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The Chili and Honey of Digital Humanities Research:The Facilitation of the Interdisciplinary Transfer of Knowledge in Digital Humanities Centers

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Abstract

This article examines digital humanities (DH) centers as focal points of the interdisciplinary transfer of knowledge. It is based on the assumption that the manner in which the knowledge-transfer activities of DH communities are facilitated affects the knowledge they produce. Following an analysis of eight semi-structured interviews of directors, researchers, and administrators, the article considers how DH professionals describe the facilitation of the interdisciplinary transfer of knowledge in DH centers. It demonstrates that the transfer of knowledge in DH centers is based on overlapping layers of organic networks and stable organizational structures that support various kinds of knowledge-sharing practices. The transfer of knowledge in DH centers combines the exchange of ideas in the same physical space with online communication at various levels, ranging from outside academia to the internal communication of a research group. Further, the factors that enable information flow also have the capability to restrict potentially meaningful information from entering into the field. As a result, this article suggests that it is important to continue the discussion on the boundaries for the transfer of knowledge in DH.

Introduction

Clicking repeatedly on the refresh button on the whatisdigitalhumanities.com web page reveals a new definition for digital humanities (DH)[1] each time. Many of the definitions given by the over 800 participants in the *Day of DH*, from 2009 to 2014, state that DH has something to do with applying computational methods in humanities research and teaching [What is digital humanities]. In the same way, the literature that ponders the character of DH points out that the core of DH lies in combining these two approaches [Terras 2010a] [Kirschenbaum 2010]. While there are almost as many ways of verbalizing the definition of DH as there are individuals involved in it, it seems that many of us agree that DH operates in the intersection of what has traditionally been considered to be humanities disciplines and computing. 1

Therefore, it is valid to state that DH is a field that is rooted in interdisciplinarity. The dynamics, challenges, and promises of DH all emerge from the interaction of diverging disciplines and approaches. The interdisciplinary character of DH emphasizes the social aspects of research, where intellectual communication becomes an integral part of a research process. The centers and laboratories that have been established in various universities have become important nodes in the global “web of DH,” owing to their ability to bring people together. These spaces are focal points in the interdisciplinary transfer of knowledge, as they connect humanities, social sciences, computer sciences, mathematics, and knowledge in other fields to produce new understanding, host a multitude of projects, and bring different departments and organizations together as part of a wider DH network. One could say that DH centers are the hubs of DH, which both support and gain their energy from the constant transfer of knowledge among various actors. 2

If transfer of knowledge is crucial both for DH centers and the field, how do DH centers manage and facilitate the interdisciplinary transfer of knowledge? How is transfer of knowledge promoted so that individual scholars gain an understanding what is being done in the other disciplines, and collaboration of interdisciplinary research groups has less obstacles? The practices, facilitation, and organization of DH projects and communities have been gaining increasing scholarly interest over the past years. The themes that encompass the tasks and institutional models of DH centers 3

[Svensson 2010], the best ways to manage DH projects [Tabak 2017] [Reed 2014], the steps needed for establishing a DH community [Galina Russell 2015], or collaboration and communication [Van Gorp and Bron 2019] [Matres, Oiva and Tolonen 2018] [Griffin and Hayler 2018] [Keener 2015] [Siemens 2011] [Siemens et al 2011] [Deegan and McCarty 2011] [Siemens 2009], have been topical in the ongoing discussion. Simultaneously, interdisciplinary research and knowledge transfer within organizations has been widely examined in management studies, thereby enabling categorizations of the features of knowledge transfers [Siedlok and Hibbert 2014] [Krishnaveni and Sujatha 2012]. These studies have provided important information on the features of DH research and indicated factors that are generally considered crucial in information transfers. However, thus far, it is not very clear how the DH field facilitates interdisciplinary transfer of knowledge and what this reveals about the field in general.

Understanding the practices, structures, and the community underlying knowledge construction — which knowledge transfer is a crucial part of — is important for grasping what DH research is based on and its various nuances. Knowledge is inseparable from the communities that create it, its context, structure, and the means with which it is produced and shared. It is an ongoing social accomplishment, constituted and re-constituted in practice [Krishnaveni and Sujatha 2012, 37] [Orlikowski 2002, 249, 253, 270]. Thus, the manner in which DH communities function and in which their knowledge transfer activities are facilitated influences the knowledge they produce. 4

This article studies how DH professionals describe the interdisciplinary transfer of knowledge that takes place in DH centers and what they see as the main ways of facilitating these transfers. Responding to this research question contributes to the discussions on the premises on which DH research produces knowledge by exploring the field from the perspective of transfer of knowledge. The underlying idea is that understanding how knowledge is transferred within the field enables us to analyze what kind of knowledge DH research produces and identify the potential limitations for our knowledge base. The ways we make DH possible influences the ways we conduct research and, finally, the outcomes of our research. 5

The current study is based on eight interviews with DH facilitators in (alphabetical order): Comhis Collective (Helsinki, Finland); HELDIG (Helsinki, Finland); Northeastern University Library Digital Scholarship Group (from now on NULDSG, Boston Mass., USA); NULab (Northeastern University, Boston Mass., USA); and University College London Digital Humanities Center (from now on UCLDH, London, UK).[2] The interviewees worked in different positions in DH centers — they were directors, leading scholars, managers, and administrators — and thus the expertise of the interviewees comes with different perspectives toward facilitating DH research. The idea of the interviews was to collect the experiences of DH facilitators and practitioners and analyze how they describe the organizational, infrastructure and practice based obstacles for DH research, and their solutions to overcome them. The overarching question of the semi-structured interviews was “how does your center/group facilitate DH research?” excavated by detailed questions on the everyday practices of the institution. The used analysis method was thematic analysis with inductive essentialist approach [Braun and Clarke 2006]. Following this approach, the article identifies platforms of and recurrent practices and obstacles related to transfer of knowledge in the interviews. The small sample of interviews, even if collected in three countries, does not represent all the DH centers or even all the aspects of the studied centers. However, being experienced and well-networked DH professionals working in thriving DH centers, the interviewees’ visions related to the field furthers the discussion on how the ways DH is facilitated affects the outcomes of the field. 6

Interdisciplinary DH and Transfer of Knowledge

> I think that one of the most interesting results [of the NULab] are some of the unexpected results of the crossed collaboration that has come out of it.[Interview with Ryan Cordell] 7

When describing the activities at the NULab Ryan Cordell drew a picture of interdisciplinary collaboration, where “people from computer sciences work together with the people from English, people in political science and journalism work together, folks from African-American studies collaborate with computer scientists, [all] working together on memes” [Interview with Ryan Cordell]. In fact all the interviewees considered interdisciplinarity to be rooted in the core idea of DH research, and the main factor that made DH research fascinating. Consequently, they described the work in DH centers resulting from the activities of people belonging to different disciplines, departments, and organizations 8

[Interview with Élika Orgtega] [Interview with Sarah Connell] [Interview with Eero Hyvönen] [Interview with Caroline Klibanoff] [Interview with Mikko Tolonen] [Interview with Melissa Terras] [Interview with David Beavan].

