Mapping meaning with comics – Enhancing Maps with visual art and narrative

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Introduction

This chapter looks at possibilities of using maps as tools to communicate meaning of places and spatiality.

I suggest enhancing maps with visual art and narrative, i.e. comics, in particular, in order to map the meaning of places. I will first take a closer look at the emergence of meaning and the role of experience using a phenomenological approach. I will briefly outline contact theory as a useful concept recently put forward by Hubert Dreyfus and Charles Taylor in their book *Retrieving Realism*. Afterwards, I will explore possibilities of sharing experience and communicating meaning based on the works of Achille Mbembe and Felwine Sarr, two prominent thinkers in the post-colonial discourse. I will then present some empirical research on communication from cognitive as well as neuropsychological perspectives on the effects of narratives, complemented by a narratological stance. This research supports Mbembe and Sarr's theoretical considerations. Then I will discuss the advantages of visual art in maps. I argue for the integration of narrative and visual art in the comic form within maps in order to capture the meaning of places. Against this backdrop I will discuss the potential of comics in maps, including in indigenous mapping projects.

Meaning through experience

When we attempt to map the meaning of places for human beings, we have to assume that there is some kind of relationship between the conscious mind of living beings and the physical world. Strongly influenced by Descartes, this

relationship has been described as constructed through means of each individual mind. This view claims a strict division between the mind and the body in which the mind only receives signals from the senses, but has no direct contact with the world 'out there'. This dualist sorting implies that the mind receives information only through the mediation of the senses. The mind's task is then to make sense of the impressions by forming concepts, which in turn requires language. This conception of mind and body isolates the mind from the outer world and no real contact seems to be possible. Everything is interpretation. However, it seems very hard to uphold this "mediational picture" (Dreyfus/Taylor, 2015), and not only in recent philosophical terms. Findings from the fields of cognitive psychology, brain research and linguistics, among others, rather support a theory of an embodied cognition rooted in a shared physical world.

My approach builds in large parts on the contact theory put forward by Charles Taylor and Hubert Dreyfus (2015). They establish a picture that is not mediational, but allows for the human corporeal self to be firmly embedded in the real world and society.

Dreyfus and Taylor (2015) reject the strict division between body and mind as two radically different entities, building on the thoughts of Wittgenstein, Husserl, Merleau-Ponty, Heidegger, Gadamer and others. They argue instead for the possibility of a direct or un-mediated and prelinguistic contact between the living being and the world. In their terms, the relationship of living beings with the world is characterized as "… the contact of living active beings, whose life form involves acting in and on a world which also acts on them. These beings are at grips with a world and with each other" (Dreyfus/Taylor 2015: 18). They argue that all our beliefs and thus our meaning making are formed through this "more original, 'primordial' (*ursprünglich*) epistemically fruitful contact with the world, which is prepropositional and in part even preconceptual" (Dreyfus/Taylor 2015: 72, original emphasis).

Knowledge arises from the interaction of the corporeal self with the world and thus depends on the existence of both. "My ability to get around this city, this house comes out only in getting around this city and house" (Dreyfus/Taylor 2015: 47). My knowledge of the world is "a 'coproduction' of me and the world" (ibid: 93) which in turn produces "unshakeable, incorrigible" (ibid.) takes on the world, such as 'I can use this goblet to drink from it.' This knowledge arises from a personal or subjective perspective on the world. However, this perspective is not "simply one constructed or determined by me". Rather, "our grasp of things lies in the way we are in contact with the world" (ibid.).

The "primordial" experience in interaction with the world reveals the meaning of things to us as humans ("human meaning"; ibid: 108).

The different stages of forming beliefs in this way are based in the causal contact between the body and the world. The senses are activated by physical objects to perceive some of their characteristics. This allows for interaction between the perceiver and the identified object. The interaction then produces an understanding of the object. Certain beliefs about the object can be formed. These beliefs can but don't need to be expressed in terms of language. Only this process "can allow for a coherent account relating perception and action, understanding, language and belief" (ibid: 90). Following this theory, we arrive at a picture of the human being as "an embodied agent, embedded in a society, and at grips with the world" (ibid: 91).

In this way, we are in contact with the world by perceiving and interacting with the objects within it. This creates a unique subjective and conscious experience of our surrounding reality. This raw experience, which is prelinguistic and preconceptual, does not stand alone, however. We are "psychological and historical structure[s]" resulting in a personal "style" of being-in-the-world, which is our "means of communication" with the world around us (Merleau-Ponty 1962: 455), maybe comparable to a lens through which we see the world. We almost immediately contextualize our experiences, and in doing so make sense of the world. This is influenced by a range of factors. Experiences are always accompanied, for instance, by emotional responses, which can be overwhelmingly strong. But even subliminal emotions can influence our interpretation of an experience. As social beings we are exposed to preexisting imaginations of the world. These imaginations influence our ideas of how to interact with the world's objects. We internalize attitudes informed by the values, beliefs and spirituality of the society we are born into, which were formed by others long before we could have our own experiences. The conscious embodied experience cannot be separated from this conglomerated way of interpreting it with all its feedback loops. But such an interpretation or construal of the world is in response "to what is actually there, and in this sense causally dependent on it" (Dreyfus/Taylor 2015: 99). In effect, from this clutter of subjective, embodied, interpreted and conscious experience emerges meanings which might be practical, emotional, or even spiritual, moral or ethical. I believe that in the same sense the interpreted experience of the objects that open up space constitutes the meaning of a place. At the base of the immaterial realm of meaning lies the human experience of the material world.

