

PhD Exposé: Understanding practices of open-source software development: Between uncertainties, ambiguities and silence

1. State of the Art and Research Problem

In April 2014 the Heartbleed vulnerability was discovered. It took two years after the bug in the code was pushed into OpenSSL to be found. As an open-source cryptographic library for the implementation of the Transport Layer Security (TLS) and Datagram Transport Layer Security (DTLS) essential for the secure use of Internet many big technology companies as well as governments agencies were profiting from it. However, due to the free distribution and no cost characteristics of the library, these actors were not contributing back, financially or with donated developers time, which could have had ‘catastrophic’ consequences (Schneier, 2014) as system administrators were slow in patching this vulnerability¹. The slip in the code was the product of a ‘labour of love’, as Jose Pagliery at CNN (Pagliery, 2014) described it, or the work of –many times unpaid and overworked– volunteers that is fundamental for free, libre and open-source (F/LOSS) projects. In the case of OpenSSL, it was maintained by only one full-time employee and a few non-stable volunteers, none of whom was paid for carrying out audits and testing necessary for identifying the bug. It was also, I argue, a clear example of practices related to ignorance in the IT sector.

The decision of big IT firms as well as other large organisations to outsource the production and maintenance of their online security to volunteers, ignoring the fact that they are not being paid for doing that, is similar to what Joanne Roberts (2013, 2022) calls ‘wilful ignorance’. These actors put at risk the privacy and security of people’s and organisations’ information, including communication (emails, instant messaging), user credentials (usernames and passwords), as well as highly sensitive data (organisations’ secrets, health data, insurance numbers), because denying the importance of the F/LOSS projects’ financial situation was more economically effective in the short term. Nevertheless, ten years later these actors still prefer the risks of ignoring the call for contribution to F/LOSS projects than to feel the cognitive dissonance of free riding (Roberts, 2013, 2022) as the XZ Utils backdoor² discovered at the end of March 2024 shows.

¹ According to several reports from 2014, 2017 and 2019, system administrators were slow in patching this vulnerability. In June 2014, two months after the vulnerability was disclosed, Robert Graham, a well-known cybersecurity expert, reported that more than 300 thousand servers were vulnerable. By July 2019 more than 90 thousand servers remained vulnerable (Wikipedia, accessed on 3 November 2024).

² At the end of March 2024 reports emerged of an intentionally created backdoor in the XZ Utils, a popular open-source library used for data compression integrated into a large number of Linux distributions. As a particular type of hacking known as social engineering, it addressed the fact that only one maintainer was responsible for the project (Goodin, 2024).

Free, libre, and open-source software (F/LOSS) communities are groups of mainly developers who collectively work on one or various projects –at the level of source code– which are openly accessible on Internet. In contrast to proprietary software, or closed-source software, which is software whose source code is owned by its creator or publisher and typically kept secret, source code of public-domain software or open-source software is freely available, and thus, it can be inspected, studied, modified, and redistributed freely. One of the aspects that characterises these communities is their mode of production (Berry, 2015; Coleman, 2005; Kelty, 2008; Söderberg, 2015). Members strive for making their activities open or transparent, including their communication (exchanges as well as debates) and decision-making procedures, their membership, the history of changes in source code and associated documentation, and even their economic resources and budget. That is, these practices of transparency provide access to information and knowledge about the source code and the communities themselves.

After more than thirty years of evolution, some researchers (Schrape, 2019; Tamburri et al., 2019; Tamburri et al., 2013) have produced typologies of these communities³ to explain, among other things, their legal form, organisation and management style, funding, relations with other organisations (F/LOSS communities, companies, and other institutions), and types and forms of engagement of contributors (paid or volunteers). These typologies, unfortunately, are not comparable, as they emerge from different fields with divergent ontological and epistemological understandings, such as innovation studies and software engineering. More importantly, they have not placed a particular interest on the role that ignorance or non-knowledge plays in these categorisation of F/LOSS communities neither on how (or in practice) this non-knowledge is reproduced. According to Schrape (2019, p. 422),

“OSS [open-source software] projects have contributed to more flexibility in the collaboration between developers from divergent contexts, the task-specific cooperation between market actors as well as the modes of organization in software development at large [...] At the same time, however, freely available source code alone does not result in more transparent coordination patterns than elsewhere, in a disintermediation in the established societal resource and power distribution or a general democratization of innovation processes.”