9 DH centers, as understood in this article, are *spaces* manifested through a variety networks, collaborations, organizational structures, digital presence and occasionally, but not always, in physical premises [Oiva and Pawlicka-Deger 2020]. Although the studied centers reside at academic institutions, their physical "location" can be fluid and non-bounded. Simultaneously, interdisciplinary research can be defined as a mode of research that transgresses the traditional boundaries of disciplines and is more extensive or powerful than the sum of the components [Siedlok and Hibbert 2014, 197]. Research literature identifies various forms of interdisciplinary research, and the typology of interdisciplinary collaboration continues to be debated. For example, scholars classify interdisciplinary research into *multidisciplinary*, *transdisciplinary*, and *interdisciplinary* research depending on the level and process of integration of the participating disciplines [Klein 2014] [Siedlok and Hibbert 2014, 198-199] [Huutoniemi et al 2010, 83]. Regardless the intensity of interdisciplinary integration, it seems that the first step required for interdisciplinary collaboration leading to fruitful mixes of disciplinary approaches, is the transfer of knowledge from one discipline to another.

10 The concept of "transfer of knowledge" in its basic form implies "conveyance of knowledge from one place, person or ownership to another." Transfer of knowledge does not imply transfer of an entire replica of the knowledge to the receiver, as the knowledge can be modified in the receiving unit [Krishnaveni and Sujatha 2012, 27]. Transfer of knowledge is a loose concept that has been studied in various kinds of research that analyze activities between countries and organizations, including within and outside academia [Fullwood et al 2013, 130]. Because of its fluidity, transfer of knowledge can also be used as an analytical tool in studying the facilitation of interdisciplinary collaboration, such as DH research.

11 When discussing everyday interdisciplinary practices, the interviewees referred to versatile activities of interdisciplinary transfer of knowledge, varying from listening to talks held by scholars from other disciplines to integrated collaboration and joint production of research findings. The reasons for organizing all these activities lays in the ways we understand where interdisciplinary research can lead us. The research literature reveals both cynical and optimistic reasons for interdisciplinary researcher interaction. Interdisciplinary research has been a fashionable buzzword in science and innovation policy, where it has been assumed that increased collaboration leads to increased productivity of scientific achievements and innovations. This has led to expanded usage of the term in the funding applications, but not always in research practice [Siedlok and Hibbert 2014, 194]. In addition to using interdisciplinary research as a label for being competitive in grant calls, there is also genuine belief that only by going beyond the boundaries of disciplines will we be able to understand and respond to the complex problems of the world [Podestá et al 2013, 40]. Furthermore, interdisciplinary researcher interaction can profoundly change the premises of research [Svensson 2010, 163]. According to the interviewees, the main point of interdisciplinary transfer of knowledge was the potential of reaching unexpected outcomes. For them, at its best, interdisciplinary collaboration leads to new findings and forming new understanding. The experiences of the interviewees demonstrated that the results of an interdisciplinary collaboration can be more than the sum of the contributors and lead to outcomes that no one could expect [Interview with Mikko Tolonen] [Interview with Ryan Cordell]. Interdisciplinary collaboration is the salt and pepper — and most likely also the chili and honey — of DH research, that promises reaching for the epoch-making findings.

12 While there are high expectations for interdisciplinary collaboration, implementing it in practice is not easy. The interviewees noted that the main challenges of such a collaboration are related to divergent ways of understanding issues, varying from the basic assumption of the preferred outcomes of research and concepts, to more concrete questions of what makes a paper, or how to name authors, and to different institutional and individual expectations [Interview with Sarah Connell] [Interview with Melissa Terras] [Interview with Ryan Cordell]. The challenges of interdisciplinary collaboration have been discussed widely in different fields [Podestá et al 2013]] [Romero-Lankao et al 2013, 35, 38] [Olson and Olson 2014, 3-4] [Siemens 2009, 229], including DH literature. The latest studies in DH have identified misconceptions and distrust among different disciplines and schools, as well as structural and promotion-related obstacles to collaborative research [Keener 2015, par 43] [Klein 2014] [Zorich 2012] [Siemens 2011]. Obstacles often arise when differing disciplinary cultures with distinctive practices need to achieve something together. At its worst, attempted collaboration among various disciplinary cultures can lead to collisions due to epistemological and

methodological differences, discipline-driven understanding of the context, and uneven technical skills [Terras 2010b, 175-176, 183-184] [Siedlok and Hibbert 2014, 204]. In addition to the social challenges for interdisciplinary understanding, the literature has identified several obstacles for information flows in DH research, which result from combinations of siloed organizational structures and administration, using processes of digital tools that create bottlenecks in information flows, lack of collaboration, differences in understanding among different disciplines, unclear knowledge-sharing practices, and lack of continuity and maintenance [Nygren, Foka, and Buckland 2014] [Terras 2010b, 186].

13 This brings us to the question that if transfer of knowledge is simultaneously challenging and crucial for DH, how can we enable and support fruitful interdisciplinary transfer of knowledge? In her interview, Élika Ortega offered a path for finding a solution to the challenge of understanding gap between disciplines. She compared the interdisciplinary research of DH to a wide spectrum of perspectives, where scholars coming from different disciplines reside — literature scholars sit next to anthropologists, while mathematicians are located closer to computer scientists in the spectrum. According to Ortega, it can be difficult to understand someone at the other end of that spectrum, while scholars in neighboring disciplines are easier to understand:

> I think there are [problems in interdisciplinary understanding]. [—] If we stretched out that spectrum, I guess some of us [the DHers] would end up in one extreme, and some other would end up in the other end, [—] but there are all of the steps in between. So, if this end and that end are not necessarily communicating right away, then there are steps to follow to one or the other, or to the middle point where that can be sort of translated. And they translate little by little, like move knowledge from one to the other. To move it through the spectrum. So, I think it definitely happens, and the bigger the group the more that happens.[Interview with Élika Ortega]

14 For Ortega, interdisciplinary research in DH is about a step-by-step transfer of understanding along the spectrum, transmission of knowledge from one discipline to the neighboring one, and onward from that. An analysis of the interviews of this study reveals that implementing gradual transfer of knowledge requires people with differing knowledge (actors), networks, and spaces facilitating communication as well as motivation and supporting practices. The following sub-sections of this article will discuss how these features support interdisciplinary transfer of knowledge in DH centers.

