


# DIGITAL METHODS

RICHARD ROGERS



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## Digital Methods



# **Digital Methods**

**Richard Rogers**

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# Contents

<b>Introduction: Situating Digital Methods</b>	<b>1</b>
<b>1 The End of the Virtual: Digital Methods</b>	<b>19</b>
<b>2 The Link and the Politics of Web Space</b>	<b>39</b>
<b>3 The Website as Archived Object</b>	<b>61</b>
<b>4 Googlization and the Inculpable Engine</b>	<b>83</b>
<b>5 Search as Research: Source Distance and Cross-Spherical Analysis</b>	<b>95</b>
<b>6 National Web Studies</b>	<b>125</b>
<b>7 Social Media and Postdemographics</b>	<b>153</b>
<b>8 Wikipedia as Cultural Reference</b>	<b>165</b>
<b>9 After Cyberspace: Big Data, Small Data</b>	<b>203</b>
Notes	213
References	233
Index	261



























































## Introduction: Situating Digital Methods

This is not a methods book, at least in the sense of a set of techniques and heuristics to be lugged like a heavy toolbox across vast areas of inquiry. It is also not the more contemporary exemplar of the instruction manual or list of answers to frequently asked questions, one that would describe how to operate the multipurpose software package by which a number of statistical and network analyses may be performed once the web data set has been collected or delivered separately. Rather, this book presents a methodological outlook for research with the web. As such it is a proposal to reorient the field of Internet-related research by studying and repurposing what I term the methods of the medium, or perhaps more straightforwardly methods embedded in online devices. For example, crawling, scraping, crowd sourcing, and folksonomy, while of different genus and species, are all web techniques for data collection and sorting. PageRank and similar algorithms are means to order and rank. Tag clouds and other common visualizations display relevance and resonance. How may we learn from and reapply these and other online methods? The purpose is not so much to contribute to their fine-tuning and build the better search engine, for that task is best left to computer science and allied fields. Rather, the purpose is to think along with them, and learn how they handle hyperlinks, hits, likes, tags, timestamps, and other natively digital objects. By continually thinking along with the devices and the objects they handle, digital methods, as a research practice, strive to follow the evolving methods of the medium.

Second, digital methods not only think with online devices. They also take stock of the availability and exploitability of digital objects so as to recombine them fruitfully. When studying a web device, building a new tool, or making an interface on top of an existing one, the task is to list the elements at one's disposal, e.g., tweets, retweets, hashtags, usernames, user locations, shortened URLs, @replies, etc. (for Twitter, the microblogging platform). How may the digital objects be combined and recombined in ways that are useful not so much for searching Twitter but rather for social and cultural research questions? Does a particular hashtag, and its set of most retweeted tweets, organize a compelling account of an event, and whose?



SWEDEN	FINLAND	ESTONIA	LATVIA	UNITED KINGDOM	NETHERLANDS	BELGIUM (Flemish)	BELGIUM (French)
 human rights	 children's rights	 citizen's rights	 animal rights	 human rights	 works council rights	 human rights	 human rights
 patients' rights	 everyman's right (freedom to roam)	 children's rights	 human rights	 author's rights	 air passengers' rights	 disability rights	 internet rights
 children's rights	 animal rights	 environmental rights	 air passengers' rights	 digital rights	 children's rights	 cyclists' rights	 youth rights
 air passengers' rights	 consumer rights	 air passengers' rights	 pension rights for non-citizens	 minorities' rights	 human rights	 volunteers' rights	 citizen's rights
 creator's rights	 women's rights	 author's rights	 immigrants' rights	 citizen's rights	 minorities' rights	 air passengers' rights	 intellectual property rights
 equal rights	 air passengers' rights	 patients' rights	 copyright	 employment rights	 prostitutes' rights	 works council rights	 patients' rights
 citizen's rights	 renter's rights	 property rights	 children's rights	 publicity rights	 taxpayers' rights	 children's rights	 women's rights
 women's rights	 patients' rights	 landowners' rights	 social rights	 abortion rights	 youth rights	 job applicant's rights	 children's rights
 right of collective bargaining	 youth rights	 workers' rights	 teachers' rights	 photographers' rights	 islam and women's rights	 immigrants' rights	 workers' rights
 food rights	 right to education in native sign language	 sexual and health rights	 consumer rights	 children's rights	 author's rights	 patients' rights	 the right to defend yourself in court

The third principle is to build upon the existing, dominant devices themselves, and with them perform a cultural and societal diagnostics. Digital methods repurpose or build on top of the dominant devices of the medium, and in doing so make derivative works from the results, figuratively and literally. That is, the initial outputs may be the same as or similar to those from online devices, but they are seen or rendered in new light, turning what was once familiar—a page of engine results, a list of tweets in reverse chronological order, a collection of comments, or a set of interests from a social networking profile—into indicators and findings.