In his statement Schrape (2019) suggests, if only very timidly, a common misunderstanding about the F/LOSS environment, that is, that transparency and openness are sufficient for ubiquitous knowledge. In other words, his remark can be interpreted as a nod to the unknown, or as it has been termed elsewhere, ignorance or non-knowledge.

³ In the sense of Weberian ideal-types.

Ignorance studies is a cross disciplinary field that has seen an explosive growth in the past ten years, and encompasses work that predates the publication of the first Handbook of Ignorance Studies in 2015. In the introduction to the second edition, the editors Gross and McGoe (2022) indicate that ignorance goes beyond non-knowledge, encompassing phenomena related to unknowns, uncertainties and knowledge gaps. Empirical studies analysing cases related to philanthropy, environmental science or social taboos associated to sexual violence against women have focuses on the instrumental use of ignorance, the value of partial knowledge, such as organisational ambiguity or uncertainty, or the epistemic injustices of marginalising certain ways of knowing. The aim of this field, according to Gross and McGoe (2022), is to look at ignorance through a different lens. Instead of one-sided analyses that centre on the vulnerability or powerlessness that ignorance generates, we should consider how acknowledging ignorance our using it can be an empowering or emancipatory action.

As in organisational or management studies, in the area of software development more generally (Krüger & Hebig, 2020; Campagnolo et al., 2015), and specifically in the case of F/LOSS communities (Sowe et al., 2008) the tendency has been to focus on knowledge and knowledge management or how knowledge can be and is acquired in order to understand, maintain, and further develop source code. Exceptions are works that emerge from disciplines other than software engineering, for example the work of Geiger et al. (2021), which is situated at the intersection of Human-Computer Interaction (HCI) and Computer Supported Cooperative Work (CSCW). The authors interviewed maintainers in F/LOSS communities to learn about those practices beyond the ones traditionally associated to the role, such as fixing bugs, patching security vulnerabilities, and updating dependencies. Through the introduction of the concept of ‘scalar labor’, Geiger and colleagues (2021) refers to invisible activities that are as important for keeping a successful project running as the just mentioned traditional ones. Even though the study is shy of explicit references to non-knowledge, these additional practices, including provision of user support, on-boarding for new maintainers, distribution of code reviews, emotional labour, or networking with the ecosystem’s members and up to evangelisation⁴ are expected to be taken up by maintainers as a result of successful projects that scale. This scaling can take place in one, a number, or a combination of various dimensions: number of users and user organisations, ecosystem (inter)dependencies, and number of contributors. Yet again, these are activities which are neither sufficiently discussed in the F/LOSS environment nor publicly acknowledged by the larger IT ecosystem. Thus, as with the Heartbleed case, ignorance (Gross & McGoe, 2022; Jalonon, 2023; McGoe, 2012; Roberts, 2022) is a practice⁵ common in software development, and more specifically

⁴ An evangelist is a person who is an advocate of a particular technology and then helps to make it the standard in that particular sector.

⁵ The pun is intended: to ignore the practice, but also to practise not knowing.

in the FLOSS field, to deal with different phenomena, such as ambiguities, uncertainties, errors, secrets or cognitive dissonance.