The Creation and Maintenance of Networks

15 The core of the interdisciplinary transfer of knowledge in DH centers are networks. When asked about the main activities of the DH centers, the interviewees described various methods of creating and maintaining interdisciplinary networks to support informal communication and structured transfer of knowledge. The first and most crucial step in enabling interdisciplinary transfer of knowledge is to enable people from different disciplines to meet and communicate with each other. All the interviewees indicate that building and maintaining the network and ensuring that people meet each other on a regular basis to share their thoughts and ideas are the core of facilitating DH research. The DH centers enable this meeting of people by organizing weekly meetings, seminars, talks, tutorials, workshops, office hours, “speed-dating,” speaker series, hackathons, summits compiling all local DH projects, and meetings of smaller groups and other less and more formal meetings that bring people together. [Interview with David Beavan] [Interview with Ryan Cordell] [Interview with Eero Hyvönen] [Interview with Melissa Terras] [Interview with Sarah Connell] [Interview with Mikko Tolonen] [Interview with Caroline Klibanoff]. When meeting each other, the representatives of different disciplines discuss and share ideas that often foster new thoughts [Galina Russell 2015]. The networking activities of DH centers are not necessarily different from other academic environments, but because people come to DH from different disciplines, enhanced attention must be given to getting people together, thereby making building and maintaining networks more essential.

16 The interviewed DH specialists indicated that they used various paths for networking and sharing experiences and information in the community. Moreover, they also added that numerous facilitators had carefully shaped the different forms of the meetings to enable the highest level of transfer of knowledge. Thus, one can say that they do not merely

gather people together in the same room and hope for the best but that they have created several routines or practices that support the sharing of information. For example, at Northeastern's NULab and Digital Scholarship Group, administrators organize various meetings so that there are moments where everybody talks and not only the invited speakers [Interview with Sarah Connell].

17 The transfer of explicit knowledge in DH centers takes place in courses and workshops. A few centers offer consultation sessions on various themes, as well as help students and scholars to launch projects that contain methods that are new for them [Interview with Caroline Klibanoff]. Although formal education is usually directed at students, there is also a need to learn new things among scholars who have completed their formal education. Director of HELDIG, Eero Hyvönen, indicated that they organize DH courses not only for students but also scholars with the hope that the latter would update their knowledge and add new elements to their knowledge base [Interview with Eero Hyvönen].

18 Interestingly, numerous interviewees emphasized the importance of informal meetings, although the centers also organize more formal event [Interview with Ryan Cordell] [Interview with Melissa Terras] [Interview with Eero Hyvönen]. For example, Ryan Cordell mentioned how he had learned new methods from informal conversations with colleagues in other disciplines [Interview with Ryan Cordell]. Thus, it appears that informal events ease the processes of becoming acquainted with others and building trust as they allow free-flowing discussion in a less hierarchical atmosphere, which contribute to the transfer of tacit knowledge. Informal meetings may lead to something that the interviewees described as "unexpected results of crossed collaboration" [Interview with Ryan Cordell] [see also Interview with Mikko Tolonen]. Along the same lines, Phillips et al. describe in this special issue the "serendipitous accidents" as one of the key engines of their lab [Phillips et al 2020]. It appears that open and unplanned interdisciplinary encounters foster unexpected results, which include the promise and potential of interdisciplinary research.

19 Further, the interviewees described how sharing information at various levels translates into different kinds of activities in their work, such as learning new methods, establishing new projects, teaching, etc. According to them, the outcomes of the transfer of knowledge can assume many forms. A discussion with a colleague can translate into a new angle in a research project, teaching, or form the basis of a new invention. Things learned in a workshop can be transformed into a grant proposal, applied to research, or implemented in teaching [Interview with Ryan Cordell] [Interview with Sarah Connell].

20 The active networking — or "colliding" ("törmäyttäminen" in Finnish) of people, as formulated by Eero Hyvönen — is not an accidental activity. In fact, it is in the very core of creating a thriving DH center. The goal of constant networking and communication across disciplines is the establishment of interdisciplinary research groups, which will be helpful when applying for funding. For Melissa Terras,

> [p]art of the thing is that it's good for people to meet regularly, because if you have a chance to meet people in the seminars then when the grant call comes in, then you will find more easily people to work with grant applications, you can put people together with other people, you can network when you know a lot of people, when you know a lot of people you will be able to put together them when needed. So, the Center is set up to be a mailman that helps people to get to know each other.[Interview with Melissa Terras]

21 According to the interviewees, extensive and lively networks, promoted by active linking of people, are an important aspect of "social security". Furthermore, they are also crucial for the center's survival in the academic world, where a great part of funding is competitive project-based external funding. Therefore, the DH centers, for example NULab, have created paths that support the establishment of successful research groups from serendipitous interdisciplinary encounters in DH meetings and networking by providing small "seed grants," which, hopefully, lead to receiving external research grants [Interview with Sarah Connell].

22 Throughout the interviews, it became evident that the studied DH centers function as umbrellas for loose, rather informal and dynamic networks of scholars, students, librarians, museum experts, activists, and university administrators. When asked about the number of people involved in the activities of the centers, the interviewees found it difficult to define exact numbers, because there is a different number of participants in various events and the form

and strength of involvement of the people varies. Many of the interviewees identified layers of involvement of people in the various activities of the DH center. They indicated that some people are strongly involved in a research group, while others may be more actively participating, for example, in a speaker series [Interview with Sarah Connell] [Interview with Caroline Klibanoff] [Interview with Ryan Cordell] [Interview with David Beavan]. In addition, partner organizations — such as libraries, museums, and archives — can be integrally involved in research projects, teaching, or participating in the open events [Interview with Melissa Terras] [Interview with Eero Hyvönen]. Thus, thriving DH communities tend to be larger than merely the "official" employed members of the DH center, as they involve people with different layers of memberships and networks. Out of these, the interconnections that can be called "micro" and "macro" networks are crucial for DH centers.