Sources are ranked high in engine results pages not only because they are helpful in providing information to the user for the query made. Their ranking also follows extensive link, click-through, freshness, linguistic, textual, and geographical analysis, which may be vetted by qualitative coders checking a small sample of results. Source rankings also carry social significance in an issue or subject area, and certain sources may grow or decline over time, indicating shifting commitment and appeal. Reading Google results, one may see information and even some of the workings and authorings of Google (including optimized and manipulated results), or one may see societal conditions (see figure 0.1 and chapter 5 on search as research). As I will develop below, this book largely concerns the latter.

One may undertake a similar exegesis for social media sites such as Facebook, and situate digital methods a second time. In this case, I would like to draw into relief not the difference between everyday use of a device and a trained eye pouring over results, as we just did with Google. Rather, I would like to contrast two web *research* outlooks. For example, one's newly made friend has numerous other friends, together with an active news feed as well as a well-groomed profile, comprised of considered interests in movies, music, books, and television programs. Playground, high school, college, and other clique and social formations may be organized on that platform, and there will be measurable levels and potentially new forms of sociality driving changes to them. After all, software is running social life, in part, and that can be reflected upon. If one were to think along with the device and examine the available digital objects to be recombined, however, the researcher's work changes. One may think too with the device makers and the containers they furnished for users to fill in profiles. How to reassemble the objects (friends and profiles) and repurpose the output of the device (friends' profiles and activities) so that it can provide indicators and make findings about (political) culture? One may consider reagggregating the profiles in telling ways. What do the collective interests of the friends of Barack Obama, as against those of the friends of his presidential

#### Figure 0.1

Rights types: the nationalities of issues. Top ten rights per country, based on a query for [rights], in each of the languages of the local-domain Googles, July 2009. © Digital Methods Initiative, Amsterdam, 2009.

opponents, tell us about the culture wars? Are political leanings aligned with taste and preference divisions, or are the divides far less great when seen through the expression of media preference (broadly defined)? Are social media sites for the study of shared taste?

Put differently, this is a book about Internet research that is not solely about the Internet. In keeping with a general move toward studying web data (as I come to in the conclusion), the book seeks to provide an aim for Internet research that has yet to be made explicit: the development of a methodological outlook and mindset for social research with the web. In other words, it seeks to move Internet research beyond the study of online culture and beyond the study of the users of ICTs only. In the following chapters, digital methods are put forward for working with the tiny particles (hyperlinks) and the large masses (social media). The book in fact could be read as a history of Internet-related research, as it has evolved from hyperlink and individual website analysis and directory-making in the mid to late 1990s (chapters 2 and 3), to critiques of search engines and the blogosphere in the early to mid-2000s (chapters 4 and 5), to the rise of the location-aware as well as the so-called Web 2.0 and social media in the late 2000s (chapters 6, 7, and 8). The chapters reflect upon how each of these is often studied, and how else they might be studied if the principles of digital methods were applied.

Digital methods also strive to provide web research with a *problematic* to work with. The fourth principle of digital methods involves the problem and challenges of employing web data for social research, for it reopens the question of the site of the baseline. Where are the findings to be principally grounded? More specifically, are the findings to be grounded in the online? Or is it necessary to calibrate them or compare them with a traditional (offline) data set or site of study? One can frame this issue by comparing two projects: Google Flu Trends and a map of allrecipe.com users' Thanksgiving recipe queries. These are both digital methods projects, but they work with two different ideas of a baseline.

Google Flu Trends (since 2007/2008) is a classic and teachable case of thinking through the availability of natively digital objects (search engine queries, and the places of those queries), and repurposing engine results for social research (the places of the incidence of flu).<sup>1</sup> The places of queries are employed to pinpoint flu outbreaks on the map. The results are subsequently compared to the data on the locations of flu from the U.S. Centers for Disease Control, and the national or regional equivalents of this agency in the nearly 20 countries where flu queries to Google are monitored. The online findings are thus grounded in the comparison with the agencies' data. This is the traditional manner of grounding, in which the conditions of proof are sought not online in the repurposed methods of the medium but offline, making the web into an anticipatory medium whose trends are later confirmed elsewhere. By contrast, another project may be considered as having grounded its findings in the online, or at least has not grounded them offline. As reported in the *New York Times*, with info-

