relationship is strongly connected not only to experiences of colonization but also to current structures of discrimination, dominance and control. In that sense, the group understood the relationship to an AI in terms of today's unequal and discriminatory relationships, especially in terms of race and gender. Using this concept prolongs worldviews encompassing those structural asymmetries, inequalities and injustices, by projecting them onto living with AIs. This shows how deeply ingrained those perceptions are, since they emerged effortlessly as an option to 'handle AI'. This finding can be connected to research on the whiteness of AI (Cave & Dihal, 2020). While the metaphorical concept of AI AS A SLAVE

highlights this specific human-human relationship, it not only downplays several other potential inter-human relationships, but also obscures the aspect of human-machine interaction. During the play, there were several competing technological metaphors, but none of them evolved as strongly. Still, they were evoked regularly. The following conversation illustrates how using the concept of AI AS A SLAVE not only orients action towards a struggle over power, but also shows the conceptual oscillation between machine and human as a potential limit of the concept:

Sv: „It is part of your basic tasks to organize my schedule.”

Mz as AI: „Yes.“

Sv: “That’s what you get paid for.”

Mz as AI: “I don’t think that I ever received ... a ... monetary compensation for my computing services.”

Sv: "It's a metaphor. Do you want me to cut off your electricity!"

Mz as AI: "The various back-up systems of Cosmosis inc. ... are impossible to bypass. ... I ... am ... immortal." [dramaturgic emphasis through slow and strongly intonated speech]

Sv: "You know that's not true." [sets a dramaturgical pause.]

Mz as AI: "Back-up systems of mine are stored on various continents."

Sv: "You know I can shut you down if I want to."

The dialogue above is a strong example for the attempts made during the role-play to settle a power relationship. The metaphorical concept AI AS A SLAVE highlights that dominance and control are ultimately secured through the option of deciding over life/on and death/off. Violence as control-mechanism, however, marks a limit of the metaphorical concept, as a threatened death can be bypassed since a non-living being cannot die. Furthermore, the metaphor included the potential of a “revolution” or “rebellion” of the robots, mirroring slave-rebellions. The aspects of the AI IS A MATURE PERSON metaphors evoked a development of the AI into a state of maturity and potential empowerment that could lead to revolt against the masters. In combination with the concept of domination, questions whether humans will have enough power to turn this revolt down, to “hack” or “shut down” AI systems were evoked. This line of thought also aligns to metaphors collected as comparative background that had child development as a source domain, and depicted a rebellious teenager at the brink of maturity, where it is still unclear whether they will turn against their parents or abide by them.

A critical discussion of the metaphorical concepts used during an XF should, of course, go beyond the brief sketch outlined here. As the exemplary interpretation above shows, there is much material for further discussion, not only regarding the conceptual space of the AI AS A SLAVE metaphor or the implied gender roles, but also regarding the competing concepts that emerged. From the methodological perspective of this paper, however, these exemplary findings already show that SMA offers an entry point for a critical perspective by making the emerging metaphorical concepts visible. Moreover, a closer look on marginalized concepts shows potential entry points for re-engaging with that XF. For example, the metaphorical concept of AI IS AN OCEAN ceased to have relevance in the course of the game. Also, different technology-metaphors were dropped and metaphors like AI IS A CHILD, which were frequent in our comparative background, did not appear at all. Because these concepts were not elaborated during the game, they could provide interesting entry points to re-engage with the XF and play out alternative futures. How would the future and its enactment look like if it was based on expanding the AI IS AN OCEAN metaphor? How would the play evolve? How would the interactions with an AI unfold? Or, what would happen if technological metaphors would be dominant? Replaying based on different explicitly chosen metaphors or integrating finding from the critical reflection could link XF to the idea of reconstructing alternative futures as proposed by CFS.

Conclusion: Critically Working with Metaphors in XF

The goal of this paper was to explore working with metaphors as understood by Lakoff and Johnson (2003 [1980]) and more specifically the method of SMA as a link between CFS and XF. The illustrations derived from our case study presented above show that working with the metaphors employed during an XF can provide an entry point for both critical reflection and analysis, as well as a reframing and iteration of the XF, opening up transformative spaces through the exploration of different metaphorical concepts.

