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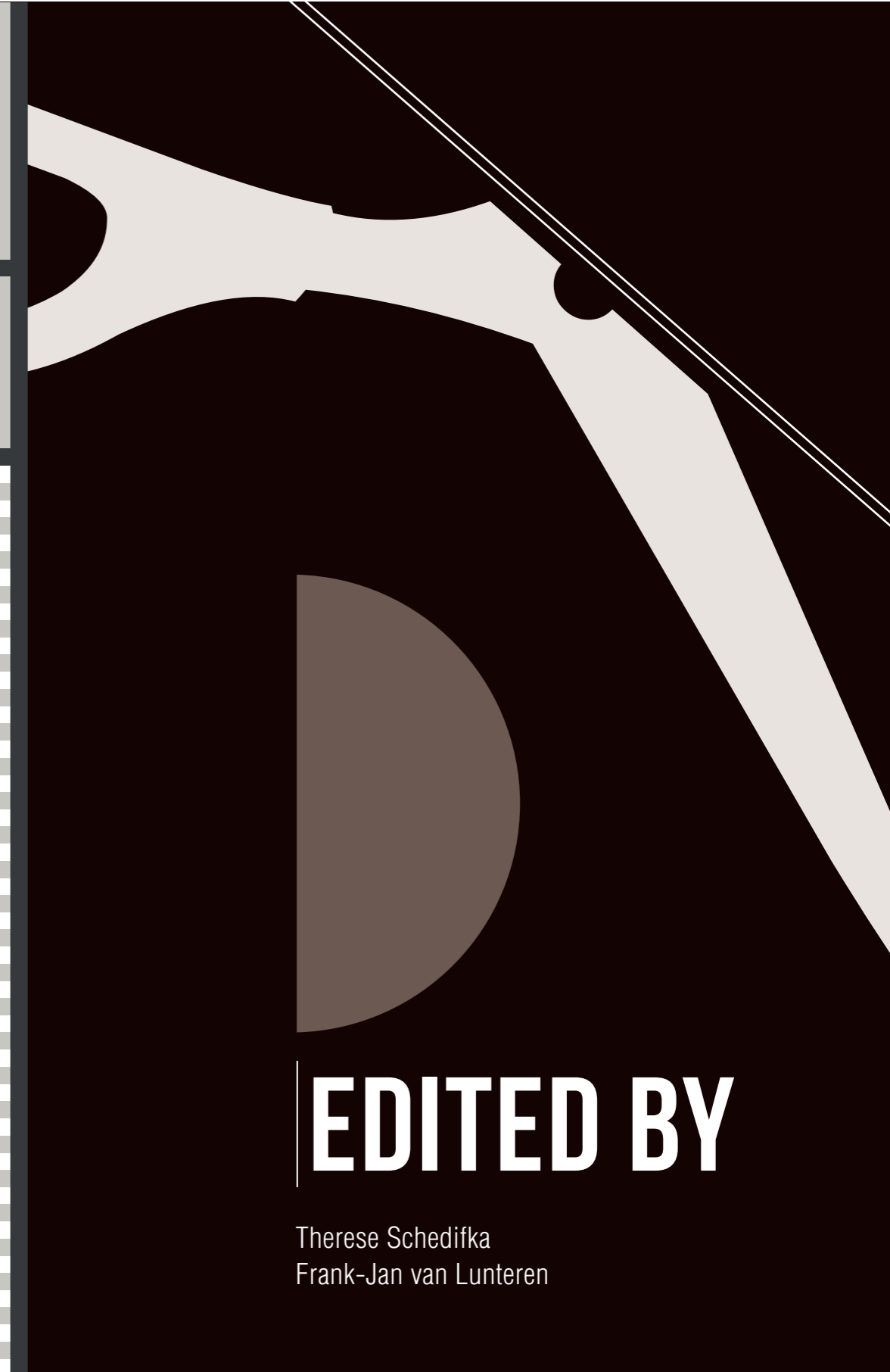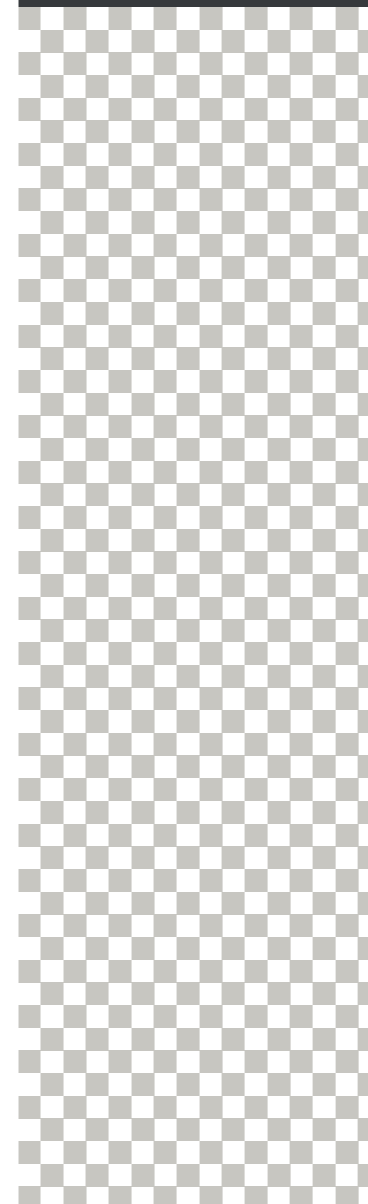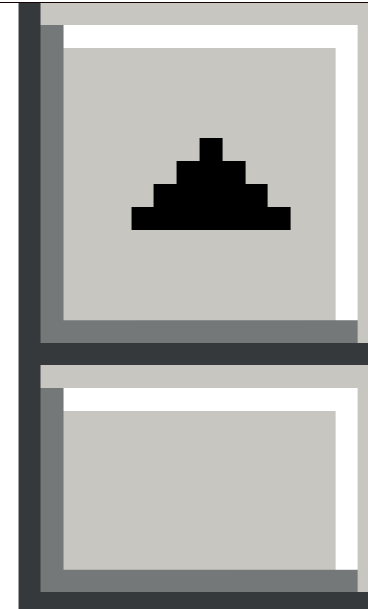
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CULTURE [III]