If we want to communicate meaning, we have to think about how we can express our own personal experiences and how we can come to understand somebody else's experience. In order to understand the meaning of a particular place for somebody other than ourselves, we have to see that place 'through the eyes of' that person, or come as close as possible to their personal perspective.[1] How can we use our contact theory to access other views of reality, e.g. non-European ones, 'indigenous' ones, etc.? Achille Mbembe and Felwine Sarr shed light on phenomenological approaches in a post-colonial context. When setting out their ideas of understanding and expressing African perspectives, both Mbembe and Sarr emphasize the experiential character of our being-in-the-world and our meaning making through our relations to the material realm.

When asked personally how we could teach German students about the meaning that a place like the city of Lagos, Nigeria has for its inhabitants, Mbembe (2019a) replied that the best way would be to take them there, so they can experience the city themselves. Sarr (2019), too, emphasizes the subjective experience of place when trying to grasp life in African cities such as Lagos, Abidjan, Cairo or Dakar. He uses an almost poetic narrative description of what to expect when walking through certain cities to illustrate this. However, we have to be aware of our biased interpretations of reality and how our imaginations influence our experiences. Mbembe (2019a) differentiates between a colonized and an un-colonized way of seeing the world. He sees a need for a true change of perspective in order to decolonize ourselves and understand each other. This means that in order to truly understand perspectives that differ from our own, we have to openly explore different epistemic traditions, exploit new and unfamiliar cognitive assemblages, and establish new bodies of thought, memory and different layers of the real (Mbembe 2019a: no pagination). These new bodies of thought include categories of being, matter, time and agency. To grasp this view on reality we should focus on its processual and relational nature. Mbembe (2019b) shows how objects in many African philosophies are more than just objects. Objects are "depositories of a vital force" and "repositories of energies" (min. 35). African cultural objects are often meant to represent the relation of human beings and the objects in the same "assemblage" (min. 68). This is in contrast to a more European approach of seeing objects and humans as fundamentally detached from each other. Mbembe calls for the development of a broader understanding of objects and

1 See Skaanes, this volume.

non-objects alike, which he calls "the entirety of the living" (min. 59). Objects, he suggests, are important for conveying different ways of seeing, for "imagining different ways of living" (Mbembe 2019b, min. 68). Similarly, Sarr (2019) argues that we need other descriptions of reality than those utilized by traditional 'western' science in order to understand "African realities" (in Sarr's terms).

He calls for a new epistemology to better understand African realities (ibid: 112-113) and emphasizes that life itself cannot be measured since it is an experience. This is important in the context of expressing our being-in-the-world. I suggest extending this call to better understand reality everywhere. More modes of description are needed. Sarr (2019: 40-41) suggests developing new frameworks for integrating realities that exceed the purely factual, i.e. purely measurable and categorized descriptions. He refers to a wide range of expressional modes to express reality, meaning and vision, including thought, literature, visual art, fashion, song and music, and many more (ibid: 131). The African novel, to him, is the place where Africa's reality is best expressed.

Let us return to the meaning of place. The meaning of a place is not only determined by present purposes or events, but also by historical events or the remembrance of them. Mbembe suggests a multimodal way of expression. He also elaborates on contemporary African literature as examples of truth telling in remembrance of places. For Mbembe (2014), time does not exist per se, but is constituted by our contingent ambiguous and inconsistent relation to things, the world and the body. In African literature for instance, time is experienced with senses like smell, touch, hearing, taste. In this embodied experience of time, the human body is at the center of the experience with all its organs, nervous system and emotional responses. Memory is always expressed in the sensory world. Mbembe (ibid.) refers to contemporary African literature as reporting a scene where a person remembers a time of destruction (war) by seeing the destructed and severed buildings. He states that remembering literally means seeing the trails an event has impressed on the "body of a place". Time is experienced within a landscape. In this example from an African novel, we can see the close connection between body, world and meaning.

According to this line of thought, accessing perspectives by sharing experiences and thus understanding meaning is possible. It is possible because we share one world on the basis of being human. Sharing one world with its affordances and necessities gives us a common ground in which the human condition finds its roots. In the course of the ontological turn, as proposed

e.g. by Viveiros de Castro, the existence of one single world is often denied in favor of the idea of there being multiple worlds and realities. But even the strongest representatives of that concept would not actually go as far as "arguing that there are parts of the world where water runs uphill, there are three-headed flying monkeys, or pi calculates to 3.15", as Graeber (2015: 20) puts it in a reply to de Castro. Mbembe (2014), too, insists on a shared world with a shared ecology and a shared history, and we all share a wish to be fully human (ibid: 330). Based on this shared humanity we can share and compare experiences. Communication and understanding is possible, no matter how different our ways of life seem to be, since all belief is built on experiencing the world around us. As Dreyfus and Taylor put it: "We are not imprisoned, because language- and world making are not arbitrary; they are in response to something" (2015: 129).

Experiencing stories – communicating meaning

Mapping the meaning of places means sharing experiences that were had at specific locations at a certain time. In order to share, we need to transfer the experience to another location and time by means of media such as texts, maps and other symbols. One of the most effective ways to share experiences is narrative. This view is supported by Mbembe and Sarr, providing examples from African novels. Emphasizing that experience is key to understanding. Mbembe and Sarr underline the importance of modes of expression that capture and convey more than factual accounts. In the present context, I define narrative in the simplest terms as an account of actions while taking (implicitly or explicitly) the perspective of an agent or agents. In this way, the term "narrative" is quite similar if not identical to the term "story". In stories, we can not only share experiences but re-experience them as if they were our own. Different points of view can be deployed in story-telling to orient the reader in the story world (first person, third person, objective, omniscient, and so on). But these are devices to situate the audience in the best place to understand what is driving the agent or agents. Authors use a specific narrative perspective as a tool to enable the recipients of the story to best follow the experiences of different characters in the story. How this works can be explained by theories of embodied cognition and confirmed by empirical tests. Neuropsychological studies argue that while perceiving stories the brain is in nearly the same state as it is when experiencing social interaction or trying

to make sense of other beings (Theory-of-Mind).[2] In this sense, narrative can be interpreted as a simulation of experiences. This is also true for the experience of space, as we will see below. This is, in my view, an indication that we as human beings are equipped with the capacity to share experiences in a profound way. In the following, I will briefly outline some recent findings in (neuro-)psychological research, complemented by cognitive narratology and an evolutionary perspective.[3] This kind of research anchors the comprehension of story-telling deeply in the corporeal self of embodied beings.