graphics or data visualizations that are often outputted in digital methods projects, queries at allrecipes.com one day prior to Thanksgiving (the American national feast) were captured and plotted to a geographical map.<sup>2</sup> They show the places of recipe queries, and in doing so a distributed geography of taste or recipe preference across the United States. Whereas for years search engine companies would publish the top queries per month and per year, occasionally categorizing them according to top-level subject matters (e.g., political queries) and giving them trend-spotting, marketing-style project names such as buzz and zeitgeist, the recipe query maps add to the search engine results analysis not only the location of the queries, but also a social research outlook. They display where people seem to like which food. Here the question is whether the researcher would turn next to the offline (telephone surveys, or perhaps supermarket sales data), or continue with online data, grounding the findings further there. Could findings made with search engine queries be grounded through a study of additional web data, e.g., geo-tagged Thanksgiving food photos? Digital methods do not necessarily seek to ground (all) findings in the online, but rather to pose the question of the web's status as potential grounding site.

These first moves and principles espoused by digital methods are in play in this book: Follow the methods of the medium as they evolve, learn from how the dominant devices treat natively digital objects, and think along with those object treatments and devices so as to recombine or build on top of them. Strive to repurpose the methods of the medium for research that is not primarily or solely about online culture. Hyperlinks become means not only to assess the value of a website and assign a ranking to it, as the dominant devices treat them, but also to show the politics of association: the lack of recognition (through the absence of linking) of Armenian nongovernmental organizations by intergovernmental institutions, to take one example of the interpretation of a hyperlink map. Link analysis also may be employed for the purpose of finding related sites and building URL lists. Given an existing list of censored websites in Iran, how may their hyperlinks be analyzed to locate related sites that are not on the list of sites under study? The map shows the results of such dynamic URL sampling, as I term it, and displays the original sites as well as the newly located ones.<sup>3</sup> The newly located related sites, together with the original list, are fetched through proxies in Iran, in order to determine whether each site is blocked. The outcome is a map that shows which sites are blocked and which are accessible, and the pins on the map indicate newly discovered blocked websites (see figure 0.2). Indeed, one ultimately may learn more about the extent of censorship using link analysis (or dynamic URL sampling) to lengthen the URL list beyond the traditional, editorial, list-building approach, as is described in chapter 3 on website analysis.

Archived websites are traditionally used as a solution to the “404 file not found” problem. The Internet Archive's Wayback Machine allows the user to look up and retrieve a page from a website that is down and unreachable, or has been edited. The various historical pages from an archived website also can be so organized and



search and research is occasionally lamented in pedagogical discussion, the concern being that search is taking the place of research generally, with students googling instead of making library visits, and employing Wikipedia as a de facto first source rather than others that are not folksonomic but rather expert-vetted.<sup>4</sup> However, engines also can be repurposed for research, with their capacity to index websites and provide means to query each of them singly or thematic sets of them collectively. Of all the (leading) websites in the area of climate change, which ones mention the climate change skeptics, and with what frequency and fervor? Are the skeptics becoming more prevalent in the leading sources on climate change? Here the web becomes a site of research, expanding the source types, for example, beyond the scientific (and their metasource, ISI Web of Science) and the news (or Lexus Nexus). Larger questions arise about using the web as site of research. Are engines demarcating source sets and indexing individual sources with the same thought and rigor as their traditional research counterparts? How solid is the demarcation of sources, and the web findings that result from them? Under which conditions may they stand beside those yielded by the scientometric or press attention research techniques? The comparison of digital methods with those of more traditional techniques extends beyond media research. Can search engine log data compete in research outcomes with polls, and social media preferences with surveys?<sup>5</sup>

If this book may be read as a history of Internet-related research, it also grows from the Digital Methods Initiative, a project I launched in 2007 as a research program at the University of Amsterdam, a wiki ([digitalmethods.net](http://digitalmethods.net)), and a Summer School. The Digital Methods Initiative also received a grant from the Mondriaan Foundation in its *interregeling* program, which is for projects that do not fit into any category. It is the “other” in the form fields (and since has been discontinued). The first digital methods technique taught at the then small and informal Summer School I called “source distance.” How far from the top are stories and sources in media? A story can be at the top of the news, a leading story. It can be front-page news in a newspaper. How to construe the top of the web? The exemplary case study concerned climate change skeptics. At the time, BBC news recently had announced the cancellation of Planet Relief, an awareness-raising event modeled on Live 8 (2006) and Live Earth (2007). The reasoning behind the cancellation was that the BBC should not be construed as taking sides, and that Planet Relief would not give the skeptics’ views their journalistic due. The environmental activist quoted in a news story about the cancellation of the show put it this way:

The only reason why this became an issue is that there is a small but vociferous group of climate “sceptics” lobbying against taking action, so the BBC is behaving like a coward and refusing to take a more consistent stance.<sup>6</sup>