Magazine no. 7

MA / NEW MEDIA AND DIGITAL CULTURE

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EDITED BY

Therese Schedifka
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Magazine no. 7

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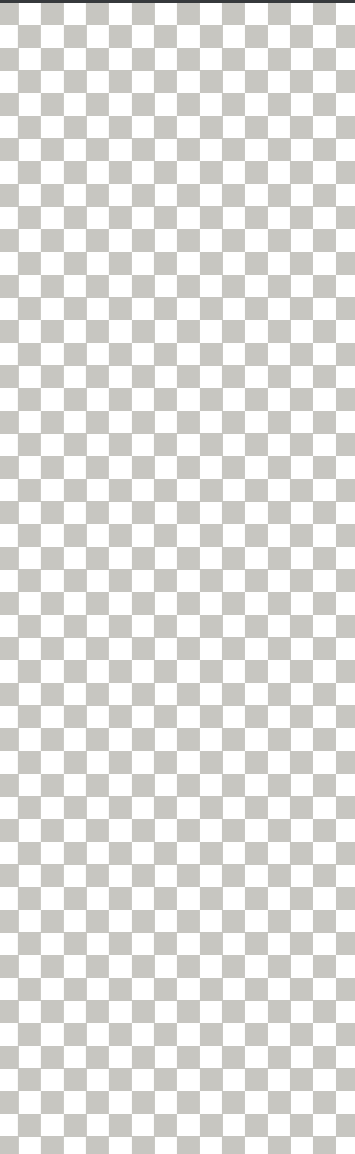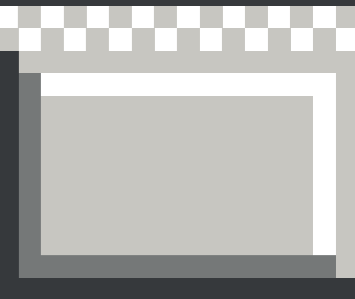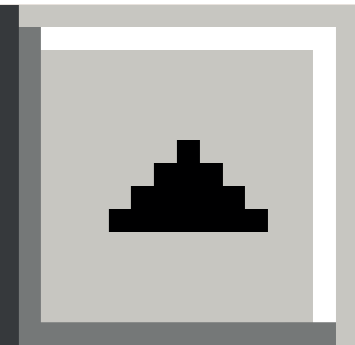
EDITORIAL_