Story-telling and thus narrative can be considered a deeply human activity that has been part of many aspects of life in every culture throughout human existence. But why do humans engage in storytelling? One reason is that it is a way of making sense of the world by extending one's horizon. Cognitive narratologist Marie-Jaure Ryan states, for instance, that narrative is widely recognized as "a way to give meaning to our being-in-the-world, to our interpersonal relations, and to the temporality of our existence" (2010: 469). With the help of stories we can emotionally and cognitively relive other persons' experiences. Stories function like simulations (Oatley/Djikic 2018: 162). Our brains lack the capability to grasp and connect complex multi-causal settings quickly and effectively in 'objective' descriptions lacking overt perspective. Stories are, however, easily comprehensible, because "as depictions of imaginary lives narrative form runs closely parallel to the self-narratives and simulations constructed in the brain's default mode network" (Carroll 2018: 142). According to Carroll "[t]hrough imaginative virtual worlds people envision the present in relation to the past and future, associate behavior with

2 Although studies exist indicating that seeing a landscape is fundamentally different from being in it, see e.g. Rowland/Yanovich/Kentros (2011), the applicability of this particular study to the human condition is problematic. This study was conducted on rats, and it is more than dubious to transfer these findings to humans, although the authors do this at the very end of the article. But we do not know anything about the rats' capacities of imagination. To me it is one of the big differences that make humans human: the extreme power of imagination, which allows us to plan the future, remember the past, and construct all sorts of ideas.

3 Some of the articles cited were published in a special issue on "The Psychology of Fiction", edited by Keith Oatley amongst others. Oatley has been researching fiction in terms of cognitive psychology for a long time. He has also worked together with Raymond A. Mar, director of the Mar Lab (www.yorku.ca/mar/), examining e.g. how fiction relates to simulation in terms of cognition. Oatley has also influenced the work of the cognitive narratologist Marie-Laure Ryan, who borrowed from him the "concept of mental simulation" (Ryan 2010: 470).

abstract norms, locate events within narratives of individual and group identity and encompass present reality within cosmic visions imbued with human meaning" (2018: 142). Stories trigger (mental) simulation, through which recipients gain access to what is otherwise beyond their horizon of experience (ibid.); we can "enter [a] character's circumstances" (Oatley/Djikic 2018: 162). Through this, "stories model and abstract the human social world" (Mar/Oatley 2008: 173). They "enable us to enter into the minds of others and enable us to engage with, and perhaps get better at the making of such models" (Oatley/Djikic 2018: 165). In this way, narrative driven from the perspective of an agent can point to truth, i.e. the true meaning of something for a specific person, which is sometimes better than factual text (ibid: 166). These theories about the empathic effects of narrative have been well confirmed in a number of empirical psychological studies, as summarized by Koopman (2018: 169-175). This includes the general "effects of narrativity, that is to say, of imagining the feelings, thoughts, and actions of a character (perspective-taking)" (ibid.), which ultimately lead to a better understanding of the whole group the character belongs to (ibid: 172). Whether literary texts work better than unambitious narrations in respect to empathy effects has not been determined yet (ibid: 175).

Meaning consists of experiences in individual minds, sensations, emotions, perceptions and thoughts (Carroll 2018: 135). This raises the question of whether we can willfully evoke the specific sensations, emotions etc. in others, that allow us to convey meaning by simulating another person's experience. How can we hope that what we want to say is actually what is understood? The relationship between author and audience sheds light on the issue. Characters in stories act out of a certain set of motivations, just like real persons. Thus, characters are convincing when comprehensible motives make actions credible. The evolutionary sociologist Joseph Carroll explains this in terms of neurology, building on evolutionary theory. When we acknowledge the existence of our material bodies in a material world which is shared by us humans, we also expect these bodies to have evolved similarly through evolutionary adaptation. This body then produces a "species-typical suite of behaviors" (ibid: 137) driven by a set of motives. Moving between biological needs and human nature as "social animals" (ibid: 138), a complex system of different motivations comes into being. Motives, in turn, "make themselves felt through emotions" (ibid.). Creating emotions in response to a fictional character's interaction with the world is thus a "simulation of social experience" (ibid.). These experiences can be deliberately created by authors (at least those that aim at being

understood by their audience), supposing a common set of cognitive capacities that have evolved similarly across the human species (ibid: 139). Carroll (ibid.) locates the ability to comprehend stories and take perspectives in the "default mode network" of the brain: its imaginative capacities are "key to large scale structures of meaning in the minds of authors and readers." This physical likeness seems to enable us to read and also to elicit specific emotions in others. Story-telling following the rules of genres shows that this works in general. Horror stories induce fear, comedy induces laughter. The functionality of the story-telling techniques hinge on the credibility of the protagonists – and the antagonists as well. Or as Ryan puts it: to enable recipients "to understand a plot, it is necessary to construct the mental states that motivate agents. These mental states consist of desires, goals, beliefs, and plans" (2010: 477). If they are credible, they move us, just like real people would. Ryan sees it as "undeniable that without the ability to construct representations of other people's minds we would be unable to understand, and much less to appreciate stories" (ibid: 478). This theory is further supported by neuro-scientists who locate the ability to understand stories and characters within the human brain (Mar 2011: 103) (which is a bodily organ) and thus within our corporeal being-in-the-world. In a meta-analysis of studies of the human brain, Mar (2011) concludes that very similar networks in the brain are active during story comprehension and when reading the emotions of real persons. This links the two processes in terms of our embodied being-in -the-world. The strong overlap between Theory-of-Mind and narrative comprehension could mean that "people can treat fictional persons as if they were real" (ibid: 123).[4]

