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To think interdisciplinarity as intercurrency: Or, working as an interdisciplinary team to develop a plug-in to tackle the experience of online gender-based violence and hate speech.

Cheshta ARORA^{1*}, Tarunima PRABHAKAR²,

¹ Centre for Internet and Society, Bengaluru, India

² Tattle Civic Tech, India

*Correspondence: cheshta@cis-india.org

Abstract

The paper reflects on the practices of an interdisciplinary team consisting of researchers and activists from the field of computer science and social sciences involved in developing a user-facing, browser plug-in to detect and moderate instances of online gender based-violence, hate speech and harassment in Hindi, Indian English, and Tamil. The plug-in is based on machine learning (ML) approaches to detect and moderate online content while also offering other non-ML features that can help mitigate the experience of gender-based online violence and hate speech.

There have been multiple calls within the field of Human-Computer Interaction (HCI) to include qualitative methods in one's research design. These calls, while attuned to the importance of qualitative methods for HCI, ignore the intercurrent nature of different research methods, disciplines, and practices. The paper draws from the team discussions that were focussed on defining the nature and extent of online gendered violence, use-cases for the tool, differences and scepticism expressed in using ML approaches to reflect on how each disciplinary approach evokes a temporality within which the problem is framed.

The paper borrows the concept of intercurrency from Orren & Skowronek (1996) and reorients it to explicate the practice of interdisciplinary research. It argues that to mark the intercurrency i.e., the multiple temporalities that inform different researchers and methods, is to mark the singularity of interdisciplinary practices wherein to be interdisciplinary is not a question of integration, blending, transcending—metaphors that are often invoked to introduce a research method from one discipline to another. These existing metaphors do not capture the contingencies and incongruencies that inform interdisciplinary practices wherein it is not just the epistemological concerns that are at stake but different temporalities that situate research methods and researchers.

Keywords

interdisciplinarity ; intercurrency ; machine learning ; gender-based violence ; temporalities

I INTRODUCTION

“Different disciplines have different epistemic orientations. Some disciplines are concerned with the question of – why must this ship move at all?”

The above quoted lines were written by one of the authors as part of a writing exercise to map one's experience of working in an interdisciplinary team. The diary entry that began by mapping processes of othering, translation, and the necessity of interdisciplinary practices ended by noting "different epistemic orientations" of different disciplines. After recognizing this difference, the entry ended with one final observation, that "...wouldn't it be easier if everyone could just use the same tools for communication and documentation? X-D".

The paper aims to stay with the predicament that is expressed in these two observations – of the team member's recognition of the absolute *difference* between each discipline's "epistemic orientation" and their immediate need to end the diary entry with an almost wicked desire to have the "same tools for communication... X-D". We call it wicked/perverse to mark that the desire returns even after recognizing the epistemological difference.

The paper develops from an experience of working in an interdisciplinary team to build a user-facing, browser-based web plug-in. The plug-in will use machine learning approaches to detect hateful and harassing content that targets persons of marginalized gender situated at the intersections of caste, religion, and sexuality. The tool will work on three Indian languages: Hindi, Indian English, and Tamil. The larger team, of which we are a part, includes activists, data scientists and social scientists. The paper, however, builds from observations on interdisciplinarity exchanged by the two of us. The tool is being developed in partnership between two non-profit organizations located in India, Centre for Internet and Society and Tattle Civic Tech. One of the authors is a founder of the second organization, Tattle Civic Tech, while the other author is employed by the Centre for Internet and Society to work on this project as a full-time researcher. The project is privately funded by Omidyar India.

The machine learning tool is inspired by those approaches in the machine learning field that insist on building scaled down tools while incorporating feedback of communities and individuals who would be the end users (Vidgen & Derczynski, 2020; Waseem, 2016). For this purpose, we have been in conversations with community influencers, members of community-based organizations, on ground activists, who have encountered instances of online hate and violence. This methodology of tool development further informed our experience of interdisciplinarity and what it means to account for perspectives of differently situated bodies.

