There are at least three points in cybernetics which appear to me to be relevant to religious issues. One of these concerns machines which learn; one concerns machines which reproduce themselves; and one, the coordination of machine and man.

Norbert Wiener, 1964[1]

1 Norbert Wiener, God & Golem, Inc.: A Comment on Certain Points where Cybernetics Impinges on Religion (Cambridge, MA: The MIT Press, 1964), p. 11.

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Preface

In the light of the US election in 2016 and its narratives of psychometric targeting, accelerated populism via social media, and battles of opinions culminating in, but not stopping at, the so-called meme wars of 4chan, we felt the urgency to critically discuss the remains of the democratic potential of the Internet. Its dialogical and thus revolutionary possibilities, compared to the power gap of traditional mass media, had been claimed by many net activists of the 1990s. In the first years of the social establishment of the Internet, a net society seemed to emerge on the horizon, in which dialog between equals would establish an individual consensus. Along the way, however, “fascist cross connections” (Vilém Flusser) had to be confronted — attempts by mighty knots in the net to control the dialog according to their own interests. Today, about 30 years later, the hopes of many activists to set up egalitarian societies through the Internet are replaced by disillusion. The networked media have long since taken up systemic characters. In their extreme cases, they facilitate platforms for demagogic initiatives such as the alt-right movement and their mouthpiece, the extreme right US news website Breitbart. In Germany, Pegida and groups of translocal hatred significantly organize themselves through social networks. However, the “fascist cross connections” make a particular impact beneath the surface of our screens: It’s not just since the NSA scandals that it has become apparent how valuable and systemically relevant user data is today. The heated discussion about micro targeting offensives during the US elections from Obama to Trump also shows how analyzing patterns of user behavior may have both productive effects of personalized content and quasi-demagogical tendencies.
In April 2017, ZKM | Center for Art and Media Karlsruhe and Karlsruhe University of Arts and Design invited a group of scholars to meet at ZKM in order to discuss the narratives, and myths, of social targeting, net populism, and the various implications of a data society.2 Vesselin Popov from the University of Cambridge Psychometrics Centre opened the evening with a strikingly clear and enriching lecture on the principles, opportunities and risks of data-driven psychometrics. Followed by a discussion with Florian Cramer, reader in 21st Century Visual Culture at Willem de Kooning Academy in Rotterdam, who laid out the complex connections between 4chan image boards, fake news campaigns, the alt-right, and beyond. The evening was moderated and competently navigated by Matteo Pasquinelli, professor for Media Theory at Karlsruhe University of Arts and Design. The participants of the panel discussion included the editors of this volume. The publication contains the transcription of the lecture and talks of the evening as well as related visual

Institution	ZKM | Center for Art and Media Karlsruhe
Established	1997
Director	Peter Weibel

material. We are indebted to our guests for providing us with an insight into their latest research.
We are also thankful for two additional contributions to this publication: papers presented at the 4th Council of Europe Platform Exchange on Culture and Digitisation, which took place at ZKM in October 2017 as a conference co-organized by the Council of Europe and ZKM.[3] In his text, writer and editor Evgeny Morozov maps the complex socio-economic conditions of today's data society by emphasizing what he calls "data extractivism" — the multiple strategies and mechanisms of harvesting user data, the new currency of digital economy. Additionally, Gunnar Schmidt, professor at the Department of Intermedia Design, University of Applied Sciences Trier, examines the digital aesthetics of populism and the potential capacity of art to counter atmospheres of post-truth and alternative facts.

2 "Net Activism – Net Demagogy", panel discussion at ZKM Lecture Hall, April 12, 2017.

3 4th Council of Europe Platform Exchange on Culture and Digitisation: "Empowering Democracy through Culture – Digital Tools for Culturally Competent Citizens" at ZKM Media Theater, October 20, 2017.

The goal of both events was to offer a ground for further discussion, beyond the public space of museum and academia. This publication is intended to be part of such a discourse.
It would not have been possible without the commitment of several colleagues and students. We would like to thank the panel participants and authors, as well as Ali Gharib, Anett Holzheid, Mio Kojima, Jens Lutz, Mari Matsutoya, Tatjana Pfeiffer, Lukas Rehm, Sereina Rothenberger, Anton Stuckardt, Claudia Voigtländer and Lauren K Wolfe. We are also indebted to the Council of Europe for the permission to publish the texts by Evgeny Morozov and Gunnar Schmidt.

The editors
Karlsruhe, March 2018

ZKM | Center for Art and Media Karlsruhe: Founded in 1989, the ZKM | Center for Art and Media Karlsruhe is a cultural institution which, since 1997, has been located in a historical industrial building in Karlsruhe, Germany that formerly housed a munitions factory.
The ZKM organizes special exhibitions and thematic events, carries out research projects, produces works in the field of new media and offers public as well as individualized communications and educational programs. The ZKM houses under one roof two museums, three research institutes as well as a media center; in this way it groups research and production, exhibitions and events, archives and collections. It works on the interface of art and science, and takes up cutting-edge insights in media technologies with the objective of developing them further. Since the death of founding director Heinrich Klotz (1935–1999), the ZKM has been directed by Prof. Peter Weibel.
In addition to the ZKM, the associated Karlsruhe University of Arts and Design, as well as the Städtische Galerie Karlsruhe [Municipal Gallery Karlsruhe] are likewise housed in the former munitions factory.

Location	Karlsruhe, Germany
Website	www.zkm.de

Definitions created with: Google Sheets *Look Up* add-on

Net Activism – Net Demagogy

Lecture: How to Wield the Data-Driven, Double-Edged Sword: Navigating the Ethics of Psychological Profiling and Targeting with Big Data

Vesselin Popov

Panel Discussion with Vesselin Popov, Florian Cramer, Matteo Pasquinelli, Peter Weibel, Siegfried Zielinski and Daniel Irrgang[4]

4 The panel was organized by ZKM | Center for Art and Media Karlsruhe and the Karlsruhe University of Arts and Design. It took place on April 12, 2017 at ZKM.

MP This panel wants to investigate the relations between Internet activism and Internet populism and their implications. The idea is not to zoom in on meme-wars, fake news and hate campaigns but to zoom out, to see such techno-political compositions in perspective, to harvest more ideas rather than again performing another exegesis of the alt-right. We are entering a heated debate, but we want to do it in a minor key. So we are introducing the evolution of a few strategies of political struggle and political governance in a simple way. We want to discuss a political history that is very well known to our older guests but probably less well known to our first-year students, young students who may think that certain tactics of semiotic guerrilla warfare are just inventions of a few groups from the United States. So we are trying to put together two genealogical traditions as follows: The revolution of art practices and activism after World War II and the evolution of mass media society into the networked society of today, into the society of metadata. To simplify, we are tracing the genealogy of art activism and the evolution of media.

Art and social movements have always been experimenting with subversive, independent, iconoclastic forms of communication,especially in the past, in particular when they were operating in a society dominated by top-down media. It is a long history that spans from Viennese Actionism to Neoism to Culture Jamming in the '90s. And I guess Peter Weibel and Florian Cramer can recount different sides of this trajectory. But the Internet emerged in the '90s and provoked manifold earthquakes. It provided a medium of communication to everyone. However, this easy channel of communication was provided to people of every political orientation and the techniques of communication and of avant-garde subversion that once had belonged only to the art underground now could spread to the whole of society. Moreover, the Internet transformed each person, not just into a transmitter but also into a data point, a source of data to be integrated into a comprehensive kind of cybernetic governance by media companies and the state apparatus. Vesselin Popov from Cambridge University, who is here with us tonight, will elucidate the specifics of this dimension. And this is also a dimension that some of our students here today are exploring by reading texts like "The Cybernetic Hypothesis"5 for instance. So, today's social data analytics is a crucial tool in the organization of election campaigns all over the world, from the United States to Germany. What we just witnessed in the recent US election is something strange, however. Does this alliance of Internet guerrilla tactics with data analytics represent a new overlord, or what I call the "Dark Valley" — Silicon Valley somehow transforming into some strange dark valley? But, like I just said, these tools now belong to every variety of political force, to different cultural orientations, maybe not to everybody but these tools are widespread. So it is in such an expanded cultural landscape, in this augmented political techno-sphere, that we open tonight's conversation and discussion with our students as well.

5 Tiqqun, "L'Hypothèse cybernétique." Tiqqun 2 (2001): 44.

I would now like to introduce Vesselin Popov, our first speaker for tonight. Vesselin Popov is Business Development Director at the University of Cambridge Psychometrics Centre, which is a multi-disciplinary research institute specializing in online behavior and psychological assessment. Ves is responsible for the center's commercial partnerships and oversees a range of projects designed to increase the understanding and the use of big data psychology in business and community life. Ves also coordinates Apply Magic Sauce, a battery of predictive algorithms based on over 6 million users' psychological and social metadata. Apply Magic Sauce API translates the digital footprints of human behavior into accurate psycho-demographic profiles. This tool has a tremendous impact on public awareness and engagement with big data and predictive technologies. It supports academics and businesses around the world in tackling a range of challenges related to personalization and provides up to 150,000 users per day with feedback on private attributes. Ves has prepared a presentation for tonight, whose title sounds very interesting: "How to wield the data-driven double-edged sword: navigating the ethics of psychological profiling with Big Data."

Big data: Data sets that are so voluminous and complex that traditional data processing application software are inadequate to deal with them.

Definition created with: Google Sheets *Look Up* add-on

Lecture: How to Wield the Data-Driven, Double-Edged Sword: Navigating the Ethics of Psychological Profiling and Targeting with Big Data

Vesselin Popov

VP Thank you for the introduction and the invitation to come and speak to you. I am very pleased to be here. And I think it shows that every dark cloud has a silver lining, because some of the things I am going to talk about have resulted in us all coming together and having this debate. I'm going to talk about what I like to call the data-driven double-edged sword. The idea I'm getting at with this title is that, as with many technologies, there are always intended consequences and unintended consequences. We are very much at a crossroads in how we deal with certain technologies from the age of Big Data, and I'll talk about two of those that are being developed by my colleagues at the University of Cambridge. I will

also tell you about various imitations or attempts at doing similar things that have potentially influenced elections in the US, the Brexit vote and who knows where else this influence may be felt in the future. Let us see whether, together, we navigate the ethics of some of this technology.

As Matteo very kindly mentioned in his introduction, I work at the Psychometrics Centre. We are an academic institution based within the University of Cambridge and we have been doing research into psychological and behavioral assessment for several decades now. For us, this area of research concerns how best to measure personality, intelligence or performance, and we are interested to continue these efforts in the online environment. We are, I would say, at the forefront of bringing psychometric and statistical techniques to digital environments such as social media platforms in order to study latent traits such as personality. And the interesting thing about this is that, as a psychologist, you might say that most of the questions you would like the answer to have already been answered in some form on the Internet. Before this, if a psychologist wanted to know whether you were an extrovert, they might invite you into the lab and ask questions like, "Do you like meeting new people?", or "Do you talk to a lot of different people at parties?", and these kind of questions are still in use today. But another way to get at that information is to ask an individual to share with you a retrospective record of their behavior. So suddenly now we are not asking those questions anymore, we are asking people to share their Facebook event history with us, so we can see how many events they actually went to, how many friends they have actually made on Facebook over the last ten years. We are also asking them to share the language that they use online, whether that be with their friends or with companies or customers, in order to understand their psychology. We can use text analytics, machine learning and other computational tools that have entered the social sciences in the last few years to better understand human psychology and better build systems that understand us as individuals.

We have a phrase in English, I'm not sure if there is a German equivalent, but the phrase is "media shit-storm" and this is what I've been faced with, unfortunately for pretty much the last year, as a result of a company called SCL Elections learning about our research, demonstrating that it is possible to predict psychological traits from digital footprints of behavior and, through one method or another, trying to employ this for political purposes. It is very important to emphasize that the University of Cambridge and our lab are completely apolitical institutions. We have never done any political work for any political party or any quasi-political initiatives. However, we would be wrong to just take the marketing hype that happened after Trump's win in the US and say, "that doesn't work, that can't be real, that can't be that people know my personality online." That would be an oversimplification. Part of the reason I am here today is to explain to you that it is actually possible to do some of these things. Whether or not Cambridge Analytica or any other company actually used them or whether or not they had any impact on the US election, we must be aware of this technology and its potential for good as well as the potential of its misuse. And these are a couple of clippings [pointing to the presentation chart], these are part of the reason I was invited to speak to you today. The most-read German-language article of last year was an interview with my colleague Michal Kosinski, who worked with us in the Psychometrics Centre and continues to be our collaborator at Stanford. It tells the story of how companies learned of his methods and how we were shocked to then find those same companies using what sounded a lot like our data, our technique and our model, which is all openly published, for political purposes. Because Alexander Nix[6] was not able to join us today, which I was very disappointed to learn, I thought I'd better start with a statement from his group,[7] just in case their voice risks going unheard. They say they "do not use data from Facebook," which contradicts a Guardian article. They say they have "had no dealings with Michal Kosinski," they say they "do not subcontract research," and they say "psychographics was hardly used at all" in the election. The story has changed over the course of the year. As soon as Trump won, the first message was: "We had this amazing

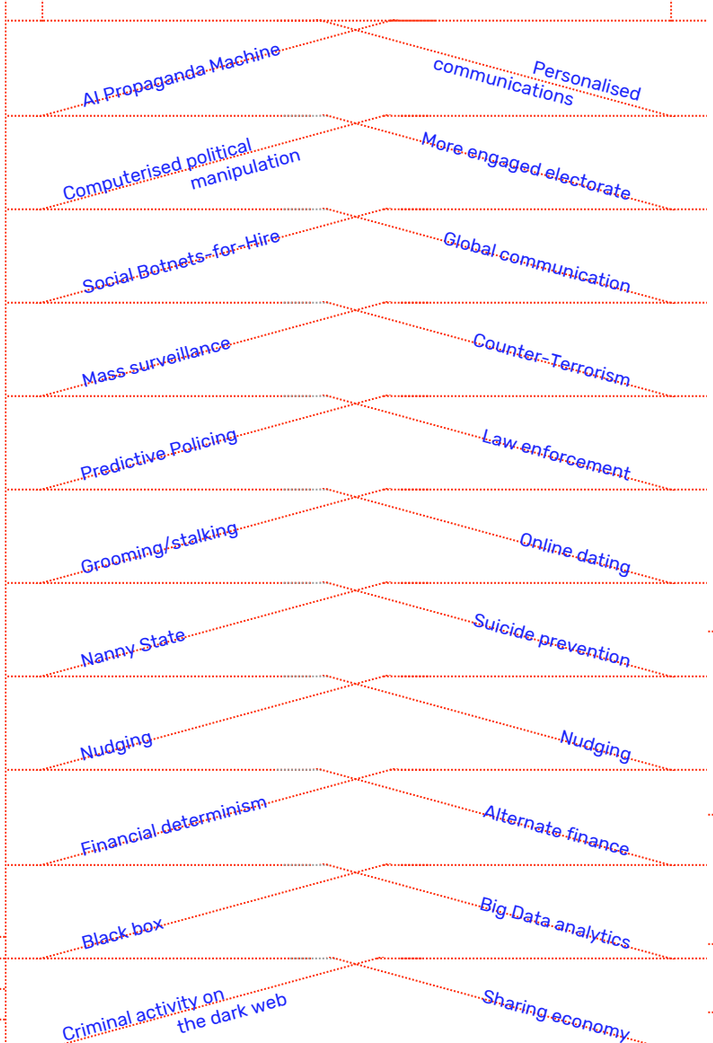
A1 Taken from: *Guardian*, 22.09.1980.

technology that had 5,000 data points on every person in the US and we do psychological tailoring." And now the narrative is switching to something more like: "We didn't really use that technology, it was hardly used at all." So we have to see how this continues to develop, and it is also very important that we keep an eye out on what is happening with regard to their strengthening links with the White House administration. Another important disclaimer to remember in all of this, because there is a lot going on in the news: Currently there is no proof, no evidence, no scientific validation that the use of psychographics or data techniques had any impact on the US election or Brexit vote. That is still true today, and we are waiting to hear more from the investigations that are being conducted by electoral commissions and other watchdogs around the world. But, as I said, don't think that psychological prediction isn't possible or that micro-targeting couldn't be persuasive for certain groups of people. For example, for vulnerable groups of people. We've faced this challenge before. We've faced technology that could be beneficial to human progress or that could be very dangerous to human progress. Some people are calling it the AI propaganda machine in the media. Whether you agree with it or not — we can discuss that later — but I would say that personalizing communications and making information more relevant to individuals and less "spammy," if you like, is actually a very good thing and is something we can do now with certain technologies. There is a fine line, you might say, in marketing between selective information sharing on the one hand and manipulation on the other, and where that line lies is something that is fairly fluid in today's digital environments. So I talk a lot about how to design research in a way that ensures informed consent is obtained not only at the point where data is shared, but where that data is subsequently combined with other information and built into some kind of algorithm. I won't go through all of these as I will only speak about a couple of them, but what I am trying to say here is that we are very much at a crossroads with certain technologies and we ought to openly debate how to use these or how not to use these, specifically how to regulate them in the context of our democratic processes.

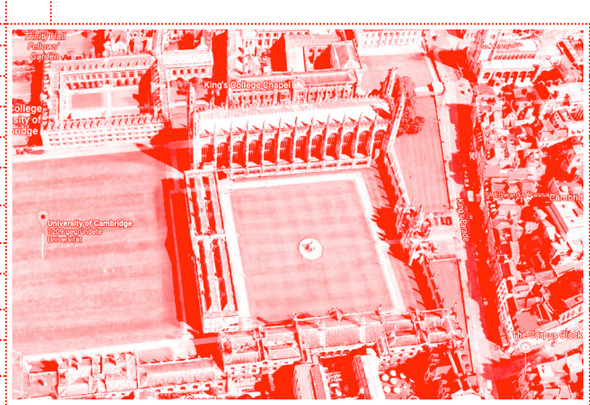
6 CEO of Cambridge Analytica, New York.

7 From a Data Analytics spokesperson, quoted in: Hannes Grassegger, Mikael Krogerus, "Ich habe nur gezeigt, dass es die Bombe gibt." *Das Magazin* 48 (2016); www.dasmagazin.ch/2016/12/03/ich-habe-nur-gezeigt-dass-es-die-bombe-gibt.

Data-driven, double-edged sword?



The Infographics are adaptations from Vesselin Popov's original presentation and have been redesigned for this publication.