For the purpose of mapping meaning in an understandable way, character-driven narrative thus seems to be a useful tool. It is understandable and enables us through (mental) simulation to experience events that are otherwise out of reach. Expanding this notion to the experience of space, Ryan states that, "[f]or readers to get immersed, there must be an environment to be immersed in, and […] this environment is […] a world populated with objects and characters who attract the reader's interest" (Ryan 2018: 6). Narrative

4 Admittedly, most if not all of these studies have a strong cultural bias, as they have been conducted by 'western' scientists with 'western' subjects. However, the main conclusion of these studies in the present context, namely that narratives (verbal and textual) and direct experience have similar effects on humans, should be valid for humans from other cultural backgrounds too.

and the imagination of space and place are strongly connected. Readers experience these worlds in some way as real space. This becomes evident when they map these worlds. In fan art, we see a lot of these maps that are created by readers after having read the story, e.g. of a fantasy world, as in the Harry Potter stories, as recounted in the introduction of this book. Ryan states:

> [A]ll narratives imply a world with spatial extension, even when spatial information is withheld. […] Mental maps […] are both dynamically constructed in the course of reading and consulted by the reader to orient himself in the narrative world. The various landmarks shown or mentioned in the story are made into a coherent world through an awareness of the relations that situate them with respect to each other. (Ryan 2014: no pagination)

> The process of mapping storyworlds bears some analogies with the formation of cognitive maps of the real world. A cognitive map is a mental representation that enables people to orient themselves in real space; it is based on a person's embodied experience. […] Cognitive maps of storyworlds differ from cognitive maps of real space in that they are built on the basis of selected textual information […]. (Ryan 2018: 8)

She continues that "these worlds become habitats where we want to return over and over again, spaces of exploration, and sources of collective experiences that create cultural bonds" (ibid: 13).

We have seen that even relatively short narratives can evoke strong effects (even when the authors are not award-winning literary figures, as shown e.g. by the experiments conducted by Koopman (2018)). Before we consider the question of the relationship between maps and narrative and how we can integrate both into one meaningful whole, we have to think about the modes of narration. What if our language lacks the terms for specific new experiences of both unfamiliar places and unknown ways of being-in-the-world? Building on the thoughts of Dreyfus and Taylor, Mbembe and Sarr, we will have to expand our language by combining different modes of expression, exceeding the purely verbal to produce a narrative that more fully allows us to experience space and the realm of meaning.

A multimodal approach to communicating meaning

How can we communicate most effectively? Are there more channels than just verbal expressions to convey the meaning of a narration? The phenomenological approach outlined above allows us to look for communication devices beyond language alone. The concept of a corporeal being in direct contact with the world offers more modalities than just text with which to capture – and express – meaning. In the following, I would like to suggest moving beyond words to communicate meaning.

As I have outlined above, the meaning of a place can be conveyed with narrative techniques. Narrative techniques, though, don't need to be limited to words. Visual representations are at times more powerful, one of the reasons why maps are very popular. Acknowledging our embodied being in the world, experience is the basis of knowledge. A lot of knowledge can only be expressed non-verbally. I suggest using a broader array of communicative means in combination in order to access meanings of unfamiliar experiences. Human communication is fundamentally multimodal, putting our entire body to work, e.g. in gesture, posture and interaction with objects while talking. Bodily expressions are a place where meaning is constructed. This can be used in certain visual art forms like comics. As a medium combining text and image, comics can accommodate a wide range of means of communication in an integrated and portable fashion.

According to Dreyfus and Taylor (2015), meaning is constituted by language. But this language might include a broad range of modes of expression resulting from our embodied nature of being in the world. It includes "declarative speech, story, symbol, […] rules and […] habitus" (Dreyfus/Taylor 2015: 119). This view can be complemented by recent empirical studies broadening the definition of language to include non-verbal expressions that are nonetheless essential in communication. Researchers from the fields of communication and ethnographic linguistics have made inquiries into the entanglement of speech and bodily action, social interaction, and interaction with objects (Streeck et al. 2011: 2). Many case studies show how, in the interaction of the human body with objects, a sense of meaning emerges. Face to face communication is a concerted effort involving speech, pointing and other gestures, the positioning of bodies in respect to other persons and the objects that they talk about, etc. By communicating with our whole bodies and interacting with objects, "precision and flexibility become […] possible" (ibid.) where words alone would be useless, especially when describing patterns, exact positions,

or orientation of objects. This is especially true for meaning making in spatial contexts. "Through meaning imbued residence in the world …, we read our environment, as revealed in the ways we respond to it." (Enfield 2011: 60) Streeck et al. "insist that embodied interaction in the material world, which includes material objects and environments in the process of meaning making and action formation, is primary" (2011: 9). They build their argument on a number of empirical studies showing how the body and objects are used in meaning making and communication. Thus, we can observe the emergence of meaning by observing the interaction of humans with the world. Describing meaning, then, requires a holistic approach. To understand a gesture, we have to consider the context in which it was made. "We have survived by means of our multiple and heterogeneous objectivations, which include language and artifacts such as tools, skilled practices, rituals, and institutions. These objectivations can only be understood and explained in relation to one another." (ibid: 6)