The project and its interdisciplinary dynamics

Interdisciplinarity is often touted as an alternative to the dogma of disciplines. Turner traces the emergence of disciplines to the history university systems in medieval Europe and the US that were becoming new centres to learn law, medicine, and theology (2017). Within these new centres of learning, disciplining meant "the protection of the dogma" (ibid.). This history informs the subsequent 19th century criticism of disciplinarity that point out: 1) the ideal of unity of knowledge, 2) the exclusion of "educationally significant topics" for the sake of disciplinary concerns (as pointed out in the 20th century) and finally 3) the problematic of "practical value", a response spearheaded by the Rockefeller philanthropic interests in the 1920s and 1930s (ibid.). The emergence of the molecular biology revolution, integrating physics and biology, is accredited to the financial support provided by Rockefeller Foundation to the phage group. Simultaneously, it touted for a more "realistic" direction in the social sciences. This assemblage—of disciplinary dogmatism, of educationally significant courses, and a funded interest in promoting the practical values — becomes important to note for this paper and the making of the ML project upon which the arguments of this paper hinge. The paper locates certain shifts in this assemblage and how interdisciplinary practices come to be in the contemporary.

Unlike the context of dogmatic disciplines existing in silos against which a certain notion of interdisciplinarity emerged in the 20th century, both the authors have received interdisciplinary training to some extent. One of the authors, while being a computer scientist, had been

introduced to science and technology studies and the specific postcolonial predicaments that inform the field of STS in India as well as policy studies as part of their graduation and post-graduation courses. The other author has traversed the fields of English literature, gender studies, and cultural studies with a specialized interest in feminist techno-science studies and continental philosophy. In order to write this paper, one of the authors had put down their thoughts as a diary entry which was then built upon by the other author to write this paper.

An extensive discussion already exists in the field to mark the boundaries of inter-, multi-, trans-, pluri- disciplinarity and while we agree with Klein (2017) that typologies are political, we chose to define the project team working on the ML tool as interdisciplinary for four reasons. First, interdisciplinary is often used as an overarching concept to interrogate disciplinary approaches. Other typologies such as multi, trans-, pluri- develop in relation to what interdisciplinarity is or is not able to capture within its ambit. Second, although at an everyday level, the team members on the ML project under consideration would mostly coordinate, communicate and translate for one another (successfully or unsuccessfully) from the perspective of their respective disciplines without interrogating the foundations of other disciplines (i.e., a multidisciplinary approach), yet the discourse built around this tool is sure to impact at least two disciplines: women/gender studies (by further strengthening the nascent field of feminist techno science studies in India) and the field of machine learning (by incorporating activists and community responses as necessary methodologies for ML and content moderation). Third, call for interdisciplinarity is strong in both women/gender studies in India and machine learning more broadly. Women/gender studies in India constitutes those voices in Indian academia that interrogate the epistemological valuations of traditional disciplines to call for more interdisciplinary approaches that cast their analytical nets over multiple scales of analysis (Davidow, 2017). Similarly, broader currents in machine learning call upon the practitioners to incorporate elements of interdisciplinarity to make sense of the (Kusters et al., 2020). Fourth, the organization, the Centre for Internet and Society, that employs one of the authors, defines itself as an interdisciplinary research organization (while situated outside of Indian academic circuit). These considerations point towards a regime of interdisciplinarity which makes it difficult to classify this project as either inter-or multi-, pluri-, or transdisciplinary. The project and its working, however, will be closer to Mode 2 knowledge production as distinguished by (Nowotny et al., 2003) where Mode 2 knowledge production builds in the “context of application” that develops through networks of researchers, stakeholders, as opposed to traditional institutions or disciplines.

Thus, this project emerges within an assemblage where a certain regime of interdisciplinarity is already established. It borrows insights from diverse fields such as Data Science, Machine Learning, Gender/women studies, Media and Communication. At the core, however, as a project with an aim to build a user-facing plug-in, it comes closest to the field of Human-Computer interaction that relies extensively on interdisciplinary approaches (to build “interactive software that can be used efficiently, effectively, safely and with satisfaction” (Hartson, 1998). The field has witnessed multiple calls to incorporate and embrace elements from humanities, arts, computer science, social science, design, literary theory, psychology, cultural studies, critical theory and phenomenology (Bardzell & Bardzell, 2015; Coyne, 2001; Dourish et al., 2004; Hartson, 1998; Mateas, 2001; McCarthy & Wright, 2004; Winograd & Flores, 1986). Interdisciplinary approaches leave enough room to introduce ethical, social, and political implications in the field that are more than just scavenging different disciplines for new technical solutions to the current problems¹ (Dourish et al., 2004). The field has even witnessed internal debates vis-à-vis further stabilization and consolidation of the field into a discipline (Liu et al., 2014) to characterizing HCI as an inter-discipline, between disciplines,

¹ This is evident from the 2004 workshop titled: Reflective HCI: Towards a Critical Technical Practice

that provokes, invents, reflects (Blackwell, 2015) and often prides itself of a welcoming environment. Given this acceptance of the interdisciplinary, networked nature of the field, the conversation often revolves around the need to improve discussions between individuals from different disciplinary upbringing (Niess & Wozniak, 2020). The discussion that follows aims to complement this characteristic of the field while also being relevant to other fields requiring interdisciplinary approaches.