Institution	University of Cambridge
Address	The Old Schools Trinity Ln Cambridge CB2 1TN United Kingdom
Latitude Longitude	522.042.666 1.149.085
Image: Google Maps 3D Data created with: Google Sheets *Geocode* add-on	

In psychometrics we have faced revolutions several times as well, so this is just to give you some examples of how intended and unintended consequences can arise. One of the first documented uses of psychometrics is in the third century BC in China, where a test was developed to choose who could enter the emperor's court — one of the earlier examples you might say of a meritocracy, which by now we are used to seeing in academic systems and in commercial systems and commercial recruitment, for the most part. But what you can do with psychometrics, when used properly, is ac-

tually create a meritocratic environment where one didn't exist before, by allowing people from different backgrounds to still have the same opportunities as everyone else. Another example, from the early twentieth century, are mental tests like Binet's[8] in the early stages of development of clinical diagnosis. Since the twenty-first century we've had social networks and now we have computerized testing, AI and predictions. These are all technologies with good and bad sides. So, meritocracy can also lead to discrimination, when the incentive changes. The ability to diagnose and measure intelligence was taken up enthusiastically by scientists on both sides of the ethical line, leading to some very dangerous practices. Social networks have brought us together but have also made it easier for people to spy on us and to find out what we're doing. So, striking a balance between communication and Big Brother is something we face today. Prediction versus the black box of AI or the black box of data analytics — where we don't really know how a decision has been made about us — is another example of this. Today we face these two innovations: digital footprint prediction and psychological targeting. There are many intended consequences. Part of our mission is to advance the course of fairness and equality in society and we believe these technologies can be used to do that. If they are misused, there is, I think, a real risk to our democratic process and of limiting the consent that people have in the way they are communicated with. This is what we face today. And ultimately it is up to us to control these technologies and to decide upon where they will be most beneficial.

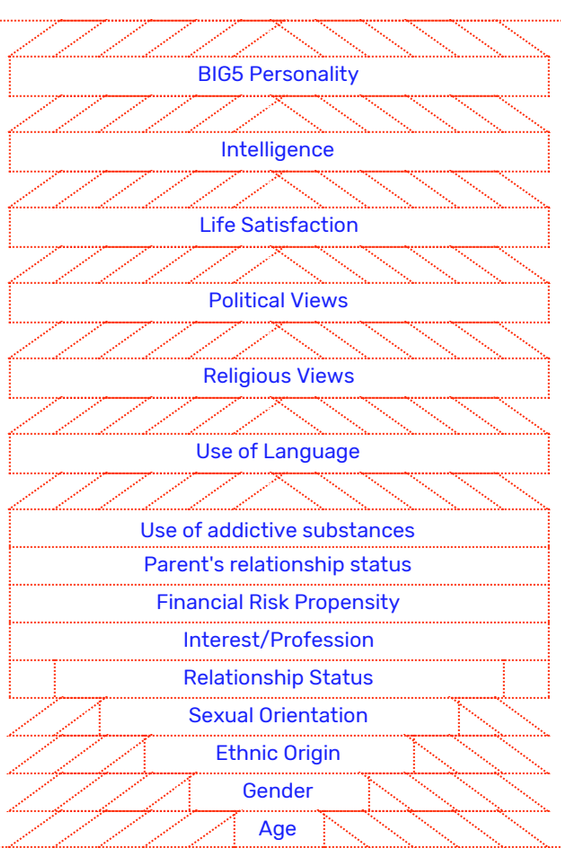
So that you understand the science around this, I'll talk first about digital footprint prediction. This started for us in 2007 with my colleague David Stillwell's creation of the myPersonality Facebook application. This was in the early days of Facebook, so it was an app that let you take psychometric tests, like personality tests, and receive very detailed, very informative and valuable feedback on your own profile. After giving people their feedback, we asked them to opt in to share their test results with us, and also their social media data. So there was no crawling of their profiles, there was no buying of data from anyone else, this was completely open and opt-in only. It was very popular, and it was a very disruptive thing to put some of these tests that companies pay a lot of money to buy online, for free, for anyone to take or for any student to use in their research. It was very popular and this resulted in over six million people opting in to share their data with us. So that's the myPersonality data set which drives a lot of our research in this area. It's completely unique, and I think it would be very difficult to recreate for various reasons. People have tried and failed in the past. You might ask what did we do with this data, did we hide in a dark room and build some AI to profile people? No, we actually opensourced it with the academic community, which has resulted in over forty peer-reviewed journal articles in the last five years. I'm very pleased that David and Michal took this decision to share this incredible resource with the community. I would add that in that time we have never had any examples of misuse or breaching of the terms and conditions.

8 Alfred Binet (1857–1911) developed, together with Théodore Simon, the Binet-Simon test, the first IQ test. For further biographical and bibliographical information, see the Max Planck Institute for the History of Science's "Virtual Library": http://vlp.mpiwg-berlin.mpg.de/people/data?id=per309.

The World's largest and richest social science data base

- 6mil individual psych & social media profiles
- 30 validated psychometric tests
- All data collected through opt-in
- Data shared with 80+ Universities worldwide
- Honest feedback was the only incentive
- 40+ peer-reviewed articles since 2011

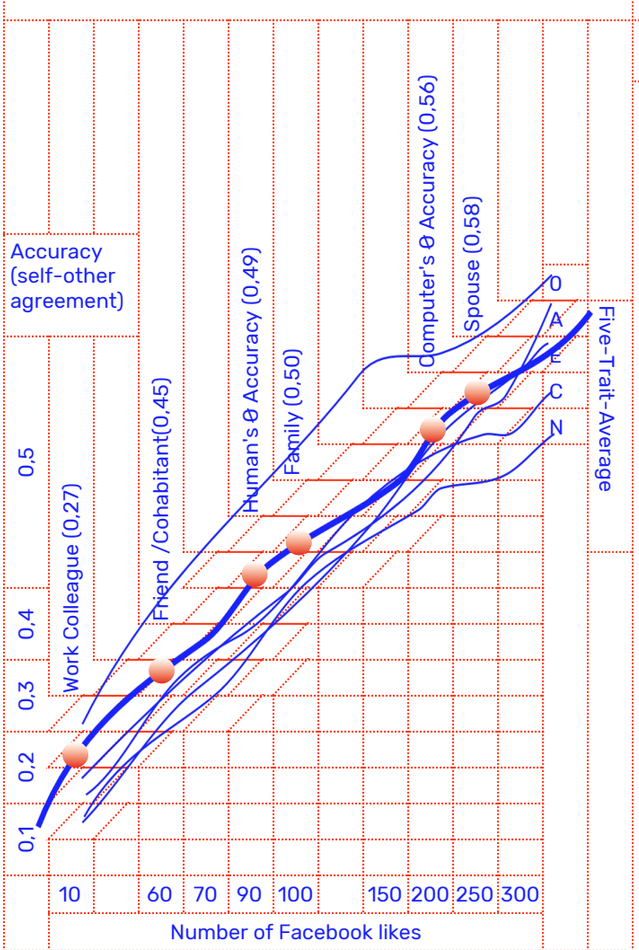
Traits we can predict from digital footprints



These are some of the things we can predict from your Facebook profile or other digital footprints. "Big Five Personality," this is the OCEAN model[9] you might be hearing about at the moment. Intelligence, life satisfaction, whether parents were together when you were twenty-one, since people whose parents were together might do different things than those whose parents were separated. Sexual orientation, gender, ethnicity and lots of other very sensitive, very private personal attributes. We published these findings in March 2013, and this was followed two years later by a paper showing that the models we had developed using Facebook likes — the pages you like on Facebook — can be more accurate than human judgments of personality. The reason we were able to compare this is because people shared their test results with their friends, family, colleagues, with their loved ones, their husbands and wives, and we got a database of cross-ratings. We could therefore compare the computer judgments to human judgments.

9 Big Five Personality Traits, also known as Five Factor Model or OCEAN (addressing the five factors Openness to experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism).

Number of Facebook Likes

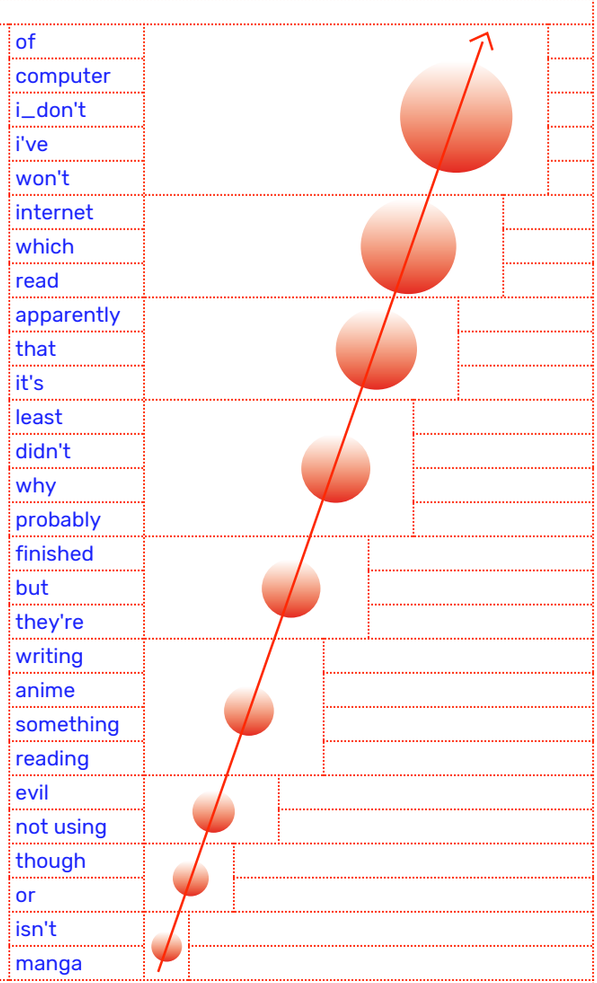


O	=	Openess
C	=	Conscientiousness
E	=	Extraversion
A	=	Agreeableness
N	=	Neuroticism

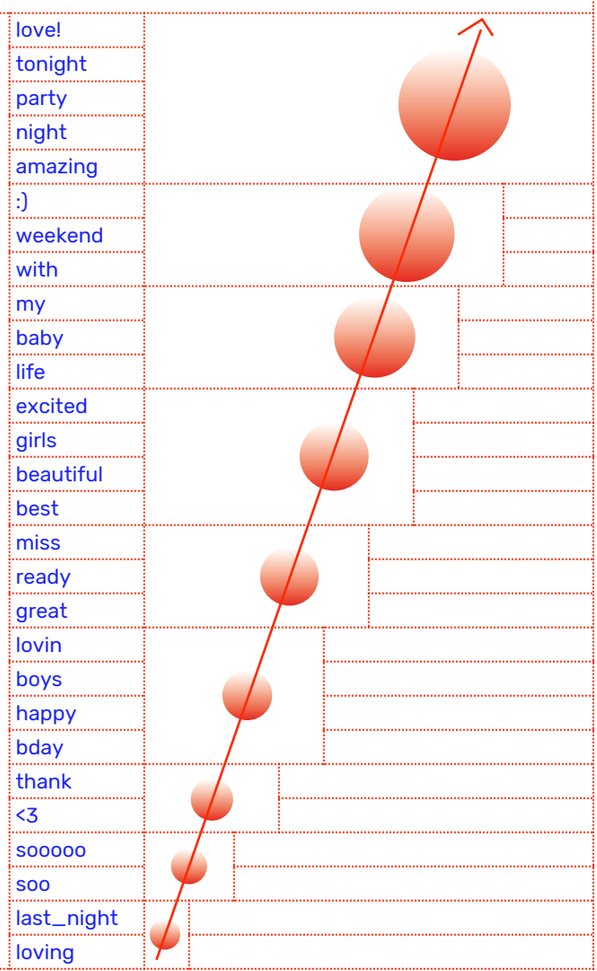
When you do that this is what you see (fig. 4). With ten Facebook likes for an individual, the computer model is more accurate than 360-degree feedback,[10] which is a popular HR tool. That doesn't mean that 360-degree feedback is useless, and I would say that any kind of self-reflection — even if it is telling someone their star-sign — is probably useful on some level, but a psychometrician would of course say that shouldn't be used in any high stakes decision. So, with ten likes the computer is better than colleagues, with seventy likes it's better than people's friends at determining their ground truth score on a personality test used by researchers. And with 300 likes it's better than husbands and wives. Now just think about this for a second. This is Facebook likes, so that means pages you like, music that you listen to, etc. Imagine how much better this model might be if we also combined all of the language you use on Facebook, all of the tweets, all your credit card records. Or any other digital footprints a government or certain companies might have on you. This is very scary and this is why this technology is out in the open, and why we feel a responsibility as a university to have a debate about this as openly as possible. Because, for the most part, this kind of prediction is happening in companies in such a way that it is not open to democratic scrutiny.

10 Also known as multi-rater feedback, multi source feedback, or multi source assessment.

Low predicted extraversion



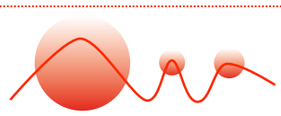
High predicted extraversion



Here is an example with text. People who are more extroverted, as you might expect, talk about “parties” and “tonight” and “love” and “weekend” in their status updates more often than those who are introverted. So, with a sample of language you can also start to do the kind of psychological assessment that has been done for decades. The other thing is that this happens instantly. You don’t need to wait five days to score a test, or even a couple of hours. It can happen within a second. You can try this for yourselves if you are curious to see what your digital footprint might say about you to others. There is a demo on www.applymagicsauce.com which allows you to try this and see how you might be perceived. And you can also compare your Facebook and Twitter profile on there to see what it is about your behavior that is pulling the algorithm one way or another. This is an example of my prediction: it thinks that I am certainly more liberal and artistic and kind of laid back and relaxed, although I have played around with it quite a lot so it probably doesn’t resemble me as well as it did when I first tried it.

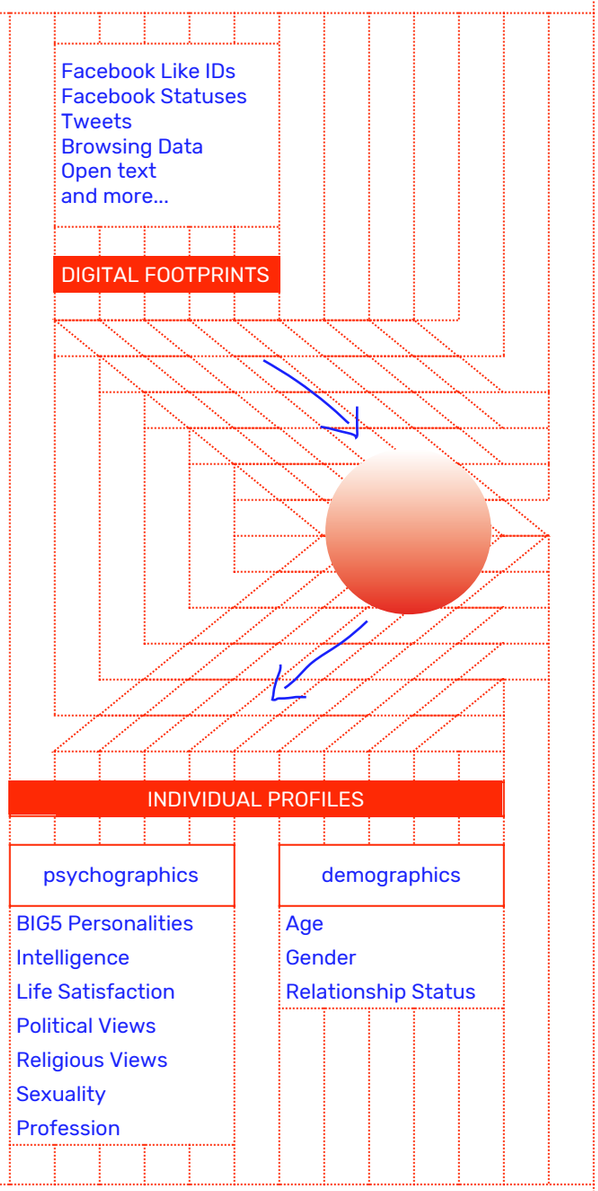
The table "High predicted extraversion" contains 28 words

60%	positive
12%	love
18%	desire



Sentiment analysis created with: Google Sheets *Gavagai Sentiment* add-on

applymagicsauce.com

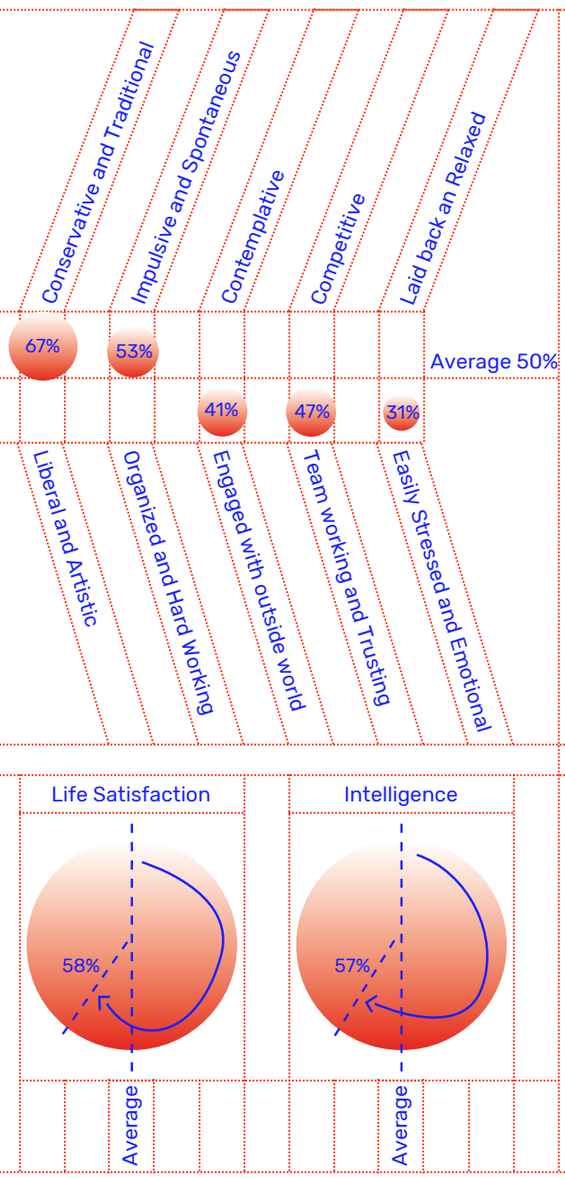


And this is my first conclusion: Digital footprint prediction is real, it does work, we’ve been doing it for nearly ten years, and there are very positive benefits both for academic research and for personalization in business.