The human body itself can therefore be considered as a communication device, since it is the carrier of gesture, posture and prosodic features; even the position and orientation of the body in space expresses meaning (for a linguistic perspective see Streeck et al. 2011; Enfield 2011; Hutchins/Nomura 2011). The body plays a crucial role in interacting with the physical world and thus it plays a crucial role in making sense of it. Words and gesture are often used in interplay to express meaning. This is why Enfield suggests that we "capture this broad flexibility of form in communicative formulation" (2011: 59). To 'read' the body it usually has to be in sight. Thus, we have to "rethink the putative primacy of [purely verbal] language in meaning making" (ibid: 64) in favor of a more pictorial vocabulary displaying the human body and its interaction with the environment and any object therein.

Analysts of meaning-making processes "should consider visible phenomena from the outset" (Streeck et al. 2011: 12). With the help of recordings, we can permanently visualize the non-permanent modes of expression like gesture, facial expression, and intonation of spoken word, through visual representations of the human body and the symbolization of sound.

When mapping the meaning of places, words alone are not sufficient to represent the experiences or events that constitute this meaning. Mbembe states that memory exists only where an event meets words, symbols and images. This strong connection between words, symbols and images allows us not only to express an event but to make it appear, as in an "epiphany" (Mbembe 2014: 230).

Multimodal maps comprising narrative and visual art

When mapping the meaning of places, it is useful to focus on the map as a mode of expression. It has distinct advantages for communicating spatial patterns, relations and scales, such as measurability, strict geometric reference in a well described coordinate system, and so forth.[5] A traditional 'western' map has a highly specialized set of symbols to express a view point in as impersonal a way as possible. Although mapmakers have tried hard to remove personal experience from the map they have never quite succeeded. Rather, they have concealed the subjective aspects of maps. As a result, current cartographic language has to be re-enhanced in order to express meaning in its full scope, which necessitates the expression of subjective experience, as we have seen earlier. Cartographic language is flexible and ever evolving. The symbols which compose the map can be applied in differing degrees of abstraction and complexity, which gives us the possibility of using the cartographic grammar while enhancing the vocabulary.[6] Maps are communicative devices. We want them to be understood. So we have to target the user of the map, the person attributing meaning to what they see. "The interpreter drives the process" (Enfield 2011: 60). We can provide the users of our maps with a set of signs which they can understand. We can extend the modality of maps by adding narrative and visual art to them.

For some time now, Cartwright, for example, has called for a recognition of art in maps (2009; 2010). Art enables the map user to "read between the lines" (Cartwright 2010: 294) by introducing vagueness, interpretation and impressions into the map. Cartwright considers art as an equally important component; alongside science and technology, "[a]rt is also necessary to ensure that the map can be understood" (ibid: 299). In this sense, art refers to the experience of emotions, affections and critical readings, and can thus point to the uncertainty and ambiguity of data. Crampton (2010: 3) calls the separation of art and maps a myth, anyway, that was introduced in an attempt to make cartography scientific, but was never truly achieved.

The combination of visual art/narrative and science in maps is a unique opportunity. There are several possibilities for placing art in the map. We can consider the map as art in itself (see Vermeylen, this volume). Another way

5 I use the term "map" here in a rather strict sense. For definitions of map, see Eide, this volume; for a broader use of the concept, see Vermeylen, this volume.

6 See Pearce, this volume.

is to frame the map with art, to use its surroundings to place all kinds of additional material, like images and text, in the immediate vicinity of the map. I focus on the latter.

Critical cartographers point out that the map has to be considered as an interplay between creator, artifact and audience. Post-representationalists argue that the map cannot be separated from the social, 'cultural' and psychological processes underlying its production and interpretation, for the meaning of a map lies in the context it was made in. Wood and Fels have established the term "paramap" (2008: 192), referring to everything that surrounds the actual map but is not the map itself, like the quality of its paper, the website it is embedded in, or a complementing text or article referring to the map. The paramap can be used for at least two different purposes. First, it can be used to deconstruct the map as an authoritative tool by disclosing its making. Second, it can help to communicate the meaning of places for individuals, communities, etc. Adding reflective elements to the paramap means deconstructing the map as a representation of reality. The paramap can become a place where we can reveal the purpose of the map, for instance, whether it is an attempt to convey 'facts' about the world, whether it aims to communicate the relationship of the inhabitants with their environment, or whether the map is intended to serve as a political tool. With regard to the second point – the communication of the meaning of places for specific people – the metrics usually used in maps show location, distribution, spread, etc. They hardly tell us anything about impressions, emotions, experience and the like, which also constitute meaning. Visual art and narrative integrated into the paramap can help to convey experience and thus the meaning of place.