Drawing lines in the code <behind.*>

Ranging from data visualization to cinemagraphs, Flickr, interface design and even internet memes; magazine no. 7 turned into a 200-page book, in which we celebrate digital visual culture at its best. Let's briefly introduce this vast network of theoretical discourses and image making practices. ¶

"If aesthetics could be hacked like code, then a beautiful rose, in the beak of a beautiful flamingo, flying in a beautiful sunset, would be 3X-beautiful. It isn't. It never will be."

Bruce Sterling[1]

In October 2010, the first Newmediastudies Magazine was published. Being a showcase, its main objective hasn't changed since then: to present articles written by students. Articles that –except maybe for a personal blog now and then– otherwise never get to see the light of day beyond the sealed inbox of the addressed lecturer. Additionally, the magazine serves to exemplify the scope of the courses within the New Media and Digital Culture programme. Flipping through all editions published so far, you indeed will notice the variety of the digital phenomena discussed.

However, this seventh edition differs in form; instead of the regular web magazine, we made an actual book out of it. Digital visual culture, the current overarching theme, calls for a more visually oriented approach. As most academic scholars would agree, writings *about* visual phenomena often are not presented as such. Mixing traditional qualities of a book with a more design-ish approach of presenting the articles, we pursue a more symbiotic bond between the two, in which form represents the same creativity and enthusiasm that can be found in the content. (In a similar sense, also see page 190, in which we try to assemble a Newmediastudies curriculum that reaches far beyond the textual).

This volume presents the reader with a compilation of the best and most innovative research papers written during the MA course *"Software Studies: Images"*, taught by dr. Ann-Sophie Lehmann in the academic year 2012/13 as part of the MA New Media & Digital Culture at Utrecht University. It aims at a more critical understanding of the production and impact of visual artefacts, through the integration of a technological perspective with media-theoretical approaches. Following initial selection based on their relation to the theme of this volume, we revised and edited the papers in collaboration with the authors. All articles are focused on image making practices, although the chosen subjects vary to a great extent. Yet, there are several underlying and overlapping questions to be found.

It is rather striking that, although most papers discuss new practices of imake making, these practices do not necessarily rely on new digital technologies. The *Cinemagraphs* for

example, as we can read in Noraly's article, are quite easy to obtain with the same tools used to create animated GIF's. The same goes for sizecoded *Demos* (impressive real-time graphics that have to be limited to a certain amount of kilobytes, to show off coding skills), as dealt with in Adriaan's research. Although these restrictions on filesize were once bound to the limited memory size of early platforms, there is no need for them any more, given contemporary technical possibilities. Yet the basic principle remains unchanged, regardless of new technologies. And what to think about the *Internet memes* in Linda's paper; most of them can be done in a basic program like *Paint*.

