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Free your 'most open' Android: a comparative discourse analysis on Android

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ABSTRACT

Through this paper, we convey a comparative analysis of how Google Inc. and the Free Software Foundation Europe (FSFE) discursively construct and contest Android, a dominant mobile operating system. Methodologically, we use political discourse theory to engage in the textual analysis; identify and compare key signifiers and nodal points across the exemplary texts from the two actors, and interpret their meaning vis à vis contextual insights about the political economy of Android's production. Albeit being marketed as 'the first truly open platform' for mobiles, through our analysis we find Google's definition of open source practices strictly conditional. We argue that Google's usage of *compatibility* rhetorically as well as techno-legally justifies the conglomerate's control over the platform. By contrast, the discursive moment by free software activists, through a campaign 'Free Your Android' deconstructs the discourse on open source and attempts to politicize the access to code in the mobile domain. This is done by extending from the well-known developer's four freedoms onto users' privacy, due to personal character of mobile devices. Such articulation of free software in relation to privacy of user data is a new development and arguably has a potential to contribute to widening support to the movement.

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Introduction

Through this paper, we aim to contribute to critique of open source, explore and explain what is understood of current open source practices in the context of mobile phones, using the example of the dominant operating system (OS) Android. In what follows we build a case to comparatively explore how texts produced by Google Inc. and the Free Software Foundation Europe, discursively construct and position Android. By comparatively studying discourses, that appear in sharp contrast we aim to problematize the practices of open source development for mobiles, and propose modest recommendations to the digital rights activists on how to emancipate discourse on digital rights to encompass the broader issues at stake.

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Whereas there is burgeoning literature exploring meaning, practices, and implications of free and open source software development vis à vis proprietary (Chopra & Dexter, 2007; Kelty, 2013; Söderberg, 2008; Sullivan, 2011; Wolf, Miller, & Grodzinsky, 2009; Elliott & Scacchi, 2008), our focus lies on code production and distribution for mobile devices (smartphones and tablets). We suggest, such exploration is critical, because smartphones, just like computers, are programmable devices. This means, the affordances of this technology (how it can be used and with what ramifications) is prescribed through software.

While we recognize the ‘politics of artefacts’ (Winner, 1980), meaning that values of the broader socio-economic system are inscribed in (any) technological design, we put special emphasis on the politics of code/software, because of its prescriptive nature. To elucidate; code is *performative* (meaning it runs on hardware and executes certain actions, simulates what a user sees and engages with) but, more importantly code is *prescriptive*, because through software the range of possible uses of hardware is defined (Fuller, 2008). Without diminishing the way end users may appropriate a device, we stress that the range of affordances are encoded through software that depending on the techno-legal status (proprietary, open source, or free/libre) carry different power arrangements with respect to access and ownership. Without further speculation we uphold, that code/software has a critical functioning in much of current infrastructure, and areas of social life (Berry, 2011; Manovich, 2013). Not merely due to our reliance on code-mediated technologies, but inherent qualities of code (as means of delegating agency and prescribing affordances of technologies), we argue, that software production needs to be closely studied and examined with respect to concepts such as power, ownership and access.

To sketch a broad picture, nowadays, similar to the PC domain, we can talk about a number of locked-in mobile platforms, which not surprisingly are structured around Operating Systems (OS), often written in different programming languages, owned by competing corporations on the market (Mosemghvdlishvili & Jansz, 2013) and made not interoperable (meaning, an app written for one platform cannot run on another, without rewriting it in the respective computer language).

With respect to distribution, Google’s Android retains the largest market position. From 2012 to 2017, between 59% and 85.9% of the globally sold mobile devices came with Android preinstalled as the main OS (Statista, 2018). For an advertisement and search company, that was a new actor in hitherto concentrated telecom market (for an overview of Goggin, 2010), entering the mobile domain without any previous expertise or assets, and gaining such dominance was impressive but not surprising. Through political-economic analysis of Android Spreeuwenberg and Poell (2012) proposed, that such dominance was achieved by Google strategically adopting only ‘certain open source practices’ and negating others. The conglomerate (later renamed into Alphabet Inc.) bought the OS from a start-up for an undisclosed sum already in 2005, and in two years released to the market along with the members of the Open Handset Alliance¹ (OHA) as ‘the first truly open source and free platform for mobiles’ (Google Inc., 2007).

