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NETWORK STANDARDS AND CULTURE

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Media networks are complex assemblages that connect different kinds of humans and objects together, and involve multiple actors, materials, intentions and products. Standards are usually meant to make technical artefacts, protocols, features and infrastructures operate in an efficient and uniform way. In this way, standards become taken for granted, and the rules they structure are seen as the natural and only way to engage with media. But behind such norms lay political, ideological and cultural struggles of power between different interests group that range between individuals, private companies, governments, NGOs and legal entities. These multiple actors compete over a dominant position in the media industry and their ability to influence, control and shape the way that people use and understand media and communications. This panel seeks to unveil these invisible codes and the conflicts, incentives and politics that lead to their formation.

Specifically, Elinor Carmi's paper examines the European Union's cookie regulations, focusing on the construction of standards that allow for the distinctions between cookies and spam. Robert W. Gehl's paper takes on a similar object, but in the context of the United States, looking at the Digital Advertising Alliance's self-regulatory standards, which purportedly limit the online advertising industry's capacity to monitor Internet users. John Sullivan tackles the proposed HTML5 standard for "Encrypted Media Extensions." Finally, Dan Burk considers the legal and technical questions of interoperability in smartphone platform and networking standards.

1. EAT ME! SPAM VERSUS COOKIES IN THE POLITICS OF THE EUROPEAN UNION INTERNET.

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Introduction

This paper examines the struggles between the European Union and private companies when it comes to Internet definitions and standards, while looking at spam and web-cookies as a case study. Telecommunications in Europe were controlled by national monopolies until the end of the 1980s. According to Savin (2014), this was a slow transition of territorial powers, characterized by a struggle over authority on telecommunications policy between the European Commission and national Postal, Telegraph and Telecommunications Administrations (PTTs) who wanted to keep the status quo of their position within the media sector. As Savin argues, “[m]ember states were not readily willing to abandon their monopolies and were by and large not supportive of the Commission’s initiative. The late 1980s and early 1990s saw an increasingly complex web of proposed and adopted directives, a tug of war between the Commission and the member states, of governmental and non-governmental actors” (Savin, 2014, p. 3).

The mid 1980s, as Linda Senden (2005) observes, were also characterized by a change in the European Community (changed to the European Union in 1993, following the Maastricht Treaty) approach to legislation towards ‘soft-law’. This approach means that the main instruments of governance in the European Union are co-regulation and self-regulation. These instruments have no legally binding force, and yet still hold a legal effect. This approach is usually contrasted with ‘hard law’, a ‘legally binding obligations that are precise (or can be made precise through adjudication or the issuance of detailed regulations)’ (Abbott and Snidal, 2000, p. 421). Among other reasons, the transition to soft-law is the acknowledgment that legislation is not sufficient to govern specific sectors, especially when it comes to the Internet which crosses states territoriality.

In the European Union, this power conflict becomes complicated as actors who are involved in creating Internet standards, protocols and enforcement negotiate between Member States, zooming out to the European Commission, and to global actors such as the International Telecommunication Union (ITU), the World Wide Web Consortium (W3C), the Internet Corporation for Assigned Names and Numbers (ICANN) and the Internet Engineering Task Force (IETF). Most of these organizations were founded and based in the U.S.A, and receive criticism on the centrality of the values, language and standards that stems from that region, which consequently project on the global Internet (DeNardis, 2009, p. 37). These struggles are often termed ‘Internet governance’, which “designates the technoeconomic and legal issues arising from any decisions, de facto or

by law, that affect the design, access, and use of the Internet as a specific sort of communication network architecture” (Franklin, 2013, p. 138). This paper argues that under the European Union’s soft-law approach, other organizations have a say in the way that the Internet operates, its standards, and architecture.

As media companies struggle with states, when it comes to creating and enforcing definitions, standards and infrastructure, it is important for media scholars to engage with legal and technical texts in order to shine a light on procedures that establish the way people use and understand media and communication. Spam is a good case study to focus on as a phenomenon that has been taken for granted as an unwanted behaviour on the Internet. This category is usually invisible and hidden from users, but while most people think it means Viagra and Nigerian Princess scam emails, it actually has no clear definition within legislation. In European Union legislation, spam is not directly addressed or defined. This makes spam unique because both law makers and computer scientists need specific definitions of categories to make their laws and codes operational.