Art is able to give a more complete rendering of the landscape, as Crampton (2010: 110), for example, shows by mentioning many examples where mapping is combined with photos, poems, etc. to convey a "sense of the landscape" (ibid.). In this sense, art can be considered as another, nonetheless equally important approach to dealing with "questions of truth" (ibid: 174). Caquard and Cartwright emphasize the need to introduce emotions into the map. They consider this a major challenge because of the "dehumanizing" characteristics of conventional 'western' maps, which aim at achieving an impersonal view of the world (Caquard/Cartwright 2014: 103). They (ibid.) suggest using stories to meet that challenge. We should connect "maps with other media and modes of expression to better capture the profound emotional link that some stories have developed with places" (ibid: 104). Caquard and Cartwright (ibid.) recognize two main types of relationships between maps and narrative. First,

maps are used to visualize the spatial aspects of a given story. Second, maps induce storytelling (but apparently do not tell a story of their own) through their display of data and places. I would like to introduce a third way of merging map and story by using comics. I essentially envision an artifact that pools together the expressional modes of both media. Comics are, in their sequential storytelling, the translation of time into space (McCloud 1993: 7). They have achieved the use of a static carrier medium to show the passing of time. Essentially, they are the combination of visual art and narrative. The combination of map, narrative and visual art will help us in mapping the immaterial realm of meaning by making personal perspectives accessible in a multimodal way.

The relation of maps and comics

Visual art broadens what can be expressed and can help us to escape the prison of language. Language, on the other hand, can help interpret or even explain what is seen (Sousanis 2015: 52). This can enhance the cartographic language of maps. In parallel, narratives can evoke empathy and support perspective taking while descriptions can support the forming of one's own opinion about the facts. A hidden strength lies in the combination of both picture and text, visual and narrative art in the description of the map. Taylor and Dreyfus call this approach "a multimedia grasp on meanings. This interweaving of the bodily, the symbolic, and the narrative and propositional illustrates […] the inseparability of the life and human meanings in the stream of human existence." (Taylor/Dreyfus 2015: 117) This is what comics do. Comics can portray propositional as well as non-propositional meanings expressed through the body and its environment, e.g. by depicting habitus, position in space, or facial expressions.

The way comics express meaning through a combination of text and visuals and the extensive use of symbols is very similar to that of maps. Just like maps, comics can convey their stories in non-linear ways. Both media give the possibility of making use of the space of the page (or screen) to meaningfully arrange narrative elements in a representation of geographic space. They offer the use of frames and borders, icons, symbols and pictograms, and the color and type of font as meaningful parts, just as maps do.[7] In comics, the

7 See Pearce, this volume.

speech balloon allocates text in a pictorial display of a spatial scene. Maps, in turn, can efficiently make use of this language of comics, e.g. in the form of pop-up windows in webmaps, corresponding to speech balloons in comics.

From a comic artist's perspective, maps and comic art are close relatives. In his comic book *Atlas*, Dylan Horrocks, one of New Zealand's most prominent comic artists, even refers to maps and comics as being "the same thing" (2001: 26). Although I would not go quite this far, I argue that the multimodal language of comics makes an especially promising candidate for enhancing the language of maps. The similarities of maps and comics in their respective expressional modes allow a close-knit combination or even a fusion of the two forms to convey a more sophisticated view of meaning, the material and the immaterial world. For Horrocks, the primary goal of comics is "world building": "it's about making a place in which to explore ideas and experiences and their meanings" (2004: no pagination). World building, in this sense, seems to be very close to the aim of maps. Generally, comic artists are not trying to draw realistic representations of real-world phenomena. They rather create symbols that are easily recognizable and that speak for themselves. Yet the degree of abstraction is fluid and can thus be used according to context. Due to the similar approaches of mapmakers and comic authors, symbols used in the map could reappear in the comic. This bridges the gap between the two media and would fuse comic and legend. A legend could still be used in the same way as a glossary for background information about certain important terms or objects appearing in both comic and map.

In contrast with maps, comics can express time by arranging panels in a certain order. Space is converted to time. They can produce "plurivectorial narration", a kind of storytelling that moves in different directions at the same time, and shows different time slices simultaneously (Dittmer 2010: 231), each panel representing a moment in time. Comics can use visual perspective freely; they usually deploy a close to human scale and an expressionist use of color. Comics can (re)embed humans into maps and integrate emotions, chain of thoughts, reasoning and perceptions. In his doctoral thesis on "learning in many dimensions", published in comic form, Sousanis (2015: 53) promotes the use of comics to achieve a bigger variety of modes of expression, enabling authors to "unflatten" the map, because "not even the most expansive mapping can convey everything" (ibid: 57). One of the reasons comics are so good at "unflattening" is the dual nature of comics, not only in their combination of text and image, but also in the "spatial interplay of sequential and simultaneous" (ibid: 62), the possibility to read a comic layout panel by panel

in a temporal alignment and at the same time in its entirety, holding its own meaning.

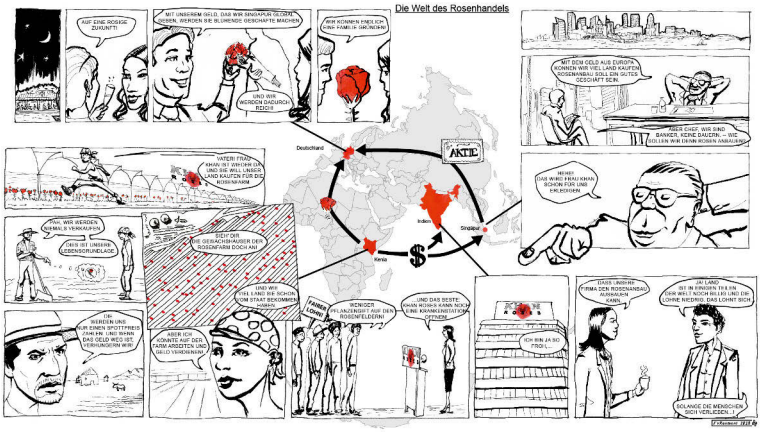
Fusing maps and comics offers a wide range of advantages over conventional 'western' maps without relinquishing their benefits, namely describing the world through spatial and statistical metrics. Meanwhile, comics can illustrate interaction, personal experience and perspective, and thereby construct and verbalize meaning. Comics can display and ideally also evoke emotions and thus reactions. We can use the narrational capacities of comics to tell stories of spirituality, morality or ethics. We can report on change, pointing out processes and displaying the passage of time. We can convey all of this with a broad palette of expressive means provided for us in the combination of visual art and written text.