Despite being marketed as ‘open’, the company’s open source practices were contested by Free and Open Source Software (F/OSS) activists and tech commentators (Amadeo, 2013; Carmody, 2011). A year after Android’s introduction, the FSF European branch started a campaign ‘Free You Android’, producing texts as well as instructions on how

to liberate Android devices by installing free software on Android powered devices. As of writing this version of the manuscript, the campaign is still active and run by volunteers.

To explore subtleties of open source practices for mobiles, we deligated the two organizations and comparatively studied texts about Android published by Google Inc. and the Free Software Foundation Europe (FSFE). These two organizations stand in sharp contrast in how they articulate the meaning of Android in particular, and software/code more broadly. This was chosen deliberately, as by juxtaposing appearing in opposition discourses we aim to produce an insightful critique on how open source is understood today in the mobile domain, and more importantly what the consequences are of different articulations of mobile code.

With this in mind, we explore through discourse analysis how Android is signified by the two organization using analytical tools drawn from political discourse theory (Glynos, Howarth, Norval, & Speed, 2009; Howarth, 2000, 2005; Torfing, 1999, 2005). Before delving into the methodology, we will first briefly review differences between open source, free, and proprietary software, and how these are formed by assigning different software licenses.

Primer into F/OSS

In a nutshell, free and open source software (F/OSS) is software that is distributed with source code (human readable instructions on how the program is written and what it does), and potentially means that code literate individuals can see what the program effectively *is*, and not only how it performs or appears.

The difference between free software and open source is often vague. Technically, both require the source code to be accessible for modification. However, the terms and conditions relating to how these modifications can be further distributed draws a line between copyright and copyleft licenses, and lies at the core of understanding the subtle differences between what came to be named as free/libre software on the one hand and open-source software on the other, while both are opposed to proprietary software.

To trace back the current situation, where we have various forms of software development and distribution (proprietary – a.k.a copyrighted with closed source code, open source, and free/libre) we need to make a short detour into the construction of intellectual property in relation to code. To explain; initially, the software was not copy-rightable, and supplied together with hardware. However, in 1980, Congress of the United States included ‘computer program’ in the list of copyrighted goods (under Title 17 of the United States Code, which outlines copyright law) and effectively enabled companies to start selling software (Lemley, 1995). As a result, over past 25 years, most software was pushed to the market under proprietary licenses (e.g. Microsoft’s Windows, or Mac OS X) and the software industry became one of the largest in terms of accumulated capital.

The F/OSS movement was a reaction on commodification of software and enclosure of source code through intellectual property; however there came to be a difference between free/libre and open source software. Following the change in copyright law, in 1985 Richard Stallman founded the Free Software Foundation, an organization that became a flagship and vocal actor for the movement. The term *Free Software* was defined as a set of principles that guaranteed to:

- (1) use a program for any purpose, without restrictions, such as date, purpose, or geographic area,
- (2) study workings of a program and adapt to own needs, without placing any legal or technical restrictions to access and modify the source code,
- (3) improve the program, and
- (4) release it back to the public, so that the whole community benefits (known as the reciprocity principle) (see also: Chopra & Dexter, 2011; Sullivan, 2011; Wolf et al., 2009).

What came to be referred as *Four Freedoms* was legally protected by activists into copyleft license, namely the General Public License (GPL) and its later versions.

The term *open source*, as such was coined later in 1998 by Eric Raymond, shortly after Netscape Communications Corporation announced that it was releasing source code of its browser (Mozilla) freely on the internet, which many perceived as untapped business potential of free software. In the original essay 'Goodbye "free software"; hello, "open source"' Raymond (1998) argued that there were two problems with *free software*; first it was a 'confusing', and 'very ambiguous' term, and second, it was making 'a lot of corporate types nervous'. Therefore, to 'make serious gains in the mainstream business world' a 'new and better label' was necessary (Raymond, 1998).

However, open source was not merely a new label, its definition outlined in 10 criteria by the Open Source Initiative (OSI, an organization founded by Richard Raymond and Bruce Perens), and most importantly it shifted from the above mentioned *four freedoms of users to the right of producer to freely distribute* (sell or give freely away) such software. Respectively, in the past years, myriads of open source, and permissive licenses were also developed, which require the source code to be accessible, but do not restrict how this can be distributed.