In the case of the BBC cancellation story and other news about climate change, the skeptics were increasingly at the top of the news. The question posed to the Digital

Methods Summer School participants read: Are the skeptics at the top of the web, too? “Source distance” would measure the distance between the top of the web and the skeptic-friendly sources, according to the dominant web device, Google, as I explain in more detail in chapter 5. In our research procedure, one queries Google for [“climate change”] and saves the results; subsequently one queries each of the results for climate change skeptics, noting where in the ranked list of sources they are mentioned. Distance from the top is thereby measured.<sup>7</sup>

Source distance subsequently became a technique for more than the analysis of the “web sphere” (a term that had been coined by web archive researchers, and which colleagues and I appropriated for comparative media analysis, or in fact the web version thereof). As a starting point, we showed how media analysis across source types such as newspapers, news magazines, and TV news has been done in the past and introduced such a practice for the web, comparing the dominant spheres online at the time: web sphere, blogosphere, and news sphere. Spheres are construed as engine-demarcated spaces. Each sphere has a dominant engine (largely Google, though at the time Technorati was a leading engine for the blogosphere), and each engine has a different, general logic for ranking sources per sphere. The rankings for the web sphere differ from that of the blogosphere and for that of the news sphere. Thus the spheres invite comparison. Given a subject matter or story, which sources are at the top of the respective spheres? “Cross-spherical analysis” is comparative source distance research across the web sphere, the blogosphere, and the news sphere. (We later added other spheres, too.)

Source distance lends itself particularly well to an analysis of the blogosphere, for the means by which it enables both critique as well as empirical analysis of the “sphere.” For some, the notion of the “sphere” in blogosphere invites thought about the public sphere. The equality of voices, the egalitarian ideal, also is in evidence in the geometrical shape of the sphere, where sources are equidistant from the core. Indeed, the sphere in blogosphere initially would challenge the hierarchy of the ranked lists (and engine results) that once ordered the web, prior to the growth of the blogosphere. With its new shape, the blogosphere would eschew that web hierarchy of sources (even if in practice there was continual reference to A-list bloggers, using language from the entertainment news and celebrity culture). If all blogs were equidistant from a core, then in principle each blog could be knowable by all.

These info-political geometries and spaces (ranked lists, networks, spheres, dark web) are the subject of chapter 2 on hyperlinks and the politics of web space. This chapter was originally written for *The Handbook of Internet Politics* (2007), and other versions have appeared in the edited volumes *Nouvelles technologies cognitives et épistémologie* (2007) and *Digital Cognitive Technologies: Epistemology and Knowledge Society* (2010), both edited by Claire Brossard and Bernard Reber. A slightly longer version appeared in *Theory, Culture and Society* (2012), in the special issue on the topological approach to cultural dynamics, edited by Celia Lury.

My critique of search engines as “inculpable,” the subject of chapter 4, is in fact a reaction to the means by which the personalization of engine results would affect source distance research. In the study of what I term web epistemology, the new hierarchies of sources, and credibility, outputted by engines are of interest. If no two individuals receive the same results for the same query (since December 2009), then it becomes inappropriate to “blame” search engines for placing the climate change skeptics (to return to them) at the top of the web when one queries climate change.<sup>8</sup> With personalization, search engine results are coauthored by the engine and the user. That is, the results you receive are partly of your own making, based on your search history, location, and other signals, as Google calls the data points it has collected. The question then becomes whether one can train one search engine (account) to be skeptic-friendly, placing sources mentioning skeptics at the top of engine returns for the query [“climate change”], and another search engine (account) to be skeptic-unfriendly, placing sources mentioning skeptics at the bottom. Similarly, one could imagine the desire to train a search engine account to be of one political persuasion, and a second of another. This kind of work, undertaken by colleagues, opens up the study of the impact of personalization on engine returns, an important web-epistemological question.<sup>9</sup> The “inculpable engine” piece was published in *Deep Search: The Politics of Search beyond Google* (2010), along with the German version, *Deep Search: Politik des Suchens jenseits von Google*, edited by Konrad Becker and Felix Stalder. It also is a contribution that I wrote particularly for Googlization scholars, especially Siva Vaidhyanathan, in an effort to shape a research agenda.<sup>10</sup>