Following Jalonen (2023, 1), “organisations are systems of shared meaning where *ignorance* is created and sustained, either unintentionally or deliberately, through various social interactions, symbolic processes, and organizational structures.” In this sense, if F/LOSS communities within this research are understood as organisations, there is a need for studying non-knowledge in these communities that goes beyond the approach typically adopted by software engineering of identifying the knowledge necessary to understand source code and close the knowledge gap. Other aspects that are valuable and necessary are to identify and comprehend the causes, consequences, and impacts that ignorance has in the communities’ decision-making processes and organisational work, as well as its ethical and economic implications. For example, according to Jalonen (2023, p. 14) categorical blindness is a form of inattentiveness based on limiting certain types of knowledge that can be destructive for an organisation or profession. In this case, in computer science, software engineering, and adjacent disciplines’ curricula the tendency is to avoid ethics as a distinctive and valuable subject to block a perspective that questions the professional values of those sciences (Malazitar & Resetar, 2019). Knowledge hiding (Jalonen, 2023, p.10), on the other hand, can be the result of social coding platforms such as StackOverflow⁶, and their incentive structures. These platforms, used by developers for posting questions and answers related to programming, provide better scores to quick answers than to more thorough, complete and correct ones. This might discourage some developers from making public other responses due to fears of comparisons or hostile reactions, which leads to keeping their knowledge to themselves (Vasilescu et al., 2014). In sum, regardless of the openness and transparency of F/LOSS communities, non-knowledge is present and “understanding [some] of the ways that ignorance is intentionally [or unintentionally] fostered and maintained” (McGoey, 2012, p. 571) in this environment is the objective of this dissertation.

2. Research Questions and Objectives

Digital technologies and services that are essential for everyday life are provided by companies, public agencies and other non-governmental institutions, all of which, in one capacity or other, rely on F/LOSS source code – even if only due to the use of Internet, whose backbone are servers running Linux distributions. Then, as the Heartbleed and similar cases illustrate there are manifold phenomena of ignorance relevant for social interaction in F/LOSS communities that warrant research. These phenomena can emerge for different reasons, be of many types, and even have ‘catastrophic’ consequences. Moreover, effects, impacts, and implications might not be evenly distributed among

⁶ <https://stackoverflow.com>

all the stakeholders, neither be limited to them and their environments, especially in current digital societies. However, a review of social scientific research literature on the specific topic of non-knowledge in F/LOSS communities portrays a rather bleak picture. Thus, this dissertation proposes to study ignorance in F/LOSS communities to support and provide a different perspective to the already well-developed social scientific research on motivations, ethics and cultures of hackers and open-source developers (Heurich, 2024; Coleman 2013; Kelty, 2008). This new research area acknowledges the effects that ignorance phenomena can have in the digital society, economy, and individuals' lives. As such, this dissertation contributes to understanding the relevance that non-knowledge in these communities can have for different actors, at diverse levels, as well as its wider societal and political implications.

Therefore, in this dissertation I focus on identifying and understanding types, roles and practices associated to ignorance in F/LOSS communities. In other words, what are the types and roles of phenomena of non-knowledge in F/LOSS communities? And more specifically, what kinds of social practices that 'unintentionally or deliberately' produce ignorance in such communities are identifiable? In order to answer these rather broad questions, and as a first exploratory study in a new line of research, I concentrate my efforts in three sites: social coding platforms, one specific F/LOSS community called VoxPupuli⁷, and groups providing supports to marginalised individuals interested in being part of F/LOSS projects. This decision and focus is the result of various considerations: expertise and previous knowledge, contacts already made with some communities, and available time and economic resources. In what follows I explain this in detail.