Since the authors have had a strong training in interdisciplinarity, we have experienced disciplinarity as that which is more fluid and dynamic, or what Marcovich & Shinn (2011) call, 'elastic'. This hints towards different disciplinary concerns in the contemporary where an imagination of disciplines in the 21st century is no longer one of opaque silos but is marked by elasticity that is defined as "dilation in the range of instruments, new materials, and the scope of questions asked in the discipline and their interconnections with other disciplines" (2011, p. 583). We write this account from the viewpoint of a generation, of early career researchers in 21st century, that is born within the "triple helix" or military-industry-state model of interdisciplinarity (Fuller, 2017) rather than those that saw, predominantly during the 1960s, the epistemological potentials within interdisciplinary approaches to escape disciplinary silos. A perspective that is often lacking in the literature on interdisciplinarity (Dooling et al., 2017).

Given this already available experience of interdisciplinarity and an encounter with a certain regime of interdisciplinarity that mandates that different disciplines work together without reflecting upon the contours of its practices further enables us to perceive interdisciplinarity as intercurrency. Borrowing from Orren & Skowronek's (1996) notion of intercurrency, we argue that at any given point, an interdisciplinary team is navigating multiple, yet simultaneously occurring temporal dimensions of each differently disciplined body. An awareness of these multiple temporalities adds another dimension to think about conflicts and possibilities emerging from interdisciplinary practices.

Interdisciplinarity and Intercurrency

The decision to stay with the predicament, with which the paper opens, continues to inform the approach to interdisciplinarity that is central to this paper. Instead of treating problems as aberrations that can be resolved by mapping/calling forth an ideal practice of interdisciplinarity, we aim to use these predicaments to articulate a different image of interdisciplinarity, one that accounts for its montage characteristic. To do so, the simultaneity of temporal concerns/conflicts is brought to the forefront as another dimension informing different epistemological positions. To point out these temporal dimensions as being central to conflicts informing interdisciplinary practices is to suggest that these conflicts cannot always be resolved, blended, or integrated. Rather than ask, what is interdisciplinarity or how to achieve more or less interdisciplinarity, a concern that predominates the field, the paper aims to map the dynamics playing out between different disciplines in an interdisciplinary practices and how interdisciplinary knowledges come into being and through what kind of sedimentations and erasures.

We find Orren & Skowronek's (1996) concept of 'intercurrency', simultaneously occurring temporalities, useful to map the aforementioned question. Orren & Skowronek (1996) developed 'intercurrency' to interrogate the concept of "political system"—an integrated whole in which institutions work together, more or less well, to meet demands from their environment" (p. 112). Contrary to this notion of political system, they posit a "political universe organized and activated by intercurrency" which is described as "engagements throughout the polity of the different norms embedded in institutions, the terms of control contested, more or less intensely, in the ongoing push and pull among them" (p.112). The concept of intercurrency is meant to interrogate "the wholeness of systems and the homeostatic character of change".

Albeit developed in the context of political institutions, we find the concept useful with regard to disciplines as well. First, their definition of political institutions brings to light the “non simultaneity” of disciplinary origins, and “the other directedness” of disciplines whereby they seek to explain, represent, intervene, or capture worlds that are “outside their own sphere”. Second, this concept also interrogates the will to install order within the field of interdisciplinarity, when the practice itself is rife with multiple temporalities that cannot be ordered through simple narratives of integration, blending, and linking (See Klein, 2017). Understanding interdisciplinarity through intercurrency allows one to perceive simultaneity of incongruous approaches of different disciplines. This incongruity between the simultaneously occurring epistemic approaches and their specific history and embeddedness in the political economy of knowledge, i.e., intercurrency, “becomes the medium of change through time” rather than transcendence of disciplines, integration of multiple viewpoints, or other similar tropes that aim to characterize interdisciplinary practices.