Digital Methods Summer Schools (2007–) and Govcom.org workshops (1998–) provide much of the material in this book, including the contributions I would like to make to the study of the website and to the study of social media. Websites are predominantly blue, as we found at the Recalling RFID workshop organized at de Balie, Amsterdam, in 2007 (see figure 0.3). Apart from color analysis and usability, a website may be studied for its genealogy, (template) anatomy, features, and other points of departure I list in chapter 3. One device that organizes websites as objects of study is the Wayback Machine of the Internet Archive. Studies continually lament the lack of its use as well as that of national web archives by scholars and other researchers, apart from legal teams seeking evidence or legal departments looking up their own company’s websites and asking for them to be removed, or having *user-agent: ia\_archiver Disallow: /* inserted in the site’s robots.txt file, which not only excludes the Internet Archive’s crawlers but also wipes the history of the site from the Archive. How else to study the website as archived object? At the 2008 Digital Methods Summer School (which also was the Govcom.org 10-year jubilee event), I sought to apply digital methods principles by following the dominant device and repurposing it for research. At the Wayback Machine one enters a URL that outputs the pages archived. Fundamentally, it organizes the history of the web into single-site or single-page



histories. It has an in-built historiography in the biographical tradition. In considering how to repurpose its output, colleagues and I captured the historical pages of a URL (Google.com's, during what was its tenth anniversary, too). We compiled the unique pages (the ones with an \* next to them in the Wayback Machine's results page), loaded them in a slide show, and played them back in the style of time-lapse photography, or screencast documentary, with a voiceover track telling the history of Google from the changes to its interface from 1998 to 2007, a project we called *Google and the Politics of Tabs*. (The Internet Archive is often six months behind or longer in listing archived website content.) The more ambitious project was put forward for the 2009 Digital Methods Summer School. How to move beyond single-site histories? The unattainable goal that we set was to conjure a past state of the web so as to enable the study of a period, instead of only a site biography such as we undertook with the Google movie. Apart from site biographies, there are also event histories as organized by many of the special website collections to date, such as the September 11, 2001, collection as well as those on natural disasters and elections, as I will discuss. In keeping with what one would call a more general new media platform outlook (make not a tool, but a toolmaker), and in keeping with precisely that practice in contemporary web archiving (the archive-IT project), colleagues and I put forward a technique to create a collection of already archived websites for the study of web history, or history with the web. What is left of the early blogosphere was determined as well as captured so as to perform what I believe is one of the first historical hyperlink analyses, or mappings. In any case, early blogs that are not archived come to life on the hyperlink map, showing not only their presence and positioning through the links they received at the time (August 2000), but also a past state of (part of) the web, including the relative sphereness of the blogosphere. The technique of conjuring past states of the web has been applied subsequently to the Dutch blogosphere as well as the Palestinian web, and is thus a digital method (like source distance and others) that has stuck.

The continuing relevance of the work at early Digital Methods Summer Schools (2007, 2008, and 2009) became clear not only for the methods that have endured, such as source distance (discussed in chapter 5) and screencast documentaries as well as historical link analysis from pages in web archives (chapter 3). Certain fledgling projects from the early days also later matured, such as our efforts to demarcate and diagnose the condition of the Iraqi web, in the summer of 2007, some five years into the Iraq War, when blogging voices from the ground (Salam Pax, the Baghdad Blogger) and U.S. senators on fact-finding trips through a Baghdad market (filmed with a handheld camera) each strove to provide authentic accounts of the conditions there. Could we add to those accounts of the situation in Iraq by analyzing the health of its web? In making a collection of Iraqi websites, we ultimately found a broken web, with university sites ill maintained or down, for example. One of the few lively

### Issue Packaging on the Web

Research Question: What do websites about RFID look like?  
Findings: There are current design elements across categories.



**Figure 0.3**

Color study of websites in the RFID issue space, recalling RFID workshop, Amsterdam, 2009. Graphic by Studio Léon&Loes, Rotterdam. © Studio Léon&Loes, 2009.

websites was the Iraqi Ministry of Oil's, which was the only one in our collection that carried an advertisement! During the project, we put forward an approach to the study of a national web that rested on a series of metrics for diagnosing its health, such as the responsiveness and freshness of national web pages, that are applied in chapter 6. The case study is Iran, where in 2011 we demarcated a national web (over 10,000 unique hosts) by relying on "device cultures" dominant for Iranians, i.e., engines and platforms that recursively collect data from users and recommend URLs back to them. Studying Iran, however, introduced the further complication that many of its websites are censored by the state. In the piece of research undertaken for the Iran Media Program (Center for Global Communication Studies, Annenberg

School for Communication, University of Pennsylvania), Esther Weltevrede, Sabine Niederer, Erik Borra, and I found a censored yet lively Iranian web, with bloggers still blogging despite their sites' being blocked. We also put forward a set of metrics for studying the health of a national web, in the style of a web index. A shortened version of the study has appeared in the *Blackwell Companion to New Media Dynamics* edited by John Hartley, Jean Burgess, and Axel Bruns.