This paper examines how unwanted forms of communications are categorized as spam while others as cookies, and what are the consequences of such a process. I conduct policy analysis of European Union legislation related to spam and cookies, mainly by the European Commission, the Organization for Economic Co-operation and Development (OECD), and the Article 29 Working Party¹ (A29WP). In addition, I examine technical documents of the Internet standards organisation the Internet Engineering Task Force (IETF) and the World Wide Web Consortium (W3).

SpamALot

Media law literature has given little attention to spam. The most notable exception is Finn Brunton (2013), who gives some account of spam related laws, focussing on North America and especially on the CAN SPAM Act in 2003. Milton Mueller (2010), discusses Internet governance, and gives some account to spam blacklists, but adopts the common notion that spam mainly relates to emails. Another important contribution is Lodewijk Asscher and Sjo Hoogcarspel’s (2006) piece on spam regulation in the European Union context, which however analyzes the e-Privacy Directive through a legal lens and thus provides limited understanding of spam as a media phenomenon.

Another body of literature related to spam comes from media studies and information security, and involves various practices conducted on the Internet, which are usually associated with the category of spam as a verb; political economy (Parikka & Sampson, 2009; Brunton, 2013), hacking (Galloway, 2004; Coleman, 2013), anti-virus companies

¹ European advisory body which consists data protection authority representative from each of the member states, and was founded following Article 29 of the Data Protection Directive (95/46/EC). The main goal of this body is to provide opinions and recommendations to the European Commission in regards to data protection.

(Helmreich, 2000), and socialbots (Gehl, 2013; Bucher, 2014). These various directions do not always touch spam directly but are interpreted as such in different discourses and consequently point to avenues in categorizing different forms of information.

What's on the menu?

These authors provide important insights to the field of spam; however, they tend to automatically adopt computer scientists' definitions of spam without questioning them. In the field of computer science, spam is usually defined in a binary way of spam/non-spam, but as will be shown; this distinction is more nuanced, and subjected to debate and power struggles. This paper will address these issues and show how spam and cookies are important to the construction of the European Union Internet. This paper argues that the European Union's soft-law approach, that prioritizes private actors' self regulation by adopting their standards, protocols and enforcement, contributes to the institutionalization of e-commerce.

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2. STANDARDS, SELF-REGULATION, AND SWARMS: THE CASE OF THE DIGITAL ADVERTISING ALLIANCE

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Abstract

This essay explores the Digital Advertising Alliance (DAA), an online advertising and marketing trade consortium comprised of seven organizations: the Better Business Bureau (BBB), the Direct Marketing Association (DMA), the Network Advertising Initiative (NAI), the 4As (an advertising agency trade group), the Association of National Advertisers (ANA), the American Advertising Federation (AAF), and the Interactive Advertising Bureau (IAB). Together under the aegis of the DAA, these organizations and their members represent a massive percentage of the global advertising and marketing industry, an industry based on sophisticated tracking technologies, practices of profiling consumers, and increasingly precise customization of ads, sales pitches, pricing schemes, and product offerings (Turow, 2011).

This paper considers the DAA as a standards organization. The DAA sets rules and protocols for the U.S.'s online advertising industry. It does so as a "self-regulatory" body, meaning it regulates its members to avoid having the U.S. government do so. The DAA's standards are thus a point of contact between it, its members, online consumers, and the U.S. government.

This paper thus focuses on the technical, social, and political aspects of the DAA standards, specifically its opt-out cookie system (available at aboutads.info/choices). I will argue that the DAA's opt-out system is designed to extend and maintain the power of advertising in the political economy of the Internet in two key ways. First, the DAA seeks to present its system as a *singularity* when it is arguing for the effectiveness of its self-regulation. The DAA refers federal regulators to its opt-out system, making claims about it being a single, easy-to-use, consumer-friendly system, thus negating the need for other efforts (such as Do Not Track headers). So far, this argument has helped stave off U.S. government regulation of online advertising.

However, I will also argue that the DAA's standards often deploys *multiplicity* and *heterogeneity* in service to its overall associating practices. Specifically, I will closely examine the structure of the DAA opt-out system, noting how its seeming singularity dissolves into a swarm when actual consumers confront it. For consumers, the DAA system is baroque and confusing, with over 150 cookies to be installed on each and

every end-user device. Each advertising network is allowed to implement the opt-out standards in different ways, leading to diffusion rather than rigidly structured practices.