First, in order to address the role and significance of social coding platforms for practices of non-knowledge in F/LOSS, I understand them as infrastructures. Nowadays, much of the communities' coordination, collaboration and communication takes place through social coding and related platforms, such as Github⁸, Slack⁹, Discord¹⁰ or StackOverflow. Research on infrastructure and platform studies (Edwards, 2021; Plantin & Punathambekar, 2019; Plantin et al., 2018) highlight the ambivalent characteristics of such technologies: they are empowering, contributing to coordination and regulation, but at the same time they are also means for social and technological control (Dolata and Schrape, 2016). In that sense, what role do such infrastructures play in these communities' production, maintenance, negotiation and contestation of knowns and unknowns? Moreover, taking up the suggestion made by Watson and Roger (2023), I will combine infrastructure studies with

⁷ <https://voxpupuli.org/>

⁸ <https://github.com/>

⁹ <https://slack.com/>

¹⁰ <https://discord.com/>

practice theory and endeavour to answer the following question, how do these infrastructures develop in tandem with the practices of ignorance that they support?

My second research site will focus on practices of knowledge and non-knowledge production within a programming community in order to understand the effects these practices have on ignorance phenomena within the community, on the network of actors connected to the community and on the related infrastructures. According to Dunbar-Hester (2016) who reinterprets Kelty (2008), free [or open-source] software is defined by a set of practices for the distributed collaborative creation of code that is made openly available through a reinterpretation of copyright law. In 2008, Kelty defined it as an ideologically charged mode of production and authorship that seeks to reorient power in light of participants' understandings of the moral and technical possibilities presented by the Internet. Is this still the case? As one of the foundational works on F/LOSS communities, Kelty's (2008) research was based on early and emergent communities. Since then, numerous F/LOSS projects have vanished, a plethora of new ones arose and political and philosophical considerations have been replaced by discourses about innovation and creativity (Schrape, 2019). In this context, I ask, what are the features that define a F/LOSS community, or more precisely, VoxPupuli, the specific community that I will focus on? In turn, I will concentrate on the daily practices of this community and answer the following questions: how can its practices related to non-knowledge be identified? What are the consequences and effects of them for the community and its individuals, the larger environment in which it is located, and more generally, the F/LOSS environment?

Finally, the third locus of this dissertation considers the work that collectives supporting marginalised individuals interested in F/LOSS do, what has been termed elsewhere 'diversity work' (Martinez Demarco, 2024; Dunbar-Hester, 2020, 2016). By drawing on feminist approaches and decolonial studies, the emphasis will be on the importance and value of situated knowledge and the practices that turn them into 'regular' or 'mainstream' ignorance in F/LOSS communities as well as on the knowledge on (sub)groups, their doings and sayings that is ignored within the larger IT environment and the society. In other words, acknowledging that any individual's knowledge is situated and therefore that which they ignore as well, feminist and decolonial academics foreground the diversity of knowledge, understandings, and related worldviews that coexist. At the same, this movement lays bare differences in privilege, power, voice and visibility. Thus, what are the consequences of these differences in terms of what is known and what is ignored, the priorities that are set, and what gets to be done in F/LOSS communities? More specifically, what are the practices that make these difference to be not noticed and what are the practices of these groups supporting marginalised individuals that address this 'regular' ignorance as resulting from these differences?

3. Theoretical Framework

This dissertation builds on practice theories and refers to a series of conceptual approaches and analytical tools taken from infrastructure studies, platform studies, ignorance studies, organisation studies, and feminist technoscience studies (FTS) to examine the three sites where I will observe, identify and characterise roles, practices and types of non-knowledge.

The reference to practice theories is a nod to the well-known fact in academia that there is no unified theory of practice (Schatzki, 2018; Reckwitz, 2002). It is, nevertheless, possible to identify some features that all of them share:

1. Practices are central to social life, they are socially shared patterns of activity,
2. Practices are connected to one other in complexes and constellations,
3. Social phenomena are rooted in connections of practices, and
4. Practices can't be adequately formulated by those carrying them out, i.e. habitus, skills, consciousness (Schatzi, 2018, p. 154).

The selection of practices as the focus of this work, or its object of study, follows the idea that practice theories are, thus, best suited to provide tools to understand how social phenomena of ignorance in F/LOSS communities –what is known or unknown, or perhaps, ambiguous, neglected, a secret or taboo– emerge, change, and combine with other practices and (infra)structures at different scales and temporalities. Moreover, as it is the case for infrastructure studies, practices are understood as relational. Human agency and materials are dynamically related and constituting one another (Feldman & Orlikowski, 2011). This ontological congruency is a necessary condition for a fruitful combination of approaches.

