Exposed on Facebook

As is widely warned, your social life can easily be mapped if you are active on Facebook. This article shows how it happens. It is translated from the original in Dutch posted at Bureau Jansen & Jansen. [http://www.burojansen.nl/artikelen_item.php?id=523]

You leave metadata traces when you communicate over the internet and telephone. These are mostly individualised tracks, information about yourself and the direct contacts that you maintain with other people. Of course the results can give a picture of your social world but for that, the data must be gathered for a long time.

Individual data is hard data about where, at what time and with whom you spoke. This data can be used by investigative agencies to profile you as a suspect, a witness or an unknown participant in an event. Whether you've been around when other people said stuff, you've called someone, you've sent a whatsapp message or you received an SMS you didn't even respond to , everything gets collected for the investigation.

Metadata Collection

Data is important for prosecution in a criminal case, for the intelligence services less so. They will undoubtedly collect a lot of data but that is the nature of intelligence ('At a meeting with his British counterparts in 2008, Keith Alexander, then head of the National Security Agency (NSA) reportedly asked, "Why can't we collect all the signals, all the time?" *Washington Post* 13-05-14). This data only really has intelligence value when you follow someone's digital steps for a long time. In order to prevent attacks, data is often not that useful. It might indicate patterns, but it does not predict future actions.

On December 20, 2013 NBC News opened with: "NSA program stopped no terror attacks, says White House panel member". The *Guardian* (14-01-14) underlines this claim by stating that according to the Senate Judiciary Committee, the collection of bulk phone data has played a limited role in preventing terrorism.

The *Guardian* based its assertion on a study by the New America Foundation, which concluded that the NSA has not managed to foil any attacks. The attack on the Boston Marathon on April 15, 2013 supports that conclusion. Multiple agencies (including FBI, CIA and NSA) had monitored the suspects, but they were able still to carry out the attacks.

Two cases in the Netherlands show the same thing. The intelligence services failed to prevent the murders of Pim Fortuyn and Theo van Gogh. **(These two assassinations rocked Dutch society: Fortuyn, a controversial right-wing politician was shot by Volkert van der Graaf in May 2002 during the elections; van Gogh was a film-maker killed in November 2004 by Mohammed Bouyeri)**. The AIVD **[Dutch acronym for the General Intelligence and Security Service, ie the Dutch secret service]** was already aware of most members of the Hofstad group, to which Mohammed Bouyeri belonged. It was also known that they met in the home of Bouyeri and his address book was copied for the intelligence services by Amsterdam police. The AIVD has indicated that it hacked web forums and in addition the service most likely made wiretaps and internet taps on the Hofstad group. Yet Theo van Gogh was murdered despite this data collection by the secret service.

Open Book

This indicates that the prevention of attacks is not the most important objective of the intelligence services. They want to keep an eye on 'subversives' and the 'counterculture.' Specific information may be useful to be able to zoom in on a group but that data (metadata) is itself only partially interesting.

Take Margriet and Barbara, the two women described later in this story. Through their social media, we can see that they communicate with each other a lot, for example, most days at 4pm for about two minutes. Margriet lives in the east of Amsterdam, Barbara in the west. There is also one location posted on their social media that is shared by the two women. Laurence (the man who is also described in this story) rarely communicates with either woman, only with Barbara at certain times. The three never have group discussions.

But we have now lost the 'bigger picture' because we are zooming in directly on the individual. We've lost the 'helicopter' perspective, we're not above the person, but actually right next to him/her. For the police this is important for tracing suspects of crime, since you can precisely fix someone's life in retrospect. For the intelligence services, this data is meaningless, you're always too late, as shown by the murder of Van Gogh.

Nowadays everyone leaves a trail of data, as shown by the Snowden revelation. The government has a great passion for collecting information and that is where the 'guilt' lies in this case. This has actually been known for many years, but many seemed not to care. The discussion

about the data that people themselves generate on the internet with their own 'private' communications has faded into the background.

Information about my presence in Tesco is communicated both in a concealed manner through metadata and out in the open through our active broadcasts, like Twitter and Instagram. . If you take your smartphone on an action - for example, overturning storage shelves as a protest against the power of supermarkets - you not only have your metadata collected (without making a phone call you reveal your location), but also through twitter if you use your phone to take pictures and post them online.