At the core of this, I argue, are the DAA standards, which are a sophisticated mix of specified technical procedures and flexibility, allowing for the DAA to support its claims about self-regulation while allowing its members enough flexibility to continually innovate new surveillance techniques even in the face of consumer rejection of online tracking.

To do this work, I will deploy two concepts from Actor-Network Theory (ANT), punctualization and depunctualization, as key lenses through which to see the shifting contours of the Digital Advertising Association as it confronts other actor-networks. As such, in addition to being a contribution to scholarship on standards, the paper contributes to ANT. Specifically, I argue that ANT scholarship on organizations tends to be biased towards those organizations that successfully punctualize – that is, successfully cohere into an organization. In this view, an organization that fails is said to have "depunctualized." Against this, drawing on the work of John Law and Annmarie Mol, I argue that the DAA is capable of depunctualizing – that is, becoming a swarm – at key moments. In other words, it sometimes use messiness and incoherence in its overall mission to maintain its role as the spokes-thing for the online advertising industry. It falls apart in order to cohere. This theoretical point is often lost in ANT work on organizations.

The empirical data for this project comes from press releases, legislative testimony, and the architectural and technical structures of the DAA and DAA-member Web sites. I will also draw on the scholarly literature on online advertising, human-computer interaction, and standards consortia. My ultimate argument is that ANT scholarship must consider how standards are just as much about deploying heterogeneity as they are about cohering and channeling practices into durable singularities.

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3. TECHNICAL AND ETHICAL DISCOURSES IN WEB STANDARDIZATION: THE CASE OF ENCRYPTED MEDIA EXTENSION (EME) AND HTML5

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Technical standardization has been key for efficiency and ease of information exchange among inter-connected systems. Standards are “specifications that determine the compatibility of different products” (Stango, 2004, p. 2). As Russell (2014, p. 16) describes, standards can also describe “a social process by which humans come to take things for granted. Through standardization, inventions become commonplace, novelties become mundane, and the local becomes universal.” Standardization is the term that therefore “describes the process of making standards – a process that entails a wide range of practices and ideas with distinct political, economic, and cultural dimensions” (p. 17). In line with this socio-technical approach to standardization (Busch, 2011; DeNardis, 2011; Russell, 2014; Sutor, 2011), I consider the process of web standardization and the complex interplay of competing discourses about the nature of standardization itself.

This essay explores the debates surrounding the recent introduction of a controversial feature within the HTML5 web standard, the latest version of the hypertext markup language that acts as a universal standard for rendering webpages on the World Wide Web. The HTML5 standard was developed beginning in 2003 under the auspices of the World Wide Web Consortium (W3C), a non-profit consortium founded by Tim Berners-Lee in 1994 to guide the development of standards for the web. The W3C is made up of member organizations, including universities, non-profit foundations, NGOs, and technology corporations.

HTML5 is the central linchpin in the seamless operation of the web, but its importance goes beyond rendering webpages. HTML5 represents the vision of a unified online content experience that extends from computers to mobile platforms. As Schrock (2014, p. 821) has argued, HTML5 “creates a common platform for producing mobile software that runs across multiple smart phones and tablets that alternately pushes against and aligns with corporate desires and ideologies.” Given the fact that the HTML5 protocol is the core standard at the heart of the world wide web – the “lingua franca” for the internet – it is notable that its development has received relatively little attention by scholars (for good examples see Goggin, 2010; Horst, 2013; Russell, 2011; Schrock, 2014). While previous research by Schrock has explored the concept of “openness” in the development of the HTML5 protocol and the corporate imperatives for the development of a cross-platform web experience, my focus here is on the competing discourses of standardization within the W3C.

A Moment of Standardization: Encrypted Media Extensions (EME)

This essay considers an episode in the development history of the HTML5 standard, specifically the introduction of “Encrypted Media Extensions” (EME) in 2012-13. On February 21, 2012, a proposal to implement EME within the HTML5 standard was distributed via email to members of the HTML Working Group of the W3C (Dashevsky, 2013). The technical document, authored by four representatives from Google, Microsoft, and Netflix, proposed to eliminate the need for end users to install browser plugins such as Flash or Silverlight by allowing pockets of proprietary software to run within the open HTML5 standard for the purpose of protecting copyrighted audio and video (Dorwin, Smith, Watson, & Bateman, 2015). The proposal caused considerable controversy among the members of the working group (Constantin, 2012). Proponents argued that the inclusion of <video> and <audio> tags within HTML5 would accomplish two key aims: (1) it would create a single, seamless web experience across desktop and mobile web platforms, enabling web advertising to reach users easily (something of immense importance to technology companies like Google); and (2) it would ensure the protection of copyright by allowing streaming web content providers like Netflix (and, by extension, media corporations and other content providers) to effectively track and prevent the unauthorized distribution of copyright-protected content online.