To recapture, without introducing copyleft, it is not possible to differentiate within F/OSS software. Copyleft is an antipode of copyright: as it 'uses copyright law, but flips it over to serve the opposite of its usual purpose' (Kleiner, 2010, pp. 36–37). In other words, copyleft claims ownership legally, but practically renounces it by giving everyone the right to use, modify, and distribute code, but with a responsibility to share alike. This is called the *reciprocity principle*, a term coined by the FSF to denote such obligation that if one modifies free software, the derivative works must be released under the same terms (so that others will also benefit). Hence, by guaranteeing reciprocity, the free software activists try to preserve the common pool of resources and prevent the fruits of the labour of a community from being enclosed by permissive or proprietary licenses.

In such a line of reasoning, we can differentiate between proprietary and free/open source (F/OSS) software based on whether access on source code is given. And within the F/OSS software, further distinguish depending on whether the reciprocity principle is enshrined in a license or not, between *free software* (e.g. GNU General Public License – GPL) and *non-free/permissive* licenses (e.g. Apache 2).

Why such scrutiny of licenses is needed is determined by their ramifications, because alongside Kelty (2013) we maintain that software produced under such different licenses, albeit both being open source, benefits different actors (see for a critical review of F/OSS Kelty, 2013). In other words, the permissive licenses do not require adaptations to be redistributed back under the same terms, this enables making adaptation of software proprietary again, hence what was developed by the community for free, or released in public domain

can be enclosed by a private party and commodified. With respect to licenses, Android is an interesting and peculiar case; the OS was built around the Linux kernel, which is protected by a copyleft license (GNU GPL version 2). However, most of the remaining code that makes up the OS was released by Google under a permissive license (Apache 2).

With this in mind, we focus on Android, which is open source and commonly perceived to be a free OS for mobiles. Using the analytical tools of political discourse theory, we examine comparatively texts produced by two organizations, the conglomerate Google and a non-profit advocacy group, the FSFE.

Materials and methodology

Political discourse theory

Analytically, in this paper discourse is understood as a temporarily established totality of meaning, where each sign is in a certain relationship to other signs. It represents a particular view of reality, often masking the ethico-political subjectivity of an articulatory practice. There are various ways to conduct a discourse analysis (for a review see: Glynos et al., 2009; Jørgensen & Phillips, 2002), but we draw on the analytical tools of Political Discourse Theory (Howarth, 2000).

Political Discourse Theory was originally developed by Laclau and Mouffe in 1985 through a genealogical analysis of Gramsci's concept of hegemony ([1985] 2001); this way of analysis came to be referred to as the Essex school of discourse. Over past years, it has been applied across different disciplines: policy studies (Howarth, 2005; Mangalousi, 2013; Rear & Jones, 2013), media studies (Carpentier & De Cleen, 2007; Carpentier & Spinoy, 2008), and technology studies (Berry, 2004; Dahlberg, 2010). The theory is primarily a social theory that stresses the radical contingency of the social, and maintains that all social phenomena are discursively constituted. This does not imply that the existence of material reality is denied; rather, the existence of meaning formation about it outside discursive practices is rejected. Consequently, within the rationale of the theory, all natural, social, and physical objects or phenomena are treated analytically as discursive, constructed within a discourse, and subject to a discourse analysis.² This theoretical abstraction is a necessary precondition for a discourse analyst to engage in the study of texts.

The reasons why we chose the PDT is that it provides analytical tools to dissect the formation of *any* discourse by looking at how each signifier is related to another and what holds this relationship together (nodal points). Unlike another dominant approach, the critical discourse analysis, in our study we do not trace linguistic elements and modes, but dissect texts in order to identify what holds a discourse together, and how key signifiers relate to each other.

Analytical tools

The primary concept that enables differences between discourses to be analysed is through identifying *nodal points* which, according to Laclau and Mouffe ([1985] 2001), are key signifiers, namely a type of privileged sign, which redefines the meaning of other signifiers by becoming centre-points of a discourse. The fixation of nodal points in a certain relationship to other signifiers organizes discourse and is known as articulation.