Interdisciplinary Transfer of Knowledge in Micro- and Macro-networks

The functions and purposes of transfer of knowledge vary in the different layers of the DH networks. For an individual DH scholar, networks make learning what is being done in other disciplines more reachable: if you know people from different disciplines, it is easier to ask questions on new methods or unfamiliar approaches when you encounter them. Simultaneously at the "micro" (the collaborative research groups) and the "macro" (the wider cross-institutional) layers of the DH center the networks have different functions. 23

The actual face-to-face everyday interdisciplinary transfer of knowledge in DH centers takes place in the core units of research and working groups. Collaboration on a particular theme facilitates the efficient transfer of knowledge among participants. For example, Élika Ortega identified interdisciplinary working groups focusing on concrete common themes as a good way to start interdisciplinary collaboration: 24

> I don't think we have discussed [challenges of interdisciplinary collaboration] that much, but we are looking into creating working groups based on salient things that we could identify. Some people were talking that we could start a working group on images, where people working with archival images, or memes, or photography, let say. Then there was this idea to establish a social media working group. So that's the way that we try to bring our heads together despite our… I don't want to say differences, but … various profiles. [Interview with Élika Ortega]

The micro networks of collaborative research groups, which enable recurring meeting and discussion with representatives of other disciplines interested in the same topic form the Communities of Practice (CoP). CoPs are informal groups of people bound together by a common purpose and are considered particularly good for facilitating transfer of tacit knowledge and informal circulation of information [Klein 2014] [Krishnaveni and Sujatha 2012] [Fragaszy Troyano and Rhody 2013]. People who participate in micro-networks learn, in concrete terms, the approaches and understandings of scholars in other disciplines, which is difficult to transfer through other means. 25

The interviewees indicated various ways to prevent challenges in transfer of knowledge in the micro-networks. As discussed earlier, the challenges of interdisciplinary transfer of knowledge may include misconceptions, lack of understanding, trust, or even respect arising from the differences in disciplinary cultures. In addition, work in interdisciplinary research teams comes with an integrated form of collaboration that can be new, particularly in terms of humanists who are often trained to work alone [Interview with Mikko Tolonen] [Terras 2010b, 173]. In order to overcome the challenges of interdisciplinary transfer of knowledge in research teams, the involved scholars must understand and respect the diverging approaches of their collaborators [Interview with Melissa Terras]. Thus, behind the façades of sophisticated methods and shiny visualizations, the very core of a successful DH team is based on the basic human needs of being recognized and respected, besides the desire to expand scholarly knowledge. Furthermore, for facilitating collaboration, the research teams need to have explicit discussions on the joint goals of the project as well as the different ways of crediting in different disciplines in order to ensure that everybody leaves the project with the requisite "credits" [Interview with Ryan Cordell]. 26

Other scholars have also indicated that agreeing upon the modes of communication, milestones, expected roles and obligations, means of conduct, and modes of publication at the very beginning of a project can foster open communication and prevent misunderstandings. Teams must devote time for the participants to build trust and get to 27

know each other so that they may work together efficiently. For a DH project to be successful, there must be an emphasis on maintaining communication, good human management, and sufficient face-to-face time [Terras 2010b, 185, 187] [Siemens 2011] [Suominen 2018] [Taskinen, Kivimäki and Männistö 2018].

In addition to interdisciplinary transfer of knowledge in micro-networks, communication across organizational boundaries is crucial for DH centers. Building and maintaining networks beyond institutional boundaries, and even outside the universities or academic circles, was considered important by the directors and managers of established DH centers. Apart from university faculty, a well-working DH network also includes specialists from libraries, archives, museums, public and non-governmental organizations, and businesses [Interview with Melissa Terras] [Interview with Eero Hyvönen] [Interview with Sarah Connell]. 28

In order to attract people from other organizations and expand the borders of the DH community, the events are usually open to anyone who is interested in walking in. 29

> Many of our events are public, we have a lot of researchers from other institutions. Occasionally we get real people from the public, which is lovely when that happens, or sometimes professionals working in industry, and things like that.[Interview with David Beavan]

DH centers organize formal organizational meetings and industry advisory panels, to which they invite representatives of different organizations; in addition, they maintain the information flow through informal meetings. Melissa Terras describes the breathtakingly wide networks that require active maintaining, but are indispensable for the UCLDH: 30

> [--] we have an industry advisory panel twice a year, so we have meetings with the British Library, British Museum, National Gallery and range of other people… London Metropolitan Archives and the industry hearing panels, so we have a whole network. In addition to that I spend a lot of time, two or three hours a week, just meeting people and hearing what's going on. There are a lot of people from different institutions that I go out for coffee we just get together and chat about stuff about what's happening so that I can keep together these networks and if something happens. Often grant applications [come at] a very short term and you need to make a project very quickly and you need to know who am I going to call and ask to participate in the project. Networking is very important. I think it takes a certain type of person to do that and it takes a certain type of a drive to do that. It´s important to know what is going on in different places.[Interview with Melissa Terras]

As discussed earlier, interorganizational networking is crucial for enabling information flow among people and for a prompt launching of cross-organizational project applications. Moreover, keeping oneself updated on the developments outside the university provides an important understanding of the directions of evolution in the realm of digitality in a wider context. 31

The physical context of the DH center — the city and the country in which it is located — influences how the center regards external collaboration. The existence of potential collaborative and rival organizations in close proximity provide opportunities for collaboration and a background for comparison and competition [Interview with Élika Ortega] [Interview with Sarah Connell] [Interview with Melissa Terras] [Interview with Eero Hyvönen]. 32

Interestingly, the interviews reveal how location in a prominent city with several major universities (such as Boston or London) and in smaller cities with fewer local universities (like Helsinki) make the DH centers mindful about their position. In major cities, the scale of comparison can be within the city, while in smaller locations, the broader international context becomes significant. 33

> I guess another thing that has helped us here in this particular context is… I mean Boston is a really weird city to do anything academic, because there are, I guess 50 universities in the city. There are the heavy weights, like the MIT and Harvard, who, I mean any normal person is thinking that whatever I might be doing they are doing it better! [laughs] Because it´s MIT and Harvard, right!

