Captured!

By Fako Berkers

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Currently Google and Facebook are very concerned about privacy. They want to make sure their users trust them with handling anyone's privacy. This results in a discourse where these service providers negotiate the terms of service (Facebook, 2011) and users can control automated tracking (Google, 2011). These measures tie into a certain perspective of privacy where the main concern is that third parties can access this data and use it into their advantage. Third parties may act as surveyors and this brings to mind symbols from literature like Big Brother and Bentham's Panopticon, which dystopia should be avoided according to a lot of people. Also in my opinion it is important to somehow regulate these company policies. However third parties accessing your personal data is not the only thing at stake here and with this essay I hope to draw attention to issues less known to the public at large.

I'm going to explain how computers function at a code interface. This will reveal some of the gory details of technology that most want to stay away from. Unfortunately it is necessary to do this, because only then can you grasp the phenomenon of "grammers of action" as described by Philip Agre and how these function in the case of Facebook and Google. Then you will understand why keeping personal data private is only part of a bigger problem namely that surveying systems (like Facebook and Google) function as sociotechnical structures which impose a vision off the world upon others and thereby directs their activity.

The word digital says it all! Digit means number. Everything in the "digital world" is nothing more than numbers. A computer used to be a person who performs mathematical calculations (Wikipedia,2011). The computer we know today is different in a few ways from it's human counterpart; the most famous one is that it uses a binary numeral system instead of the decimal numeral system. Instead of 10 different signs to represent a number the computer only uses 2 signs, the well known one and zero (Wikipedia, 2011). The binary number 01000001 is the same as the decimal number 65.

If the ones and zeros in computers only translate to numbers; how is it possible this text is written with a computer? That is because the number 65 represents the letter A (Wikipedia, 2011). Every "letter" in a computer is actually a number and the same is true for "pictures". A digital picture consists of small dots (pixels) and each dot is represented by four numbers. Number one indicates the amount of

red the dot should contain, number two the amount of green and number three the amount of blue, while number four (a newer invention) represents to which extend dots should be transparent (Wikipedia, 2011).

Computer code is a way for a human to talk to the computer in order for the computer to do the calculations the human wants it to do at a time the human designates.

A famous "language" to write computer code in is C/C++. It is in fact the foundation for PHP (Wikipedia,2011) which was used to create Facebook (Facebook, 2011) as well as Go the language used at Google (Google, 2011).

A programmer writing in C or C++ can declare how they are going to use the computers memory (Stroustrup 2002). It comes down to a human telling a computer that a portion of ones and zeros with a certain size will be used to represent a number or a letter. If memory represents a number then the type of this piece of memory is "number". The amount of basic memory types is limited. It is possible to some extend to create new types in C, with C++ creating new types is an important feature of the language (Stroustrup 2002). If somebody uses C++ or any language based on this language it's very easy to declare that the type of a piece of memory is "picture". The programmer will have to specify how memory of the type "picture" should behave (for instance when it gets displayed on the screen). In practice programmers often borrow each other's user-defined memory types or "classes" as these types are called in jargon.

When designing a system a programmer tries to "cleanly express particular semantic notions or distinctions" by "classes capturing the distinction" (Agre, 1994, p. 744). In a way programmers are busy with ontology and determine what can exist in computer memory and what is left out. The programmers call this process "capturing the world" (Agre, 1994). In the case of Facebook programmers may have used a different class to represent an advertisement image than the profile image. Maybe an advertisement image measures how long the mouse is pointing at it, while profile images have the option to be liked. Users may want to know how long their friends hover over their photo's, to get an idea of how popular they are, but the ontology of Facebook, expressed in classes (memory types), is unlikely to support such wishes.

Classes are not restricted to representing the things we all now from computers like numbers, text, images, sounds and videos. They can also express or capture human behaviour. In order to represent

activity in ones and zeros a grammar of action is used in almost all practices (Agre, 1994). A grammar of action limits the human behaviour that the computer will recognize and can compute with.