Discourse theory maintains that any articulation is inherently a political act, as it establishes a particular relationship between signifiers. Laclau and Mouffe further develop this, maintaining that establishing a relationship between different signifiers is possible through the logic of equivalence or difference. The former articulates a certain sameness between different signifiers, whereas the latter dismantles existing differences among signifiers and mitigates them. These practices are at the core of signifying the identity of any object or subject. Exploring the key signifiers (and nodal points) and the logic of signification (equivalence or difference) through which they are related to each other enables a researcher to study the formation of different discourses. In our study, we adopt the same analytical strategy to understand *how Android is articulated in relation to other signifiers, and whether this process is different between texts produced by Google and the FSFE*.

Political discourse theory departs from the orthodox Marxist understanding of identities as determined by a pre-existing structure (e.g. class as determined by an individual's relation to the mode of production: capitalist vs. working class); instead, it sees identity formation as a contingent process where individuals (and groups) identify with discursively formed subject positions. A *subject position* thus captures an individual's (or group's) position within a discursive structure. Discourses also include 'social imaginaries', which are defined as visions on how a particular aspect of social life or society as a whole should be structured (Dobbernack, 2010). Analytically, we will use these concepts to explore what subject positions are formed in the examined texts, and whether views (social imaginaries) about mobile code differ between Google and free software activists.

Exemplary texts and analysis

The discourse analysis at hand is a contextual interpretation of the textual elements (chains of significations, key signifiers) that were identified in exemplary texts.

The material comes from a textual corpus that was collected for a PhD project between 2012 and 2015.³

In Table 1 the exemplary texts are described and their source, word count and retrieval date are noted. These discursive moments were chosen because they addressed one of the three themes, that were identified for this inquiry: signification of Android, possible subject positions in relation to Android, and social imaginaries regarding mobile technologies.

The textual material selected to capture the discourse associated by Google Inc. included the first press release published together with the OHA members. It introduced Android and was widely shared in online media. The material further included webpages of the Android Open Source Project, and a blog post on the Android's official blog by Andy Rubin, former SVP of Mobile and Digital Content, at Google Inc. The exemplary texts from the Free Software Foundation comprised the webpage of the campaign 'Free Your Android', and an article written for The Guardian by the president of organization Richard Stallman 'Is Android really free software?'. The article was discussed by FSFE volunteers and used as input for structuring the text for the aforementioned campaign.

During the process of analysis, the texts were explored on the sentence, and word level; (a) key signifiers and chains of meaning (equivalence or difference) were identified in each exemplary text, (b) nodal points were identified within each text and compared across texts, (c) identified key signifiers (and nodal points) were then compared across producers

Table 1. Description of exemplary texts.

#	Author/Organization/ Affiliation	Type of document	Word count	In-text citation	Original source
1	Google Inc.	Press release	3560	(Google Inc., 2007)	Industry Leaders Announce Open Platform for Mobile Devices Group Pledges to Unleash Innovation for Mobile Users Worldwide. [Press release]. Retrieved September 9, 2015, from https://googlepress.blogspot.com/2007/11/industry-leaders-announce-open-platform.html
2	Google Inc.	Webpage	567	(‘Philosophy and Goals’, 2012) ^a	Philosophy and Goals of Android Open Source Project. (2012). Retrieved September 11, 2015, from http://source.android.com/about/philosophy.html
3	Google Inc.	Webpage	554	(‘Peoples and Roles’, 2012) ^b	Peoples and Roles of Android Open Source Project. (2012). Retrieved July 4, 2013, from http://source.android.com/source/roles.html
4	Free Software Foundation Europe	Campaign Website	1055	(FSFE, ‘Free Your Android!’, 2012)	Free Your Android! – FSFE. (2012). Retrieved September 10, 2015, from http://fsfe.org/campaigns/android/android.html
5	Rubin, A. (SVP Mobile and Digital Content, Google Inc)	Blog Post	1083	(Robin, 2012)	Rubin, A. (2012, September 14). The Benefits & Importance of Compatibility. Retrieved August 23, 2015, from http://officialandroid.blogspot.nl/2012/09/the-benefits-importance-of-compatibility.html
6	Stallman, R. (President, Free Software Foundation)	Article	1522	(Stallman, 2011)	Stallman, R. (2011, September 19). Is Android really free software? Retrieved November 1, 2015, from https://www.theguardian.com/technology/2011/sep/19/android-free-software-stallman

^aAs of 14 November, 2017, the URL is not accessible. The page has been renamed into ‘Governance Philosophy’ and assigned a new address <https://source.android.com/setup/#governance-philosophy>.