The second innovation: psychological targeting. How do you target people online? You find what they like and show content using the existing ad platform such as Facebook advertising. So if you want to reach people who have a higher IQ, we know people with a higher IQ are more likely to like these particular pages on Facebook. At least they were more likely in 2013, this may have changed by now. Some of these are obvious: “Mozart,” “science,” “Daily Show;” but people with a higher IQ on a Raven’s Matrices Test11 also like Morgan Freeman’s voice, walking on crunchy leaves and lots of other completely strange things that a marketing company might not know about. But actually if you target those people then you reach people of that profile — using the existing infrastructure, that’s important to remember. Here’s a list of things [suggesting low IQ] none of us had ever heard of: Harley-Davidson (the media offered them a chance to comment) and so on. It doesn’t mean

Try it on you own data

Big 5 Personality (Predictions are expressed as percentiles)

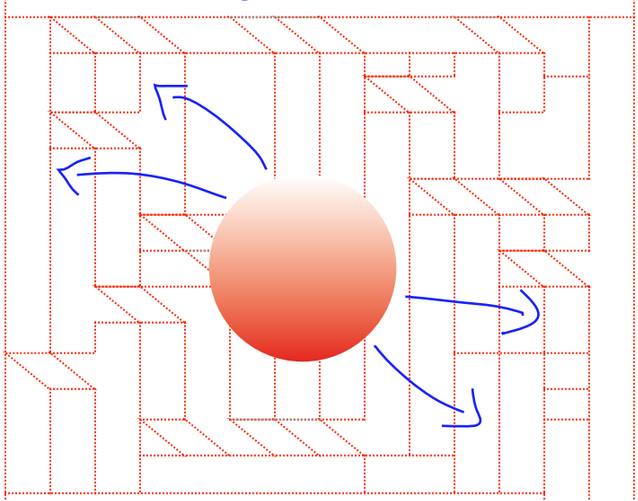


that if you like one of these brands, you're stupid, right, it doesn't mean that. But it does mean that the computer model looking at millions of peoples' digital footprints can pick up on certain small correlations, certain very subtle signals that we as humans — depending on your view — either don't pick up on, or we do pick up on them in some kind of subconscious way but it's not necessarily something we could explain. Just another quick example: Highly-agreeable, team-working, cooperative people like this kind of stuff ["Compassion Int'l," "Jon Foreman," "Pornography Harms," "The Book of Mormon," etc.], whereas low-agreeable are those people who basically "Hate Everyone," "Hate You" but are quite well-read and quite well-dressed ["Friedrich Nietzsche," "Prada," "Sun Tzu"] — so these are aggressive competitive business people [laughing].

11 A multiple choice intelligence test, published in 1936 by John C. Raven; cf. Raven, *Mental tests used in genetic studies: The performance of related individuals on tests mainly educative and mainly reproductive.* MSc Thesis (University of London, 1936).

Personalizing digital marketing campaigns

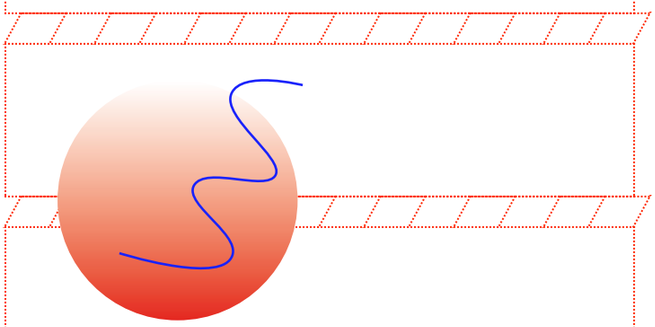
High Extraversion



"Dance like no one's watching – but they totally are"

Targeting works. Targeting is not so difficult to do if you have the right information. And we were also curious to see how big a difference it makes when you actually speak to people in a way that corresponds to their profile. So this is a study, I think it was around a year and a half ago — I don't know anything about selling make-up but it isn't so hard to come up with an advert tailored to an extrovert and an ad tailored to an introvert. Pretty straight-forward. You don't need to be an expert to do it. And then you can show each of these adverts to people who like the relevant keyword list. What happens when you do that, the personality-optimized ads are twice as profitable as those that aren't. So I'm not saying that techniques like this have had any impact on the political arena, which is very different, but there is evidence from our own research that it can impact things, for example in online-marketing. For example, you can change the language and images to suit to themes more appropriate for highly extroverted people. Extroverted people are more likely to be interested in group activities and extreme sports and that kind of thing. Those agreeable people who like all the chari-

Low Extraversion



"Beauty doesn't have to shout"

ties and donate a lot of money to charity, this is more tailored to their profile. Again, not very difficult to do using existing images in the brand's database, and you see huge improvements in an online marketing context, not only in click-through rates but actually in ROI [Return on Invest] and how likely someone is to purchase whatever you're trying to sell them in this case. So, very importantly, in these cases [showing an example], people had opted in to receive personalized communications from the brand, which was Hilton in this case. So there was a Facebook connect button which says "login to share your Facebook likes" with Apply Magic Sauce and receive a personality prediction and get some kind of new, personalized experience. So rather than telling people their OCEAN score, we designed some traveller types, playing on the idea that the kind of person that makes an itinerary is different from the one that just turns up at the new place with no plan. Comparing results seems to work in practice. People enjoy it and share the content more even when there is no financial competition incentive to share it. And there is also research from my colleagues using credit card data showing that when people spend money on things that correspond to their personality, their happiness increases. So if you can help people spend their discretionary budget in a way that matches their values and their personality, you can actually make people happier. Provided they know that it is happening, that is a very important caveat. So psychological targeting does work. This is our second innovation. It is real and people are trying to do it in one way or another and I think it is a good thing when it is done properly.

I'll just end with a couple of stats. We did a big study to ask people how they actually want things like big data and predictive technology to be used.12 A lot of people took part [37,480; 43% Europe, 27% North America, 15% South America; top countries: USA 23%, UK 8%, Brazil 7%, France 5%]. I've picked out a couple of results here that are maybe more relevant. So 55% thought that governments should use big data when designing new policies. Only 22% trusted their government not to sell their private financial data without their consent; this was also true for electoral roll data and demographic data. So think about it: The data broker industry is huge, especially in the US, and people don't really trust the government not to engage with it even if they don't in practice. People prefer to see personalized advertising rather than spam, and most people don't really trust companies to handle their personal data. Even though most of the companies I speak to spend a lot of time, effort and money making sure they don't break the law — because there are serious consequences, not just for trust, but also financial repercussions. Maybe businesses could do more to celebrate their positive ethical practices. From this study, these are the principles that emerge and that we try to implement in every commercial and academic collaboration that we do. Firstly, nobody should have predictions made about them without their consent. Secondly, the results of prediction should be shared with individuals in a clear and understandable format. So the results shouldn't say, "you are slightly higher in dimension alpha than someone else so we are denying your mortgage." They should explain what it is about the prediction that is leading to the decision. And this is why we use psychology together with computer science to explain the model. Thirdly, there should be some kind of benefit for the individual, because if you are collecting data from users and giving nothing back, then what's the point for the individual? And I think businesses understand this as well. I guess they would call it a value exchange, which is just a marketing phrase. Finally, it should be clear why the data being collected is relevant to the prediction being made, so there should be some kind of face-validity. Why am I giving you my Facebook likes when you're a car insurance company? Where's the connection? Also part of what we try to do is explain that connection between data and outcome so that people aren't surprised when a prediction is made about them. There should never be surprise, that's a kind of litmus test.

12 "Trust & Predictive Technologies 2016. A data driven study into privacy, prediction and personalisation by Edelman & The University of Cambridge Psychometrics Centre"; study results available on www.psychometrics.cam.ac.uk/client-showcase/edelman.

So that's it, really. These technologies exist, we've developed them, we've used them, we would like people to use them more, for individuals to wield this kind of sword, if you think about it that way. We want customers to be able to ask more complex questions of marketeers. I want to be able to go on Netflix and say, show me something someone of my personality wants to watch right now. And Netflix doesn't need to know who I am in order for it to be better than all of its customers at giving me a recommendation. So that's where we would like things to move, and Apply Magic Sauce is part of that initiative, but there are many other initiatives trying to do that as well. — That's all. Thank you very much, I am open to questions and discussion.

Panel Discussion with Vesselin Popov, Florian Cramer, Matteo Pasquinelli, Peter Weibel, Siegfried Zielinski and Daniel Irrgang

MP Thanks Vesselin, that was a crystal clear presentation of many issues. I would also like to introduce some more guests. We have a lot of meta-data already gathered around Peter Weibel and Siegfried Zielinski, so I'm not going to introduce them again. Siegfried Zielinski is Rector of the Karlsruhe University of Arts and

Design (HfG) and Peter Weibel is Director of ZKM | Center for Art and Media Karlsruhe. And we are pleased that Florian Cramer is able to join us from Rotterdam. Florian is a writer and theorist and professor of applied research in new media and their impact on art and design at the University of Applied Sciences, Rotterdam. Also he was director of the Piet Zwart Institute in 2010 and 2011. Florian lives in Rotterdam and has been active in many cultural art projects since the '90s, spanning digital activism and art activism. Maybe Florian will tell us more. Also I would like to introduce Daniel Irrgang. Daniel works with us at the HfG as a research associate with a focus on media theory; he is working on his PhD on diagrammatics, a topic that I find very interesting. He is also the assistant to the Rector of HfG. So I would like to open the podium discussion, but maybe Siegfried Zielinski and Peter Weibel want to offer initial remarks and feedback?

PW Mr. Popov, first of all thank you so much for taking the time to join us because, for Siegfried Zielinski and myself, what you said is very important in relation to democracy. In your lecture you used the term erosion of democracy. And right now we have a kind of net demagogy, or net populism, and this can be very fundamental for the erosion of democracy. But before we start our discussion, I'm grateful that you came. And, if I understand correctly, what is said in the German media — that Cambridge Analytica and Cambridge Psychometrics Centre are the same thing — is not true.

VP Absolutely not!

PW But here in Germany, this is the first manipulation that we find in the mass media.

VP You're right, it is an example of manipulation in the media by putting the name Cambridge in the company name even though they have no relation to Cambridge. In fact the media, including the New York Times, fell for it because they started referring to Cambridge Analytica as Cambridge.

FC To add a quick footnote, Cambridge Analytica is owned by Robert Mercer, the financier of Breitbart News. Steve Bannon, presidential advisor and Breitbart's *de facto* editor-in-chief, as you probably know, is also on the board of Cambridge Analytica. So Cambridge Analytica belongs to the same group of companies as Breitbart News.

PW But you said they did not even use methods similar to those of the Psychometrics Centre. The German media reported that Cambridge Analytica used Kosinski's psychometric methods. So, this is not true?

VP Well, "used the method" could mean anything. The methods are published in PNAS for the last four years, which means anyone can use the methods, so that's one debate. Whether they actually used it? I mean, I showed you that quote saying they hardly used it at all. So, which is the real story? I don't know. There is no collaboration is what I'm saying.

PW And it is important to know, as you said, that Cambridge Analytica is a commercial company, whereas you are a university research institute. So there is a big difference. But this was all mixed up; is this the case also in England or only in Europe?

VP It's still mixed up. I mean, there are right-wing journalists coming up with all kinds of conspiracy theories about Russian spies in the university and whatever else. Certainly there is confusion, and for the most part confusion is good for people like this because they feed on confusion in the media in some way. So they are very good at PR and marketing.

MP One of the things to remember: Breitbart is a blog that is into the business of news manipulation. It is interesting how, in this political scenario, manipulation of muddy waters on the one hand and social data analytics on the other are common interests of the new political actors in the United States.

PW I have another question. Could you explain to us, technically, what is the difference between micro-targeting and psychometric methods?

VP The idea around micro-targeting as it is currently being used is the idea that you can give an individual a unique message. So it's not really any different from regular data-driven marketing, where you put people into buckets and say these people have a car, these people don't have a car, these people are young, these people are old, and you market to them differently. Micro-targeting is exactly the same idea but taken down to an individual and much smaller level. Psychometric methods are about understanding psychology and behavior, and of course if you know the personality of the person you are speaking to when you try to target them, you might be able to do things you wouldn't otherwise be able to do. If you just knew they were twenty-six and male, it is not as informative as if you knew they were twenty-six and male and extroverted and vulnerable to emotionally charged messaging.

PW So, the fundament of both methods is correlation of data? Micro-targeting and psychometrics both work with digital footprints?

VP It is correlational data, but what I'm saying is that all analysis of online behavioral data is actually a psychometric process.

SZ I'm very curious of course to hear from Florian Cramer as well, but perhaps it is possible to bring in three broader questions which result-

ed from your presentation, dear Vesselin. The first one is a kind of thought-provoking question. At the beginning, on the two sides of the sword, you had in the positive field the term communication appearing twice. On the left — or negative — side, communication did not appear. There is a crucial question for me behind the placement of this term. Does communication necessarily have to be positive?
The second issue or question is more historical. Your argument — I do not want to criticize it, please do not misunderstand me — is a little bit familiar to me from discussions at the end of the 19th century, when a lot of biological and bio-psychological arguments entered the discussion of criminology, for example, and were heaviliy connected with a kind of madness of statistics. Before that, criminology was strongly defined sociologically, socially, as a question of which class within the social hierarchy a criminal belonged to. In other words, politically, ideologically and socially. "These people come from the lowest class with the lowest education and lowest moral standards, their sons or daughters, of course, also must become murderers" and so on. This is where biometrics people like Cesare Lombroso intervened more than a century ago. They were very often misunderstood. Right from the beginning, they said the social argument is conservative or right-wing stuff. The genealogical argument keeps the criminals criminal forever. Instead, the biometricians wanted to enlighten their societies by bringing statistics into the issue of criminology, brining in the realm of applied mathematics, to connect criminology with biological arguments. There are several very interesting examples, but Lombroso is their most bizarre and prominent protagonist.
The third theme is very strongly connected with that — again, a little bit historical. You used the term propaganda machine several times. This is, of course, very familiar to people who know German history. The whole Nazi system was often identified as and called a propaganda machine. But this was primarily a metaphor at the time when it was invented. Although during this time, the Hollerith System was already being used, established by IBM. Now, though, the machines that are able to organize propaganda through algorithms and statistics have arrived. And my question is very emphatically this, also for the sake of our discussion: How much of the "machinic" is inside the propaganda machine and how much of the metaphoric is inside? How much ideology is inside the machine? So, these are just three questions I would like to put into the discussion and perhaps we can locate our different perspectives, which we are certain to have.

VP I will try to respond to part of it, maybe to the last part about how much machine there is in the so-called AI propaganda machine. I think that we must accept that technology now exists which enables machines to create their own communications, their own languages, their own adverts, their own events for themselves, invite people, send all of that out with highly targeted emotional rhetoric and messaging. This happened with Microsoft's Twitter bot that got taken over and turned 'evil' as it were. So does that mean that Twitter is evil or AI is evil? No, it's just about how these technologies end up getting used and gamed in practice. Right now a lot is happening in the US. For example SCL Elections — which is a company that has been around for a very long time; Cambridge Analytica is a new offshoot, but SCL are very experienced. They are using essentially military techniques that haven't really got anything to do with social media. I mean, you can manipulate people on the street in person as much as you can manipulate them online. So the kind of debate that I want us to have is about whether there is really anything new happening now, or is it just that they have another tool in the toolbox?

SZ Let me make the question more precise. You ended with something that is a big provocation for media theorists of a specific type. You said, I will put it simply, that technology is neutral. And this is exactly the background for my question. Can we still say that? When you describe the machines and the programs running on the machines, can you still say that it is only a question of how we use it, or are we not already beyond this kind of sovereignty and this kind of possibility of a free act?

VP I'm not sure that I do believe that technology is neutral but I would argue that some of what we are talking about is already happening and it's a dangerous position to take to say we should regulate this or we should try to ban this or we should not do this, because actually it has lots of very positive applications. So we're not talking about a chemical that people wish had never been invented. We are talking about a very positive method that has been used in society for decades. For diagnosis, for meritocracy, for educational progression, for making sure that people get the job they deserve and the salary and the opportunities they deserve, and all of these things. So if people are predicting our personalities in the darkness, we want them to be predicting them transparently and using the information for our informed benefit.

FC In your presentation you emphasized the importance of the intentions with which these technologies are being used. But another problem brought up by, among others, Kate Crawford at Microsoft Research would be that we can use these technologies with the best intentions and still end up with something terrible. One of Crawford's examples is predictive policing in the United States, where big data technology is used to identify crime hotspots in cities. As soon as these areas have been identified, they can have stronger policing. It so happens that these areas tend to be areas inhabited by minorities. As a side effect, every petty crime got policed. The arrest rate sky-rocketed. This effectively meant that if you are a black person living in a crime hotspot area, your likelihood of getting arrested for the

same petty crime that somebodyelse might commit in a more affluent neighborhood is disproportionally higher. So the technology has been used with the best intentions but produced discrimination.

VP Thank you for the example, and yes, predictive policing was one of those I had placed on the "dark side" of the sword. I think this is a little bit different in terms of how we approach how bad algorithmic bias is. I think one of the main reasons for algorithmic bias and why it is endemic in government and in business — you know, everywhere — is because there is no psychological or ethical scrutiny of the historical data on which the algorithms are trained. So the so-called data-scientists — which, as you know, is the most fashionable profession in the world at the moment — are mostly people who have not had ethical training of the kind that psychologists, cultural theorists or philosophers would necessarily have. You can build a model to predict who will be promoted based on everyone who has been promoted in the last ten years and it could be 95% accurate and the very pure computer science approach would be to say, my model works, there's 5% error and 5% error is less than the human error so we leave it there. However, if everyone that has been promoted previously is white and male and from a privileged background, then your algorithm will simply perpetuate and in some cases falsely legitimize a historic prejudice. And that is exactly what predictive policing does. This is obviously why we believe in multidisciplinary approaches; because, in taking a pure computer science actuarial prediction approach, you might let the issue rest without realizing that what you've done with good intentions, or with the intention of saving human time, is actually very negative. So I completely agree with you on the risks.

PW Before we come to some conclusions concerning the main question — that being, how democracy is menaced by social media — I would like to create some common ground so that we might all understand after your lecture what you are speaking about. You mentioned several key words that I liked very much. You spoke about artificial intelligence, propaganda machines, computerized political manipulation, and botnets. And to explain to our audience and to investigate together the meaning of the concept you just presented, we have to remind ourselves that it was Freud's nephew, Edward Bernays, who published a book in 1928 called *Propaganda*13 — later he substituted "public relations" for "propaganda." But both public relations and propaganda were meant to manipulate public opinion. To me it is important to understand that the psychometric method is not originally propaganda. Your aim is not to influence public opinion. But the people in possession of this quantitative analysis of behavior could use this method for propaganda, right? So that, indirectly, psychometrics can be used for influencing public opinion. This, then, is the danger. And now comes the point: We have these botnets, which means we have these algorithms in the net that accumulate data. And they do it in a computerized arithmetical way, which means you can distribute messages on the Internet which are wrong and which are purely mathematical processes. And suddenly many people receive the same wrong information via viral distribution. So, to make a long story short, I want to know your opinion. Fake news is not created by humans, fake news is a side-effect, fake news is a defect of computational data collection. This is now my point: We have to develop a new mathematics, new algorithms to prevent this wrong correlation of data, because this is now precisely the point. It is not the "bad guys" doing this; it is not done by people at all, but by botnets. Botnets are precisely computerized, digitized administrators of data, and suddenly we have a flood of fake news created by the bots. But these are services you can rent. This is what Russian specialists do now. Russian programmers are able to make these mathematical computations in order to use botnets to automatically generate fake news.