The thoughts developed for the study of social media, and the term “postdemographics,” the subject of chapter 7, came together at “Space for People: Suggested Fields,” a workshop supported by the Netherlands Media Art Institute and Montevideo/Time Based Arts, and at the “Walled Garden” event organized by the Virtual Platform, both in Amsterdam in 2008. The outcomes were media art software projects, *Elfriendo.com* and *Leakygarden.net*, though only the former was the subject of coverage by an Amsterdam media arts magazine (for youth).<sup>11</sup> Importantly, both projects had as their points of departure to think along with online devices and build atop them for the purposes of research into social media, and specifically online profiles. *Elfriendo*, with its slogan “taking the work out of social networking,” would create an entire personal profile from scratch on the basis of inputting a single interest. There were two other services provided at *Elfriendo.com*: it would check the compatibility of two profiles, and provide a profile “makeover.” Built on top of Myspace, and more specifically Myspace’s interest search (which was subsequently discontinued), the software would scrape the (top) profiles of those with a particular general interest or favorite music, movies, television shows, books, and heroes.<sup>12</sup> It would aggregate them, thereby creating a new profile or a profile makeover (one’s fields freshened up, if you will). It also would compare two profiles for compatibility, providing a matching percentage. Significantly, it would compare for compatibility those sets of profiles with particular interests. What is the aggregate profile for those interested in Barack Obama, and for those interested in John McCain, Obama’s opponent in the 2008 U.S. presidential election? Are they compatible? To what degree do individuals interested in Obama listen to the same music, watch the same movies and television programs, read the same books, and have the same heroes as those interested in other candidates? “Postdemographics” as a term is an invitation to study societally or culturally significant profiles in the aggregate and inquire into the relationships between them. It is also an invitation to ask about what is shared. Is Islam compatible with Christianity, in the sense that those listing one or the other as interest have other media favorites in common? The chapter on social media was published as “Post-demographic Machines” in the *Walled Garden* volume (2009), edited by Annet Dekker and Annette Wolfsberger, and an expanded version appeared as “Post-demografisch onderzoek: voorbij het doelgroepdenken” (Postdemographic research: Beyond target group thinking) in the special issue of *De Gids* (2010) exploring the web’s rewriting of the Dutch literary canon, edited by Noortje Marres.

*This Painting Is Not Available in Your Country*, an artwork by Paul Mutant (2010), summarizes the idea of the end of the virtual, the subject of chapter 1. The chapter is the *oratie* or speech I gave on the occasion of the inauguration of the professorship in new media and digital culture at the University of Amsterdam. It has been published as “The End of the Virtual: Digital Methods” (2009) by Amsterdam University Press, and in shortened form in German in the *Zeitschrift für Medienwissenschaft* (2011). Both in the “End of the Virtual” and in the “Politics of Web Space” (now chapter 2), I strive to point out the significance of the advent of IP-to-geo technology as the revenge of geography on cyberspace. The more dramatic formulation is the “death of cyberspace,” by which is meant that the web is increasingly less placeless—if it ever was, considering the close relationship between virtual community and real place discussed in the literature of the early to mid-1990s, and how the local appropriates the Internet to suit its own purposes, as ethnographers found in visiting cybercafés in Trinidad and Tobago in the 1990s. That is, geolocation technology locates the user and loads tailored content (or blocks it) accordingly in the user’s browser. This technology was implemented widely as a result of the lawsuit brought against Yahoo! in France in 2000 by antidefamation nongovernmental organizations, and has been implemented most readily for advertising as well as intellectual property contexts, such as for streaming television programs, including the 2008 Olympic Games where many, it seemed from personal observation, noticeably experienced its effects. Locative media was normal. The local-domain Googles (e.g., Google.fr) are also cases in point in geolocation effects, as the Google that loads by default is the one associated with the user’s location. On most local-domain Googles, there is a link to “Google.com in English,” and there is also a separate URL (Google.com/ncr) offered for “no country redirect,” which suppresses the autodetection of one’s location. Placelessness, once the experience and rhetoric of cyberspace, nowadays is a workaround URL.