^bAs of 28 March, 2018, the URL is not accessible. The page has been renamed into ‘Project Roles’ and assigned a new address <https://source.android.com/setup/start/roles>.

(Google and FSFE). While interpreting the meaning of the signifiers and the ramifications of particular articulations, we drew on the contextual knowledge that was gathered by reading the whole textual corpus as well as relevant academic literature on the political economy of Android. In the coming section, we first present the textual analysis; the key signifiers and relations between them, followed by discussing what such discursive formations entail.

Signifying Android

Google: Android is open, but compatible

The key signifiers, as identified across the exemplary texts that define Android through their chains of equivalence are: open (-source,-platform, -ecosystem); software product/stack; and compatible.

Android is primarily presented as open, whether it is a platform or (in later texts) an ecosystem. It is referred to as ‘intentionally open’, ‘first truly open’, ‘with [a] new level of openness’, and ‘pragmatically open’ (Google Inc., 2007).

Open itself is empty of meaning, and Google draws on two chains of equivalence to anchor its definition: (a) open is a platform protected by an open source license; and (b) open means freedom to collaborate (enabling freedom of use and customization). By open source license, Google refers to Apache 2, which is applied to a significant part of the OS, but does not fully cover all of its parts. To clarify, the architecture of the OS is comprised of different layers of code: the Android Open Source Project (AOSP) is covered by Apache 2; the Linux kernel is protected by GPL; and a whole range of Google's services come as proprietary apps (e.g. Gmail, Google Maps, and Google Play). This aspect is important to note as it ignores the existence of proprietary elements in what is marketed as an open source platform.

The signifier 'open' is pivotal in constructing the meaning of Android, also because it is put forward as a solution to a problem which justifies why Android was created in the first place.

We [Google] created Android in response to our own experiences launching mobile apps. We wanted to make sure that there would always be an open platform available for carriers, OEMs [Original equipment manufacturers], and developers to use to make their innovative ideas a reality. We wanted to make sure that there was no central point of failure, where one industry player could restrict or control the innovations of any other. The solution we chose was an open and open-source platform. ('Philosophy and Goals - Android Open Source Project', 2012[AQ7])

As a result, a strong chain of equivalence is constructed between being an open platform (protected by an open source license) and enabling collaboration; collaboration itself is casted as a condition for innovation. Google as a company is positioned as an enabler, curator, and literally the 'shepherd' of the open platform (Robin, 2012). On the other hand, Google emphasizes that an open platform is necessary to prevent one player's control over the market. Notwithstanding this, when juxtaposed with the market reality (that is, the distribution of operating systems), Google has a dominant position in the oligopolistic market of mobile Operating Systems, being able to control its ecosystem effectively.

With respect to the constructed chains of difference (what Android is not, or is different from) in Google's texts, we observed a difference between talking about open source and free software, which is not only marginalized (excluded from the universality of the open platform), but also antagonized. This stands out in Google's explanation of its choice of license:

Android is intentionally and explicitly an open-source, as opposed to free software, effort: a group of organizations with shared needs has pooled resources to collaborate on a single implementation of a shared product. ('Philosophy and Goals - Android Open Source Project', 2012)

In other words, Google presents Android as an open source platform, including the efforts of the developers' community and industry players. At the same time, it excludes 'free software'; through the logic of difference, free software is relegated to the margins. In discourse theory's terms, this exclusion creates a new (antagonistic) polarity in which open source \neq free software. This polarity conflicts with the technical understanding of these concepts in which open source and free software are more similar than different, as they are both based on access to the source code, as well as on community driven development.

From product to ecosystem

The second key signifier defining Android is a *software product* (alike labels were 'holistic software product', 'integrated software stack', 'single product', and 'shared software

product'). Google puts most effort into discursive moments to fix the meaning of Android as being both an open platform (guaranteed with an open source license), free to any modification and usage, while at the same time presenting it as a 'holistic product' (Robin, 2012). Treating multi-layered, vast lines of code as one single product discursively dismantles differences between parts of Android that are legally licensed under distinct agreements, and positions the whole OS as one commodity.

There emerges a logical inconsistency between having an open platform that is available for modification and one single product. The way it is discursively achieved is by problematizing *the freedom to use and customize the OS*, as leading to fragmentation (of the OS) and negative user experiences as a probable consequence. The constructed danger then is resolved through the third signifier, *compatibility*, which redefines what it means to be open, and serves as a nodal point.