> That is interesting, and obviously they are awesome in everything that they do, they have such long and important institutional histories that they follow that they might not be adopting newer trends as DH as readily. So that is where I think Northeaster, our dean, and the NULab has made a big dent. In the absence of having a big DH center in Harvard or MIT, and there are people doing it, and doing it really well, although not as widespread as we do it here. So we have had this opportunity to be competitive by doing this thing here, and we have got the institutional support. I think that's a higher level thinking about the strategies.[Interview with Élika Ortega]

> Everything in Finland is so small that everybody understands that we need to do things together, if we need to accomplish something bigger. This is why we have been able to do bigger projects in Finland. [—] This does not happen often abroad. One reason for that can be that there are so strong players who can manage by themselves also. [—] This is why we have created our agenda around the idea of a network so that we will collaborate with all major institutions, and not so that the collaboration would happen only within the university. [Interview with Eero Hyvönen] 34

In the interview with the Finnish DH center, the collaboration instruments at the level of the European Union — such as CLARIN and DARIAH — were mentioned as important channels of collaboration [Interview with Eero Hyvönen]. In the interviews with the US and UK DH centers, international collaboration was not explicitly mentioned, although both institutions accommodate several international projects. It appears that for centers in smaller countries, comparable foreign organizations provide meaningful reference points. 35

Further, the means through which DH centers facilitate the transfer of knowledge in micro- and macro-networks are similar — "colliding" people on a regular basis! However, the purposes of these networks are different. While practical work on a joint theme enables transfer of tacit knowledge, the general inter-organizational meetings also provide — in addition to potential strength in funding applications — an important context for the center. Although the networks are different, they are both crucial for the centers and they support each other. 36

Organizational Structure – the Glue that Holds Together

Although the divergent, loose, and dynamic networks of interested individuals are the core of DH centers, the organizational structures of the centers also have an important role in facilitating knowledge transfers. The organizational structures provide sustainability and continuity to the dynamic and ever-changing networks. The employment status of the members of DH centers varies and in addition to the tenure positions, a great number of people work part-time or have short-term contracts. This creates instability and may lead to situations where tacit knowledge, lessons learned, best practices, and even knowledge on the methods or deeper understanding of certain data are lost with dynamic changes [Reed 2014, par 26]. A concrete illustration of this is that at least three of the eight interviewees have changed their positions by the publication of this article. In DH, accumulated knowledge is not stored only in publications but also in the logics of the methods and the datasets employed. Although a lack of continuity and maintenance of knowledge might not be crucial problems for an individual research project, it can create knowledge gaps in the field in the longer run. Creating continuity by supporting documentation, accumulation, and storage of knowledge in one way or another is an increasingly important task of DH centers. 37

The interviews did not address continuity directly, but they revealed many ways in which the functions of the staff of DH centers support this. In addition to the support for networking, the interviewees listed providing know-how through networks, the ability to hint what needs to be addressed with specific questions, sharing practical advice on how to begin and run a DH project, and providing support in writing grants as crucial tasks. In many DH centers, the coordinator works as a crucial node for maintaining and supporting, keeping everything on track, and ensuring that communication works [Interview with Sarah Connell] [Interview with David Beavan]. In addition, to the fact that they "make the information flow," they also seem to function as crucial institutional memory of the organizations. As Sarah Connell describes, 38

> [w]e are especially useful for being someone you can contact with an idea and say "I want to do this and I don't know how, I don't even know who else is doing this, I even don't know if this has been

> done four hundred times" and we'll either know — because between the three of us Elizabeth, David and me — we have a fairly diverse expertise, or we'll know who to ask. So, we are a good place for people who can't see their next step in digital research. [Interview with Sarah Connell]

39 The DH centers develop new resources for research and maintain a knowledge base by listing available tools and informally sharing information and the best practices of the uses of them. For example, the Comhis Collective (and other research groups affiliated with HELDIG) produce new data sets, methods, analysis pipelines, and tools with tutorials and e-learning packages that they are sharing with others in the spirit of open science [Interview with Mikko Tolonen] [Interview with Eero Hyvönen]. The codes, manuals, and information on the developed methods, tools, data sets, and pipelines require maintenance. Since research groups are often temporary settings, there is a need for institutional and more stable settings that support external dissemination of the new knowledge and ensure more stable storage of the documentation.

40 For a DH center, resources, information on them, where they exist, and how they can be used is fundamental for creating continuity through accumulated knowledge. The resources are often scattered around university campuses, and DH centers also pool resources with different institutions.

> [At the Northeastern University] the infrastructure is scattered around the campus. Some of it is at the neural sciences institute or at the library [—] I think that is an advantage. Given all that, I don't think that in big institutions not all the infrastructure is going to be in one place. The idea of distributed infrastructure is very useful. If you are going to try something like that it would be useful to have an assessment of what kind of infrastructure is [already] available and where [to whom], and who can do what better, or more carefully. Because then the work can be done, and the communications can happen in synchronous email or Slack, or regular meetings monthly or so. [Interview with Élika Ortega]

41 In addition to the fact that the tools must exist, there is a need to spread awareness of their availability with the help of lists and meetings. DH centers require organizational structures and administration to keep dynamic networks together, maintain organizational memory, and ensure continuity. Being points that concentrate information on past projects, collected resources, and available tools, the organizational structures of DH centers facilitate and support the transfer of knowledge in the longer term.

Shared Physical Space as a Transmitter

42 The interviews with DH professionals reveal that although work in DH is about handling digital data with digital tools, physical proximity is an important factor facilitating the transfer of knowledge also in the DH field [see also [Siemens 2011]]. Sharing the same space is an important transmitter of understanding, and it appears to be a response to the challenges of interdisciplinary transfer of tacit knowledge. If, as suggested by the research literature, the transfer of tacit knowledge requires interaction and proximity of people [Krishnaveni and Sujatha 2012, 28], how do DH centers actually provide it?

43 According to the experiences of the interviewees, proximity can be achieved in different ways. Certain DH centers have permanent spaces dedicated for joint meetings and workshops, lab spaces with special equipment, or office space for the staff, while others arrange meetings at a variety of locations with no single permanent physical space. At the time of the interviews, the Boston NULab, NULDSG, and HELDIG had, or were about to have, their own spaces for meetings and individual work. Simultaneously, UCLDH does not have its own physical premises apart from one lab space, but the members of the network meet regularly in various places. Even if DH labs would have physical spaces, often, the majority of the affiliated people do not have offices there, as they might work in their home departments or in libraries.