Consider for instance a system for toll payment on a highway. You can enter and exit the area where a toll is charged and you can travel across segments of roads where you'll have to pay for. These are the only actions necessary to make the computations in a toll system and thus the grammar of action, known by the computer through the programmed classes, is likely to be limited to these actions (Agre, 1994). Making a u-turn, getting lost and driving around aimlessly will not be captured by the system if these actions are not explicitly in the grammar. Any distance travelled in these ways will then be charged as if the driver was behaving according to the grammar derived from the usual behaviour that drivers show.

Google and Facebook have each their own grammar of action. These grammars limit and to a certain extend dictate how we interface with these platforms. Because these systems are embedded in society they also partially determine how we interface with society. Agre has mapped out several ways of how a socialtechnical structure can alter social behaviour and I will describe how these changes also occur now with Facebook and Google.

According to Suchman and Jordan (quoted in Agre, 1994, p.747) "grammar of action frequently oversimplifies the activities they are intended to represent. This can be due to the fact that the people who articulate the grammars are only superficially acquainted with the actual complexities in the activity." and "The ontology may fail to make enough distinctions, whole subcategories of "invisible" activity might go unrepresented" (Agre, 1994). This limits a user in its interactions with the system.

In the case of Facebook clearly a oversimplification exists. You're allowed to poke, have a status, make friends, upload photo's and many more things, but touching one another is not part of the captured world inside the system. You can also like stuff like movies, music, books and television, but no one can like plants or idea's (Nybooks, 2010a). The digital world of Facebook strongly resembles the world of an American Harvard student, yet 500 million people use the same ontology world wide to interact with each other. It's evident that the person who created the ontology (Mark Zuckerberg) has only a superficial idea about what social relationships are and instead focuses on connectivity, making it a goal in itself without taking in the quality of the relationships involved (Nybooks, 2010a). It's hard to blame Zuckerberg though, because I'm sure that the person who does understand the true social graph completely will win many scientific prices and probably the Nobel Price for Peace in the long run.

Google also oversimplifies it's grammar, but it's harder to notice because it's only shown in an indirect way. The market where Google makes money is advertisement and the reason why they are successful is that people who are searching for something are sure to be in a market for the same thing or something that relates to it (Nybooks, 2010b). The profile programmed to hold our search and other Web interests is optimized to serve marketeers who want to target the people behind these profiles with advertisements. This means the profile will omit all our activities that are unlikely to be useful for marketing purposes. A strong simplification which may mean we are missing out on interesting stuff. In my previous essay I argued that Google was too cheap in not sharing their profit with the persons behind the profiles without which no money was earned in the first place. Apart from this Google is also too boring, because their design leaves out fun for users by oversimplifying people with their design.

The willingness of Google to adapt in favour of people who own capital is also shown in the way Google lays out it's results. On top are always the "sponsored links" which are commercials bootstrapped to your search interest. Imagine going in to a library where the first three or seven books under each letter are filled with things that people want to sell you. Gradually and therefore without us realizing it Google has rearranged the way we search in such a way that it can be monetized. However the way that Facebook rearranges connectivity and other platforms before it is much more intrusive.

One of the bigger changes in the way we connect to friends, family and other kinds of relationships occurred before Facebook with chatting. Suddenly a sort of square was created where people that you know can be "online" or "offline". This is a whole new form of presence and it's hard to say to what extend this changes friendships, but it's clear that you can have short meetings in between your normal routine that were not possible before. This is already a restructuring of the concept of meeting. But chatting can also easily distort the relationship itself. Chatting on Facebook mimics a conversation but without visual and auditive feedback from our friend. This restructures habits in communication significantly. We dare to say more things, but have no clue how these things are received. This can lead to unwanted interaction and easily leads to miscommunication. Even if you're pretty sure that everything came across the right way there is just no way to be sure unless you check it over channels that are less mediated by technology.