These examples illustrate how Digital visual culture is not tied to new technologies when it comes to producing the *picture* itself. However, the picture is merely a small part of the *image*. Looking closer at all papers, we can recognize the social function these images fulfill. These are created within a community; *Memes* are referred to as community board inside jokes (Linda); *Demos* are at the heart of Demoscene competitions (Adriaan); *Flickr* has its own rules, norms and values which reflect back upon the imagery (Therese); *Rome Reborn* ties virtual archeologists together in scientific 3D models (Siem); *Cinemagraphs* are most popular in the design and fashion industry (Noraly). In short, all of these image making practices are closely tied to a very specific social environment. A niche, we might even say. Even though these groups may hold millions of users or the activity/object has 'gone mainstream' (usually referred to when commercially deployed); there is still a very distinct social dynamic at play. For each image making process, there can be a very specific consensus about the meaning of craft, skill and knowledge.

As such, new digital technologies are not necessarily part of producing a picture, but *do* play part in how *images* come to be. An image making process spans the *whole process*, from the point one gets inspired to create, to the moment of display, distribution and possibly even remixing (which might lead to a new cycle again). New technology can accommodate this process, whether it functions as an infrastructure (social media, for example), a tool or just an accelerator for evolving certain interests (for example, Instagram might spark interest in vintage and pre-digital photography).

Art and media historian Dieter Daniels once claimed that all modern art is media art[2]. Even if no media technology is used, the final art work still relates to the works that do, and therefore media technology is present in its absense. The same might as well be said about all image making practices; contemporary developments are always connected to new technologies, even if not explicitly there. These technologies shape their environment, the overall context necessary to construct (social, cultural, political) meaning.

All topics in this book are more or less *genres* in digital visual culture, ranging from data visualization to memes or interface design. Since all of these are tied to a specific social group/function, they all have their very own aesthetics. When Darko Fritz –artist, curator and researcher– held a lecture in Utrecht on *The New Aesthetic*[3], he started by asking one important question: whose aesthetics are we talking about? Those aesthetics are plural, and not to be found in new technologies; they're located in the image making process, as it is carried out within a specific social environment.

This is digital visual culture; a vast collection of many theoretical discourses and image making processes. A patchwork. At best, a conversation. But herein lies the strength: putting it all together, we learn to recognize patterns, acquire a deeper understanding of what the *image* actually is, and notice the true challenges visual literacy has to offer us. Therefore, I suggest we celebrate digital visual culture in all its forms, starting with these 7 articles.

On behalf of the whole team, I invite you to celebrate with us. ∎

Frank-Jan van Lunteren
Alumnus NMDC & admin newmediastudies.nl

Therese Schedifka
Student NMDC

1

Sterling, B. (2012), 'An Essay on the New Aesthetic' http://www.wired.com/beyond_the_beyond/2012/ 04/ an-essay-on-the-new-aesthetic/

2

Daniels, D. (2005), 'Forerunners of media art in the first half of the twentieth century'. Media art net. New York: Springer

3

Darko Fritz was invited at 'Understanding The New Aesthetic', 31/10/12. http://setup.nl/na_symposium

#PAPER

Reductions in Social Network Visualizations

Towards a better understanding of social network visualizations and software tools

Ellen Bijsterbosch
@EllenBijster

ARTICLE: 'Reductions in Social Network Visualizations' http://bit.ly/dqk5cv #bigdata #dataviz #truthclaim

about 2 hours ago via web

With the availability of large data sets through the APIs (Application Programming Interface) of Social Network Sites like Facebook and Twitter, visualizations of these data sets are becoming widely used in social studies and the humanities. New media theorist Lev Manovich pointed us to the idea that when creating data visualizations, the first principle is reduction: throwing away data. However, reduction does not only take place by human decision, reduction also takes place implicitly by the built-in qualities of the software tools used. In this paper it will be investigated in what ways reductions take place when producing social network visualizations, and what type of knowledge or truth claim remains in the visualization after these reductions. This paper is a plea for developing a better understanding of the working of our software tools, the underlying assumptions in network visualizations and the contextual limitations of social network visualizations. ¶