44 Further, numerous interviewees considered the existence of a permanent physical space as a crucial part of the center's activities, although they described different ways of organizing physical proximity as optimal [Interview with Caroline Klibanoff] [Interview with Mikko Tolonen] [Interview with Sarah Connell] [Interview with Ryan Cordell] [Interview with Eero Hyvönen]. According to Mikko Tolonen, the possibility to surround oneself only with issues of interest in the

digital world can hinder fruitful encounters of unknown ideas, which can happen easier in the analog world's face-to-face encounters:

> In all kinds of development informal meetings are crucial. It is not a coincident that the concentrations of know-how are often located in a small area. It makes you to exchange ideas. [—] When people meet each other, it may lead to something unexpected. In digital world you can demarcate exactly the kind of bubble you want to, but [physically] you are forced to meet [all kinds of] people when you are getting yourself a coffee. [—] It is easy to establish different kinds of centers to the Internet. You can just make a website and call it something, but it does not mean that things will actually happen there. If you have some kind of physical presence, it forces things to start happening! [Interview with Mikko Tolonen]

45 Some interviewees emphasized the importance of joint space where people can enter easily for facilitating informal exchange of ideas, thereby increasing (interdisciplinary) communication. Being in the same room makes one actually understand what is going on in there [Interview with Caroline Klibanoff]. Certain interviewees considered informal collective work to be the preferable use of the joint DH space:

> The importance of people being proximate to each other, that's something that I think should be taken quite seriously. [—] So, thinking about how we want things to work in the NULab, we do want this space to be one for informal collective work. Where I'm doing something on my computer and you are doing something on your computer and then lean over, talk, talk, talk, go back to your own separate thing. We will try to see if that happens organically, and if it doesn't we are going to make it happen [—] by scheduling some structured work time. [—] I think that we are really still trying to figure out what's the best way that we can have this space help to make the community to take shape.[Interview with Sarah Connell]

46 In addition to joint collaborative working spaces, the interviewees mentioned the benefits of having (separate) offices located in close proximity to each other. When asked about the benefits of belonging to the DH center, the interviewees indicated learning from scholars in other disciplines by actively working with them. One of the factors that they believed to promote such learning was the location of office spaces in close proximity, which led to everyday conversations and experimenting with new methods. For example, being located in the same corridor encourages people to have quick conversations, which can be more effective from the viewpoint of transfer of knowledge than long but rare meetings [Interview with Ryan Cordell]. As an effect of proximity, "things start happening." By establishing everyday micro contacts and sharing small things, it is easier to understand the other person:

> I think proximity is important if you want to actually work together. When we were separated, we got together and had our meeting, and talked that we should work on this or that, and you go your separate ways and you don´t see them again until the next meeting, and things just don´t really happen. And there is awful lot of value, I think, in being in proximity, you are by, you meet more often and start talking, and start exchanging ideas. Even just with Ben over there [in the next office] we chat a lot, get into debates, and the whole thing. I just think it´s useful, there are things that can be done virtually, and things that just can´t. [Interview with Ryan Cordell]

47 According to Eero Hyvönen, it is essential for a DH center to have physical premises; at the time of the interview, HELDIG was on the verge of acquiring a permanent space, with seminar rooms, collaborative spaces, and offices for the core staff. However, not all the staff was to have offices there, and Hyvönen stated that people in other departments could be crucial for spreading knowledge of DH research [Interview with Eero Hyvönen].

48 Although a few interviewees emphasized the importance of physical proximity, not all DH centers have set spaces or even feel that they would need such a space. Having a "place of one's own" can be useful, but it is not critical if the center staff arranges alternative meeting spaces. The UCLDH is predominantly a virtual center that does not have a set space. The scholars have their individual offices in different parts of the university, where they meet with their collaborators. The center organizes a host of events, where people meet face-to-face, but they do not need a set "DH

space" for that [Interview with Melissa Terras]. Being located in central London makes availability of physical space scarce. In addition, the interviewees felt that having no physical space makes the organization nimbler, more flexible, and interdisciplinary; this is because physical space also implies additional responsibility, and more complex financial structures. Therefore, there is no need for a physical space when a network already exists and functions [Interview with David Beavan].

49 At the level of research teams, physical proximity is not always possible. For example, although the Comhis Collective is located in Helsinki, not all its team members are present in the same premises or even in the same country. For them, Slack and other digital collaboration tools enable the flow of information among all team members. However, if there is a reliance solely on digital collaboration tools, there is a threat that the persons who are not physically present will not be aware of the latest developments. Therefore, in order to make collaboration smooth, all the team members periodically get together in the same space for days of intensive collaboration [Interview with Mikko Tolonen]. For teams working remotely, in-person meetings can be important platforms for reviewing what has been done, planning future activities, and also for resolving problematic questions that are difficult to solve through conference calls or emails [Reed 2014, par 35] [Siemens 2011]. Physical meetings are often more necessary at the beginning of a project, so that the people get used to each other. After getting to know each other by being present in the same room, it is easier for the scholars to engage in more informal communication, even online [Podestá et al 2013, 44] [Siemens 2011].

Digital Transfers of Knowledge Within and Outside the Community

50 In addition to physical proximity, digital communication tools are crucial for transfer of knowledge in DH centers. The different layers of networks and the level of integration of people at the DH centers are reflected in the uses of divergent communication channels, varying between openly accessible to anyone interested and closed usage of specific groups. The channels utilized — such as email lists, Facebook, Twitter, Slack, Google Drive, Trello, and others — all facilitate different kinds of communication and transfer of knowledge. Each channel has different functions and follower potential, which influences the kind of communication which they can be used for [Interview with Sarah Connell].

51 In addition to the technical features directing the usage of a digital communication tool, each channel has a distinctive culture of communication that one has to know to be able to communicate effectively. Certain channels facilitate low-barrier informal communication more easily, which includes asking "stupid" questions, while others contain more formal and public communication. For example, the interviewees stated that a Slack channel is a good means for low-barrier communication and asking questions, while a list-serv — used by the same community — appears more suitable for disseminating information, but nobody uses it for asking questions. Moreover, Slack's chat-like functions serve as a low-barrier connector [Interview with Caroline Klibanoff] [see also [Evalyn et al 2020]]. In Slack, you can also see all the people who are involved in the channel, while it is more difficult to identify the recipients of an email sent to a list-serv.

52 For internal sharing of information, discussions, and keeping things on track, numerous DH research projects — the micro-networks of DH centers — use internet-based communication tools like Slack, digital to-do lists like Trello, and shareable Google documents [Interview with Mikko Tolonen] [Interview with Sarah Connell] [Interview with Ryan Cordell].

> Yes, there is a lot of Slack! I think most of the individual projects have their own Slack [channel]. [—] Different projects figure out their own communication channels, but I think a lot of them are on Slack. [Interview with Ryan Cordell]

53 Transfer of tacit, non-verbalized knowledge requires informal communication. It is easier to share tacit knowledge when people are in the same location, but it appears that collaborating teams that already know each other can maintain sharing of tacit knowledge and emotional ties through digital communication tools as well [Krishnaveni and Sujatha 2012]. Working together and knowing each other for a longer period can give birth to a shared mini culture, where the members of the group share the internal meanings of emojis or words [Evalyn et al 2020]. For example, Mikko Tolonen referred to the Comhis collective's Slack humor as an important component of collaboration [Interview with Mikko Tolonen]. Tacit knowledge is often learned in shared collaborative experiences, and learning tacit knowledge requires participation and "doing" [Krishnaveni and Sujatha 2012]. Moreover, transfer of tacit knowledge may be possible if the

tool itself and its code of conduct are familiar to users. In DH research, explicit knowledge can be found in articles and on the Internet, but tacit knowledge is received in close connection and collaboration with colleagues.