According to Slota and Bowker (2017, p. 529) a definition of infrastructure would consider it all those systems, buildings, technologies, organisations, standards and artefacts that support and afford an activity in question. “Infrastructures distribute people, goods, and ideas in a highly efficient manner across cities, countries, or the world. Yet, even more, they constitute a material basis for everyday action and widespread social practices” (Koch, 2017, p. 78). To understand infrastructures and conceptualise them, it is necessary to think of them as relational. They are collection of heterogeneous elements (standards, administrative procedures, technologies) that do not coalesce in a specific system. Infrastructures have no essence as such, they are observed as relationships (Slota and Bowker, 2017, p. 531). “[A] given system, technology or organization is *infrastructural* to a particular activity at a particular time” (ibid., p. 531). Furthermore, infrastructures are not neutral, they hold values, afford and constraint certain activities and relations with non-human beings, and shape our understanding of the world (ibid., p. 530). Infrastructure studies, thus investigates how the characteristics generally associated with infrastructures, such as ubiquity, firmness and strength, stability or durability, are the

result of and in turn afford and limit spatially, temporally and socio-political situated efforts (Petersson, 2019, pp. 629-631).

Platforms, on the other hand, represent the opposite of stability or durability. Platforms exhibit low variability of their core components and high diversity of complementary components, as well as interfaces that allow modularity between core and complementary components (Baldwin and Woodward, 2008 in Plantin et al., 2018, p. 296), which are features positively valued by programmers. Based on these characteristics, they are very flexible and require low capital, which make them unpredictable, ephemeral and visible, but simultaneously, they develop, expand, modify (and are replaced) fast. In addition, some IT corporations have become so large that their platforms coexist, compete with or replace traditional infrastructures. These companies have built their power, business and success on top of the Internet, but the services they provide are as important and basic for daily activities and work of many people around the world, including those developing open source software, as those supplied by classical infrastructures (Edwards, 2021, p. 321). Thus, a failure or collapse would be as tragic as if an infrastructure would break down. However, the 'platform discourse' that picture platforms as neutral facilitators, ordinary, humble and innocent artefacts, hides their role as the background that supports participation in the current digital social world, constrained and channelled in forms that are profitable for companies providing them (Edwards, 2021; Plantin et al., 2018; Gillespie, 2010). Therefore, also platform studies scholars examine how certain digital technologies are political: Their characteristics "simultaneously allow and constrain expression [but] technical, social, and economic concerns determine platforms' structure, function, and use" (Plantin et al., 2018, p. 298).

In short, the combination of both research fields has been a useful strategy to highlight "the tensions arising when media environments increasingly essential to our daily lives (infrastructures) are dominated by corporate entities (platforms)" (Plantin et al., 2018, p. 295). The extension of this articulation of perspectives by supporting it with an analysis of practices, follows the call for combining infrastructure and practice theories made by Watson and Shove (2023). As the authors explain "(s)ocial theories of practice have as yet unrealised potential to make a distinctive contribution to the project of understanding how infrastructures, daily lives, and patterns of supply and demand intersect and shape each other at different scales" (Watson & Shove, 2023, p. 374). The novelty of the combination proposed in this dissertation lies rather than on addressing social coding platforms beyond its historical development or their political economy (Morley, 2018), on presenting how their integration into F/LOSS communities' practices allows for certain dynamic reproduction and change of those practices and those platforms understood as their infrastructure. Nevertheless, as reminded by Feldman and Orlikowski (2011, p. 6), "relations of mutual constitution do not imply equal relations.