That the government collects data then becomes an afterthought. Actually many people share details of their whole lives every second of the day, not only through metadata but also through 'real' data, which is easily visible on Facebook. We took three people (Margriet, Barbara and Laurence) who are politically active in alternative circles in the Netherlands and asked them if we could analyse their Facebook data. We then produced graphic images.

Who's who

Imagine you are vaguely friends with Margriet. You've never met her friends and are invited to her thirtieth birthday party. She organizes a celebration and all her family and friends come over. Even occasional friends or acquaintances are there.

If you take a photograph of the room where the party takes place, you get roughly an outline of Margriet's Facebook page. Her family is looking at each other, people from the NGO where she works do the same, squatters share the latest gossip, participants from her dance group greet one another, and others hang out in little groups. A few loners who don't really know anyone roam around.

In the course of the evening, the dance floor is the centre of the party, you can also see groups forming there. You can see on the Facebook page of Margriet that at the beginning of the evening, friends will seek each other out. This happens not just on her thirtieth birthday, but every day.

Generally, most people appear on Facebook with their full name (first and last). Also NGOs, action groups, bands, squats and alternative nightlife have a complete profile on social media. Thus it becomes obvious pretty quickly what someone has sympathy for, where he or she goes out, which squats the person knows and what actions they

supported.

It is remarkable that all these actions and NGOs are put together on the same page. There are no big companies like Coca Cola, Monsanto and Shell. The three activists clearly demonstrate their political views through their Facebook pages. Of course, Margaret, Barbara and Laurence are known to Bureau Jansen & Jansen, but even with unfamiliar activists it would be easy to draw conclusions as to their political affiliations, friends, family, employment and social network.

A squatting symbol on Facebook, for example, is something totally different than a squat symbol on a T-shirt you're wearing today. That T-shirt you wear is most probably anonymous, with no name or personal information. Using your Facebook page, the T-shirt is linked to your name, your social network, your environment. It is not anonymous and it even goes beyond your personal identification.

Not perfect

Of course, the picture is not perfect and should take into account a number of incongruities, but the graphical representation of the three people creates a picture of their lives. Upon seeing her graph, it struck Margriet that her "social network is very visible." She also noticed easily that the image is not perfect: "Funny that there are a band and a person caught here who now barely active." The picture is not precise, which leads to some comments on the interpretations.

Many communications, such as "likes" on Facebook do not mean everything. In the images the various individuals and groups are marked with different colours. Dark red is a sign of great activity, but in this analysis we do go deeper into this matter. A lot of activity itself is easy to define in this superficial analysis. It is clear, though, that a more sophisticated analysis about activities could be made. The level of activity should not in itself lead automatically to conclusions about leadership and hierarchy.