54 In practice, digital and physical presence often overlap and, occasionally, transfer of knowledge can take place synchronously via physical proximity as well as a variety of digital channels such as Slack, Google Drive, and Twitter.

> Often, even if we are physically present, we are simultaneously digitally present. Even if we are in the same room, the communication may happen in one of the chat options, Skype, or elsewhere. [Interview with Mikko Tolonen]

55 Both digital and physical presence have different strengths and weaknesses in transfer of knowledge. Physical proximity eases the process of getting to know people and the transfer of tacit knowledge, and constant proximity makes things happen faster and collaboration more efficient. Simultaneously, digital communication tools make communication possible even over distances: a team member can participate in a weekly meeting through Skype while being located in a different country. In addition, it can also be easier to go back to earlier conversations in a chat — although not too old ones, since they may be already difficult to find in Slack for example —, and new people can join in a conversation that was initiated a month earlier.

56 The online communication within DH centers and macro-networks is vital for DH centers. The centers studied here take internet and social media communication very seriously [Interview with Melissa Terras] [Interview with Eero Hyvönen] [Terras 2012].

> We are digital first, which means that we don´t really do off-line communication, we don´t do much print communication. [—] But we want to have a very good digital presence, which we take very seriously. We have a website, and Facebook and Twitter. [—] We like to be creative in our design, within the limits of the content management system we have to work with. We have a very good designer, who is part of the team, who does all the work on the website. We keep our Twitter feed up-to date, we keep our Facebook up-to date with all the activities that we are doing. I think we have around 5 000 followers on Twitter. It´s not a small thing. That means that with the digital presence, if something happens [that we want to inform people of], with all the members of the team, we can distribute a message to the potential audience of 30 000 people within a second. We take that seriously. Any digital research facility should take digital presence seriously. [Interview with Melissa Terras]

57 Websites and social media are important tools for spreading information to the public regarding the activities of a DH center. Thus, internet presence is crucial for maintaining the public image of a center and providing members of a community with a web identity [Interview with Eero Hyvönen] spreading information regarding what DH is and what its impact is has become crucial for establishing the field [Galina Russell 2015].

58 Websites and social media create channels for reaching out to new people interested in DH and in potentially joining the community. In a discussion at the NULDSG weekly meeting, numerous participants — in particular the younger ones — stated that social media provided them with the first encounter with DH and the people engaging with it. Having some knowledge of a DH center and its people “digitally” before actually coming to the meetings was a crucial first step for them. Without this connection, it would have been too big a step to reach out and contact a DH center and its people, or move from other parts of the country to Boston to become involved in DH.

59 In addition to attracting new people, well-designed and active digital presence is also of significance for obtaining funding and to be recognized by the larger society. It is a means to determine how the funding has been used, what kinds of activities the center holds, and if granted external funding, how “well” it may potentially be used. Lack of an active digital presence gives an impression of an outdated or inactive center.

> We are aware of the fact that blog posts as a publication genre can sometimes be incredibly helpful. I’ve assigned about fifteen blog posts as I’m teaching this fall because it’s the best, clearest

> and shortest way to introduce an important and complicated topic. But sometimes a blog post is just the obligatory one that takes way longer to write than it should, and doesn't end up having a lot of readership and doesn't really benefit the person who wrote it. So we try to think whether the blog post is the best format to share a piece of information. We tend to use our blog posts partly to share research and also because we do have a lot of events, and we often get the "I wish I could go, but…". We Tweet the blogpost wrap ups, if you couldn't go at all, you can at least see the links, and get the sense what the talk was about.[Interview with Sarah Connell]

60 However, maintaining active digital presence requires effort. Several people are needed to support the distribution of knowledge from the DH center to the outside world by maintaining a website and social media channels [Interview with Sarah Connell] [Interview with Élika Ortega] [Interview with Caroline Klibanoff] [Interview with Melissa Terras] [Interview with Eero Hyvönen]. For example, the NULab travel funds require reporting on the conference or the event visited through a blog post, which adds a variety of content to the site [Interview with Ryan Cordell]. It is also preferable to share the social media post responsibility to people who are more naturally inclined toward such information, so that an active Twitter user posts on Twitter [Interview with Sarah Connell], while a constant Facebook hang-around posts on Facebook.

Boundaries for Knowledge Transfer

61 In addition to the multilayered knowledge transfers powered by interconnected face-to-face and online networks, communication within and outside DH centers also has restrictions. When defining and creating a space (of communication), we also set boundaries to it. The barriers to transfer of knowledge in DH centers are physical, digital, language-related, structural, social, and cultural.

62 Constructing a physical space invites certain participants but eliminates others. David Beavan indicated, when discussing the absence of physical premises of UCLDH, that while a physical space could increase communication among the core members having offices in the space, it could potentially also restrict other people's access and cut them out [Interview with David Beavan]. Although, in principle being open to the outside world, in practice access to the spaces of the DH centers studied here is not easy for an outsider: for example, to enter the space, an individual may need an access pass to the library, a key code, or merely know how to navigate through the labyrinth of a university campus. It is very unlikely that a person would enter these DH spaces accidentally. One of the reasons for the practical restrictions is that open premises often demand that someone is present to oversee that the space, which is often equipped with the latest technology, is used for its intended purpose by the destined people.

63 Similarly, while digital communication tools facilitate interaction, they are not factually open to everyone. Certain channels, particularly those used by defined groups, allow entrance only by invitation. Communication in a small, non-public group is often easier and less formal and potentially makes exchange of ideas smoother [Interview with Caroline Klibanoff]. Thus, absolute openness of all physical premises and digital tools would eliminate the boundaries that make the DH center identifiable and water down the safer closed spaces of communication.

64 Although boundaries are necessary, it is important to discuss who and what kind of knowledge we welcome. Is there knowledge that is left out from the information flows? In recent years, the DH field has been discussing the need for a variety of approaches and the threat of "retro-humanism" focusing only on the canonical representation of the humanities [Risam 2015] [Martin and Runyon 2016, 20-21]. There is also strong advocacy of the use of a variety of languages, exemplified by the use of multiple languages at the DH2018 conference in Mexico City.