Chapter 8, on Wikipedia as cultural reference, is a collaboration with Emina Sendjarevic, who during the 2010–2011 Digital Methods course at the University of Amsterdam dissected the articles on the fall of Srebrenica, the Srebrenica massacre, and the Srebrenica genocide from the Dutch-, Serbian-, and Bosnian-language Wikipedias, respectively (and others, too). With exceptions (e.g., the Dutch article), the articles originated from a translation of the corresponding English-language one; over the course of six years of edits, they then developed distinctive storylines and viewpoints, which we initially described as national rather than neutral points of view, as the Wikipedia principle (NPOV) is called. In the analysis, we are interested in whether we could step out of the frame of Wikipedia as encyclopedia and move beyond the accuracy debate. We propose the comparative study of Wikipedia articles across language versions as cultural, rather than as standard or universal reference, which is in keeping with the digital methods principle of employing the web to study cultural change, preference, and commitment. Directly after nearly the same version of the article was



**Figure 0.4**

*This Painting Is Not Available in Your Country* by Paul Mutant, 2010. © Paul Mutant, 2010. Reproduced with permission.

posted on the Bosnian, Croatian, and Serbian Wikipedias in 2005, a Serbian user put up the template disputing its neutral point of view, while Bosnian and Croatian users praised its quality and ultimately made the Bosnian a featured article, a badge of merit given to entries of particular note. After five years of editing, the Dutch and the Serbian articles have lower victim counts than the Bosnian (and the others we analyzed), throwing into relief rather distinctive sources (and outlooks) on the events. While Srebrenica is a special case, the approach to studying the “same” article across different Wikipedia language versions is generalizable; time will tell if that method sticks.

“After *Cyberspace: Big Data, Small Data*,” the final chapter, situates digital methods one last time in the so-called computational turn in the social sciences and digital humanities, and seeks to make distinctions between a series of contemporary approaches to the study of digital data and the one put forward here. At the outset of the final chapter, as in the opening, I return to the difference between the natively digital and the digitized, both for data and for method. Portions of the chapter were presented at the MIT7 conference on Unstable Platforms in 2011, and also borrow thoughts I wrote up in the context of two projects funded by the European

Commission: A Topological Approach to Cultural Dynamics (ATACD), the 6th Framework project mentioned above, and Mapping Controversies on Science for Politics (Macospol), the 7th Framework project led by Bruno Latour at Sciences Po, Paris. The Macospol project also had as one of its products the transformation of the Google Scraper (the tool used for source distance research) into the Lippmannian Device (the tool used for partisanship and issue commitment analysis). The Digital Methods group, Amsterdam, built the Macospol controversy mapping platform at [mappingcontroversies.net](http://mappingcontroversies.net).

The distinction between the natively digital and the digitized is made as a positioning move.<sup>13</sup> Many of the methodological approaches to the study of new or digital media work with digitized data, such as “cultural analytics” as well as “culturomics,” as I relate in the concluding chapter. The one seeks patterns across complete sets of paintings by a single artist or the covers of a tone-setting magazine, while the other studies changes in word use over time by querying books scanned by Google (in the Google Books project). In other words, for these and other approaches, digital media means the study of the digitized and the scanned, where data access and special query privileges are often needed. Here, by contrast, I put forward an approach to make use of the forms and materials of specific digital media (such as the blog post and the Wikipedia edit), rather than principally those that have been digitized and scanned and uploaded to a digital medium (such as scanned photographs from World War II mounted on a website, as discussed in chapter 3 in an example of a web archivist’s selection of a valuable website to be archived). The work in this book on the website as archived object was written in the spring of 2011, while I was Annenberg Fellow at the Annenberg School for Communication, University of Pennsylvania. I would like to thank Joseph Cappella, Joseph Turow, and Michael Delli Carpini for bringing me to Philadelphia. Klaus Krippendorff inspired a digital methods version of web content analysis, in the Wikipedia study introduced above.

Special access is also required for the study of certain natively digital objects such as engine query logs, leading to the discussion of the tension between employing the APIs offered by the companies and scraping data. There is a requirement of ethical review often accompanying proposals to scrape online data, including profiles.<sup>14</sup> In part, it has been inherited from the disappointment surrounding the release of allegedly anonymized AOL user search histories in 2006, following which journalists were able to “de-anonymize,” or identify, one of the search engine users, an older lady in Georgia. The AOL data were released for scientists to use in improving (personalized) search. I contrast the detective’s or voyeur’s outlook that comes along with individually numbered search engine users and lists of their queries—the data formats provided—with another outlook, more in tune with social research needs. Not the individuals but the places of substantive queries are the data of choice for the research outlook I wish to describe as digital methods.