While there’s not much discussion vis-à-vis time, temporality and interdisciplinary research, these concerns appear in discussions on ‘engaged scholarship’ that integrates academic and non-academic expertise to develop community facing products. Engaged scholarships require long-term investments and also “bring together organizations that experience time differently and operate in different temporalities” (Barbour et al., 2017). However, within this literature time is often treated as a resource to be invested, spent, or managed and where experience of different temporalities by human actors can be “knit together” to “manage the investments of time” (2017, p. 366). Towards this end, as different individuals and two organizations working together, we had scheduled weekly meetings to share updates with the larger team, an excel sheet to track project milestones but with no strict working hours.

Though a notion of time as a resource does impinge upon the funded projects and how differently disciplined bodies are made to co-ordinate and work together, for the purpose of this paper, however, we are interested in delineating temporal concerns vis-à-vis disciplines and their epistemic orientations. If each discipline has different epistemological orientations, notions of temporality are central to these differences and how each discipline values ways of knowing and being i.e., how to know the world and what to do. A discipline’s temporal concerns also inform what kind of a relation each discipline aims to build with the larger socio-political processes that surround it. As Orren & Skowronek (1996) point out while developing the concept of intercurrency, each institution (a definition of which can also be extended to disciplines) develops in the “fullness of time” which is used to point out that institutions do not “float “in” time; time is a construct of the intercurrency of institutions”. To further explain the conception of time offered by Orren & Skowronek (1996)

“In place of the conventional picture of time as one wide stream surrounding institutional action and deflected by it, intercurrency shows time filled up, sculpted, so to speak, by the different historical trajectories that institutions bring into play...time is ‘told’ at every moment by its institutional content”.

The paper contends that a similar view of intercurrency, of disciplines developing in “fullness of time”, where time is filled up, told, sculpted also help explain the way disciplines converge and diverge in interdisciplinary settings. Complementing this understanding intercurrency, we also find Grosz’s conceptualization of time and temporality as relevant. Very briefly, borrowing from these sources, we understand time as an active force, that brings objects, bodies, matter into existence, that divides. Since, in this paper, we are concerned not just with disciplines but also differently disciplined bodies working together on a problem, we also find Cantó-Milà & Seebach's (2015) proposition that our relations with each other are “based on a reflected or non-reflected assumption that there will be a future” which points towards an

individual's temporal dimension as necessary to invent, discover, acquire, defend one's own place in social relations that occupy us.

This notion of time and temporality as filling up institutions, disciplines and bodies impinges upon how the coordinating task is experienced, how hierarchies between different disciplines that each body sustains within itself is defended, and navigated, and how a past, present and future is imagined by each differently disciplined body participating in the making of a tool. The fragmentary vignettes presented below bring forth how a certain notion of temporality is crucial to how different ideas are received, different disciplines are homogenized or ghettoized, and ideas are embraced, rejected, or worked upon.

In the following section, this discussion on interdisciplinarity as intercurrency is interspersed by mapping three different temporalities that informed three differently disciplined bodies in the team: the activist, computer scientist, and the social scientist. Finally, these three simultaneously occurring, incongruent temporalities mediated through three differently disciplined bodies are sutured together by the homogenizing funding cycle that imposes a clock time on the project and the three actors.

II. The three incongruent temporalities

“The ghost of two cultures”

At the beginning of the project, when the members were just introducing each other, getting a sense of how the work will be distributed between the members and the two organizations, a ghost of “two-cultures” made itself visible where the members of Tattle civic tech, an organization that builds data sets and describes itself as a community of “technologists, researchers, journalists and artists, was homogenized under the label “the technical team”.

This label that was quickly refuted by one of the authors, trained in computer science, a co-founder of Tattle, and strictly speaking, “is not an engineer on the team”. This refutation was an attempt to bury the ghosts of the past, that distinguished between the scientific, the technical, the cultural and the social. It was also an attempt to assert the elasticity of current disciplinary regimes in the contemporary.

The categorization of the members of Tattle as a “technical” team by a social scientist, trained in Science and Technology studies, however, evoked the historical burden of the discipline that had established itself in the past by opening the scientific, the technical to the quandaries of the social. This homogenization also hints at the ways in which different disciplines order their own past, present and future.

On one hand, the body disciplined in STS/FTS still existed within a temporal order where a desired future of blurring disciplinary boundaries between the social, the technical, and the scientific had not materialized as concretely as it was envisioned. On the other hand, the body traversing the technical, the political (of policy making and building community facing tools) was already charting a different temporal order of porous, elastic, and dynamic disciplines. The success or failure of this elasticity as is claimed by a discipline at a particular moment in time, however, is another concern. What is important to note here is that, for one body a certain disciplinary future was not yet, while for another a different disciplinary future was already in the making.