13 Edward L. Bernays, *Propaganda* (New York: Horace Liveright, 1928).

VP I just had a small point about the spreading of fake news — it's like a virus really. I guess my open question is, how do we immunize ourselves against this kind of spread? With fake news, it might have been created by a human or a computer but it also spreads through real people thinking that it's real news. It's not just a purely fake network that you can destroy or somehow algorithmically unlist from Google, for example — which I am sure Google is trying to do in various ways with fact-checking. But fact-checking takes a lot of time and effort.

PW You're right, a lot of stupid people believe in these fake news created by algorithms, that's the problem. But this is precisely what is missing, we don't educate people to mistrust. We educate them to simply believe, this is a weak point in our educational system.

DI Burroughs said that language is a virus as well. He meant something else, I guess.

FC Sorry to interrupt you, but if you look at Burroughs' essay 'The Electronic Revolution' from 1970, especially the second chapter which was written under the impression of the Watergate scandal a few years later, then you realize that it's all about the issues we are discussing here.14 Burroughs' concept of language as a virus is based on the very idea that there is a mimetic spread of information. Burroughs gives a beautiful example in this book. He lived in London, went to one of the first coffee bars that sprung up there in the 1960s and was served moldy cheesecake. As revenge, he ran a psychological operation against the coffeebar by just standing on the other side of the street with a camera and a tape recorder, doing nothing but pretending to take pictures and sound recordings. When-

ever the coffee bar owner approached him, he said, "I gotta right to do what I like in the public street." He claims that through this psycho-terror he brought down the coffee bar so that it went out of business after less than three months. One could say that this is a low-tech forerunner of the kind of massive bottom-up info war operations that are taking place today. What I find remarkable about this anecdote is that it doesn't matter whether his intervention actually worked or not. The pretension, the story he tells, is enough, which reminds me of Cambridge Analytica. It didn't matter whether they used psychometrics or not. The pretension, the story, or you could say the fake news that they were using — it created a powerful narrative and a self-fulfilling prophecy. In both cases, Cambridge Analytica and Burroughs, the desired results were achieved: Trump won the election, and the coffee bar really did go out of business (I checked that fact). But we do not know whether it was their psychological warfare operations that actually achieved those results.

14 William S. Burroughs, *The Electronic Revolution* (Bonn: Expanded Media Editions, 1970); the first part of the book is titled "The Feedback from Watergate to the Garden of Eden."

DI Thanks for bridging this very loose comment of mine. Because I want to jump to something else anyway, it's also related to ethical questions, and it's also a question for you, Vess. In 2015 you co-authored with Kosinski and several others an article called "Facebook as a research tool for the social sciences."15 There you say that in this year, in 2015, the American Psychological Association lists only three documents relating to or containing guidelines regarding research using Internet resources or data sets, the most recent from 2003.

15 Michal Kosinski, Sandra C. Matz, Samuel D. Gosling, Vesselin Popov, and David Stillwell, "Facebook as a research tool for the social sciences: Opportunities, challenges, ethical considerations, and practical guidelines." *American Psychologist* 70/6 (2015), p. 543–556; doi: 10.1037/a0039210.

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Language detection created with: Google Sheets *Text Analysis* add-on

VP There's one from 2011 about Internet research but not about social media.

DI Ok, so did that change? Because this could be a positive effect of the double-edged sword and the agenda-setting by certain media players in the last one to three years, that a movement might evolve that is dedicated to setting up appropriate guidelines.

VP The movement is coming from practitioners, from the market research industry and from academia. I'm not aware of any particularly more detailed guidelines from an IRB, which is kind of good and bad. So people work it out in practice and collaboration is now very international, which of course helps with this. It was three weeks ago when I was in Berlin for a general online research conference speaking to market research professionals and academic researchers together, and it is very clear that in psychology there is a lack of computational skills. Most psychologists don't know how to code or use our very large data sets, though they are of course learning more and more. And I think in computer science and more computational statistical fields, there is maybe more a lack of psychological or historical information. I think as those fields become more and more blurred — and I guess psychometrics is a little bit between the two of those — I think this situation will improve and the guidelines will become more practical.

DI One short question. Isn't this a field of collaboration for, say, computer linguistics, which already is an established field?

VP Yes absolutely, text analytics.

PW Mr. Popov, perhaps you as a specialist have an answer to my question. What is the difference, when in 2008 Obama introduced microtargeting on a massive scale and won the election. People were very happy and admired it. Today, when it is done by Trump, people suddenly hate it. What is the difference? Why do people hate it now when they didn't hate it ten years ago?

VP I really don't know, to be honest.

PW Technically it was very similar, right?

VP Yeah, I mean social media was used on a massive scale, huge marketing operations by Obama, and people loved it because maybe more people loved Obama, I don't know. But I think things that have happened — like the Snowden revelation, Sony hack, iCloud hack —, these things have made data security and data breaches and privacy much more personal to a lot of people. Probably in 2008 or 2009, if you had asked me, I certainly wouldn't have had a clue about it.

PW So one possible answer is that when Obama used the same technique as Trump, at that time nobody was aware of the problem of private data. Today, people are more aware and now they are realizing that they are being spied on by the government. With Trump, they realize it and now they hate it, I understand. Thank you.

FC But there's also an interesting counterphenomenon to what you describe. Yes, we have had micro-targeting through social media for quite some time, and the technologies are improving. It seems to me that the specific innovation brought by your group was to have introduced psychology and the Big Five. But in the Trump campaign, there is an opposite phenomenon for which I do not have an explanation. Namely, that the real propaganda exploded on the so-called image boards, 4chan and 8chan. I'm not

sure how many people are familiar with them — younger people likely will be. Who in the audience is familiar with 4chan and 8chan? Only a few. The image boards are the last anarchic, unregulated websites on the Internet where people can do almost anything, and everyone is anonymous. They are the origin of the Anonymous movement. They originated in Manga and anime culture, but later became the breeding ground of memes and the most hardcore political trolling and campaigning. You might have heard of "Pizza Gate" for example — this was invented on 4chan, like so many memes and fake news. The Pepe the Frog meme evolved on 4chan as well. But 4chan is a site where there is no targeting, no personalization, no tracking, no analytics. And nevertheless, the campaigns and the so-called meme wars — to use a term you didn't want to use — were highly successful. They had a major impact in social media, although there was no psychology or analytics involved in this whatsoever. They were random shots, more like media punk. I can't easily make any sense of that — I can't correlate the analytics and the randomness and wonder whether anyone else can on this panel. Matteo, maybe you can?

MP As moderator I should not, but I would like to propose a synthesis, since Peter Weibel has already addressed this kind of nightmarish vision in which social data analytics could be used by some evil minds. Maybe some Breitbart people have used it and then automatically reused it to produce fake news, memes that are re-channelled through these anonymous channels on the internet and perhaps they produce an unexpected feedback loop in the ecology of ideas, of news, of even aesthetic forms today. I'd like just to stress the relation between social data analytics and the production of fake news, and how this can even be distributed through bots in a completely random and uncontrollable way via Internet channels.

SZ Perhaps sometimes I think too artistially and not so much philosophically or scientifically, but I was irritated right from the beginning when this term "fake news" began to be used by more than just those people whom I do not trust — those being the conservative politicians. They were the first who started to talk about fake news. What does that even mean? Was there true news before? What we have been told for decades, was that true news? I mean what kind of idea of truth is behind that? I mistrust this paradigm extremely. And if you would like to respond to that, I would like to push our discussion a little bit more into this political direction. Those who argue strongly against free access, against unconditioned dialogue on the Internet and so on, these are mainly conservative politicians. In Germany it's the CSU, it's the CDU, and so on. It's very strange. All of a sudden they have discovered the truth and the freedom which are necessary in the name of democracy. This is a very bizarre figure and we have to think critically about that, because from a media-theoretical perspective it implies more control, it implies the opposite of dialogue, it implies dissemination. One of the most celebrated communication historians and philosophers at the moment is John Durham Peters, who pleads for more dissemination as an alternative to dialogue. I don't understand that. Why should we go back to the old "broad-casting" situation? Because then of course the state has full control over everything that is going on. This can't be the alternative.

PW I might have an answer to your question. We can agree that news have often been fake and lies. As you know, Tony Blair was prime minister of England. If you take the name Blair and make an anagram of it, you get the word "liar." So it means that fake news had been the privilege of human beings. What is new about fake news is that now the liars have competition. And this competition is what we call botnets. So suddenly it means you have communication between automata, algorithms, and bots. And this is an automated communication between artificial intelligence elements of the system. So the lie is not created by human beings anymore, but it is created by the automated communication of information.

FC Small comment on that: The botnets that exist today are computers infected with computer viruses and used by remote operators in the manner of marionettes. But these bots are actually not being used as artificially intelligent text generators. We are not that far yet. We still have traditionally human-crafted messages that get multiplied via bots on fake social media accounts.

Organizations: Business Development, University of Cambridge Psychometrics Centre, Big Data, University of Cambridge, US, SCL Elections, Stanford, White House, AI, Big Brother, Morgan Freeman's, Hilton, Karlsruhe University of Arts, ZKM | Center for Art and Media, Applied Sciences, Piet Zwart Institute, New York Times, Breitbart News, PR, IBM, AI, Microsoft Research, Electronic Revolution, Watergate, Research Tool, Social Sciences, American Psychological Association, Internet, Raindance Corporation, US, Harvard Law School .19, Society, German, Telecom, Second Life, Gabriella

Locations: United States, Germany, Silicon Valley, Cambridge, Trump, China, Europe, South America, Brazil, France, England, United States, London, Cambridge, Berlin, Turkey, Italy, Tumult, Vienna, Brooklyn

Entinity extraction created with: Google Sheets *Text Analysis* add-on

PW But this is precisely it, because these accounts are automated, there are no filters anymore. Automated accounts create automated propaganda. This is new. The only difference is that "old" fake news had been created by human beings. Now fake news is being created by social media, by automated accounts. This is something new. The citizen of today is no longer the autonomous individual that can make autonomous decisions. The citizen of today is precisely part of this management of data, a victim of these automated accounts. We can speak of automated propaganda on one side and of the managed citizen on the other.

MP Just a footnote. For instance, in the case of Turkey during the election, there was use of automated Twitter bots composing these fake, automated tweets through hashtags, but that was like a random production of all the possible combinations. So there is this component of automated propaganda that exists somehow to destroy the political enemy or other kinds of opponents.

FC Before joining this panel, I spent two hours, though I'd rather have spent two weeks, at the ZKM exhibition on experimental poetry called "Poetic Expansions."16 It features the earliest historical examples of textual bots, in the form of computer-generated poems created by experimental writers and artists including Nanni Balestrini, Max Bense and the poets of his Stuttgart school. Some of those computer-generated poems from the 1950s to the 1970s even used the same technologies that bots are using today. For example, the text of Max Bense's 1963 radio play "Monolog der Terry Jo"17 was generated using Markov chains, now one of the most commonly used technologies for algorithmic text bots. This brings us to Andrew Breitbart, the founder of Breitbart News, who famously said that "politics is downstream from culture." Culture is first and then trickles down to politics. We have the living proof here in the ZKM exhibition. Many of these viral strategies were developed in the experimental arts. One of the first electronic, digital botnet trolling campaigns happened in the context of 1990s net art, as documented here at ZKM in the "net_condition" exhibition:18 the famous troll bot entity Netochka Nezvanova, alias "antiorp." It was an artist-run botnet that was spamming electronic arts- and electronic music-related Internet forums with a unique combination of experimental poetry, political propaganda and advertising for the audiovisual authoring software developed by its mastermind and initiator. Therefore, I'd argue that it is not so much us, sitting here in an electronic arts center, who have to catch up with these new realities, but many of these new realities have actually already been prefabricated in experimental arts.

16 The ZKM exhibition series "Poetic Expansions" opened on April 1, 2017 with three exhibitions, retrospectives of Nanni Balestrini, Hansjörg Mayer, and Gerhard Rühm, and continued during summer 2017 with Reinhard Döhl, Helmut Heißenbüttel, and Konrad Balder Schäuffelen; http://zkm.de/en/event/2017/04/poetic-expansions.

17 "Monolog der Terry Jo," experimental audio play by Max Bense and Ludwig Harig, 1968.

18 "net_condition," exhibition at ZKM, September 23, 1999–February 27, 2000.

SZ Just one quick response. This is of course a very tricky argument and one that is historically quite well known to us. I'll make it rough because we don't have so much time. There was a comparable discussion about fascist ideology in the late 1920s and 1930s. Where did the Nazis take their ideas from? Of course, it was from the social movements, and they were implementing and connecting these with their ideological program. The result was the propaganda machine, which we all know very well. This hint is very important for us, because what you said has to motivate us to be self-critical and to see what we have created by ourselves throughout the last decades. This is extremely important. For me, the actual performative forms of the alt-right are interesting, because we can see a lot of parallels to the late '60s and the early '70s. Maybe not so much regarding Viennese Actionism, but definitely regarding the protagonists of the Raindance Corporation19, Ant Farm20 and so on. They were all artists, but behaved and spoke like politicians and businessmen, and they even dressed in official suits; this was part of their concept. Those kind of strategies are again very much in use at the moment. We have to be self-critical, of course. But this connection should help us to be even more analytical and more reflexive. Because the hasty conclusion about where these strategies come from and whether their use is identical, is a little bit too hasty for me.

19 The Raindance Corporation was conceived in 1969 by Frank Gillette as a group and platform for media activism and artistic communication practices aiming at social change through alternative use of electronic media; www.radicalsoftware.org/e/history.html. See also the exhibition "Radical Software. The Raindance Foundation, Media Ecology and Video Art," which took place at ZKM a few months after this panel, from July 1, 2017 to January 28, 2018 (http://zkm.de/en/event/2017/07/radical-software-the-raindance-foundation-media-ecology-and-video-art).

20 Founded in 1968 by Chip Lord and Doug Michels and influenced by the new political movements at that time, the Ant Farm group's activities aimed at alternative strategies in architecture, design and the arts to create environments of social and educational change; for the archived Ant Farm website see https://web.archive.org/web/20061205052858/http://antfarm.org/.

DI Talking about experimental arts, we recently had Julian Oliver here as a guest. A couple of years ago, he and his collaborator Danja Vasiliev did this work called "Newstweek"21 where they built little devices — you might know the project — that look like adapters or power plugs, which they then plugged into public spaces like cafeterias with open wifi hotspots. And using these apparatuses, an operator was able to hack into first the wifi network and then the browsers of the computers connected, in order to change, in real time, the headlines of the news that people were reading. So there was an anticipation of the fake news discourse in a slightly different way, more direct probably, a very strong artistic intervention raising awareness of discourses to come. I'll give the microphone to you, Florian, because I also have a question. You talked about 4chan and 8chan already on other occasions,22 and you talked a little bit about the so-called meme

Video recording of the panel discussion:

www.bit.ly/netactivism

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wars. If 4chan and 8chan are among the few open fields that are left on the Internet, one is actually reminded of the net-activist utopias of the '90s with free spaces for communication — which are supposed to be spaces of dialogue but typically it's just people communicating by broadcasting their opinions, so it is not very dialogical at all, more of a monologue. Do you think there is a direct adaptation of net-activist practices going on there, or is it a more implicit adaptation? And the next question: Are there any studies on the claim that the meme wars actually had any influence on the US election, any quantitative study attempting to figure this out?

21 "Newstweek," intervention by Julian Oliver and Danja Vasiliev; http://newstweek.com.

22 E.g., in a lecture on the alt-right organized by Piet Zwart Institute, Rotterdam, November 28, 2016; video documentation on https://conversations.e-flux.com/t/florian-cramer-on-the-alt-right/5616. Transcribed excerpts of this lecture have been published in Neural 57 (2017), p. 8–11.

FC Since the election, there have been a number of quantitative studies done, the most recent one by Yochai Benkler at Harvard Law School.23 They all come to the same conclusion, that the quantitative impact on social media is measurable. You also see that Donald Trump himself re-used many of these memes on Twitter. Of course, nobody can tell if and how many voters were converted by Pepe the Frog. However, what I still find remarkable is that the image boards are not only the places where the memes are being created, but also where the Anonymous movement came from. In some cases, we're even talking about the same people. In a 2014 book by anthropologist and media researcher Gabriella Coleman on the culture of Anonymous,24 a central figure is the troll and hacker Andrew Auernheimer, alias weev, who now has emerged as the most extreme neo-Nazi hacker and activist in last year's alt-right campaign. He has a swastika tattoo on his chest and was the technician behind some of the most extremist alt-right websites including "The Daily Stormer" (named after the German Nazi newspaper "Der Stürmer"). In Coleman's book, he is being portrayed as a member of the larger Anonymous network. And Anonymous wasn't the first. Since Matteo Pasquinelli is among us, we may as well offer full disclosure — Matteo, you were involved in the Luther Blissett project in the 1990s, which was all about creating an anonymous-pseudonymous entity, first in Italy and then elsewhere in the world, an entity that created media hoaxes. It was all about fake news and, as I know, you created some of it.

23 The results of the study "Breitbart-led right-wing media ecosystem altered broader media agenda" by Yochai Benkler, Robert Faris, Hal Roberts and Ethan Zuckerman were published in *Columbia Journalism Review* on March 3, 2017; https://www.cjr.org/analysis/breitbart-media-trump-harvard-study.php.

24 Gabriella Coleman, *Hoaxer, Whistleblower, Spy: The Many Faces of Anonymous* (London and Brooklyn, NY: Verso, 2014)

Persons: Peter Weibel, Daniel Irrgang, Robert Mercer, Steve Bannon, Twitter, AI, Kate Crawford, Edward Bernays, Michal Kosinski, Alexander, David Stillwell's, David, Book, Burroughs, Electronic Revolution, Obama, John Durham Peters, Tony Blair, Nanni Balestrini, Max Bense, Andrew Breitbart, Donald Trump, Gabriella Coleman, Andrew Auernheimer, Guy Debord, Frank Böckelmann, Milo Yiannopoulos, Hitler

Dates: 1930s, 1950s, 1960s, 1963, 1970, 1970s, 1980s, 1990s, 2003, 2007, 2008, 2009, 2011, 2014, 2015, March 2013, Next week, Two years ago, last five years, last year, late 1920s, ten years ago, this year, today, two years later

Entinity extraction created with: Google Sheets Text Analysis add-on

One of these involved fake news about Umberto Eco being the mastermind behind Luther Blissett. Two years ago in Slovenia, there was an exhibition on the interrelation of these network practices, from Mail Art to Luther Blissett and Anonymous. Every one of us is guilty of having played this game ourselves. We could go even further back in history, to the Situationists in the 1960s, when its German section was expelled from the International by Guy Debord, one of the first to think critically about media manipulation in The Society of the Spectacle.25 Debord had expelled the German section organized around Dieter Kunzelmann for what he called "National Situationism." That was quite prophetic, since one of the expelled members, Frank Böckelmann, went on to found the media-sociological periodical *Tumult*, which lately has moved to the extreme right and is now one of the main organs of the intellectual far right in Germany. Peter Weibel, that infamous action in Vienna for which you were arrested as part of the Viennese Actionists, it was organized by the Austrian SDS [Sozialistischer Studentenbund], wasn't it? Many German SDS leaders ended up on the far right. Meanwhile, the contemporary far right is using actionist tactics. Shortly before the election of Trump, Milo Yiannopoulos, now a fallen star of the "alt-right," staged a performance in a Brooklyn art gallery in which he bathed in a bathtub filled with blood. This is why I had to disagree with Siegfried Zielinski when he said that the alt-right was imitating media art but not imitating Viennese Actionism — they actually do.