Also, communication on Facebook is not everything. People who are very active on the Internet, may be actually very shy in reality. People with a big mouth who act tough on the Internet, do not necessarily fulfil an important role within a group and / or social network. And, of course, not everyone is present on Facebook. There are still people who do not have a Facebook page, who are not visible on the network. However, it must be said that even with these caveats, Laurence admitted that his life is portrayed quite accurately.
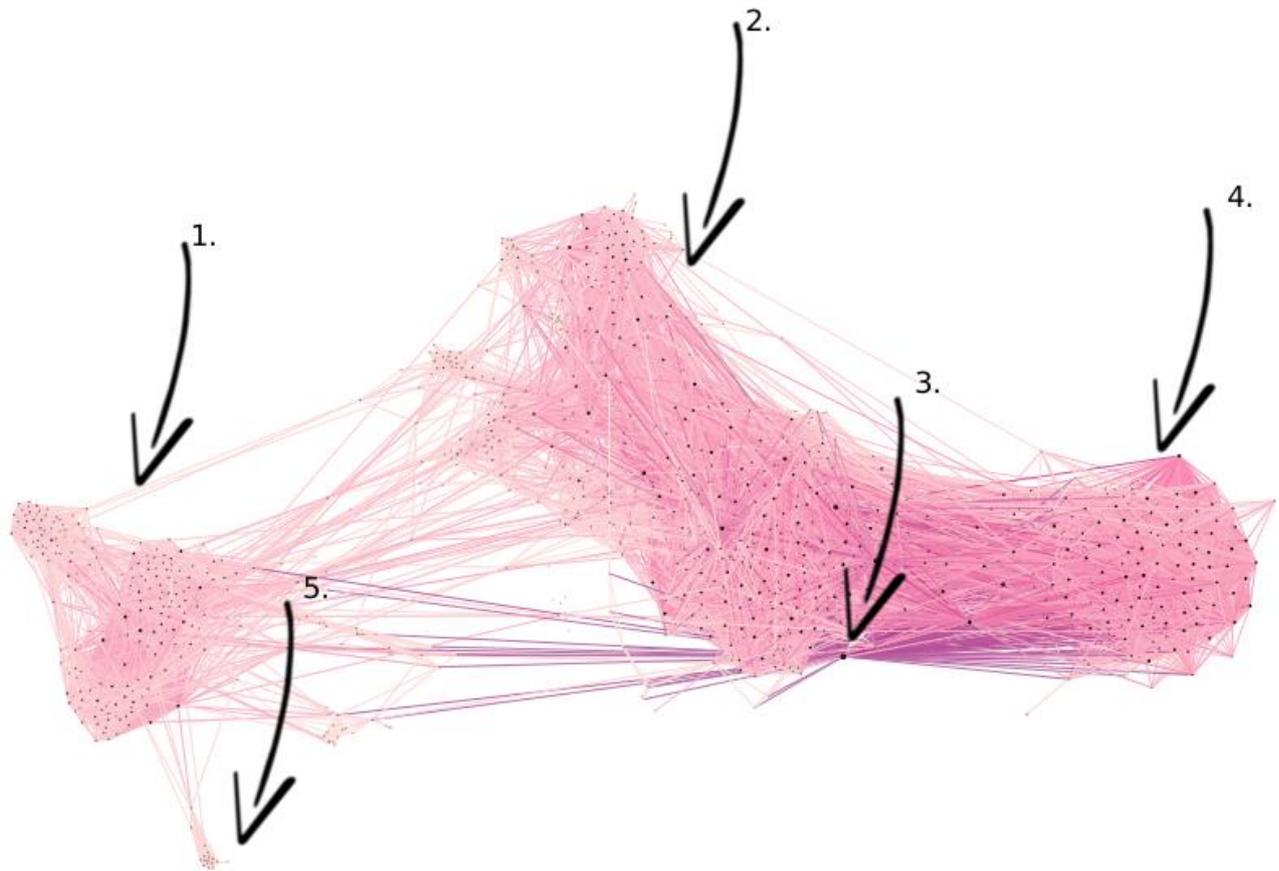
Facebook graph of Barbara
Arrow 1: Old friends and contacts through third parties with no strong links
Arrow 2: Colleagues and NGOs related to the work of Barbara
Arrow 3: Strong relationship with Barbara, stands out in the network (her boyfriend Evert)
Arrow 4: Colleagues and nightlife related to Evert
Arrow 5: Old friends and contacts through family group with no strong ties
Between 1 and 5: Family swarm
Between 2 and 4: Individuals, squats and alternative entertainment.

Family swarm

The Facebook graph of Margriet consists of a large swarm (arrow 1 of her picture), a small cloud at the bottom (arrow 3), two clouds together (arrow 4) and a few isolated individuals at the top. The image of Barbara shows on its left side a small cloud with a group below (arrow 1 and 5), and on the right a big swarm in an arc from top to bottom (arrows 2, 3 and 4). Laurence has a large cloud in the centre (arrow 2 and 4) and two groups, one at the top (arrow 1) and one at the bottom (arrow 3).

In all three images, the family groups are obvious. Margriet has a small family (arrow 3) which makes up its "own" cloud. Barbara has a large cloud to the left of the central swarm. That's her family and probably old friends in the country where she comes from. Laurence has a small cloud

below the main cloud, which gathers his family and some old friends.

All three activists have some 'distance' from their family. Whereas for Barbara this has something to do with physical distance, for Laurence and Margaret it could say something about their respective degrees of attachment. With Barbara it is noticeable that away from the central cloud there are two small clouds (arrow 1 and 5) in addition to the 'family' swarm (between arrow 1 and arrow 5). The explanation of this cloud: a group of friends or acquaintances in the country where Barbara comes from. Arrow 1 shows a small network that is connected with some clouds in the central swarm. It is not directly connected (arrow 3) to the large cloud. Probably this is a group from the past with which for various reasons fewer relationships are now maintained.