Opponents, on the other hand, argued that the inclusion of a “man in the middle” black box engine within HTML5 ran counter to the very definition of openness that web-founder Tim Berners-Lee had pursued since 1994. Additionally, they pointed to security and privacy issues raised by EME, such as: (1) user-specific information being disclosed to the EME (and thereby also the streaming media provider); and (2) the storage of user viewing and personal data on the user’s device, which would enable a third party to track the end user’s viewing habits and/or their movements on the internet. EME, they argued, would place the onus for protecting end user privacy on the content decryption software and the “user agent” (or web browser). This language shifted responsibility for handling security and user privacy away from HTML5 and placed it in the hands of the companies that are providing the DRM for online media content. This raised the possibility that companies providing access to copyrighted content via web streaming over HTML5 could potentially gather users’ personal information and track them or target them with advertising. For months, a vigorous debate ensued among the members of the “public-html-media” mailing list among members of the working group. Digital rights advocacy groups such as the Free Software Foundation (FSF) and the Electronic Frontier Foundation (EFF) mounted intensive lobbying efforts to pressure the W3C into abandoning the proposal (O’Brien, 2013; Paul, 2013), but they were ultimately unsuccessful. In late 2013, by a majority vote and with the tacit blessing of Berners-Lee, the W3C voted to adopt EME into the HTML5 standard.

Technical vs. Ethical Discourse Frames of Standardization

In this essay, I explore the types of discourse surrounding standardization that emerged during the debate over EME. I conducted a qualitative content analysis of relevant emails exchanged on the public mailing lists of the W3C beginning with the release of the Working Draft of the EME in February of 2012 until the formal adoption of EME into the HTML5 standard in October of 2013. Emails that constituted bug reports were eliminated from the sample. My analysis of these online exchanges reveals that the discourse among the HTML Working Group members regarding EME demonstrated two competing frames. Advocates of the EME proposal adopted a narrow *technical* frame by arguing that their job was to support the core interoperability of the web by mobile users to access DRM-protected content. These individuals (many, though not all, from giant tech firms like Google and Microsoft) construed the aim of W3C in purely technical terms by arguing that it should not “make policy” but should instead support the status quo of DRM on the web. Opponents of the EME proposal, however, framed their own efforts – and those of the W3C – within a broader *ethical* context. They argued that the W3C’s centrality in recommending web standards placed a special onus on its members to consider not just market efficiency and consumer desires, but to preserve the openness of the standard and to protect end user privacy. The debate over EME illustrates a fundamental incompatibility between two core aims of the W3C: interoperability and openness. The debate over EME also laid bare an internal struggle over the meaning of standardization in a world of interconnected technology.

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4. LEGAL AND TECHNICAL STANDARDS IN THE “SMARTPHONE WARS”.

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Introduction

Late twentieth-century commentary on Internet access optimistically advocated a new era of open standards arising from the “end to end” architecture of the network (Lemley & Lessig, 2001; Benkler, 2006, p. 392-413). The terms of such discussions have changed radically as common information and communication functions have migrated to the widely used hand-held computers popularly dubbed “smartphones;” these operate partially or wholly on proprietary spectrum channels. Establishing common technical standards among such devices is crucial to hardware, software, and connective compatibility; devices that are not interoperable are for all practical purposes both functionally and economically disabled.

Where such interoperability is at stake, the technology will tend to converge on a single widespread standard. (Shapiro & Varian, 1999, p.45–46) Some relevant technical standards arise from collective adoption of particular technological features, but many others are deliberately determined by private, governmental, or quasi-governmental standard-setting organizations (SSOs). (Carrier, 2009, p. 325) Either de facto convergence or deliberate standard-setting creates the environment for what economists dub “network effects:” the dominant technical standard becomes increasingly valuable as additional users adopt it, conforming to the standard. (Lemley & McGowan, 1998) Competitors must adopt the chosen technical standard in order for their products to interoperate with one another; products that do not conform to the standard are effectively excluded from the market.