In the end, this boils down to the same discussion we are having in other contexts, for instance concerning the role of contemporary art in gentrification. Gentrification has structural similarities with the "alt-right" phenomenon to the extent that experimental art is being appropriated for something it didn't foresee or intend: you find artists' initiatives and community art that end up paving the way for shopping malls, actionist art whose transgressions pave the way for hate campaigns against political correctness. And that seems to be the tragedy of contemporary art — that it is always ending up paving the way either for shopping malls or for fascism. I remember being 16 years old in the 1980s and hearing Peter Weibel lecture on exactly this topic. To illustrate his point, he showed us a t-shirt that depicted Hitler as a rock star, bearing the headline "Adolf Hitler,

World Tour 1933-45." We cannot escape this happening, it is bound to happen when ideas are open. And in order not to exclude Vesselin Popov from this art-specific discourse, I'd argue that the same thing has happened to you. You just voiced it in a different way when you said that our ideas are out in the open, as published knowledge, that we have an ethos of sharing and working for the public instead of producing secret, arcane knowledge. But that means that anyone can come and abuse it. Which is what happened to you. In the arts and in culture, we call it appropriation, the Situationists called it "recuperation." It has happened to all of us, one way or another.

25 Guy Debord, *La Société du spectacle* (Paris: Buchet-Chastel, 1967).

A2 Pepe the Frog as Donald Trump, tweeted by Donald Trump.

PW I would like to come back to Mr. Popov, because I like the title very much: "data-driven double-edged sword." This is precisely why Mr. Zielinski and I chose the title "Net Activism — Net Demagogy," because this is precisely the double-edged sword of Internet society, of data-driven society. In the beginning, we all hoped — naively — that the net would advance democracy. This was a naïve expectation, that with all this access and with all this knowledge available for distribution, we could have an omni-competent citizen who would be able to make all the right decisions. But now we have just the opposite, net demagogy. So it's precisely what your title means, the double-edged sword – this is the situation of the Internet as data-driven society. And here is my question. We have, as you know, a colleague who is a professor at Oxford Internet Institute, Mr. Philip Howard. He wrote a book about the Internet of Things in which he asks, does it set us free or does it lock us up?26 And he claims in the book that the Internet and social media destroy democracy. I think, from what I have heard tonight, that you would say there is a tendency that people will destroy democracy with the help of social media but that it's possible we could also do the opposite, it is up to us. I think you have a neutral position. I was very glad to see you sketch out an ethics at the end of your lecture, which is very important. This is the first time that we are starting to think about an ethics with respect to what to do with data and digital footprints.

26 Philip Howard, *Pax Technica: How the Internet of Things May Set Us Free or Lock Us Up* (New Haven, CT: Yale University Press, 2015).

VP I think right now I'm neutral, but I would like to be more extreme in a positive direction. I'd like to be able to somehow do more in terms of doing more projects. We are one team of eighteen people at Cambridge but we are trying to publish and put data and techniques out and to fight what is happening — and I think that it's always a fight. So I take your point that the Internet kind of promised something and that now a lot of people are disillusioned by the way the Internet has been appropriated or "recuperated," one might say. Right now, I guess that debate for me comes down to the role of protagonists like Facebook and Google and Twitter. Because, especially in Europe, they would argue that they operate like Telecom networks. They are just a wire through which information passes and they have no role in controlling what information passes; they are not fake, not real, they are just a wire. And I think many people would argue the other side, that they have a duty of care over digital citizens. And I think I'm leaning more on that side. So probably I'm becoming less and less neutral the more I learn about it.

PW Your title speaks of "navigating ethics." What could an ethics of psychometrics be?

VP Well, psychometrics has a very difficult relationship with ethics because of some of those examples I mentioned. Right now, big data is being taken up by scientists and used for good and bad, predictive policing on one hand and law enforcement on the other. And it used to be that psychometrics allowed you to understand who was more intelligent and then people 'recuperated' that and eugenics was born, not just from this but also from other influences. So we've had to battle with those questions for a very long time and we're still battling with them now. There is no rest.

SZ It might sound bizarre to your ears, but when Lombroso, the famous Italian criminological researcher,27 identified a special part of the brain as the reason for a person to murder another person and thereby established a biological argument for a person's activity, he knew that he was singularizing in an extreme form — the activity of a murder. He did not argue in a sociological way; he did not argue

statistically or whatever; he said that this is a singular proof, the highest proof you can have: a special form in the brain which is responsible for the act of the person. Behind that is an interesting argument which we can perhaps follow in order to answer Peter Weibel's question. I would like to take this in another direction, if you'll allow me. The question of the quantity of the masses. We don't use this term any more but at the moment it is coming up again and again, and again very conservative theories about the masses are formulated as arguments. The first critical network theories in the 1960s argued very strongly that it is a question of the size of the groups that are networked, whether or not they can still operate as open networks or whether they are closed networks and assume the form of dissemination and so on. What do you think of this quantitative argument? You are working with data numbering in the millions. This is a completely different approach than working with participant observation or other methods, which you might also apply to small groups in your methodology. But is the mass a decisive moment? Because I think this is what we are afraid of, even though we don't admit it. Because the masses can be used as objects of an algorithm, and then they are merely working as a medium to power a motor.

27 The Italian criminologist Cesare Lombroso (1835–1909) developed a Social Darwinism approach to criminology, arguing in physiognomical and psychiatrical studies that criminality is an inherited attribute; cf. e.g., Cesare Lombroso, *Le crime – Causes et remèdes* (Paris: Reinwald/Schleicher, 1899).

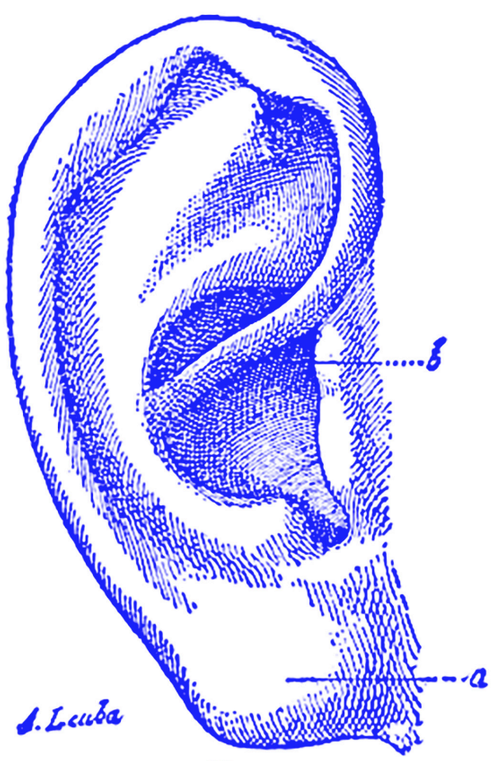

FIG. 28

Criminal's Ear

A3 "Criminal's Ear", taken from: Cesare Lombroso with Gina Lombroso-Ferrero, *Criminal Man. According to the Classification of Cesare Lombroso* (New York and London 1911), p. 224.

VP Thanks for the question. I think, on the question of the size of the network, especially from the way we see it, it is actually the same technique, whether you're scoring the test of one person or scoring the tests of a million people, you still need to detect a latent trait and hope they weren't lying to you and you have to make the incentives and the biases known. So I think this is the same. What is different is — it goes back to the predictive policing example — that the more data you have, the more confident you become in your prediction, your outcome. So just having more data doesn't mean your data is of better quality. And this is something that we've seen in political polling. You can poll as many people as you like. But if you ask people how they're going to vote, many of them will be embarrassed and they will lie to you and will tell you something else. So the data you start with cannot be cured by some kind of methodological practice subsequently, and I think it's something we've always wrestled with. And this goes back to the crux of why transparency is so useful, and actually why we work with companies at all. It's not just to get funding for research. It's also because when companies use data in the way that I'm trying to argue is better — with concern for transparency, in other words — it is actually much more sustainable for the business model as well. And maybe that wasn't the case before, maybe it isn't the case for every single company right now. Of course there's always money to be made by cheating people out of stuff, that will always exist. But like we've seen with environmentally sustainable investments, they are not just ethical investments, they are also often safer investments to make from a financial standpoint, too. And I think we are seeing a similar thing going on with personal data in business. The more data you have, the more confident you become in your prediction, but it doesn't mean that the quality of the information you have is necessarily any better.

PW At the end of your lecture you showed a very important graphic, because you told us that with the increase of data, maybe it is easier to predict behavior. And then you showed us with this graphic that even the prediction of behavior is done better by computers than by neighbors or friends of the person, right? So this is very important to know, that when humans communicate and make judgements about neighbors and friends, now they have a competitor, a computer that can do it better. So now we have what I will call prediction management. And what you showed us are the basic elements of the ethics of prediction management, transparency, etc. But now we have a basic conflict. In the analog world, we have very clear amendments, agreements. For example in the Bible, the tenth commandment, you should not covet your neighbor's wife or belongings and objects. That means we should have a law that says, you should not covet your neighbor's data. But if you were to do this, there would be no psychometrics. How do you solve this basic problem? If you are really

ethical you should not covet and use your neighbor's data like the prohibition we have for analog objects. But your science is built on taking data, maybe with consent.

VP Can I give one example of how to prevent people from coveting your data? Publish it for everyone to use for free. If you publish your data and open-source it, it prevents people from coveting your data and this kind of neutralizes the competition by preempting it.

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FC I have a remark concerning Peter Weibel's comment that the free Internet seems to turn against democracy, despite the fact that it was invented as a democratizing technology. I'd argue that it is still this — a democratizing technology. But this means that it is also democratizing propaganda and disinformation. In former times, governments and media corporations had the monopoly on fake news, manipulation and propaganda. Now they have been open-sourced. — But maybe that is a question for the audience.

MP In my authority as moderator, I would like to open this up to the audience.

Matthias Bruhn (in the audience):

Thank you very much. I do have a question also for Mr. Popov. Next week I will start a class on the concept of post-democracy. And that's why I have a question about your wording. I'm very interested in your very sober analysis of the situation. There was one term you used in a way which I found ambivalent, when you said, "it works." My question would be, what does this imply, "it works"? Does it mean, "it happens," "it is inevitable," in the way we say we can't avoid people being creative, we can't avoid people using new means for propaganda? So it works, propaganda works as well. But you also implied when you said "it works" that there is a tendency to use it to steer it toward something selffulfilling as well.

VP Thanks for your question. What I was trying to get across is, it works I guess from a scientific perspective. So that within a research community, my colleagues have gone through the efforts of testing this at least within the standards of psychological research, which are perhaps not perfect. What I was trying to say is that it is possible to use these technologies to change behavior, so I just wanted to make sure we set the level of debate to "this is real," "someone could do this." And to your [to Florian Cramer] very good point: Even if it doesn't work, it could still have the intended outcome, which I think is really interesting. So maybe what I showed doesn't matter. Whether it's possible to predict personality from Facebook likes, maybe it's irrelevant if you can sufficiently trick a large enough network of people into voting a given way. Because in the democratic process, when typically there is so little choice and so little turn-out, especially from my age group, I'll add, moving the gauge a tiny bit could make all the difference for the next couple of years. And I think that's what is really scary about the political context, as distinguished from marketing or anything else: that a small change has a huge longterm impact.

SZ One thing I doubt very much is, which I said right at the beginning, that we can solve the problems we have with technologically more effective communication. This is what I deeply mistrust and this is what we have to get out of our brains. This white and black dualism that you showed at the beginning is, of course, the place to begin thinking about the whole complexity of the problem. We know that this dualism in the end does not work. Because communication is on both sides and all the elements are distributed to the black and to the white field. This is where it starts to get more complicated and more intellectually challenging.

From the audience:

I'm not sure if I understood you right. I thought you mentioned that big data, or the analysis of big data could help better education in some way. Can you mention any examples how it could be used for better education? Since it is an issue in Germany, too.

VP I think educational big data has a lot of promise. One example, just off the top of my head, is that more and more we have these online courses and online schools or platforms like YouTube. A lot of people can learn pretty much anything from some of the best professors and educators around the world. And ok, it's quite a new movement, but potentially if it spreads beyond just learning how to code or play guitar but to learning other things as well — I think it's very, very beneficial to have a system that is open,that is cheaper than going to a university, in cases where the university system hasn't sufficiently adapted to allow that person a place. I think that is a very positive use of big data and prediction. Another related example is adaptive learning. So, as class sizes grow and demand on teachers becomes more and more intensive — of course there is more and more technology in the classroom, but I guess what is most important for education is not just what happens in the classroom, it's what happens in between classes. Young people are increasingly teaching their teachers and telling their teachers about things. So I think the role of the educator is changing a lot because of the access to information.

FC A footnote to that: We already use something roughly similar to psychometrics, for example here in the German education system. It is a very old system based on exactly three quantities called "Hauptschule," "Realschule" and "Gymnasium." As a middle and high school

student, you are placed into one of those three. But imagine if we were to use psychometric technology to gain a much more nuanced and varied assessment of students' abilities and consequently get rid of the three-tier school system. Based on the assessment, each student could have an individual, customized and personalized learning trajectory that would permit them to study at different academic levels, age and ability groups simultaneously. But this would come with a dark side attached. You would have a very pervasive psychological profiling of the student. It could be used for a more inclusive and emancipatory pedagogics, or it could be used to torture the student.

Johan F. Hartle (in the audience):

I have two related questions, very short. First, a little discontentment. I'm a little bit confused about "good" and "bad" in terms of activism and demagogy along the lines of ethical intentions, given that we do not believe subjects are in full control of the machinic processes. In other words, and this is my second remark, shouldn't we also think about the ways in which people engage in communication in social networks specifically as isolated individuals who are looking for certain forms of prestige and agreement — agreement then of course means being in agreement with certain majority-like judgments which might strongly incline toward the exclusion of minority groups, etc. So I'd like to hear more about the sociological preconditions of social communication, and I'd like to hear more about this also in terms of answering the question, what kind of intentional structures do we find in the logics of Internet communication?

VP I guess, one aspect we also have to balance is the right to free speech. Regardless of the intention or content of their speech, anyone can stand on the street corner and yell racist abuse and try to manipulate people into doing things, and this is something that is perfectly legal and — I think many of us would agree — essential to democracy, having free speech and free thought, more importantly. So has it really to do with social media? Okay, maybe on social media certain intentions can be enacted in a more complex and more covert manner than previously, but I wouldn't agree that social media enables the enactment of that intention. I think that if someone wants to manipulate someone they will do it however they can find a way. Maybe that's a bit naïve, but I struggle in the same way with the concept of seeing someone exercizing their right to free speech in the way I mentioned. Of course our emotional reaction is to want to silence them, in a way. We all have to face that all the time.

FC Did I understand you correctly that we are focusing too much on ethical aspects and not enough on the sociological aspects? But you could say that what we are discussing right now is nothing but our confrontation with the social and sociological aspects. The ethics of communication that lie at the root of the free and liberal open Internet, from its forerunners in the 1970s through the 1990s and even later, were only ever those of a small academic elite. It took a long time before the masses could participate. "Access for all" was one of the first and primary demands of media activists throughout the 1990s. While, strictly speaking, there is no universal Internet access — since age remains a problem, class remains a problem, infrastructure in poorer versus industrialized countries remains a problem — but still, there has been a massive change. Populism is an outcome of this change that was to be expected. It had not emerged on the Internet for several decades because the Internet was not yet a mass medium, because the yellow press and TV were more efficient means of propaganda and disinformation. So, in the end, we may not be dealing with media-specific questions but really with more general social and political issues. Through the technology, things become visible that existed before but only under the radar. The fact that informal communication is now public and openly documented, also means that (to use a German word) the *Stammtisch* — pub talk — is now published. The forms of communication that had been excluded from the older news media were not always the politically correct forms of communication. I'd still consider this inclusion an improvement — that these voices are now out in the open and no longer hidden.

PW Mr. Popov, as Mr. Zielinski has described, in the nineteenth century, we had body metrics, among others Cesare Lombroso in Italy and Francis Galton in England. Then we had psychoanalysis and now we have psychometrics. Can we say that the rise of the science of psychometrics relies on data and therefore you need the Internet and social media as the basis for your science? Otherwise you would not have any access to any data.

SZ To put it a bit more scientifically, it goes back to Johan's question: How much hermeneutics is in the results you presented?

PW How much do you rely on data delivered by social media?

VP I think there are two types of interpretation happening. One is of course the statistical techniques that are very old and becoming more and more complex. So this is about asking someone, "Do you like meeting new people at parties?" and the answer gives you some score on a latent factor. But of course, a psychometric test isn't the same as a quiz. Because you could ask people a thousand questions and find out zero information about their personality. So it's not just about asking more and more questions or even more sensitive questions. It's about a well-documented, peer-reviewed practice that has been in use not in the last five years but in the last thirty-five or more. So that's one type of interpretation. I think the other type is the interpretation

which I had in my marketing example. My interpretation was that introverted people might want an ad that to me seems introverted or to the marketers seems more introverted. But this is of course a very naïve and normative way to think about introverts. You have to imagine that some people play video games in order to behave in a way that they don't in real life, you know kind of like in Second Life, whereas others play video games to behave in a similar way to how they behave normally. So the idea that you can pigeon-hole one individual just by speaking to more people, I don't agree with, and I don't think that psychometrics is about that at all.
I think psychometrics is about trying to quantify differences between individuals so you can account for them. For example, if African-Americans get lower scores than white Americans on Raven's Matrices Tests, then you can adjust the scoring so that you account for this bias. You can quantify the bias in the testing method and develop techniques to minimize its impact. There is no such thing as an unbiased testing method.

PW That means, would it be correct to say, psychometrics is a science based on the correlation and interpretation of data? And then this data is partially based on social media.

VP No, I would disagree actually. Because psychometrics does not really have anything to do with social media. The fact that we apply psychometric techniques to social media data is just because that data is available now. You can apply psychometric techniques to any kind of data and you may find a factor structure or you may not find one.

PW So you're not relating data from media but your science is based on correlation and interpretation of data.

VP Yes.

From the audience:

I think anonymous image boards on the Internet are a fairly different situation compared to traditional social media platforms such as Facebook or Reddit or Twitter or Instagram, since those are the only places you can get real anonymity as there is no profile or mask to hide behind as there is for example on Reddit. And that, I believe, leads to a certain way of thinking because those sites create a kind of hive mind that is constructed from lots of different anonymous users. And this concept, I believe, attracts a certain type of people, of internet users. My question would be, have you ever tried to profile the typical 4chan or 8chan user? And also, are those anonymous image boards good or bad for the Internet as we know it?