How can the specific family-swarms be distinguished from others? Actually that's quite simple, since the activists are on Facebook with their surnames. In the 'family' clouds a particular name is common. Of course this is making an assumption about names, but when asked, Margriet indicates that it is "correct about where the family is." Laurence also says that arrow 3 shows a "surprisingly loose network, a network composed of old friends and family. I have little contact with them and the Facebook graph shows that." In any case, the family swarm is not included in the central cloud of all three of the activists.
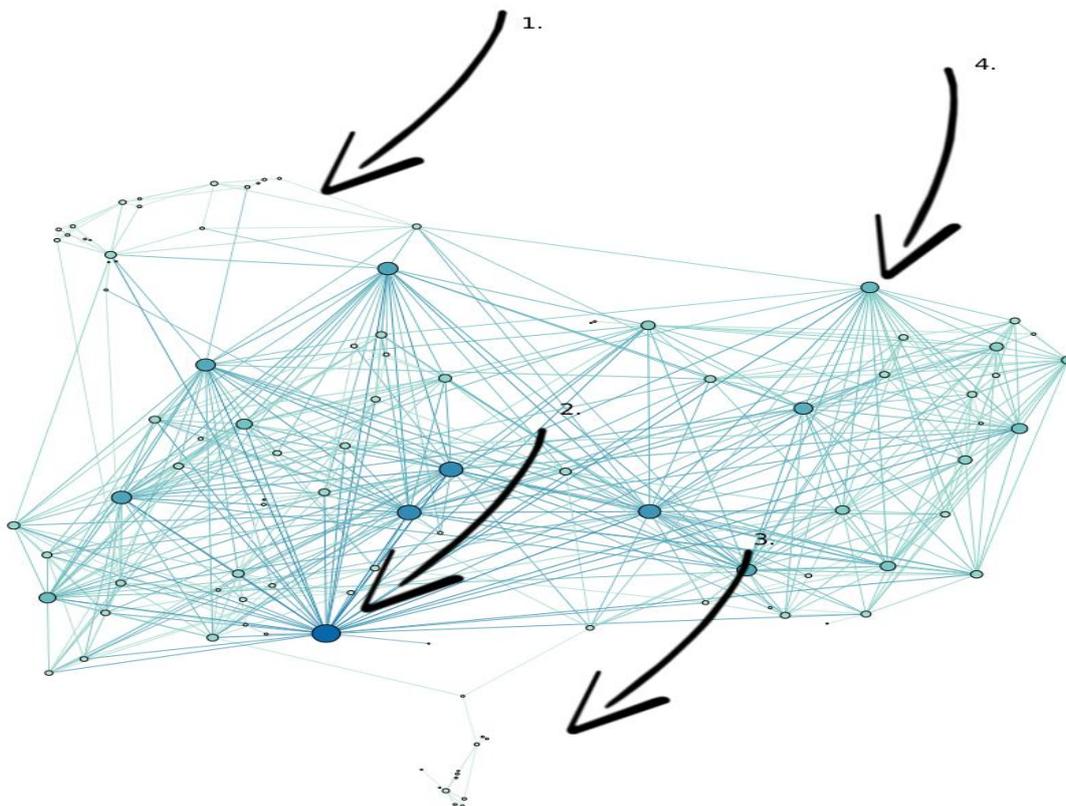
Activist swarm

For all three subjects of analysis, the activist swarm consists of a set of groups, squats, alternative entertainment and people. For Margriet, it is a cloud (arrow 1) of different parts. Top left is a collection of people, bands and groups around some nightlife and squats like OCCII on Amstelveenseweg in Amsterdam West and the Valreep squat in Amsterdam East.

At the bottom left of the central cloud the word 'Anarchist' pops up frequently, for example Anarchist Group Friesland and Anarchist Collective Utrecht. These groups and people hang out around at Doorbraak, a leftist organisation. On the right below are individuals in the swarm working for various NGOs. Given the work of Margriet, it is logical that she connects with this group of people. **Only a few groups are in front, these are special people.**

Finally for Margriet, on the upper right is a group of people and bands that are grouped between the alternative nightlife and squats (top left) and to the right of the activists swarm. Top right is a sort of bridge between the two dancing groups right of the central cloud.