I would like to acknowledge the work of the Digital Methods Initiative (DMI), Amsterdam: Anat Ben-David, Erik Borra, Marieke van Dijk, Anne Helmond, Koen Martens, Sabine Niederer, Michael Stevenson, and Esther Weltevrede. Each project should bear most or all of their names, if they do not already (in print or on the web). Thanks are also extended to Noortje Marres, whose questions are not only incisive but also the source of our FAQs at [digitalmethods.net](http://digitalmethods.net). The Digital Methods Initiative and Summer School have had waves of dedicated researchers. Marijn de Vries Hoogerwerff, Rosa Menkman, Bram Nijhof, and Laura van der Vlies were present in the early years, contributing to multiple projects, including the 2008 Summer School, which was also the Govcom.org Foundation's Jubilee. Govcom.org, the group of researchers, programmers, and designers first formed at the Jan van Eyck Academy in Maastricht in the late 1990s, celebrated its tenth anniversary in 2008, with special guests including Greg Elmer and Warren Sack. Alexander Galloway's presence there led to the *IP Browser*, exhibited at the Impakt Festival Utrecht (2009), Arts Santa Monica, Barcelona (2009–2010), and Transmediale Berlin (2011). *For the ppl of Iran: #iranelection RT*, a product of the 2009 Summer School and exhibited at the same events in Barcelona and Berlin, was selected with the *IP Browser* by the Netherlands Media Art Institute for distribution in their 2010 catalog. Josep Perelló and Pau Alsina curated the exhibition "Social Atoms and Electronic Lives" at Arts Santa Monica in Barcelona, with assistance from Irma Vilà. The other 2008 Summer School production, *Google and the Politics of Tabs*, the screencast documentary, was produced by Theun Hendriks and Menno Endt of Crooked Line, Amsterdam. I first told the story of the demise of the online librarian at the tenth-anniversary meeting of *Informatieprofessional* magazine, in spring of 2007, and later worked along with DMI researchers and Kim de Groot, who designed the accompanying information graphic, *The Demise of the Directory: Web Librarian Work Removed in Google*. The Issue Dramaturg, the software that shows the rankings of sources for Google queries over time, also discussed in the "inculpable engine" chapter, is a 2007 project that extends back to work on understanding the web as a hyperlink economy (including an article I published in *Science as Culture* in 2002 and a set of information graphics made in 2005 with work by Dragana Antic, then a student at the Piet Zwart Institute, Rotterdam). The Issue Dramaturg seeks to put on display the drama of search engine space—the precipitous rise and prodigious fall of an organization or company in engine returns for particular queries (or in general PageRank terms). As I presented the project in September 2007 at the Impakt Festival Utrecht (for which it was commissioned), the Issue Dramaturg captured drama. The site 911truth.org had held its top 5 ranking for the query [9/11] until it suddenly dropped to result 200, then fell off the charts in the 1,000 results served on 18 September 2007. The larger project of saving search engine results for the query [9/11] also drew interest from the 9/11 Memorial Museum in New York City.

“We look at Google results and see society, instead of Google” is the lead-in to an article reporting on employing the results of queries in local-domain Googles as indicators of hierarchies of national concerns. Applied to types of rights (such as human rights, children’s rights, air passenger rights, and, as is popular in Italy, the right to oblivion), the short study was published in *Global Information Society Watch [GISWatch] 2009* by the Association for Progressive Communication (APC) and Hivos, the Humanist Institute for Cooperation with Developing Countries (a Dutch development agency). The accompanying info-graphic, *Rights Types: The Nationalities of Issues* (reproduced here as figure 5.4), which appears over several pages in the *GISWatch* book, was designed together with Vera Bekema and relies on the search and language skills of Liliana Bounegru, Andrea Fiore, Simon Marschall, and Elena Tiis (and their friends and colleagues with diverse language skills). It is also listed in the Netherlands Media Art Institute catalogue “Computer- and Internet-Based Art in Distribution 2010,” though to date it has not been exhibited (to my knowledge).

*This Painting Is Not Available in Your Country*, the image of Paul Mutant’s 2010 artwork, appears courtesy of this Budapest-based artist. The *Cyberspace* image in chapter 2 is reproduced with permission from the DiploFoundation, Malta. John December kindly granted permission for the reprinting of his *CyberMap Landmarks* of 1994 (in chapter 2). The collection of homespun and professional web awards from the 1990s is the author’s own, and was made into an artwork by Anja Lutz; it is also the back cover of the *Preferred Placement* book, a volume I edited, published by the Jan van Eyck Academy in 2000. Jude Buffum graciously supplied his 2008 artwork *Stopping Google* (chapter 4). Hendrik-Jan Grievink kindly allowed republication of a work from his set of ghostly website portraits (to borrow a phrase from an earlier set of templates by sumoto.iki), *Template Culture: Form Follows Format* of 2009 (chapter 3).

Finally, digital methods evolve with the medium and thus are best kept online, where they are continually edited, with feedback from those attending the research seminar course of the same name at the University of Amsterdam, and the Digital Methods Summer School and Winter School.





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