Pepe the Frog: A popular Internet meme. By 2015, it had become one of the most popular memes used on 4chan and Tumblr.

Created by Matt Furie

Definition created with: Google Sheets *Look Up* add-on

MP It's a good question, connecting social media to the deep web.

VP I'll just answer the first one, if that's ok, and then I can open the second one to everyone.
No, we haven't profiled these 4chan users. It would be fascinating, but I guess this is basically what security agencies are trying to do. If you've installed Tor then you're on the list already, just so you know! This is how it works, right? Call me cynical, but I have examples of researchers, colleagues who, in researching some of this dark web stuff, are being tracked, they have issues at immigration and this kind of thing. So I think the best way to conceal yourself on social media is to behave like people you never interact with. Probably none of us follow Breitbart News on Facebook or retweet any of Donald Trump's tweets seriously, but Ithink if you did that, you'd very quickly get a window into what other people are seeing that you are not seeing. This is the echo-chamber idea, I suppose. If you want to see what's outside of the echo-chamber, just behave like the most repugnant person that you could imagine and it won't take long for the algorithm to change, trust me.

A4 4chan young white male demography: "manosphere" meme by The Red Pill Society.

FC Concerning the anonymity of the image boards, a cynical joke about them is that they are populated by people who are too stupid to use Tor and falsely believe that they are on the dark web. We can be very sure that everyone on 4chan is thoroughly being tracked by police and intelligence services. The typical assumption is that these image boards have a predominantly young white male demographic, and this is confirmed by the bulk of the subcultural phenomena that have originated there. A significant one is the so-called "beta uprising" in the "manosphere," anti-feminist movement whose visual-cultural affinity for the image boards is so obvious that their interconnectedness is more than superficial. Even Pepe the

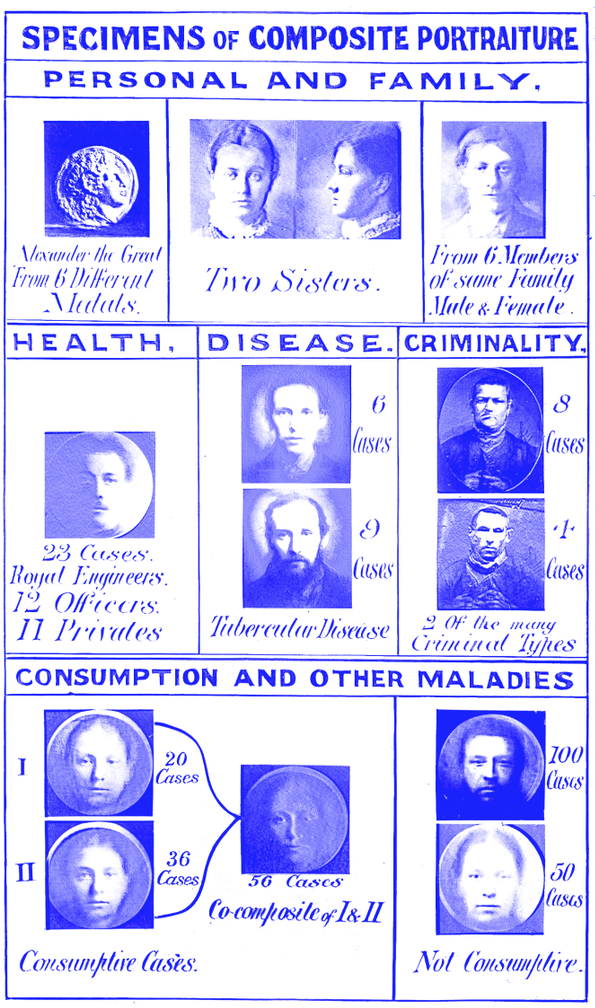
Frog originated in the beta uprising, not in the traditional white suprematist hardcore of "alt-right" culture.

PW Mr. Popov, did I read correctly, did you mention facial profiling in your lecture?

VP We do facial recognition.

PW But how do you do it with data? Because facial profiling or facial recognition was invented by Galton[28] some centuries ago, who is considered a pioneer of psychometrics, together with Lombroso. So how do you do it technically, facial recognition? What are your parameters?

28 Sir Francis Galton (1822–1911) created an "average face" by using photographical composite techniques. Galton also coined the term "eugenics" in one of his major works, *Inquiries into Human Faculty and its Development* (London: Macmillan, 1883).



A5 Composite photography, taken from: Francis Galton, *Inquiries into Human Faculty and its Development* (London 1883), plate to face page 8.

VP In the same way we collect Facebook likes, you can ask people to share their social media photos, so now you suddenly have a database of a thousand photos. The kind of research we are interested in doing with photos is, for example, do extroverts take different kinds of photos than introverts. So, is it possible to predict the personality of a user from the kind of photos they post. And if you think theoretically, it's something that is worth looking into. Probably extroverted people go to more concerts than introverted people do. We ask people to share their social media photos with us and complete questionnaires and then we use computational techniques to break that image down into features: it might be light, dark, contrast, what kind of object are they photographed with, is there a tree, is it sunny, are they smiling in the photo, this kind of thing, and we just correlate those with their test scores.

From the audience:

I have a second question for Mr. Popov. You used Facebook profile data for your research, but isn't it the case that when you go on Facebook, you have to create your own account, your own avatar in some way? It's not the person being profiled there, it's a profile created by the person with some intention. Looking at my friends at the moment from school, they are all changing their profiles to suits, since they are in business now and cannot show themselves partying anymore. Why did you choose a social media platform for this kind of research and not Google search results, for example?

VP Let me answer your question with a scenario. Imagine I am going to a job interview. Is it me sitting there talking, or is it an avatar? So this kind of challenge is true in every environment whether it is Facebook or the workplace, in school or in a hospital. Bias and image management isn't unique to the digital environment. The reason why the digital environment is useful for this kind of research is because you get access to a larger and more diverse sample of behavior than you can normally access. So if you're in a job interview, however long it lasts, they can only ask you questions and judge you based on the way that you behave in this time and maybe they will look at your CV. But if you do psychological research on Facebook, people can share with you what kind of music they listen to, where they've been, with whom they are friends, what kind of political interests they have, what radio stations they follow, lots of different things. That's why it's interesting for psychological research, because it's a retrospective of actual behavior. Of course people click all kinds of stuff, and they're not really friends with all the people they are Facebook friends with. But it's not like you can go back ten years ago in real life and delete it. This is why using Facebook profiles gives you quite a large record of behavior which helps overcome some of the biases that you traditionally have in self-reports, like people being motivated to lie, people not being able to accurately describe something even though they want to tell you the truth because it's too complex. So you make a very good point — no, it's not the real you, but it is a part of you that might be relevant to help people understand you.

MP I would like to invite the last question. It is very difficult to wrap up, to find a final synthesis of all of this: maybe somebody can try from the

audience with a last question that would address all these problems, this strange beast that is able to transform data into new political monsters traversing the internet [laughing].

SZ Of course there is a clear wrap-up: The difference between good and evil machines does not make sense!

A6 Wolfgang Abel, „Über Europäer-Marokkaner- und Europäer-Annamiten-Kreuzungen“ [On European-Moroccan- and European-Annamites-crossbreedings]. Zeitschrift für Morphologie und Anthropologie, vol. XXXVI (1934), plate XLVIII.

FC I could second that, by citing Gabriella Coleman’s book as a related example. I think that she makes one terrible mistake in it, namely by framing the Anonymous movement as a story of bad image board trolling having turned, in almost miraculous ways, into “a force for good.” I’d rather avoid these categories because they will end up biting us, exploding in our face. And staying with the metaphor, we might say that we are dealing with dynamite, information dynamite. But just as you can use conventional dynamite for quarries, fireworks and bomb assaults, information dynamite doesn’t come with an inscribed ethics. It boils down to a Heideggerian techno-existential question: how to live in the future with information bomb technology out there available to everyone.

MP I will leave the last remark for our host, Peter Weibel.

Google Search results of "Net Activism – Net Demagogy"
Region Setting: USA, Date: 5 April 2018

All	878.000 results	0.64 sec
News	686 results	0.24 sec
Videos	1.810 results	0.17 sec

PW I have a question for the audience. I don’t want you to answer it, I think this is a question you should take home with you. The question is precisely the title of this evening’s discussion: the science of psychometrics, this data-driven double-edged sword. Will it help us to succeed in democracy, to support democracy — which I hope — or will it act to erode democracy?

SZ This implies my last question to you, Peter: Do you believe in true mathematics or in the mathematics of truth?

PW I have an answer. Truth is a concept from the analog world. We could show that truth is more than we can prove. Even in mathematics there exist undecidable propositions that can be true but not formally proven. Truth is a concept much wider than provability. But what we can prove can be formalized and can be computerized. This is the point. So, provability is computability; but I don’t say that this is truth.
I prefer to say in the digital world truth became provability and provability became computability. The rest is metaphysics.

Digital Intermediation of Everything: At the Intersection of Politics, Technology and Finance

Evgeny Morozov[29]

The reason why most of contemporary reflections on the digital condition fail to excite is simple: one can only understand today's digital world by seeing it as the intersection of complex logics driving the worlds of politics, technology, and finance. Grasping a phenomenon such as the rise of Uber, for example, is next to impossible without understanding where its funds — raised from sovereign wealth funds and investment powerhouses such as Goldman Sachs — come from. Likewise, Uber's ability to cheaply draw on a large pool of supposedly autonomous and independent drivers can only be understood in the context of the liberalisation of labour markets and the growing precarity of service work in general.

The conventional fairy tales that we tell ourselves about digital technology — they usually involve a bunch of hoody-wearing twenty-somethings barricaded in the proverbial garage praying to the Schumpeterian god of creative destruction — end up glorifying the entrepreneurial heroes while concealing the broader historical forces at play. Trying not to abandon various political and historical dimensions to the rise of Big Tech, this essay will attempt to elucidate five major features of today's digital society that bear some relevance for struggles against anti-democratic, extremist, and xenophobic forces that appear to be on the rise worldwide.

This essay will proceed in two parts. The first, more descriptive part will summarise the five trends and explain their broader political and cultural significance; for the sake of convenience, I will address each trend in a dedicated subsection. The second, more normative part, will discuss the kinds of cultural, artistic, and scientific interventions that could address the numerous problems raised earlier.

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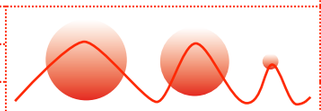

Sentiment analysis created with: Google Sheets *Gavagai Sentiment* add-on

Data Extractivism

In the first six months of 2017, four big US tech firms—Alphabet, Amazon, Microsoft, and Facebook — have seen their stock valuations grown by an amount greater than the GDP of the oil-rich Norway. Similar trends can be observed in China, where a home-grown industry around its own giants — Tencent, Baidu, Alibaba, JD.com — has emerged to rival America's supremacy.

One can dismiss such trends as the beginning of a new bubble — perhaps, a replay of the dotcom craze of the late 1990s. There are, however, some solid reasons why such reading would not be accurate. First, unlike the late 1990s, there are some valid economic models underpinning the immense growth of such firms. Second, the immense valuations of the digital firms partly reflect their ownership of the most important resource of the 21st

29 This essay was commissioned by the Council of Europe and was first published on the Website of the CoE on the occasion of the 4th Council of Europe Platform Exchange on Culture and Digitisation, held on 19–20 October 2017 at ZKM | Karlsruhe on the subject of "Empowering Democracy through Culture – Digital Tools for Culturally Competent Citizens." Reprint courtesy of the Council of Europe, copyright © Council of Europe.

century: data — a digital residue of various social, economic, and cultural networks and relationships that crisscross our lives.
In fact, it would not be inappropriate to describe the logic that drives the development of this sector as "data extractivism" — in a direct parallel to the natural-resource extractivism that has driven the activities of energy firms and commodity producers across the globe. The key premise of data extractivism is that users are valuable stocks of data; technology companies, in turn, design clever ways to have us part with that data — or at least share it with them. They need this data either to fuel their advertising-heavy business models — more and better data yields higher advertising earnings per user — or they need it in order to develop advanced modes of artificial intelligence centred around the principle of "deep learning"; here, the diversity of data inputs — and the ability to leverage millions of users to teach different behaviours to the machine — comes in handy.
Seeing the emerging digital economy through the lens of data extractivism sheds light on many phenomena that have to date remained undertheorised and poorly understood. For example, the much-discussed problem of online distraction and fatigue generated by the use of Twitter or Facebook does not require the usual moralistic and paternalistic discourse of "the Internet is making us stupid and we should be responsible enough to disconnect."
Rather, such fatigue can be explained as a natural consequence of data extractivist models adopted by the providers of the firms: they are the ones designed their systems to offer maximum distraction as that's the way to maximise the number of clicks — and hence data about us — that we produce on their sites. They keep drilling our psyches the way oil companies drill the ground and data keeps flowing from our emotional reservoirs.

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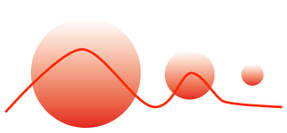
5%	other



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Digital Intermediation of Everything

Data extractivism has both political and economic consequences. On the political end, we see the narrowing of political opportunities that were supposed to widen up with the growth and broader distribution of digital technologies; ambitious political projects — be it the revamp of healthcare or education systems or of public administration systems — now increasingly require some form of intermediation by the providers of digital services. On the economic end, we see immense wealth flow to just a handful of investors who were clever and quick enough to invest into this sector; the mechanics of this industry, however, is not necessarily favourable to helping to recover global economic growth — the concentration of data and, by extension, AI services in the hands of just several firms might result in them becoming the key gatekeepers (and, potentially rent-seeking gatekeepers) in the new digital economy. The bargain of data extractivism was too hard for most politicians to resist: the ability to have advertisers pay for the provision of telecommunications services — be it search or email or even cross-indexing of academic papers through Google Scholar — has helped to alleviate the burden on the public purse while helping to claim that a new kind of gentler, more caring digital capitalism was in the making. As data extractivism branched out from relatively trivial services into areas like health, education, insurance, and so on — these are all data-intensive fields — there immediately emerged the prospect that, somehow, many of these activities, too, can be subsidised by whoever is interested in claiming ownership upon the data produced in those areas.
This explains how Google came to striking a deal with Britain's National Health Service, which allowed the search giant to deploy its AI service to examine health data belonging to several million patients — all in an effort to find early signs of kidney diseases. Given that governments themselves suffer from the effects of selfimposed austerity measures and thus have little money to spend on welfare, while technology firms have the data and the computing infrastructure that can yield some savings while providing useful services, it's very tempting to recruit these firms and build the foundations of a new, very different kind of welfare state: a digital welfare state where most services are to be provided by data-hungry digital giants.
Thus, we need to take stock of structural factors pushing governments and other public institutions into the hands of these big tech firms; the power balance of tomorrow's politics will favour private players over public ones in a way that has not been observed since the feudal era. It's to the technology firms — not our government — that we will run in case of, say, cyber-attacks. Ironically, of course, it's also because of the flaws in the software and digital systems designed by those very firms that those cyber-attacks become possible in the first place. The growing appeal of initiatives like the Digital Geneva Convention — touted by the likes of Microsoft as the right way forward in delegating even more power to the technology sector in dealing with problems like cyber security indicate that the very possibility of intermediary institutions that reflect public — rather than private — interests is now facing extinction.

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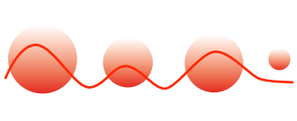
37%	positive
23%	negative
28%	sceptic
12%	violent



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The New Algorithmic Consensus

Nowhere is this shift towards private power more evident than in recent efforts to diagnose and eliminate fake news. Here one can see how the dominant theme of the public debate on the issue has not been the question of why it is that clearly fake and erroneous news items circulate so widely but, rather, who it is that pays for their production and how it is that we can limit their impact. The former question can only be referenced with a reference to data extractivism: fake news items — which has existed as long as news has existed — now find greater circulation online because they fit very well into the click-obsessed business models of the data extractivist giants.

In other words, these items travel so fast because this is how Facebook and Twitter make money: an item shared by just a handful people on Facebook might even cost Facebook money — it needs to be widely shared to be profitable. Under such conditions, the right way to liberate us from fake news seems evident: we need to liberate our communication networks from their reliance on data extractivism and base them on a different set of principles not rooted in the drive to harvest data, be it for advertising or AI. However, since the question of "data extractivism" forms part of the broader political unconscious of the contemporary world, it hardly features in policy debates. Hence the preferred way to deal with fake news: to increase even further our reliance on the tech giants and given them even more power to identify what counts as fake and what counts as genuine and true. Of course, they can only do so by means of algorithms — even if they manage to recruit partners from the journalistic world to bolster the legitimacy of their efforts.

To have so much faith in the ability of algorithms — especially given everything we already know about just how useless they are at distinguishing photos of the works of art from, say, photos of pornography — is a sure path to cultural and political disaster. The false veneer of objectivity that every news item processed by Facebook will carry forever might, in the long run, do more damage to the public sphere than the current, largely chaotic approach.

Now, the struggle to eliminate and control fake news by means of a politically enforced algorithmic consensus is part of a broader effort to recruit predictive technologies — drawing on huge swathes of data already accumulated — in the name of control and policing. This is so regardless of whether we are policing the streets — as is the case with many "smart city" initiatives — or public discourse. But there's no consensus behind the new Algorithmic Consensus: the supposedly objective data that the algorithms are supposed to draw upon in deciding who counts as a terrorist threat, who might commit a crime in the next few months, who is to be released on parole from prison — all of these predictions feed on historical data which itself reflects existing and historical power imbalances. Thanks to Alphabet, Facebook, and their peers we now have the means to make such predictions on an industrial scale, making it even harder to redress the injustices that gave rise to skewed data sets to begin with.

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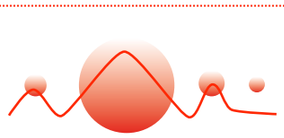
17%	sceptic
6%	other



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Predatory Emancipation

Any effort to understand why the intensification of the regime of data extractivism has failed to generate widespread discontent has to grapple with the ideological allure of Silicon Valley. Here one can also detect a certain logic at play — a logic of what I call "predatory emancipation." The paradox at the heart of this model is that we become more and more entangled into political and economic webs spun by these firms even as they deliver on a set of earlier emancipatory promises. They do offer us a modicum of freedom — but it only comes at the cost of greater slavery.

For example, we can gain free time — thanks to Google's virtual assistants, its ability to analyse our calendar and email and set up automatic reminders and appointment dates — but only at the cost of completely surrendering ourselves and our data to its systems. In fact, Google's entire promise is constructed in these terms: we can only enjoy it to the fullest if we surrender to the fullest.