Introduction

Studying social networks and visualizing them is not new, but with the widespread use of Social Network Sites (SNSs) it has been highly popularized. Not only are there numerous applications that Facebook users can employ to generate a map of how their Facebook friends are linked with one another, such as the *Facebook Friend Wheel* (Fletcher, 2007), but visualizations of social networks are also becoming more widely used in social studies and the humanities. The availability of large data sets through the APIs (Application Programming Interfaces) of sites like Facebook and Twitter, the computing power to process these social data sets, and the skills to scrape, clean and visualize them could provide the humanities with new insights. Apart from the privacy concerns that the use of Big Data in research entail, there seems to be a general enthusiasm towards the new possibilities that network visualization provide. It seems that Big Data is surrounded with an aura of objectivity, accuracy and truth.

However, this general enthusiasm must not lead to an uncritical attitude towards this

relatively new research material the humanities are working with. Lev Manovich reminds us of the fact that when making a visualization, the first principle is reduction:

> [b]y employing graphical primitives (or, to use the language of contemporary digital media, vector graphics), infovis is able to reveal patterns and structures in the data objects that these primitives represent. However, the price being paid for this power is extreme schematization. We throw away %99 of what is specific about each object to represent only %1 – in the hope of revealing patterns across this %1 of objects' characteristics (Manovich 2010, 6).

This notion directly questions truth claims of data visualization, since so much of the data is thrown away or lost in the process of visualizing. The aim of this paper is to research in what ways reduction takes place when producing a social network visualization, and what type of knowledge or claim to truth remains after this reduction. I will, however, make use of a broader definition of reduction than Manovich. Manovich speaks of how we *throw away* data, implying only human decision and neglecting implicit reduction

through the built-in technology of Twitter API. Furthermore, I will not only explore reduction of the amount of information that is represented, but also reductions of meaning and value of the visualization.

The main focus in this paper will be on the visualization of data gathered through the APIs of social network sites, since much of the research in social studies and the humanities using network visualization focus on this field of study. In the first section of this paper I will discuss the process of producing social network visualizations. I will make a description of the reductive stadia in this process: scraping, cleaning and manipulating. I will use the example of making a Twitter visualization in Gephi - an open source data visualization tool - to show that reduction works on different levels: both human and technology play their part in the reduction and loss of data.

In the second part of this paper I will discuss the fact that the majority of social network visualizations are static images. While some social network visualizations provide means to interact with the graphical image by zooming in or out or using a filter, very few of them show us movements of the network. I will argue that social network visualizations barely come close to what Bruno Latour had in mind when thinking of the network (or work-net) as

a means to study flows of translations (Latour 2005, 132). Furthermore, I will argue that social network visualizations cannot escape assuming an underlying stable structure, not even when movements are visualized.

In the third section I will argue that we should commit us to assess critically what it is exactly that we are looking at when looking at a social network visualization: what value does it have, and in what context? I will make clear that the communication patterns discovered through the visualizations of articulated or behavioral networks on social network sites cannot be directly used for drawing conclusions about personal networks individuals have in their 'real lives'.

Reduction of data: the process

As pointed out by visual theorist and cultural critic Johanna Drucker, the usage of the term *data* when speaking of data visualization might be somewhat misleading due to the etymological roots of the term. Data assumes being a given, existing independently from the observer. Therefore she pleads for using the term *capta* instead when speaking of data, as

it will point us to the fact that data is taken rather than given (Drucker 2011). Indeed, data visualization is much more than just making visible what was already there and the long existing idea of visualization being a process in which we let the data 'speak for itself' is a too romantic conception of what really happens (Wright 2008, 79). In this section I will show that behind a visualization of a social network there is a whole process of reduction taking place through an interplay of human decision and built-in technology. I will not only describe and analyze these processes, but I will also reflect briefly on the metaphors we use when talking about these processes, as they will make clear what connotations these processes have. As an example I will use the visualization of a social network using data from Twitter.