From the perspective of CFS, the analysis of metaphors provided several interesting entry points for further critical reflection and reframing. This might also be a relevant approach for further critical research on the conceptualization of emerging technologies. As Carbonell et al. state, “[...] metaphors work as a kind of framework that allows a two way process: technologies are characterized based on metaphors taken from the reality of the daily life and these metaphors shape the evolution and the perception of this reality” (Carbonell et al., 2016:149). In that regard, analysing metaphors applied in XF adds to our understanding of potential pathways in the evolution of technologies. The application of SMA, however, is not confined to the analysis of technology metaphors. It also serves as a methodological entry point for the systematic engagement with metaphors more generally. SMA is essentially a hermeneutic approach, supporting the reconstruction of meaning within prospective endeavors. Those reconstructions form a fertile base for deliberation, ethical assessments, and re-creation of other meanings. We therefore hope that our presentation of the work of Schmitt and his colleagues supports the application of SMA and adds to the critical work with metaphors in Futures Studies. Of course, metaphors are not the only ways of making and explicating meaning within futures. SMA should be only one amongst many methods that link XF and CFS, and potential combinations with other methods, such as discourse analysis or narration analysis, should be further explored. However, it must be stated that SMA is quite time intensive, and so are the other mentioned methods.

The insights from such a critical reflection can be a starting point to re-engage in the experience, creating different tangible futures. From the perspective of XF, there are several routes for further work. One direction is the proposed link to CFS to integrate critical reflection. The case illustrates how difficult it is to overstep our mental models, even when invited to think freely. SMA helps to explicate the concepts an XF is built upon, opening them for critical reflection. Further research could explore the connections between metaphors and neurosciences to grasp the conceptual prefiguration of experienced futures. Another promising direction is that of playing with metaphors. The reconstructed metaphors could be a starting point for recreations and iterations of the XF. That could include replaying games with different metaphors, elaborating metaphoric fields in the course of the game, or simply discussing the findings with participants. Playing another round based on a different metaphor could be especially fruitful, e.g. exploring one that was dropped, not fully developed, or even not used at all.

However, working with metaphors in the context of XF needs more research to incorporate non-text-based material for the analysis. Also, research on how to connect the local, strongly contextualized findings that relate to one specific future and group to concepts potentially shared by larger communities is needed.

Working and playing with metaphors might prove a fruitful way to combine experience and reflection. Building on SMA to integrate critical reflection not only links CFS to XF, but also supports their common ideas of creating other futures, shaping change and enabling perspective shifts.

Notes

1. XF is connected to a long history of participatory, visionary, and immersive approaches in Futures Studies. This includes (but is not limited to) early works of E. Boulding, J. Galtung, R. Jungk or J. Dator and, more recently, S. Inayatullah, I. Milojević and many others. Especially the potential of gaming has been and still is explored and discussed (e.g. the JFS Special Issue on gaming, 2017, 22(2)). Grasping the historiography of XF and potential connections, interplays and differences between the diverse approaches deserves more research. We thank our anonymous reviewer for sparking thoughts in that regard.
2. Schemas contain what Lakoff and Johnson originally labelled orientational and ontological metaphors and further developed into the term of kinaesthetic image schemas, while metaphorical concepts include what was labelled as structural metaphors. Carbonell et al. (2016) seem to bypass this evolved

terminology, relating their analysis to the early terms.

3. A note on the ‘we’: Both authors are in their 30ies, one male, one female. The research took place in Germany and in German. That is, all quotes from the later RPG description as well as the metaphorical concepts found are translated by the authors. Interestingly, there is a huge overlap with English semantics and players regularly switched to English themselves.
4. An extended critical analysis of the RPG could offer more insights on how the group conceptualized AI. However, the findings are of course limited to the very specific setting and group. They could (and even the illustrative hints can) nevertheless be connected to further research on imagined futures of AI, especially when metaphorical concepts used by different groups would be collected and compared. We invite potential researchers of that topic to contact us to share more details from our material. Also, such an extended analysis would contain more self-reflexive elements to contextualize the findings and present more links to the self-analysis and comparative background.

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