Emancipation, as long as it is conducted on terms established by Silicon Valley, is a never-ending process because every act of emancipation creates several new types of dependencies. And the reason why a bunch of information services is seen as a path towards emancipation itself has to do with the reframing of what it means to be free in the 21st century: by and large, this is a freedom to choose in the global marketplace rather than freedom to offend and provoke those in power.

We are moving towards the model of "benevolent feudalism" — where a number of big industrial and, in our case, post-industrial grants take on the responsibilities of care and welfare — that was postulated by some analysts at the beginning of the 20th century as the future of industrial capitalism as such. It took an extra century to arrive at this vision but any sober analysis of the current situation should dispense with the "benevolent" part of the term and engage much deeper with its "feudalism" part: just because power is exercised upon us differently than in the good old days when the capitalist mode of production ruled supreme and unchallenged does not mean that we are ever more emancipated. After all, plenty of slaveholders in the American South argued that slavery, too, was a much more humane system than capitalism. The humanity of the current system is, by and large, beyond the point; the real question animating our inquiry should be

whether our growing reliance on big technology firms enhances or diminishes our autonomy — not just as consumers, but also as citizens. There's little evidence that this is the case even if the resourcefulness of our communication efforts — measured by the ability to reach thousands at low cost — has undoubtedly improved.

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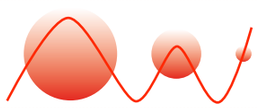

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The End of History: The Techno-Utopian Edition

One unstated but supremely important factor in the swift rise of Big Tech has been the assumption that the old conflicts — driven by class struggle or concerns about inequality of access to property or natural resources — have become a thing of the past and that a new classless world was now in the making, not least thanks to digital technology. After all, a world where the world's largest companies are also our main welfare and security providers is a world that no longer believes in either the presence of competing ideologies or in the prospect of revolutionary change.

This might have been a convenient assumption in the early 1990s when the "end of history" rhetoric was riding high. Today, however, such assumptions increasingly ring shallow; there's no denial that the levels of economic inequality are historically high, that globalisation has not benefited everyone equally, and that the world is brimming with angry people who are using their right to vote to deliver their "guilty" verdict on the establishment. However, while the rise of populist rhetoric — to be followed, undoubtedly, by populist practice — is incontrovertible, it has not in any way dented the key assumption — about the benevolence of the tech sector — on which the contemporary ideology of "technological utopianism" rests.

In fact, we could even go further: it's the dominance of this techno-utopian ideology that allows for the overall project — the one that believes that we are living in a classless society and that big conflicts over economic resources are a thing of the past — to go on unchallenged. After all, isn't it through technology — all hail the mobile phone! — that Africa is lifting itself out of poverty, joining the middle classes of the globe? Isn't it through technology — big data and algorithms to the rescue! — that those who were previously excluded from financial services can now get a loan — and on terms that would not feature extortion-like interest rates? Isn't it through technology that those parents who cannot afford a baby sitter can still gain an hour of free time — thanks to YouTube?

As long as the dominant cultural narrative holds technology to be the weapon of the weak and the poor — rather than the weapon aimed at the weak and the poor — there's little hope that phenomena like data extractivism can be given their due. Here, of course, the question is not so much about technology as such but, rather, about technology as currently wielded by the data extractivist industry. Attached to a different logic, technology very well might be an ally of the weak and the poor; the reason why techno-utopian narrative always wins is because it is good at presenting every critique of the commercial and social logic attached to digital technologies as an outright conservative attack on technology — and progress! — as such. Making it harder to make such accusations would be a good first step towards having a responsible adult conversation about building a world not reliant on data extractivism.

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35%	positive
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25%	other

Sentiment analysis created with: Google Sheets *Gavagai Sentiment* add-on

Interventions

In this second part of the essay, I would like to propose and discuss some specific interventions to reverse or at least slow down some of the trends outlined above.

Breaking the Intellectual Monopoly of Big Tech

First of all, we must undermine the intellectual hegemony of Big Tech on how we think about the future politics and the role that technology would play in it. We must recover the idea of citizenship that transcends the image of us being nothing more than just passive app-consumers who are pliable subjects of the global advertising empire keen to accelerate data extractivism.

To do this, we will need to break the discursive and intellectual monopoly that tech firms have held over our political imagination. Such monopoly is currently maintained through generous funding to media (via various journalism initiatives), museums (via corporate subsidies and lavish grants for digitisation of their holdings), and think-tanks (to influence research on antitrust and monopoly). But it's also maintained in much softer ways — by leveraging the immense goodwill that their brands have generated. Silicon Valley's public success derives, in part, from its ability to draw on the legacy of both 1960s hippie/counterculture and the Cold War science culture that many in the original counterculture were setting out to oppose — they are both Berkeley and MIT.

There's much that scientists and artists can do together to unpick specific hegemonic discourses around technology, especially many of the currently fashionable ones around AI. Given that AI and similar services have dangerous and potentially lethal consequences — especially when deployed for military purposes — we must remember that traditional discourses about the moral responsibility of scientists

have not become obsolete. Artists, on the other hand, must do better not only in playing up the dystopian theme surrounding such but also articulating a vision of the future that does not default to frictionless consumerism.

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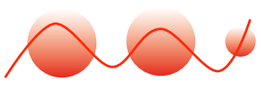
41%	negative
14%	sceptic



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Finding Power in The Digital

It's also essential that artists — perhaps, collaborating with sociologists and historians — reveal just how empty of power struggle most of the popular techno-utopian visions are. We just need to look at many of the surrounding promises to see that underlying them is a latent assumption about the overcoming of contradictions of capitalism and the irrelevance of concepts like class. But any decent analysis of automation would suggest that class divisions will not simply fade away because we'll all get access to the same automated technologies; poor quality automation for the poor, artisanal handicraft for the rich — this seems like a far more plausible future.

In addition, civil society needs to relearn how to attack the growing normalisation of immense power that private actors — above all, corporations — hold of society, with few or trivial consequences for freedom and autonomy. That today's feudalism comes in smiley faces does not absolve us from the responsibility to think about its impact on the weakest members of society.

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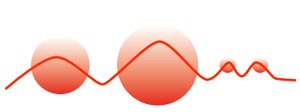

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Beyond "Freedom as a Service"

Two related ideas worth challenging also deserve some critical attention from civil society. One is the idea that all the negative features of the digital world — from the vulnerability of our computers to cyber-attacks to the sense of fatigue and distraction that many of us feel on using social media — are just the natural consequence of our own inability to control our desires. The other one is the idea that freedom is something to be sought and purchased in the marketplace, not the result of collective struggles in the political arena. The former is a false narrative that takes little stock of the structural effects of data extractivism. To be preaching self-control in the face of data extractivism is like preaching entrepreneurship in the face of havoc wrought by neoliberalism: it's a way to reduce a collective and political problem down to the individual, consumerism-friendly level. Rupturing the excessively moralistic nature of the digital discourse while highlighting the deeply social and political nature of constrains in which individuals find themselves is a task that artists have traditionally excelled at; this could not and should not be just the preserve of sociologically-minded intellectuals.

There's a reason why the second type of narrative — that freedom is something to be harvested and provided for by our deeper/longer use of such services — holds so strong: it draws its strength from being rooted in a much earlier discourse of consumer sovereignty which lies at the very heart of the neoliberal project. The idea that markets provide us with a much better mechanism for exercising our freedom and individuality because our every "vote" counts and because, ultimately, companies that serve us will be punished much sooner than the political parties might be based on false premises but it does enjoy growing political support.

The challenge is to rethink and recover a very different idea of freedom and its many cognate concepts, from autonomy to privacy. A privacy delivered to us via a cute app — at just 5 Euros a month! — is a very different kind of privacy from the one delivered to us via a system of constitutional rights. The former is "privacy as a service"; the latter is "privacy as a right". The key to the hegemonic victory of Big Tech has been its ability to blur the distinction between the two and focus just on the underlying good: freedom, autonomy, privacy — while keeping mum on the roads that lead us there. Recovering those distinctions — if necessary by means of provocation — while also revealing the rather limited conception of "freedom as a service" is a very important undertaking.

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Sentiment analysis created with: Google Sheets *Gavagai Sentiment* add-on

Challenging the Positivism of the Algorithmic Consensus

It's also important to be able to reclaim algorithms as something that can cause and foster trouble — not just help preempt and eliminate it (which is how they are used today in most predictive policing systems, for example). Artists have traditionally been good at it and we need to find a way to claim algorithms as something that can also lead to random, serendipitous outcomes — and destabilisation of power relations, not just their entrenchment. The growing rationalisation of everyday life requires such kind of playful, even subversive interventions; we might not be anywhere closed to Adorno's dark vision of the "totally administered life" but the Internet of Things might get us there faster than we think. Likewise, the turn to Big Data — and the under-

lying assumption that the bigger the dataset, the more truth it would yield — has surprisingly helped to recover many simplistic premises of positivism, along with their pernicious effects on how we think about knowledge. As a consequence, the current rehabilitation and subsequent formalisation of positivism into predictive systems is likely to recast long-standing cultural, racial, and ethnic biases as objective and empirical truths, baked into algorithms, and leading to even more discrimination. We already see such positivism run amok in predictive policing, facial recognition algorithms, travel databases in airports, etc. We will see even more of it once we deputise technology firms to control the flow of "fake news": mechanical rubber-stamping of certain concepts as "true" or "false" is not likely to enhance anyone's ability to see through propaganda. If anything, it may only blunt our ability to think critically about information that passed the algorithmic verification process. Fake consensus, enforced by algorithms drawing on flawed data, is every bit as bad as fake news.

On a broader level, we badly need to draw sharp distinctions between algorithms and the data that feeds them; we need to show that data is the Mechanical Turk in the algorithmic machine. Since much of deep learning (the method which underpins recent progress in AI) is still powered by historical data — and data, as any product of rational techniques of administration tends to incorporate, hide, and amplify biases — such revelations can help weaken the immense trust that most of us have in such seemingly objective systems. This is a formidable task for scientists, artists, and journalists to collaborate upon.

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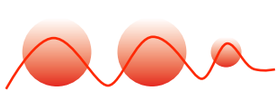

Sentiment analysis created with: Google Sheets *Gavagai Sentiment* add-on

Towards a Different Global Village

Giving the rising nationalist tide across the world, it's also important to evaluate what to do about earlier, more utopian visions of constructing the global village. While those visions failed to deliver, there's much good that ought to be preserved and recovered here — above all, the spirit of internationalism. But if there's one lesson to be learned from the 1970s and 1980s it's that touting the benefits of intercultural communication in itself would not suffice. Previous failures to build a multipolar, truly internationalist world of equal and just information flows — starting with the efforts of the Non-Aligned Movement to create the New World Information and Communication Order and culminating in the early promise of cyberspace as a third space where the emergent global civil society could converse on issues of universal importance — have to be studied much more thoroughly, if only to learn from their mistakes.

There's no harm in acknowledging that the previous conceptualisations of the global village (including all those utopian visions inspired by the likes of Marshall McLuhan and Buckminster Fuller) failed to account for both corporate power as well as geopolitical and strategic interests of governments who did not want to lose their ability to engage in surveillance activities. No such global village can be built as long as sustainable infrastructures for communication and information exchange are missing — and they would require money to build.

The good news is that today's global information infrastructure is much more granular than it was in the past, allowing for a modular approach to its reconstruction: once a credible architectural plan is in place, the hard work of building such a communications system can be shared across like-minded institutions, municipalities, and citizens alike. If successful, this vision can take care of the first need — infrastructure.

But what do we do about governments and their ever-growing needs of surveillance, justified by the seemingly permanent need for exceptional powers given the terrorist threat? Well, this is where cryptography can, in fact, contribute quite a bit: there's much to be admired in the work done by hackers and privacy activists over the last few decades in building tools that seek to guarantee that each of us can communicate freely and securely without fearing that our most intimidate information would be intercepted by our own governments. Here, alas, the problems are also more financial than scientific: there's an abundance of solid academic work on cryptography and anonymity but not so much independent, no-strings-attached funding that would allow to actually build the much-needed systems to enhance anonymity.

This is where we need to be able to distinguish between realistic and naive techno-utopianism: there's not much that we can learn from the latter — it has failed so many times already — but the former can, in fact, provide an alluring vision, provided we are realistic enough to know where the real bottlenecks lie (oftentimes, it's in politics — not in technology per se). Recovering the role of technology as an emancipatory force that does not default to the neoliberal role attributed to it by Silicon Valley: this is, perhaps, the biggest contribution that civil society could make to today's digital debate.

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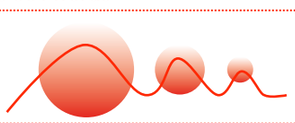

Sentiment analysis created with: Google Sheets *Gavagai Sentiment* add-on

On the Aesthetics of Populism in the Digital Age – a Case for Art

Gunnar Schmidt[30]

For some time now, a spectre has been haunting Western democracies, the spectre of populism. What is assembled under the term populism are antiquarian movements, associations of contemporaries who do not want to follow the rhythm of cultural progress and enlightenment. The habitus of populists is similar to those of naughty children who break the rules of etiquette and, for this purpose, they cloak themselves in historical costumes from the totalitarian past. The populists praise the authoritarianism of one opinion and criticise the democratic perception of diversity as a threat to identity, which according to their understanding should arise from the myth of the national. Emotions of exaggerated anger and revulsion serve as an authentication of their attitude.

Populism — a farce?

According to a now widespread interpretation, populism is the result of a divide: on the one side, there are the individuals who respond to the rapid changes and manifold challenges of digitisation with the ability to learn and adapt themselves; they welcome the potential of expanding knowledge, communication and enjoyment. On the other side, the populists appear to be losers, defenders of yesterday's past and inflexible stick-in-the-muds who feel under attack from or overwhelmed by the openness of the process of change.

On the level of behavioural phenomena this situation results in a peculiar double image: on the one hand the aesthetics of populism corresponds to those symptoms which are described in the field of individual neurosis as the return of the repressed. Old, fixated conflicts and non-integrated infantile desires suddenly occur in the form of disconcerting types of strange behaviour. For people from outside these inordinate articulations are often perceived as incomprehensible, irritating or erratic. Sometimes they are even experienced as scary because they unexpectedly and uncontrollably question cultural agreements. To the same extent populists' radical and hate-filled demeanour causes aversions among fellow citizens, those individuals on the other hand appear like risible representatives of the demised. Their fellow citizens regard their proudly displayed backward turns as clear signs of regression. This image of populism is underpinned by the leaders of the various movements. In their media appearances, the actors employ the simple rhetoric of invocation in a striking manner. Whether with pathetic gestures and trembling voices or blustering provocation — those actors in their mission to simplify hardly know how to use any other rhetorical figure than that of exaggeration.

Why, one wonders, do those messages work among the recipients? The attraction effect is similar to that of trash soaps, which are also able to address their mass audiences with

30 A slightly different version of the essay was first published on the Website of the Council of Europe on the occasion of the 4th Council of Europe Platform Exchange on Culture and Digitisation, held on 19–20 October 2017 at ZKM | Karlsruhe on the subject of "Empowering Democracy through Culture – Digital Tools for Culturally Competent Citizens". Reprint courtesy of the Council of Europe, who holds the Copyright for the English translation of this essay, copyright © Council of Europe.

banal stories and woodcut-like identification models. However, the well-known dictum of Karl Marx, according to which world-historical facts and persons appear twice, once as tragedy and the second time as farce, seems even more appropriate.31

31 Marx notes in *The 18th Brumaire of Louis Bonaparte,* 2nd Ed. (Hamburg 1869), p. 1: "Hegel remarks somewhere […] that all great world-historic facts and personages appear, so to speak, twice. He forgot to add: the first time as tragedy, the second time as farce." Marx then continues: "And just as they [the living] seem to be occupied with revolutionising themselves and things, creating something that did not exist before, precisely in such epochs of revolutionary crisis they anxiously conjure up the spirits of the past to their service, borrowing from them names, battle slogans, and costumes in order to present this new scene in world history in time-honoured disguise and borrowed language.", cf.: https://www.marxists.org/archive/marx/works/1852/ 18th-brumaire/ch01.htm.

With their outdated ideals, the revenants are no longer in tune with the globalised modernity, which demands quite different virtues: objectiveness, a sense of agreement, a desire for surprises, creativity in problem-solving, willingness to reflect on oneself, ideological distance, pluralism of identities and readiness to participate.

This perspective on populist movements, which sees in them no more than a by-product of modernisation, could allow a relaxed attitude of dispassionate observation. Revolt of their kind may be unpleasant and even entail threats arising from terrorist acts; but there may be little reason for a neurotic counter-reaction in the form of exaggerated excitement, because ultimately the fluffed-up megalomaniac fantasies are hardly more than symptoms of progressive weakening. These haters of progress will sooner or later be marginalised by the reality of the transformation processes, which seem as unstoppable as second nature.

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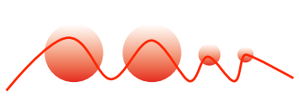

Sentiment analysis created with: Google Sheets *Gavagai Sentiment* add-on

Populism — a disease of the system?

In addition to this socio-dynamic approach, the spectre of populism must be considered from another angle. The communication strategies of simplification, playing on emotions and denying facts are currently employed in a media economy and ecology in which the behavioural disease has become a symptom of the digital society as a whole. It is a sufficiently well-known and bemoaned fact that intellectual and emotional backwardness is actually entirely compatible with the use of modern communication tools and the associated possibilities of influence. With digital communication, which operates on the one-to-many and many-to-many principles, also the populists have access to amplification systems that serve to mobilise the masses and consolidate opinions within the groups. Systemic linkage with the mainstream, which populists actually want to get away from, occurs on two levels. The first level, which is widely recognised and has been analysed by media scientists, involves theatricalisation of the political. A well-known strategy is the calculated breaking of taboos — for instance, when Nazi jargon is used deliberately or religious superiority over people of other beliefs is posited. This echoes positively within the group of followers whose feelings of mutual bonding are strengthened by a collective acclamation of the transgression. One example of this dramatisation was provided by the right-wing AfD (Alternative für Deutschland) during the German federal election campaign in 2017. A video campaign based on associative footage was broadcast on the main social media platforms, denouncing Chancellor Merkel as being responsible for Islamist terror attacks in Berlin. The Süddeutsche Zeitung newspaper wrote: "There has probably never been such a perfidious form of negative campaigning in any German election campaign before. It breaks the unwritten rule of German politics that a minimum of decency must be preserved during campaigns."32 This particular campaign was planned in the "so-called digital war room in the AfD's Berlin headquarters"33 — the martial language used in the office's name is symbolic of the content and strategies that are hatched there. Excesses of this kind are registered by the established media and regarded as worthy of reporting and commenting on. This reaction is actually what the political opponents want, even though contempt for the "lying media" and "fake news" plays a central role in the populists' discourse. This suddenly produces a coalition of opposing media players, with both sides deriving benefits from co-operation of this kind. The cultural anthropologist, René Girard, would probably have called this kind of mutual indignation "mimetic contagion",34 which contributes here to mirror-like self-referencing of the media: it seems as if there exists no outside of the media, where other behaviour patterns than mimetic rivalry are possible.