Laurence's activist swarm (arrows 2 and 4) divides sharply. On the right below, there is a specific group of squatters / activists who have the same hobbies. On the right above, there is a group of people and organisations around the Autonomous Centre Den Haag (arrow 4). Bottom left is people connected to the Valreep squat in Amsterdam East, like with Margriet. It is striking how the Valreep (arrow 2) acts for Laurence as a kind of spider web, making lots of connections with people and groups.

There are the activists and squatters from Amsterdam. The central axis of Laurence's activist swarm is formed between the Valreep in Amsterdam and the Autonomous Centre in The Hague. Top left are a few people present who provide the link between the Amsterdam squat scene and the cloud above the activists swarm. This little cloud has broken loose from the central cloud and is made up by people who are

involved in an NGO.

The 'Valreep - Autonomous Centre' axis in Laurence's activist swarm is not directly visible as it is with Margriet's swarm. Some individuals play a central role in the 'big cloud.' Margriet says "in the large cloud (arrow 1) there are a couple of people who are apparently very active on Facebook as Albert and Astrid." These two people were active in the past (1990s and early 2000s), but no longer play an important role in the activist scene. Not only groups can play a unifying factor but also individuals, as in the swarms around Albert and Astrid. They hold Margriet's cloud together.

In Barbara's graph something similar is going on. The underside of the large cloud (arrows 2, 3 and 4) is held together by a single person (arrow 3). This is someone who has a lot of connections with Barbara, her boyfriend Evert. Even without knowledge of the relationship between Barbara and Evert, it is possible to see he has a very active position within her network. It is clear that Evert is very close to Barbara. This can be concluded from the fact that Evert has many contacts with the family swarm (between arrows 1 and 5).

On the right-side of Evert is the part of the cloud (arrow 4) occupied by colleagues and groups around the venue where he works. In the middle are mostly the alternative nightlife and squats (around arrow 3). Halfway along the top there is a slight break in the visible cloud. The upper part therefore seems to be separated from the lower half (arrow 2).

The top is occupied by Barbara's colleagues in the workplace, an NGO which has some contacts with the activist scene. From the top there are some individuals who stand aside from the main cloud in two small bursts and also maintain contact with the 'other side', the swarm of family and old friends. These are people who have connections with the country where Barbara comes from, something which can be discerned from the names of the people.
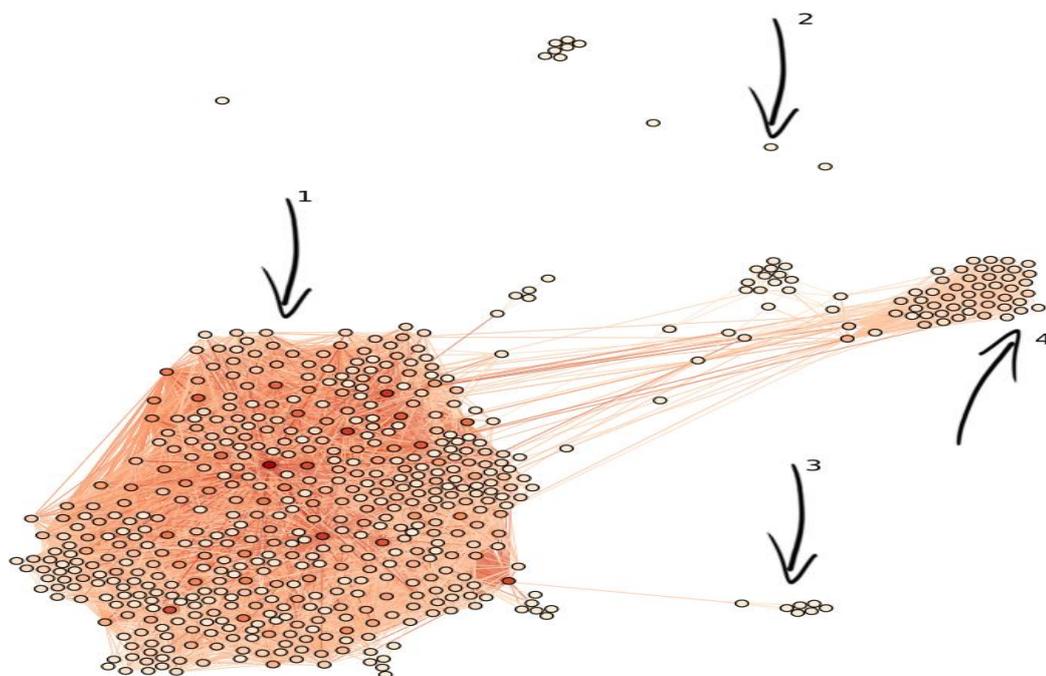
Facebook graph of Margriet
Arrow 1: activists swarm with groups, individuals, squats and alternative entertainment.
Arrow 2: Loose individuals, mostly old classmates from high school
Arrow 3: Family swarm
Arrow 4: Leisure cloud: a large (where the arrow is pointing) and small dance (to the left of the big cloud)