“I am an applied researcher”

Another team member, a marketing and communication expert who was also an activist and a peer supporter working for the LGBTQA+ community in India for over a decade had joined the team after four months of starting the project. The earlier conversations were mostly between members from CIS and Tattle navigating two temporal disciplinary sedimentations as described above of a disciplinary future not yet and a disciplinary future already in the making.

With the entry of the fourth member, another temporal force was introduced. The fourth member would often evoke their position as “an applied researcher”, an identity evoked to distinguish their perspectives from the other members in the team—a computer scientist and an academic. According to this statement, these two figures were presumably only interested in research for research’s sake without considering its practical implications or the communities for whom the ML tool was being built.

This statement was productive of a certain kind of disposition towards the world. It helped situate the tool and its immediate utility in the present. It gave precedence to user experience over and above anything else and helped link tool development with the immediate need of the individuals who could use it in an immediate future.

The statement, however, was also evoked in response to the perceivable disciplinary hierarchies. This relationship of hierarchy resulted in a different kind of homogenization of the other two disciplines that were seen as occupying the top of the academic pyramid, the knowledge infrastructure. The presumable homogenization of a computer scientist and a social scientist as figures who are not doing “applied research” (the meaning of which will be contested and refuted by each discipline) can be seen as an attempt to reorganize and redistribute the power between the three differently disciplined bodies where a body identifying as an activist asserts its position by repeating its proximity to the ‘real’ world and real ‘concerns’ out there.

Within this imagination, the temporality of disciplinary knowledge concerns was incongruent with the immediate concerns of politics. The abstract disciplinary concerns were assumed to be just abstract, with no “real” world implications. The temporality of political immediacy, or ‘real’ concerns couldn’t recognize the concreteness of the temporal concerns and a certain imagination of a future driving other two disciplines. The image of other two bodies as “not-applied researchers” who are only interested in building detached knowledge systems was a symptom wherein temporal conflicts, a certain temporal dimension of immediacy is asserted, as a response and defence against a perceived disciplinary hierarchy.

A non-recognition of intercurrency, simultaneously occurring temporalities, that order and inform different disciplines working together in an interdisciplinary team produce such moments of homogenization. The evocation of other members as part of a homogenous ‘technical’ team, or “not-applied researchers” can be perceived as instances when the intercurrent nature of disciplines is misrecognized.

“The encompassing logic of algorithms in the present”

The perceived disciplinary hierarchy as refuted through a performative act of homogenization, however, is obviously not misplaced. The logic of computers, data, code, algorithm, information drives how the present is sliced (Kitchin & Dodge, 2011). This over encompassing logic, that exhausts the present moment, criss-cross the three differently disciplined bodies differently. The two bodies, of the activist and the social scientist, that do not occupy a charged and heterogenous field of computer science, refute this disciplinary hierarchy through an act of homogenization. The computer scientist on the other hand carries the burden of translation. The following diary entry is a case in point:

“I think I do a lot of explanation of the machine learning process but there have definitely been discussions where I feel like it would be better if everyone read up on it independently. And when I have lost patience, I have feared that I am reinforcing the trope of engineers not valuing or being considerate of other perspectives (strictly speaking I am not an engineer on the team)”
... I also don’t want people to stop asking questions...But sometimes it feels like we spend time going over what I think are basics that would be better spent elsewhere.

While we agree that the burden of translation of one's own specialized viewpoints should have been felt by all team members and that each, at some point or other, would have been left with a feeling of not being understood, the team discussions (as the above diary entry suggests) have often revolved around understanding the logic of machine learning, its limits, and possibilities. The temporal order implicitly working or rather impinging this burden of translation upon a computer scientist is best perceived when this observation is juxtaposed with another vignette put down by one of the authors, the social scientist on the team, while reflecting upon the experience of building the tool:

I had only recently joined the team and was just one month into the literature around content moderation. Armed with the theoretical approaches to decolonial, feminist AI, I was demanding that we discuss the 'narrative' that we want our tool to weave. Would it be possible to code another narrative in this tool that can account for the complexities of postcolonial condition, locate a different causality to gendered, sexual violence that is other than an abstract, hollow notion of age-old patriarchy and its violent manifestations? This discussion, a team member heuristically suggested, would unleash a whirlpool. We had a timeline, we were accountable to our funders, and we cannot afford to get lost.