Thus apart from oversimplification of the activity represented; a grammar of action also implies a total rearrangement of the activity as we can see in the examples above and as argued by Agre (1994).

There is another way in which sociotechnical structures articulated through grammars of action have an influence on society. In my opinion this one is the worst form. Programmers not only simplify, but they can also make logical mistakes in their reasoning how the actors involved interact. This leads to "a systematically distorted conception of the activity" (Agre, 1994, p.747)

Facebook recently changed the way how status updates are shown on a wall. Instead of showing all people on my friends list it started to only show people I frequently connect to. This to me is a total misconception of what Facebook is for. The people that I connect to frequently I will connect to with or without Facebook. The good thing about Facebook is that it also shows the activity of people who are more distant to me, but close friends nonetheless whenever I encounter them. Facebook functions great like a platform to connect to people who otherwise would have faded from my memory. Discriminating on only showing most frequently contacted friends is in my opinion a logical mistake. I have to admit I was shocked when I found out the system behaved this way and I'm glad this default "feature" can be turned off.

A "feature" from Google which actually shows an incompetence of the designers is the way in which "search results are improved for you". As you can see in the video Google will remember your search history. If you look for the word golf and you've previously searched for caddy, the algorithm will show results related to the sport golf and hide all Volkswagen results (Google, 2011). But when I'm playing golf or driving Volkswagen this does not automatically mean I'm not interested at all in the other use of the word golf. The grammar of action is that once you have the habit of using any word in a particular meaning assumes you'll never be interested in other meanings of these words. That's a flawed logic. Moreover isn't the path to a finding part of what makes it fun to search in the first place? It's again showing how boring Google really is. It's nice to be surprised about the ambiguity of words and queries can be adjusted manually without that being a burden.

Another flaw in system logic which is not only found in Facebook and Google but in other systems as well is the idea that all Web request coming from the same computer comes from the same person. Everybody knows this logic is flawed, but it hasn't been fixed in anyway. The risk of this design error is that it leaks information to people who are not supposed to know yet (Nybooks, 2010b). Birthday surprises can be ruined because adds show what has been searched for and clicked upon. A minor inconvenience I must admit and maybe a rare occasion, but a flaw nonetheless.

We trust certain people to deliver good work, but this trust is not always justified. As with all examples I give in this essay we learn to cope with the failures of representing our lives in digits, but we are not only passive. We sometimes actively resists the grammar of action, fully aware, or without

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realizing it.

Agre mentions how people can resist a grammar imposed, by delaying, changing and omitting content to the system (Agre, 1994). They can also bias judgement calls and this is what happens on Facebook. Facebook is interested in making money with their platform by selling targeted advertisements. This is why there is no "billboard" or "searched and offered" on Facebook. If you want to make something known the grammar of action seems to be that you pay Facebook who will then broadcast your message. Instead of paying Facebook users happily misuse the "notes" part to send messages where Facebook wants you to pay for. Users bias their content to be notes in order to publish it freely. It's users disobeying the sociotechnical structure, even though they may not experience it as such. Unfortunately writing on the "notes" page is not as effective as paying Facebook to spread the word.

Facebook and Google let us know they are concerned about our privacy. At the same time Eric Schmidt (quoted in Wired, 2011) let's us know that "The data suggest that people are self-violating their privacy at a humongous rate" and Mark Zuckerberg (quoted in Wired, 2011) that "The clear trend is for people to get value out of sharing more and more". This suggests that privacy is not really an issue and that it's intellectuals and academics who worry about privacy. But what is all this the data really saying?

Introducing a technological system in a social space has it's impact on that space, regardless whether the system is designed to collect personal data about people that some want to keep private. If a system doesn't have an impact at all it is unlikely to function as the designers or their clients intended it (Agre, 1994). The data surely shows that Google and Facebook have built systems that work the way they want it to work and with that it indicates that society changes in favour of these systems. I hope to have convinced others that these changes are not always for the best and deserve the attention whenever we debate Facebook or Google.

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