Rather these are relations of power, laden with asymmetrical capacities for action, differential access to resources, and conflicting interests and norms.” Therefore, being aware of these inequalities, the emphasis will be on identifying the specific platform(s) to be studied, as well as how it/they relate(s) to practices of the VoxPupuli community and the groups supporting marginalised individuals in F/LOSS.

In terms of organisation studies, practice theory has attracted attention as a valid theoretical framework for understanding how people’s actions are important for the ongoing production of organisational reality. In contrast to previous approaches primarily centred on structural conditions, practice theory scholars recognise the value of the ‘agentic capacity’ of the human actor or, in other words, the individuals’ capacity for doing (Feldman & Orlikowski, 2011). By way of this doing or performing is possible then to understand how practice theory provides a different perspective from which to study F/LOSS communities. Instead of a focus on rational individuals motivated by values such as openness or freedom, this dissertation will study the bundles of practices that constitute F/LOSS communities, especially those that enact VoxPpopuli. In addition, the application of practice theories to the evaluation of empirical data related to organisations emphasises the ways that particular forms of seeing, listening, and acting in relation to other humans and non-human elements constitute practices of knowledge and knowledge creation (Gherardi, 2009, p. 118). I argue, in this sense, that the focus on non-knowledge in F/LOSS is important to complement the organisational and practice theories’ emphasis on knowledge.

Furthermore, another important contribution of organisation studies to be explored in this dissertation is that of the concept of sociomateriality. This notion is underpinned by a relational ontology that considers entities, people and technologies “as relational effects, continuously performed [and thus constituted] in a web of relations” (Cecez-Kecmanovic et al., 2014, p. 811). Originally proposed by Orlikowski (2007, 2010) to refer to the multiple, interdependent, and changing technologies as well as other material artefacts, bodies and infrastructures that although constitutive part of organising were either taken for granted and not sufficiently theorised or treated as discrete objects, sociomateriality stresses how open-source software and communities are constantly (re)produced in the entanglement of people and materials.

Finally, feminist technoscience studies (FTS) have a long history of illustrating the mutually constitutive articulation between science, technology and gender. Scientific-technological fields are constructed on the basis of cultural gender ideologies and normative structures and inequalities, and at the same time those reinforce gender stereotypes, roles, relations and practices (Martínez Pozo, 2019, p. 4). Nevertheless, as Subramanian's (2009) genealogy of feminist studies of science and technology demonstrates, this field characterised by its heterogeneity, lack of consensus and expansive capacity

of analysis. While Martínez Pozo (2019, p. 4) identifies the general focus of these feminist epistemologies as a critique to androcentrism, universalism, neutrality and rationalism as well as it acknowledges the relevance of the context, subject's embodiment, partial knowledge and its relation to power, different strands of feminism have pointed out that issues such as sexuality, intersectionality, colonialism and capitalism, among others, are valid additional aspects to analyse. Thus, in order to adopt this perspective in this dissertation I consider criticism such as those originating from queer feminism, and Black, postcolonial and decolonial feminisms, to attend to the intersectionality of social categories and power relations, as much as histories of colonialism and coloniality and the uneven effects of capitalism and geopolitics in the mutual constitution of ignorance and knowledge in F/LOSS communities (Martínez Pozo, 2019; Landström, 2007).

4. Research Methodology

As previously mentioned, this dissertation proposes three sites as the empirical cases for identifying the kinds of social practices that 'unintentionally or deliberately' produce ignorance in F/LOSS communities. I plan to write a cumulative dissertation composed of three academic papers, one for each of these sites, and to collect them in a framework text to be submitted by August 2027¹¹. Based on time and resources available as well as previous research experience and engagement with particular F/LOSS communities, I foresee carrying out fieldwork around the F/LOSS community called VoxPupuli, and through my attendance to F/LOSS events and conferences I expect to identify groups providing support to marginalised individuals interested in being part of F/LOSS projects.