Compatibility

Anyone can (and will!) use the Android source code for any purpose, and we welcome all such uses. However, in order to take part in the shared ecosystem of applications that we are building around Android, device builders must participate in the Compatibility Program. ('Philosophy and Goals - Android Open Source Project', 2012)

In Google's usage, compatibility is not only a discursive construct, but also a legal-technical configuration. It consists of the Android 'Compatibility Definition Document' (CDD), which lists what it means to be Android compatible, and a downloadable program, the 'Compatibility Test Suite' (CTS), where developers can test the compatibility of their apps.

Devices that are 'Android compatible' may participate in the Android ecosystem, including Google Play; devices that don't meet the compatibility requirements exist outside that ecosystem. In other words, the Android Compatibility Program is how we separate 'Android-compatible devices' from devices that merely run derivatives of the source code. (Robin, 2012)

Compatibility becomes a condition that allows the use of Android's source code; i.e. anyone can download, modify, and use the source code. In fact, this is confined to the AOSP, which excludes Google's apps. An inevitable consequence is that, without agreeing on compatibility and signing the compatibility document, the layer that is normally associated with the basic functionalities of a smartphone is excluded.

FSFE: Android 'almost free'

In the texts produced by FSFE, Android is primarily deconstructed through its negative relationship to 'free software'. The signifiers that emerge as key are: *free (vs. non-free software)*, *privacy and control*.

'Free' is the primary signifier used by the FSFE to deconstruct Android as is illustrated by statements like 'it is almost free', 'a mostly free operating system mainly developed by Google' (FSFE, 'Free Your Android!', 2012). The signifier stresses the idea that the OS is only partially 'free'. What is free, as explained in the campaign, is only a part of Android, known as the AOSP, which releases the source code of Android after each major update has been completed. Developers can then download the source code, use and modify it under the Apache 2 license. Despite this, it is stressed that it is not possible to run devices on free software, because all Android devices come with preinstalled proprietary drivers (the so-called firmware, which is a small segment of software that enables phone

manufacturers to start the OS) and Google's proprietary apps (Google Maps, Gmail, Google Play, etc.).

The FSFE campaign evokes discourse on free software and refers to the established definition of the four freedoms as formulated by Stallman in 1986 in the GNU bulletin (see above). In FSFE's texts the four freedoms are enacted, and all non-free software is articulated as endangering democracy. This claim is based on two arguments, notably that non-free software is dangerous for democracy because it violates the four freedoms, and second because it threatens users' privacy. The first argument is consistent with the early discourse on free software (see Berry, 2004). What is new, though, is relating free software to privacy.

Privacy and control

The threat to privacy is stressed as being more dangerous and pervasive because smartphones are personal devices, carried around by a user in almost all social settings.

Most users do not have full control over the personal data on their device. Convenient solutions for synchronisation and data backup trick more and more people into storing all their data on centralised servers run by some profit driven corporation. These are usually based in the US and are required to hand your data over to the US government on mere request. Whoever has personal information about us is able to manipulate us. Therefore, non-free devices are a threat to democracy and to our society. (FSFE, 'Free Your Android!', 2012)

This quote explicates the claim that proprietary devices and software are designed to hand data to private corporations. Despite the fact that the exemplary text was produced by the European branch of free software foundation, we see a reference to the US government. Here, the authors probably hint at the NSA mass surveillance programs in the USA that were exposed by Edward Snowden in the same time period as the campaign text was written.

What we found peculiar in the way the meaning of privacy was constructed in the campaign texts, was the absence of any reference or an attempt to establish a chain of equivalence with appropriation of user data for profit interests. Needless to remind in this context, that Google's business model is primarily driven by advertisement fees (see, Fuchs, 2012), which is made possible through harnessing data from its (free of charge) services like Gmail, Google Play, Google Analytics, etc. Nonetheless, a critique of such appropriation of user data by private corporations was not present in activists texts.

Unlike Google's use of the word, where *control* is understood as a necessary obligation for Google to prevent fragmentation of the platform into many incompatible parts, the digital rights activists perceive control as a user's right to 'truly' own the devices they have purchased.