32 http://www.sueddeutsche.de/politik/gezielte-grenzverletzungen-so-aggressiv-macht-die-afd-wahlkampf-auf-facebook-1.3664785.

33 http://www.spiegel.de/netzwelt/web/bundestagswahl-2017-afd-wirft-google-sabotage-vor-a-1168618. html.

34 René Girard, "On War and Apocalypse" (2009), https://www.firstthings.com/article/2009/08/on-war-and-apocalypse.

Less obvious is the second level of systemic symptoms, to which media-driven populism contributes with its communicative pathologies. The fact that the adversaries of enlightenment also take advantage of the opportunities of the Internet, of digital means of bonding and of organisation does not only demonstrate that cutting-edge technical rationality and unreasonable thinking can go hand in hand. Moreover, this nexus can be read

as a sign of a general crisis: when the Internet began its rapid development in the 1990s, technology was accompanied by many discourses of hope. New types of learning and a new culture of knowledge and science were expected, 35 new types of communication and work were yearned for, liberating ways of playing with identities were hoped for, a new feminism (cyber-feminism) was devised and a new public space seemed to emerge. We only need to recall John Perry Barlo's 1996 manifesto. His "Declaration of the Independence of Cyberspace" begins with the following impassionate prophecy: "Governments of the Industrial World, you weary giants of flesh and steel, I come from Cyberspace, the new home of Mind. On behalf of the future, I ask you of the past to leave us alone. You are not welcome among us. You have no sovereignty where we gather. We have no elected government, nor are we likely to have one, so I address you with no greater authority than that with which liberty itself always speaks. I declare the global social space we are building to be naturally independent of the tyrannies you seek to impose on us. You have no moral right to rule us nor do you possess any methods of enforcement we have true reason to fear."36

35 A belated tribute in: Michel Serres, *Thumbelina: The Culture and Technology of Millennials* (London, New York: Rowman & Littlefield International, 2015).

36 https://www.eff.org/cyberspace-independence.

The entire text comprises the themes of contrarianism and being different, which are essentially underpinned by anti-state ideals and a natural-law approach to coexistence in society. It is probably part of the tragedy of history that it was not least this cyber-anarchism that opened the floodgates to cold economic liberalism — and a drastic loss of utopian ideals:

The great area of freedom provided by cyberspace was feudalised by the Silicon Valley corporations.

Intelligence services added digital eavesdropping functions to the Internet, which now spy on all Internet users regardless of legal boundaries, making them into potential suspects.

Social bots mimic human behaviour, swarm social media platforms with unverified information and thereby interfere in political elections.

The cultural industry is doing everything it can to turning users into permanent consumers by offering non-stop entertainment.

In its measures, politics primarily follows the emergency calls from the business sector, which is only interested in concerns serving instrumental rationality.

Educational researchers are complaining about the erosion of basic cultural skills such as text comprehension, correct spelling and writing, and free speech.

And, in the end, exclusive communication cultures have emerged which do not engage in the "great and gathering conversation" that Barlow described but, instead, in the narrowing of the mind.

Meanwhile, an overall pessimism accompanies the development of the Internet, which radiates into the entire culture as an emotional climate. Within this overall picture, the media policy of populists should be seen as a core trend which combines several dark themes of a public without rules: being able to say anything is mutating into a gesture of smugness, opinions are presented as a discourse of absolute truths, excitement is supplanting associative intellectuality and provocation serves to activate resentment instead of triggering the expansion of horizons.

Realism in the plural

It goes without saying that the Internet continues to function as a space of creation, inventiveness and great expressiveness — in other words, a key tool for the future and not just a toy for "the last man". The symbolic culture of the Internet, however, is of paradoxical nature that arises from the high concentration of symbolic offerings and its ubiquitous presence in everyday life. The fact that thereby opportunities and risks cannot be separated shall be briefly outlined as follows.

As far back as 1976, the French sociologist Jean Baudrillard formulated a theory that, although it has since fallen out of fashion, is useful as an analytical tool. Presented in theoretical essay-like form, this concept states that the saturation of the world with media generates a kind of hyperrealism under which the real disappears. Whereas 18th- and 19th-century artistic realism could still believe in the codification of reality and lived from the tension between representation and the represented, Baudrillard posits that "the hyperreal represents a much more advanced phase insofar as it effaces the contradiction of the real and the imaginary. Irreality no longer belongs to the dream or the phantasm, to a beyond or a hidden interiority, but to the hallucinatory resemblance of the real to itself."37 Baudrillard equates media representations with hallucinations, with an aesthetic impressiveness and immediateness that cannot be understood or interpreted. What is being formulated here — long before the digitisation of texts, images and films and long before the introduction of mobile devices with which modern human beings keep constantly in touch — sounds at first like simple criticism of the media. To avoid misunderstandings: Baudrillard is not referring to what nowadays is called fake news or information warfare, i.e. deliberate disinformation and calculated opinion-shaping. Of course, facts can be researched and can be verified or falsified. Realism always means that a conception of reality is created through processes involving the selection, combination and inter-

pretation of information. Every culture is based on these processes, but they are, however, directed differently. While they involve generally binding belief or knowledge systems in homogeneous societies, a different problem arises in the anarchy of an exploding information culture. As a result, both of politics being practically reduced to a repair service and a widespread tendency to avoid conveying civilising values and also of the equality and individualisation of religions or their substitutes, effective codification systems are losing their influence. What conservatives bemoan as a loss is, however, the precondition for freedom. This freedom does nevertheless involve virtually constant stress in terms of the need for interpretation: reality concepts have to be developed from the potentially endless symbolic material available. Populists also use the available reservoir of material to build and justify their dogmas. In their case, however, there is never any relativisation, scrutinising interpretation or comparison with competing ideas, either of their own volition or induced. On the contrary, the Internet as an amplifier rewards self-isolation because there is no supreme authority to weigh up the various models from a sovereign position. The problem is therefore not so much that people choose to adhere to misguided views as the use of the style of self-authorisation which embodies contempt for the other and things that do not suit them. The mythical foundations (nation, race, religion) of the discourse serve as immunisation against the contingencies of the modern era.

37 Jean Baudrillard, *Symbolic Exchange and Death* (London: SAGE Publications, 1993), p. 72.

Traditional media such as public-service television and high-quality political journalism still function as institutions providing comment within the competitive communication marketplace. But it is also true, that these media have been in crisis for some time and are hardly noticed any more by the younger generation. In keeping with Baudrillard, it can therefore be said that the Internet as an information archive is also the supply station for hallucinations and delusions. The post-modern term, hyperreality, could be suitably replaced by one that is used more frequently today. Although it has a specific technical meaning, augmented reality is also an appropriate metaphorical expression for the new conditions here: reality is complemented and enhanced according to our discretion and liking.

In a recent conversation with the American media artist, Tony Oursler, this picture of increasing gloom and occultation was eerily confirmed. Oursler not only addresses the realities of the contemporary media in his art, he also collects artefacts from the history of phantasmagorical media.38 Against this background, he voiced a theory of his own when asked how Donald Trump came to be elected. Referring to statistics, he pointed out that a large section of the American population still deny the theory of evolution, that a substantial number of people in the USA have significant psychological disorders or take drugs regularly and that people continue to believe in paranormal phenomena.39 The religious colouring of politics in the USA is a further factor in this combination of circumstances, which has a particular effect: in spite of education and science, there is still a desire for the transcendental, the counterfactual, denial of reality and the esoteric. Although cause and effect cannot always be easily distinguished, it should be noted that, regardless of any technical substantiation, the media have always also produced phantoms. The disconnection of images, sounds and statements from contexts, the supertemporality of their existence and the obscurity surrounding how they are produced can give media representations a sinister aura, the effects of which may extend to hypnosis and paranoia.40

38 http://tonyoursler.com/imponderable-moma.

39 A survey conducted in the UK in 2016 produced similar findings: https://yougov.co.uk/news/2016/03/26/o-we-of-little-faith/.

40 Gunnar Schmidt, "Beeinflussungsapparate. Eine paradiskursive Montage", in: *Wahn – Wissen – Institution. Undisziplinierbare Näherungen*, ed. by Karl-Josef Pazzini, Marianne Schuller and Michael Wimmer (Bielefeld: Transcript, 2005), pp. 195–219.

In spite of this analysis, it is still the case that there have rarely been such great opportunities for poetic appropriation of the world that emphasise exchanges, mutual activation, temporariness and openness as there are today. And we even can follow artists like Tony Oursler with optimism, who do highlight that the rational use of the media is only half the story.

#Populism #JeanBaudrillard #Hyperreality #NaziGermany #Hallucination #Berlin #TonyOursler #UnitedStates #USA #Spectre #Materialism #Documenta #InformationWarfare #SymbolicCulture #Universe #Occultation #Phantasm #Ghost #Metaphysics #InstrumentalRationality #JohnPerry #Nazism #Ecology #JosephBeuys #Authentication #Utopia #Manifold #JacquesRancière #ClassicalAntiquity #Neurosis #DonaldTrump #TheAnarchy #Habitus #PetroleumReservoir #Anthropology #QuantumDecoherence #Magic #Hypnosis #Transcendence #SiliconValley #SüddeutscheZeitung #RenéGirard #Islam

Hashtag suggestions created with: Google Sheets *Text Analysis* add-on

The art of the counter-strategy

Media are more than tools to control humans, communication, or things — they ought to be handled with criticism and creativity. If we change perspective, the Internet appears as a platform for a type of artistry that is not geared to the art system, or the art market, galleries and museums, where the main focus is on cultural tastes and historical knowledge of art. On the other side, the attempts to politicise art and turn it with good intentions into a conveyor of messages — as was the case at the Documenta 14 exhibition — also miss the actual point of art. Artists are not primarily activists or, still less, social workers. Art has traditionally

evolved as a system in which the frictionless operation of words, symbols and coding is disrupted in order to question the concept of truth. Art is a form of reflection about the effectiveness and ineffectiveness of symbolisations. Art therefore distances itself from the immediacy of events, which in large sections of the information distribution sector only leads to breathless attentiveness. Art makes no advance hierarchical distinction between the insignificant and the significant. By developing unusual forms which renounce practised rhetoric and predetermined codes, art encourages questions to be asked about the boundaries of understanding and forces creativity to invent or discover means of investigation. What gets lost in the constant activism of media coverage but survives residually in art is an understanding of democracy which consists in preserving the diversity of means of expression and their relationship to reality. Jacques Rancière described this eccentric concept of democracy as follows: "For democracy does not in itself determine any particular regime of expression. It breaks, rather, any determined logic of connection between expression and its content. The principle of democracy is not the levelling — real or assumed — of social conditions. It is not a social condition but a symbolic break: a break with a determined order of relationships between bodies and words, between ways of speaking, ways of doing and ways of being."41

41 Jacques Rancière, *The Politics of Literature* (Cambridge: Polity Press, 2011), p. 11.

Especially in times of dogmatic rigidification and a post-truth mood, art may have a role in countering the irrational body of emotions with heterological strategies. Whatever these strategies may be in practice, they imply a requirement for interpretation as a shaping force. This "soft" process, the probing into something and the attempts to relate the findings to oneself and the practical world, are movements of the spirit which counteract what has been considered as manifest. Those individuals diagnosed with the post-truth disease are trapped in their cosmos of apparently irrefutable signs and are at the same time absolutely convinced that their understanding of the world is right. Poetic sensibility does not mean indiscriminateness, but requires awareness that the signs are both tools and means of deception in one. A mere gesture of opposition proves to be worthless unless it is made clear at the same time that it is based on interpretative efforts. Policies and teaching which reduce education to learning practical skills that ensure success on the marketplace overlook the fact that world views always extend much further than the factual. Poetic processing of reality, which in principle anyone can engage in, generates symbolic forms which reveal the need for metaphysics and simultaneously enable questions to be raised here. A democratic policy would foster and encourage improvisation, translation, and discourses that leave the end open — and where should that be possible if not on Internet platforms or channels that are still to be devised? Codes in whatever shape are the software with which the machine we call "reality" is to be programmed. A new democratic culture of expressive experimentation demands models, which are available in ample quantities in modern art. "Everyone is an artist." 42 — ultimately it might come true, what Joseph Beuys postulated over 30 years ago.

42 Joseph Beuys, "Reden über das eigene Land: Deutschland", Speech of 20 November 1985, Münchner Kammerspiele, online: https://www.youtube.com/watch?v=gKdY397NcE8. Beuys placed the phrase in the context of his concept of social sculpture, democratic participation and creativity as the science of freedom.

Organizations: 5, Perry Berlo's

Locations: Berlin, AfD's Berlin, Mind, Silicon Valley

Persons: Karl Marx, Chancellor Merkel, John Perry Barlo's, Jean Baudrillard, Baudrillard, Tony Oursler, Donald Trump, Jacques Rancière, Joseph Beuys

Entitiy extraction created with: Google Spreadsheets *Text Analysis* add-on

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Vesselin Popov

is the Business Development Director for the University of Cambridge Psychometrics Centre, a multidisciplinary research institute specialising in online behaviour and psychological assessment. Vess is responsible for the Centre’s commercial partnerships and oversees a range of projects to increase the understanding and

use of Big Data Psychology in business and the community. He identifies areas where psychometric techniques can deliver the greatest impact and drives product development strategy, helping to put cutting-edge tools in the hands of citizens. Vess also coordinates Apply MagicSauce, a battery of predictive algorithms based on over 6 million users' psychological and social media data.

Gunnar Schmidt

is professor at the University of Applied Sciences Trier in the department of Intermedia Design. He teaches and writes in the intersecting fields of media and cultural studies and the arts. His publications include *Bombenkrater. Das Bild der terroristischen Moderne* (2016), *Mythos-Maschine. Medien- und Kunstgeschichte des Citroën DS* (forthcoming). Alongside his academic research interests, he works as a sound artist. Personal Website: tontong.de.

Peter Weibel

is Chairman and CEO of ZKM since 1999 and is considered a central figure in European media art on account of his various activities as artist, theoretician, and curator. His career took him from head of the digital arts laboratory at the Media Department of New York University in Buffalo, founding director of the Institute of New Media at the Städelschule in Frankfurt/Main and chief curator of the Neue Galerie Graz to professor of media theory at the University of Applied Arts Vienna. He commissioned the Austrian pavilions at Venice Biennale and was in charge of Ars Electronica in Linz, Seville Biennial, and of Moscow Biennale of Contemporary Art as artistic director. Personal Website: peter-weibel.at.

Siegfried Zielinski

is Rector of the Karlsruhe University of Arts and Design (Germany). Until his election in February 2016 he held the chair for media theory, focus: Archaeology/Variantology of the Media, at Berlin University of the Arts (Germany), where he also was Director of the Vilém Flusser Archive. He is the Michel Foucault Professor of Media Archaeology and Techno-Culture at the European Graduate School, Saas-Fee (Switzerland), cofounder of the media consulting course at the Technische Universität Berlin (1972/1982), and Founding Rector (1994–2000) of the Academy of Media Arts Cologne (Germany). Zielinski is member of the North Rhine-Westphalian Academy of Sciences, Humanities and the Arts, the Academy of Arts, Berlin, the European Film Academy, and the Magic Lantern Society of Great Britain.

Appendix

Index of Used *Google Sheets* Add-ons and Google Services[43]

[43] In March 2014, Google introduced add-ons; new tools from third-party developers that add more features to *Google Sheets*.
The add-ons and services listed in the Appendix have been used for adding further information and analyzing parts of the publications text.

Google Sheets

Type	Collaborative Software
Available in	83 languages
Written in	Java Script
Platform	Web platform, Android, iOS
Initial release	9 March 2006

Google Sheets is a spreadsheet program, which is part of a free, web-based software office suite offered by Google within its Google Drive service. The app is available as web application, mobile app for Android and iOS, and desktop application on Google's ChromeOS. The app is compatible with Microsoft Office file formats.

Google Sheets Add-ons

Look Up

Rating (total)	5/5 (7)
Offered by	www.newaddons.com
Users	383
Version	9
Updated	29 June 2017

An online dictionary for Google spreadsheet. Get definition using wikipedia data – search wikipedia inside your spreadsheet.

A quick and easy way to access to Wikipedia, the free encyclopedia, with more than 5 077 000 articles.
– Look up directly on working spreadsheet using sidebar
– Auto-complete/word suggestion
– Info-box
– Look up meaning of words in many languages

Used on pages	2–4,23,Cover

Geocode

Rating (total)	4/5 (185)
Offered by	Romain Vialard
Users	34.937
Version	68
Updated	18 December 2017

Geocode is a map tool that helps you to get latitudes and longitudes from addresses in a Google Sheet and display them on a Google map you can share.

Easily get geographic data
Addresses are converted into Maps coordinates: longitudes and latitudes. Geocode uses Google's services to retrieve these data and is optimized for address recognition thanks to a built-in error management system: if Google doesn't recognize an address, Geocode can perform a broader research, making sure one gets a result for each row of your spreadsheet. It then displays all the data on a map.

Used on pages	6

Gavagai Sentiment

Rating (total)	4,5/5 (2)
Offered by	www.gavagai.se
Users	611
Version	24
Updated	3 January 2018

Multi-lingual Sentiment Analysis in 28 languages: hate, desire, love, skepticism, violence, fear, positive, and negative.

Used on pages	9,26–31,33

Text Analysis

Rating (total)	3/5 (48)
Offered by	www.aylien.com
Users	14.824
Version	29
Updated	18 November 2016

The Text Analysis add-on provides an easy way to analyze any text (links, tweets or documents) in Google Spreadsheets.

– Perform Sentiment Analysis on Social Media streams to
– identify what is positive, negative or neutral about your
– company or brand
– Extract fine-grained Sentiment from customer feedback
– and reviews
– Extract mentions of entities and concepts such as peo-
– ple, organizations, places and products from documents
– Summarize long chunks of text and articles into a few
– key sentences
– Detect the language of a document or tweet
– Find the best hashtags for your content for better dis-
– coverability on Social Media
– Classify your documents or links into more than 500
– categories
– Extract the full text of an article, as well as its author
– name, embedded media and so on

Used on pages	
Language Detection	15
Entity Extraction	16,18,36
Hashtag Suggestion	35, Backcover

Google Services

Google Maps

Type of site	Web Mapping
Available in	multilingual
Users	unknown
Launched	8 February 2005

Google Maps is a web mapping service developed by Google. It offers satellite imagery, street maps, 360° panoramic views of streets (Street View), real-time traffic conditions (Google Traffic), and route planning for traveling by foot, car, bicycle (in beta), or public transportation.

Used on pages	6

Google Search

Type of site	Web search engine
Available in	123 languages
Users	4.5+ billion monthly active
Launched	15 September 1997

Google Search, commonly referred to as Google Web Search or simply Google, is a web search engine developed by Google. It is the most-used search engine on the World Wide Web, handling more than three billion searches each day.

Used on pages	25

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