It has become clear that perspective taking plays a crucial role in mapping meaning. But whose perspective can we hope to portray in an artifact such as a map? One problem with maps about certain communities authored by an outsider is the acquisition of an authentic perspective. This is why Caquard and Cartwright (2014) formulate a shift of importance from the map towards the narrative of the mapmaking process. These narratives should shed a critical light on the cartographic process and the persons 'behind' the map. One way of dealing with this problem is to make the author's voice explicit, ideally within the map itself. With the integration of comics into the map we can do two things. Emotional storytelling is possible by establishing a perspective *within* the map. At the same time, we can establish a perspective *on* the map, by introducing map viewers and authors as commenting agents into the map itself. With elements of graphic narrative, as found and perfected in comics, we can establish a meta-communication. By portraying characters looking from an outside perspective at the map, we can make explicit the voice of an onlooker or commenting map author. In interactive web maps, this technique could even induce a dialog, utilizing web 2.0's commenting functions.

How can we practically enhance the mapping language to map the immaterial realm of meaning with comics? Figures 1 and 2 illustrate two ways that show how maps and comics can be fused into one multimodal form of expression. In Figure 1, the classic map is placed in the center of the display. Comic stories are then arranged in the space around the map. They are anchored to the map by lines pointing to the locations where the stories take place. In combination with the map, the stories are readily available at first glance and can be accessed at any time in any order. The map user can mentally integrate the stories with the rest of the map, because we can easily switch between map

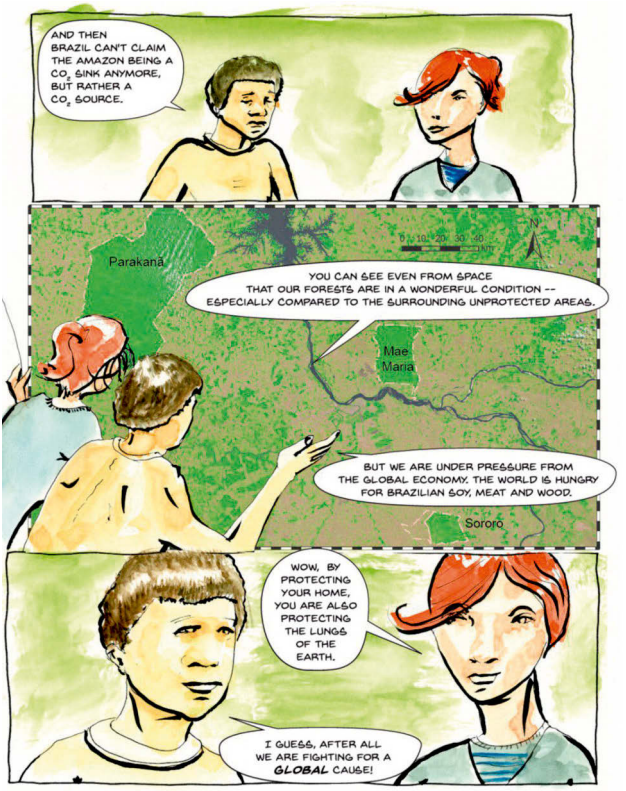
and stories, both of which share a similar 'language'. The comic stories are thus part of the map and function like any other map symbol. Of course, they are highly complex symbolizations as they are composed of text and many other symbols. Of all the symbols the rose is an especially striking one, as it is the only colored one. This eye-catcher appears in the map, as well as in the comic stories, producing a reciprocal effect. It brings the story around the rose into the map. At the same time, it places the object of the stories in the world and creates (spatial) relations between them.

Figure 1: Different perspectives within a map can be represented using comic stories, indicating what is happening where through the eyes of the stakeholders. The figure shows an example of an artifact treating an exemplary globalization process, which is explained in the map and filled with meaning in the comic stories (Comic by von Reumont).



Whereas Figure 1 has shown how stories can be arranged around the map, Figure 2 illustrates how maps can be inserted into a comic story. It is an excerpt of an atlas, which uses maps to navigate through ten different stories of climate change and action. The stories tell of the different encounters people around the world have with the conditions of a changing climate, how they feel about it and how they react to it. It tells the stories of what the climatological metrics of change really mean for the livelihoods of everyday people.

Figure 2: Different perspectives on a map can be represented with comic storytelling techniques. A meta-level can be established using image composition, coloring, differing degrees of realism, speech bubbles, etc.(Comic by von Reumont).



The comic is intended to inform about climate change from the perspectives of affected persons. This is explicitly revealed in several parts of the story, e.g. by having the characters look at a satellite map and comment on it, uttering their construal of the facts presented in the map (Figure 2).

Discussion

Mapping meaning, comics and indigenous communities

As I have argued, in order to include meaning in maps, narratives and visual art, - especially in combination as comics - are promising additional media to consider. From my point of view, the fusion of maps and comics in mapping projects with and by indigenous peoples has a lot of potential, which I would like to briefly outline below.

One goal of mapping with indigenous communities is the documentation and promotion of indigenous knowledge and cultural heritage (see Introduction, this volume) and therefore the meaning of the environment and the places for indigenous communities. As outlined above, comics have a lot of potential in conveying meaning. They are able to integrate personal perspective, experience of place, 'invisible' agents and relations to land (as, for example, dealt with by Dieckmann, Sullivan, Skaanes, Vermeylen, this volume) in maps.