This vignette documents a path that was not taken in the making of the tool. A certain temporal decision (albeit inconspicuous) was made at the start of the project to take certain aspects of the present and its problems as it is. This requires a certain detour in order to grasp the essence of the point that is being made here.

An important insight from the field of women/gender studies influenced by poststructuralist approaches is to mark the constructed and productive nature of the problem, of how a phenomenon and the way it is framed is not given out there but constructed through a nexus of knowledge/power. Borrowing from this insight, the global feminist discourse of violence against women (VAW) faced a certain political challenge from postcolonial feminist approaches. Postcolonial approaches pointed out the confluence between the problematic of VAW discourse and the colonial and imperial projects that frame a territory and its population as “backward”, “traditional”, patriarchal to justify economic and military aggressions. The trope of gendered violence through which a presumable backwardness of a population is stabilized becomes central to justify this aggression. Following a similar narrative of VAW, the problem of online gendered violence is not given but is constructed by a certain knowledge/power nexus. To ignore the constructed and productive nature of a phenomenon, is to choose between one temporal order among the intercurrent, simultaneously occurring, conflicting temporal dimensions informing that phenomenon at any given point. The liberal feminist temporal order will merely nuance the problem of oGBV by mapping how it manifests for different individuals and communities without interrogating how and what purpose would such a framing serve. In contrast, the postcolonial temporal order would be the one that refutes the way in which the problem of online gendered violence is framed, what causal links are built and how the phenomenon is made to manifest in the present.

The burden of translation, thus, was heavier on the computer scientist because the initial decision, “to not get lost in the whirlpool”, mandated that others ‘travel across time’ to align with the mandate of the project to build a ML tool to mitigate online-gender based violence. With this decision, the problem of online gender-based violence was already given—it was the ML tool, how it ought to be build, what are its limitations and possibilities, that was under consideration. In the contemporary, given the all-encompassing logic of algorithms, the ML and its making took precedence over other concerns that, quiet plausibly, could have unleashed a temporal whirlpool. The burden of translation could have weighed heavily upon another body if the disciplinary fields and the hierarchies between them were configured differently.

III. Conclusion: What are the implications of pointing out these incongruent timelines that situate different disciplines?

As would be obvious from the discussion, the moment of homogenization— the “technical team” or “not applied researchers”, described through the vignettes, doesn’t merely point towards an error that can be corrected by pointing out the elasticity of the discipline or the researcher that is being wrongly stereotyped. That is, the social scientist, given its epistemological and ontological dispositions to the world, would continue to seek a future that is different from what we already have in the present. This future of a social scientist, that is sceptical of the here and now, of the immediacy of the politics that privileges certain mode of being in and of the present will continue to be in conflict with the subject position of an activist who is immersed in the immediacies of the present and the possibilities that it offers.

Opposing the neat, sanitized and at times celebratory accounts in interdisciplinary practice of blending, integrating, juxtaposing, or transcending disciplines ensuing from presumably sovereign, cognitive capacities of academics (Fuller, 2017), the notion of intercurrency points towards simultaneously occurring temporalities as central to incongruencies that inform interdisciplinary practices.

As Orren & Skowronek (1996) suggest, intercurrent nature of institutions and disciplines is not a pathological condition. To point out these temporal dimensions, is not to mark the ways in which the incongruent can be made congruent but to point out that the interdisciplinary approaches appear in “fullness of time” where we are not just dealing with individuals who think, see, or perceive differently, a difference that can be bridged through regular discussions until we realize the perverse desire (that should have come up now and then for every team member involved in the project): “Wouldn’t it be easier if everyone could just use the same tools for communication and documentation? X-D”.

Rather, it is to point towards the temporal force of each differently disciplined body that brings with it an entire temporal dimension. As should be obvious, these dimensions will be in conflict with each other while being vulnerable to homogenization within an assemblage that favours clock time, project deadlines and results that are recognizable and mandate “specifying in advance what discoveries will be made” (Blackwell, 2015). However, if innovation is that which is unexpected, surprising, serendipitous then an awareness, among all the team members, of these multiple temporal dimensions occurring simultaneously in a project can help achieve unexpected outcomes, that can concretize uncharted past, present and futures. The knowledge of the fact that we all are already occupying different timelines, the future given to me in the present is not necessarily a future being imagined by another, might help trace contours of a liveable world, a world that is different from what it already is.

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