Subject positions

After pointing out the differences in how Android is presented by the two organizations, we now proceed to identify the *subject positions* that are formed within the documents we have analysed. Both organizations use the omnipresent 'we' as a rhetorical tool, but investigating who is considered to be part of the 'we' shows that Google and the FSFE have different communities in mind.

Google: everyone is a contributor

While promoting Android as a truly open OS where everyone can use the code, but also maintaining a strong control over the platform, Google had to reconcile openness with control.

Android's official site, next to a page with the title 'Philosophy of Android' (where the choice of license is explained), is a webpage 'People and Roles' (solely dedicated to possible roles that one can take in relation to writing code for Android). Table 2 presents the roles listed by Google, which are assessed in terms of the four freedoms (to use, to study, to modify, to integrate/publish back changes in the OS), and indicates the organizational boundaries of Google. While everyone is enabled to *use* Android (and contribute code to it), reviewing and accepting code for the AOSP is a role exclusively reserved for Google employees ('Peoples and Roles of Android Open Source Project', 2012). This is a crucial distinction, because on the one hand the *contributor* emerges as a new subject position and dislocates and mitigates existing differences between various groups (e.g. between the handset manufacturers and independent developers) who use and write code for Android.

FSFE: we the community

Much like Google, the FSFE also uses the 'we' identifier when referring to a 'community'. Instead of a *consumer* or an *end-user*, the FSFE refers to the same individuals as *users* and *citizens*. The activists present the community as inclusive, as they aim to include a wide range of users. In the campaign texts, it is explicated that, it is not anymore necessary to be a developer or code-literate to be part of the community. 'Even though you may not have the skills to directly exercise all of your freedom, you will benefit from a vibrant community that can do it together' (FSFE, 'Free Your Android!', 2012).

In terms of antagonisms between groups, the FSFE antagonizes users' interests against corporate interests (referred to as: 'companies such as Apple', 'profit-driven firms'). This is in stark contrast with Google's articulation, where the relationship between consumers and industry is neutralized to a degree that there are no conflicts of interest and the only threat is monopolization of the market and/or fragmentation of the platform, which according to Google would result in a bad user experience.

Social imaginaries on mobile technology

'Entertainment gadgets' versus 'powerful tools'

In terms of social imaginaries on mobile technology, both discourses are embedded in the understanding of technology as something utilitarian, in particular as 'tools'. However, there is a difference between how Google and the free software activists give meaning

Table 2. Division of roles in relation to the code production of Android.

Signifier	Use	Modify	Contribute changes	Integrate/publish changes	Employed by Google
Contributor	Yes	Yes	Yes	No	n/a
Developer	Yes	Yes	'Missing'	'Missing'	n/a
Verifier	Yes	Yes	Yes	No	Yes
Approver	yes	Yes	Yes	No	Yes
Project lead	yes	Yes	Yes	Yes	Yes

to the same technological artefact: smartphones. While Google emphasizes the entertainment aspect of smartphones, naming them as a new 'consumer gadget', which is tied to fun and the communicative needs of users, free software activists emphasize the computer-like functionality and the private character of these devices. The FSFE volunteers deliberately avoid the word smartphones (due to its commercial connotations) and refer to devices as small computers so as to stress the relevance of having free software for mobiles. Through Google's texts, technological artefacts appear as neutral end products, which are a response to harmonized market relations (industry responding on consumers' needs). Meanwhile, in the FSFE texts, the same relationship is problematized because the Foundation advocates that control must be relegated from centralized corporate actors to individual citizens. In addition, FSFE argues that the corporate capturing of user data damages the control citizen have over their privacy.

Discussion

Our analysis shows that Android is only *conditionally open*. This is because, Google does not involve developers directly in the modification of the OS, which is one of the key features of open source development, and secondly, in order to write an app for Android an individual developer or enterprise must agree to the requirements of the Android Compatibility Program. When developers do not agree, their access to the functionalities of an Android smartphone is very limited, which makes it almost impossible to build attractive apps (e.g. without push notifications, integrated location). In the political discourse theory terminology, one could argue that Google's use of *open source* resembles a hegemonic intervention (Mouffe, 2008), where a particular understanding is anchored, through other means rather than only discursive. In this case, such means can be captured through a techno-legal obligation to agree to Android's compatibility program.