Patented Standards

When network effects are present, the exclusive rights granted under intellectual property regimes, such as patent law, become highly problematic. Adoption of a patented technical standard potentially grants the patent owner enormous economic leverage: legally excluding a competitor from use of the standard effectively excludes it from technical interoperability, and from the marketplace. (Farrell et al., 2007, p. 616) Consequently, SSOs routinely require that the owners of technical standards that are covered by intellectual property rights must, if the standard is adopted, license the intellectual property to all interested users on “fair, reasonable, and non-discriminatory” (FRAND) terms (Miller 2007).

In theory, acceptance of this requirement by a patent holder should ensure all competing developers access to the technical standard. However, terms such as “fair” and “reasonable” are heavily value-laden, entailing a range of possible expectations. Additionally, SSOs seldom specify either the exact definitions of such terms or any sort of framework from which such definitions might be derived. In other words, standardized agreements on which access to technical standards might be based have yet to emerge.

Both honest disagreement as to the proper content of FRAND licenses, as well as strategic manipulation of ambiguities in the norms of FRAND negotiation, have led to a decade of intensive, pervasive, and globalized disputes between major smartphone manufacturers. Such legal interventions have become a key to controlling technical standards, shaping the market for smartphones, and defining the relationship between competing producers.

Competing Legal Cultures

These so-called “smartphone wars” have played out in a variety of fora, requiring courts to define the normative expectations that have eluded private negotiation. Not surprisingly, the resolution of such disputes differs between courts of the different jurisdictions in which the smartphone wars have been fought, reflecting the differing political, legal, and economic cultures of each forum. Nowhere has this been more explicit than in the radically different treatment of injunctive relief in parallel legal proceedings in the United States and in Germany. These two jurisdictions have been the key battlegrounds in the smartphone wars, and the treatment of standard essential patents and related FRAND licenses could hardly be more divergent, revealing the fundamental assumptions and values at stake in treatment of intellectual property for technical standards.

Thus, as the Mannheim regional court in Germany stated in its opinion in the FRAND licensing dispute between Motorola and Microsoft (2012):

If the seeker of the license were in a position to successfully defend against claims for an injunction by the patent owner by arguing that the latter was obligated to grant a license anyhow, on its own volition, the patent owner would be at the mercy of any dishonest licensee, for whom there would be no more incentive to enter into licensing negotiations.

Contrast the Mannheim court’s statement with that of United States federal Judge Richard Posner, sitting as a trial judge in *Apple v. Motorola* (2012):

By committing to license its patents on FRAND terms, Motorola committed to license the '898 [patent] to anyone willing to pay a FRAND royalty and thus implicitly acknowledged that a royalty is adequate compensation for a license to use that patent. How could it do otherwise? How could it be permitted to enjoin Apple from using an invention that it contends Apple *must* use if it wants to make a cell phone with UMTS telecommunications capability . . . ?

These opinions typify the American and German approaches to standard essential patents, articulating the value judgments embedded in the standards jurisprudence of each forum. To some extent the distinctions reflect the differing legal standards found in the common law and in continental civil law. But to a greater extent these passages reflect fundamentally different philosophies in the approach to proprietary rights and technological progress.

Richard Posner is well-known as one of the major proponents of the economic analysis of law that has become predominant in the United States. It is therefore no surprise that his view takes certain economic principles, such as network effects and revealed preference, as given. His calculus is purely utilitarian. From the standpoint of economic analysis, injunctive relief is likely to overcompensate a patent holder who has already indicated his valuation of the patent: the value of a FRAND license.

By contrast, the opinion of the German court reveals a highly formalistic deference to the property interest of the patent holder, and a deep suspicion of potential strategic behavior by competitors, even when they have no choice but to adopt the patented standard. But this somewhat deontological approach runs contrary to expectations of robust competition and technical progress that have become an international norm.

Conclusion

Recent intervention by the Court of Justice of the European Union appears to reject the German approach and adopt at least some aspects of the American utilitarian approach. (*Huwei v. ZTE Corp.*, 2015) This synthesis of prior approaches promises to open a third, intermediate path toward enforcement of standard-essential patents and legal treatment of FRAND licensing for technical standards.

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