65 Language creates bubbles of DH communities (this article is aimed at the English language bubble) and determines hierarchies based on the competence and fluency of the speaker/writer. Participation in international (English language) communication demands special attention from the DH centers in a non-English-speaking country. In order to enable smooth international collaboration, the content on the HELDIG websites was written in English right from the outset, and the expansion of the staff by including international recruits pushed the Comhis Collective to change their operational language to English.

> Until recently everybody in the Collective were Finnish-speakers, but now almost all the new members come from elsewhere, and we had to change our operating language and Slack humor [into English].[laughs] [Interview with Mikko Tolonen]

In Finland, where academia is practically tri-lingual — using Finnish, Swedish, and English — a change in the operating language is not a big problem. However, it sets additional linguistic requirements for individual researchers who are willing to enter the international scholarly streams of transfer of knowledge. 66

Alongside linguistic barriers, the underlying structures and logic of scholarly crediting and financing influence the ways in which research is conducted, even if, in general, the motivation of DH scholars to participate in interdisciplinary transfer of knowledge is high. The widely discussed issues of crediting for open-access publishing, opening up of the used code or data, joint publications, or potential failures of tests (that are an integral part of developing something new) are issues that can either promote or hinder interdisciplinary transfer of knowledge and the ultimate emergence of new knowledge. 67

Therefore, social and cultural boundaries and the questions of who is invited to a research group, whose knowledge is valued as important, or whose work we know of are not issues that are solely related to DH; they are also related to the larger academia and societies in general [Griffin and Hayler 2018, par 11-12] [Östling et al 2018]. One can also ask to what degree are scholars associated with the more well-renowned centers more likely to have their knowledge more valued *because* of their association? The interviewees, being integral participants in the DH field, did not extensively discuss the issues of social and cultural boundaries. At the core, it is often difficult to see the challenges in the margins; therefore, this study cannot comprehensively cover this issue. However, a few reflections from DH professionals may contribute important perspectives to the discussion. The interviewees indicated that, to a great extent, DH is a question of self-identification and a sense of belonging: 68

> DH is at this point still a self-reported, or self-adopted title. [—] It is a conceptual magnet. Once you identify yourself as a digital humanist, then you start participating to the community. [Interview with Élika Ortega]

Because DH is about self-identification, it would be important to create an atmosphere of openness that facilitates the inclusion of a variety of people into the field. This would ensure that the interdisciplinary processes of transfer of knowledge have sufficient variety to draw on. In other words, if knowledge is inseparable from the communities that create it, use it, and transform it [Krishnaveni and Sujatha 2012, 37], we must ensure that the community is not too narrow. Further, if inclusion is the first step to accessing equality, but not a sufficient one [Martin and Runyon 2016, 37], further studies would be required on the effects of infrastructures, practices, the general logic underlying information flow in DH, and the varied nature of the DH community. 69

Conclusions

The interdisciplinary character of DH amplifies the social aspects of its knowledge construction; therefore, it is crucial to study the means through which transfer of knowledge is facilitated in this field. This article suggests that transfer of knowledge requires people with varied knowledge, networks, physical and virtual spaces facilitating communication, motivation, and practices that support it. The interviews reveal that the studied DH centers, the focal points of the transfer of knowledge of the field, combine the elements of the transfer of knowledge in a variety of ways and, therefore, function as engines of diverse information flows. DH centers facilitate interdisciplinary and inter-organizational matchmaking and exchange of ideas by maintaining a variety of networks and institutional memory as well as by providing physical and digital spaces for exchange of explicit and tacit knowledge. Further, the interviews indicate that in order to form a dynamic unit, in addition to the top-down strategy-driven infrastructures, DH centers must nurture free-floating networks of people [see also [Fickers and Heijden 2020]]. Maintaining respect for other perspectives and the willingness to learn and share new approaches is crucial for the field. The questions of exclusion and inclusion, who is recognized as a recognizable DH scholar, and what kind of information we value are crucial for defining the kind of scholarship and research outcomes we wish to achieve in the field in the future. The organizations running DH centers should pay attention to these features, and adjust them to the specifics of their cultural, geographical, academic and 70

organizational environment. And, most importantly, for each individual DH practitioner it is essential to consider how our own practices affect the inclusiveness of transfer of knowledge in the DH.

Interviews

[Interview with David Beavan] Associate Director for Research for University College London (UCL) Centre for Digital Humanities (UCLDH) and Research Manager (Arts and Humanities), by Mila Oiva, November 20, 2017, Skype. 71

[Interview with Sarah Connell] Assistant Director of the Women Writers Project (Digital Scholarship Group, Northeastern University Library) and the NULab for Texts, Maps, and Networks by Mila Oiva October 17, 2017, Boston Mass., USA. 72

[Interview with Ryan Cordell], Assistant Professor and Core Faculty member of NULab at the Northeastern University, by Mila Oiva, October 16, 2017, Boston Mass., USA. 73

[Interview with Eero Hyvönen] Director of the Helsinki Center of Digital Humanities HELDIG, by Mila Oiva September 20, 2017, Otaniemi, Espoo, Finland. Translations from Finnish to English by Mila Oiva. 74

[Interview with Caroline Klibanoff] Coordinator at the Northeastern University Library Digital Scholarship Group (NULDSG), by Mila Oiva, October 11, 2017, Boston Mass., USA. 75

[Interview with Élika Ortega] Assistant Professor at the Department of Cultures, Societies, and Global Studies and Core Faculty at the NULab for Texts, Maps and Networks at Northeastern University, by Mila Oiva, October 17, 2017, Boston Mass., USA. 76

[Interview with Melissa Terras], Director of the University College London Digital Humanities Center (UCLDH), by Mila Oiva, August 29, 2017, Skype. 77

[Interview with Mikko Tolonen] Professor of Digital Humanities and Leader of the Comhis Collective at HELDIG, University of Helsinki, by Mila Oiva, August 22, 2017, Helsinki, Finland. Translations from Finnish to English by Mila Oiva. 78

Notes

[1] In this article, I use the concept of digital humanities for the sake of clarity, although the practices of culture analytics, computational social sciences, and others come close to those of DH.

[2] The transcriptions of the interviews and the interview questions of *FSD3362 Facilitating Digital Humanities Research 2017* are stored at the Finnish Social Sciences Data Archive https://services.fsd.uta.fi/catalogue/FSD3362?lang=en&study_language=en and available for research and teaching purposes. The interviews were collected in connection to “From Roadmap to Roadshow: A collective demonstration and information project to strengthen Finnish digital history” project. The principal investigator of the KONE Foundation funded project was Professor Mats Fridlund (Aalto University, Finland) and the author worked in close collaboration with Dr. Petri Paju (University of Turku, Finland).

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