In addition to restricting access through Google's compatibility program, releasing the AOSP under a permissive license is arguably negative for the free software community, because instead of 'freeing information' such licenses may provide more shades of ownership and producer-control (Kleiner, 2010, p. 35). Likewise, one may argue that by adopting an open source but permissive license instead of a free software license, Google is able to benefit from the contributions of the open source community, without the obligation to reciprocity.

On the other hand, the discourse on free software in the mobile context bares the same rationalization as in the context of personal computers (Berry, 2004). The definition is anchored in the developers' four freedoms and formulated within a human rights framework. However, we also saw an attempt to connect 'free software' to the protection of the privacy of users, due to the personal character of mobile devices and alleged surveillance practices by corporate and governmental actors. This can be seen as a response to expanding the discourse on free software into an 'emancipatory struggle' (Sullivan, 2011).

Nonetheless, from our perspective, this fails to provide a solid rationale for the call for the democratization of technology and increasing social control of production of code. We suggest that stressing the prescriptive function of code (comparable to law) will enable digital rights activists to increase the relevance of the call. So, reconceptualizing code as inherently political, where the political aspect is defining the meaning (or affordances) of the technologies, can potentially increase the significance of free software for the

wider public. We argue that this can be further developed to provide a more rational and emancipatory view on code, which escapes both the cunning de-politicization of the development of technologies by Silicon Valley companies and avoids claims on the rights and duties of neoliberal subjects.

Conclusion

This paper focused on the discursive construction and contestation of Android, a particular (yet dominant) operating system for mobile phones, between two organizations: Google Inc. and the Free Software Foundation Europe (FSFE). Using analytical tools from political discourse theory (key signifiers, nodal points, chains of signification), we dissected texts produced by these organizations to understand how these actors construct meaning of Android vis à vis ownership and control of (mobile) code.

Texts produced within the organizational boundaries of Google and the FSFE show evident antagonism and are embedded in opposite discourses. Google evokes and draws on discourse on open source and marginalizes free software as an effort outside a new community (of ‘contributors’ to Android). The FSFE’s texts, on the other hand, are explicit in their opposition to open source and contain strong deontological claims. Yet what unites them is that both are rooted in certain individualistic, liberal understandings of social relations. On the one side, the justificatory horizon is captured by consumer rights (and needs), and on the other by the rights of users (developers).

Through our discourse analysis we explicated that Google promotes Android as an open platform, but through its use of compatibility redefines the meaning of such. Free software activists on the other hand expand discourse on privacy and problematize the absence of free software as a danger to democracy, yet do not address the commodification of user data by platform owners like Google.

In closing, if we take into account the market position of Android in relation to other mobile operating systems, we can argue that, in contrast to the OS market for PCs, we see a dominance of open source in mobiles. However, the open source development of Android is under the tight corporate control of Google. If we rephrase this in metaphorical terms, Android is still a cathedral rather than a bazaar,⁴ however everyone can contribute to it, either by writing code actively or by using Google’s ‘free’ services.

Notes

1. The OHA was formed by Google’s initiative and comprised 34 members; among them are the handset manufacturers, HTC, Motorola, Samsung Electronics, and LG; large mobile carriers such as T-Mobile; and content providers. Currently, the consortium includes 84 companies and provides a segment of the mobile industry that is grouped around the free (as in no costs) Android operating system.
2. Laclau and Mouffe ([1985] 2001) clarify that by arguing ‘that every object is always constituted as an object of discourse’, the existence of the objects external to thought is not denied, but rather the very assertion that ‘that they could constitute themselves as objects outside any discursive condition of emergence’ (p. 108). For example, an earthquake is an event that certainly exists in the sense that it occurs at a certain time and place, but whether this event is constructed in terms of a ‘natural phenomenon’ or ‘expression of the will of God’, is discursively constituted.
3. Namely, all press releases from Google’s official blog that mentioned mobile or Android, and all pages of the Android’s official website were retrieved and stored. Likewise, all main pages

of the campaign 'Free Your Android' published by the Free Software Foundation Europe, as well as email newsletters of the campaign used by volunteers to discuss practical matters, were retrieved. Due to absence of explicit informed consent texts retrieved from the internal email newsletters were not used as exemplary, however, contextual information acquired by reading them closely was actualized in the analysis process.

4. The metaphors of 'bazaar' versus 'cathedral' were used by Raymond (2001) to denote different methodologies for producing software: open source versus closed/proprietary.

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