This dissertation will adopt a qualitative research methodology (Hammersley, 2013) turning to a series of methods to provide answers to the different research questions. In particular, I plan to adopt an ethnographic approach, including participant and non-participant observation, formal and informal interviews, as well as documentary analysis of primary and secondary data, including programmers' exchanges in social media platforms and mailing lists, code repositories, and news and magazine articles, and to apply a practice-theoretical framework to the analysis of the data gathered.

Following Gómez Cruz and Ardèvol (2013, p. 33), in an ethnography of practices the field is not a bounded, physical, stationary point to be entered and inhabited, but rather the result of the trajectories and movements of the ethnographer. This flexibility is fundamental for following a F/LOSS community across different geographical regions, time zones, and online and offline spaces, in order to characterise it, identify its main practices, and recognise the types of ignorance that are present in it. At the same time, it is necessary for observing the mutual constitution of social coding platforms and practices of ignorance. As these platforms are the visible-invisible elements of the infrastructure

¹¹ see Tentative Timetable for a provisional plan of activities.

that supports the practices of F/LOSS communities, I will centre my interest on understanding the processual characteristics of the practices, including material elements, organisational processes and unnoticed but extensive, intensive and demanding practices. I will be side-by-side with my subjects of study, even if online or remotely, as a process of actively engaging with the same issues, “heading the same way, sharing the same vistas, and perhaps retreating from the same threats behind [them]” (Lee and Ingold, 2006, p. 67 in Gómez Cruz and Ardèvol 2013, *ibid.*). I will constantly ‘construct the field’ or decide about which aspects of the complex and extended (temporally and spatially) phenomena of ignorance observed is better to concentrate on. My deliberations, reflections and decisions will define my object of study, which akin to political decisions, implies a selection of what to consider practice of ignorance and what not.

This empirical work will be carried out as much as possibly in the environments where people gather, online and offline, including, as already mentioned, their specific spaces in social coding platforms (Discord, Libera Chat¹² or Matrix¹³ servers, Slack workspaces, Github, Gitlab¹⁴ or Codeberg¹⁵ repositories, or other platforms) as well as in technical conferences and events. These spaces will be also the places where I will find gatekeepers, potential interviewees and other sources of information. Participation in conferences and similar networking situations are especially suited for observing practices related to open-source software development (Martinez Demarco, 2024; Pinatti de Carvalho et al., 2022; Coleman 2010). Sociomaterial configuration of bodies, artefacts and technologies are temporally and spatially delimited making certain embodied knowledge particularly visible while simultaneously, uncertainties, ambiguities and other phenomena of non-knowledge might be overlook or neglected. In addition, the documentary analysis will be focused on the F/LOSS community’s mailing list, code repositories and pull requests, technical and governance-related documentation, as well as news and magazine articles and other documents related to social coding platforms.

Previously to conduct fieldwork I foresee the revision of the literature on these communities, achieving basic programming skills in Python and Ruby, two well-known and used languages in F/LOSS communities and VoxPupuli, and acquiring general technical knowledge to understand the interactions I will observe and participate in. This will generate the analytical sensitivity to the issues, problems, values, and practices of these collectives. As Carlson et al. (2021, n.p.) explain, “(c)ode helps us to understand the implications and limitations of digital practices in both visible and invisible

¹² <https://libera.chat/>

¹³ <https://matrix.org/>

¹⁴ <https://about.gitlab.com/>

¹⁵ <https://codeberg.org/>

processes. It allows us to see all the possibilities of actions as well as the impossibilities that are included therein”.

As it is customary for fieldwork, I plan to disclose my presence as a researcher and request written consent for formal interviews based of university guidelines and ethical practices. I also intent to record interviews and takes notes as well as invite my research subjects to offer feedback as my dissertation progresses. Although I propose to name the community and groups with which I hope to interact with, as they are conducting their activities in the public sphere, this will be negotiable. In the same line, I will endeavour to protect the identity and privacy of my informants by anonymising their interventions as quoted or narrated.

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