Leisure cloud

For Margriet it is striking that there are two separate clouds to the right of the activist swarm (arrow 4 and next to arrow 4). Central to these two clouds are the names of people in a dance group. The individuals around it are likely to be members or supporters, such as in the activists swarm. Barbara and Laurence do not indicate their hobbies clearly, which may mean that they do business with people who do not use Facebook or who are not visible in a swarm.

Various conclusions could be made with regard to who is and is not visible in the groups. Yet the clusters around work, connections around an NGO, around a squat or a venue, are very clear. A more logical explanation is that the activity is clear if it is embedded in an existing structure, such as the two dance groups where Margriet is a member. For Margriet, this seems to be the case regarding her old classmates: "The group at the very top is former classmates from my high school with a few isolated contacts", says Margriet about her own Facebook graph.

Barbara's graph shows two clear clouds . One is a swarm of family and friends flanked by two separate clouds of old friends or acquaintances with whom less contact is maintained. This cloud is independent of her life in the Netherlands, but is similar to the dance club clouds of Margriet in that it is a separate world with few connections to the rest. Like with the cloud for Barbara's work (above) and the work of Evert (below), the centre is occupied by entertainment, personal contacts and some activism and squats. Barbara does not have a clearly separate group for sports, culture or nature within her network. Barbara and Margriet are linked in the centre which is occupied by entertainment, personal contacts and some activism and squats. Margriet and Barbara are also part of the network of Laurence.

Social network capture

After seeing his Facebook graph Laurence wonders how he is going to change his behaviour on Facebook. "It gives a clear insight into my social life," he observes. He notes that an analysis of Facebook data makes it clear where the weak links in his life are. "That's pretty scary, strange to find out this way," he adds.

Margriet was also amazed at how sharply her social life can be mapped on Facebook: "If you know what topics swarms or clouds are interested in, you have a wealth of information. And by using a combination of individuals and groups it can be easily found out. However, you do not only know what the central issues are, but it also shows how certain information can be disseminated within those specific networks. You know who is active, who plays a central role, who has a lot of connections, so. And that is not only useful for advertisers."

Facebook arranges your social life, but it does much more than that alone. People give this internet company their personal data. This information may be harmless if you look only at the raw elements, but whoever puts the data in context can make a detailed picture of the guests at Margriet's thirtieth birthday. This picture reflects her social life, not only on that day. It puts people into groups, shows their political affiliations and provides insight into relationships.

Whoever makes a graphic image of all the groups and individuals from Margriet's Facebook page can draw a specific social history of her (and of course the same goes for Barbara and Laurence). This would include her youth, school, college, and employment history, as well as her leisure, activism and political preferences. Maybe the information is not perfect, but Facebook has access to so much data that the ability to profile will

only get better in the coming years.

Ultimately, the question is whether you want to have your entire social life visible to all or whether you want to keep control of it. That is a personal choice which is a separate issue to privacy concerns. 'What information do I want to share with a company and thus indirectly with the world?' is the primary question we must all be asking ourselves in this new digital age.

Maikel van Leeuwen

Facebook pictures, pictures of your Facebook page or a social graph

The attached images are a visualisation of the Facebook pages of Margaret, Barbara and Laurence. The links in the network, the lines between the circles are called "edges." A connection can be a "like" or a comment.

A node, a circle in the graphs, is a person and / or organisation within the network. Nodes and edges form a social picture, a Facebook graph. The size of a node is determined by the 'popularity' in the network. How popular a node is can be determined with all sorts of calculations. The popularity is determined by the number of likes, but also by the sending or receiving of messages.