Furthermore, one of the issues often encountered in participatory mapping methodology (see e.g. Roth 2006; 2009), used with and by indigenous communities, is the need for highly specialized skills in order to truly participate in map making (see Rambaldi et al. 2007). Often, 'participation' is therefore restricted to the contribution of knowledge. Integrating comics drawn by the participants can strengthen their participation in the actual map making. The combination of pictures and words is not unfamiliar in most cultures and the skills for drawing comics can easily be acquired. The participants could then use their own repertoire of pictorial expression and explain it to the outsider. Both parties could engage in an intense dialogue that could be captured and distributed for further use. Tony Chavarria, the curator of Ethnology at Santa Fe's Museum of Indian Arts and Culture gives examples of how Native Americans "articulate identity, politics, and culture using the unique dynamics of comic art" (Chavarria 2019: 48). He sees a connection between the 'traditional' story telling of Native art techniques and the visual language of comics and thus calls it "a natural step that [Native] artists would delve into the art of comics" as they "recognize the power of cultural symbols to speak about their past, present, and future" (Chavarria 2009: 4-5). Having compiled an annotated bibliography of indigenous comics, Callison and Rifkind believe that "visual representation [in comics] can influence and inform our understanding of a particular person, place, or cultural group" and hope "that visual

texts might […] assist with the ongoing efforts toward reconciliation and decolonization" (2019: 153).

Additionally, participatory mapping is a conglomerate of many different participatory techniques. The mapping itself, for example, is often accompanied by other activities such as group discussions, interviews and direct observation (e.g. Njounan Tegomem et al. 2012: 50; Dieckmann, Sullivan, Goldman, this volume). However, the maps themselves remain mostly silent on the process of mapmaking, the methodology, the authors and the kind of participation which took place. With comics, these processes of mapmaking can be made visible on indigenous maps (and on any other map).

Comic-maps in the light of other media

When designing maps, the question of the medium of choice is of great importance. The use of high-tech interactive multimedia maps is very promising and seems to be a good approach to bring us closer to the embodied experience of space in the real world, as demonstrated by Pearce and Louis (2008), who created a multimedia map including animations, virtual 3D models and different layers of maps. What are missing here, in my view, are subjective perspectives conveyed by narrative. These perspectives are accessible in the paper, explaining the concepts and reasons behind the map design (so in a way they are part of the distant paramap). But without the stories about how Hawaiians have used and lived in the places, the map remains mute. In her paper maps, Pearce has implemented perspective narrative in a most impressive and effective way, e.g. in her map of Champlain's travels. Her paper map on Canadian place names is also an impressive example of how perspective can be formed in maps. Her current mapping project is also about forming an indigenous perspective on large-format map panels, rather than using interactive digital media (see Pearce, this volume, for an outline of her various projects). It is most likely that the choice of the medium has influenced the story telling techniques used in maps. However, convincing examples of good story maps are rare in digital formats. Moore et al. (2018) describe a technique that effectively integrates narrative in the comic form directly into an interactive 3D map. This allows for a very close relationship between the space of the map and the time line of the comic story. They have, however, met many constraints, some of which are typical of 3D maps, such as cluttering. The stories are organized in 'walls' along time lines. These walls are depicted as such in the 3D model and hide a lot of the information in the maps behind them.

Moore et al. (ibid.) concede that only rather simple stories can be mapped in this way.

Too many possibilities for interaction can quickly become confusing and even tiring to a person who wants to engage with a map. If information and narrative are exposed only by clicking a certain icon, the question is, what is the motivation for me to click that icon? This is especially relevant when the map user does not even know what it is that she or he is looking for. This is why the program manager of ESRI-storymaps, Allen Carroll, recommends avoiding deploying interaction as a condition of understanding the storyline. It might interrupt the flow and thus the immersion of the audience in the narrative, meaning that they miss the point of what the author is trying to convey.[8]

Film is a very strong medium that comes fairly close to the actual embodied experience of a place. As demonstrated for example by Roberts (2014), a simple walk along a certain route can raise strong emotions if embedded in a narrative context. In the video shot by Roberts, he follows the route of an abduction, in the course of events of which a two-year old boy was tortured and killed. This technique, however, is very distant from the way conventional maps are expected to function. Only embedded in the background narrative of the abduction and in conjunction with other mappings can the emotional impact of this video fully unfold in relation to its specific location. A multimodal approach, bringing the two media closer to each other in a single form, seems to be necessary. Solutions exist e.g. in the form of Neatlines[9], an internet platform that allows its users to create multimodal maps for the web. In times of the internet, multimedia access does not seem to be a great obstacle. However, with regard to indigenous peoples' mapping projects, access to the internet might indeed be an obstacle, and one needs to weigh up the benefits, costs and obstacles of this option. Furthermore, digital mapping in the sense outlined requires even more technical skills than the production of analog maps and might run the risk of decreasing the "participation" even further towards mere contribution of knowledge. Therefore, analog media not requiring electricity, projection devices and highly sophisticated IT knowledge for their production and maintenance, etc., might be preferable in the communication, bridging a given digital divide in order to continue the dialogue.

8 See https://storymaps.esri.com/stories/2018/maps-minds-stories-3/index.html (last accessed June 20, 2020).

9 See https://neatline.org/showcase/ (last accessed June 20, 2020).

Comics in analog maps offer some benefits for the map maker and map user in general. The possibility of visually connecting story and map, the portability and ease of use and production, and the non-linearity paired with the simultaneity of information are all arguments for the use of the comic form on paper maps in preference to film and computer.

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