APIs and scraping

When using Twitter data for visualization, the APIs of Twitter function as gatekeepers. It is not the researcher or artist who decides solely how much *raw* data[1] he will be using, and in what shape or form the source-data will be. Firstly, there is the Search API, which lets the user search an index of recent tweets. This means that tweets older than 6-9 days cannot be found using this API. Also, the results the Search API

provides you with are not complete. As Twitter puts it on their developers' site: "Search is focused in relevance and not completeness. This means that some tweets and users may be missing from search results" (Twitter 2012). When aiming for 'completeness', Twitter recommends using the Streaming API. In research for example, it is indeed important to be able to define the parameters of relevance yourself, and have access to the 'complete' dataset. But how complete is the dataset the Streaming API provides?

There are several versions of the Streaming API which all provide different levels of access to Twitter's data. The highest level of access is provided by the so called *firehose.* Theoretically, when one has access to the firehose, one has access to a real-time stream of all publicly posted tweets (boyd & Crawford 2012, 669). Other levels of access are the *gardenhose* (or *decahose*) which should represent about 10% of public tweets, and the *spritzer* which represents 1 to 2% of public tweets (Gnip 2012). Twitter uses a water metaphor to make distinctions between the different data sample sizes they have available. Interestingly enough, water is also a broadly used metaphor for truth or purity[2]. Twitter thus implies in a way that there is some high form of knowledge in their data.

But drinking of Twitter's streams of data is not for everyone, and it certainly is not for free. Only a handful of companies actually have access to the full firehose. Companies like Google and Microsoft for example have paid large sums for firehose access to integrate in their competing search engines (Gannes 2010). Twitter's partner Gnip.com also has firehose access and resells certain amounts of the firehose. Gnip is selling user mention streams for instance, but as of September 2012 they also sell historical tweets going back as far as the first tweet from March 21, 2006 (Gnip 2012). These historical tweets are hard, if not impossible to get by without paying for Gnip's services (Isaac 2012). Academics researching Twitter usually only have gardenhose or spritzer access due to limited funding (boyd & Crawford 2012, 669). Visualizing Twitter data with a scraper that uses the garden hose or the spritzer as a source obviously confronts us with problems concerning the representativeness of the visualization, since we do not know following which criteria this selection of 1 or 10% of all tweets is made. Researchers Danah Boyd and Kate Crawford also addressed these issues of representativeness in their 2012 article on Big Data:

"Without knowing, it is difficult for re-searchers to make claims about the quality of the data that they are analyzing. Is the data representative of all tweets? No, because they exclude tweets from protected accounts. But is the data representative of all public tweets? Perhaps, but not necessarily" (boyd & Crawford 2012, 669).

Twitter's API reduces representativeness - and thus the truth claim that can be made using the scraped data – both by technological and financial limitations.

Cleaning

Before one can start visualizing the scraped data, one has to transform the data in a format which is supported by the software used for the visualization. Usually, before this transformation takes place, the data is cleaned too. This might mean deleting all tweets that were not retweeted from your database, using the *search+replace* option to retranslate the occasional erroneous piece of HTML-code back into Roman letters, or changing the twitter ID-numbers from your database into the corresponding usernames. Calling these types of actions 'cleaning' implies that the data is dirty or messy, and it implies that the data one

is getting rid of while cleaning can be missed. The data that is scrubbed away in the process is considered erroneous, anomalous, unpretty or irrelevant.

But how can one really tell if certain pieces of data are irrelevant, when it often is hard to tell where exactly the scraping ends and the cleaning and transforming begins? The process of visualization does not seem to be as linear as one might think. Programmer Rob Hawkes describes on his personal website how using a scraper that passes on Twitter Streaming API's entire response would take up about 2KB of disk space per tweet, which is a lot considering the fact that when researching twitter one will be working with millions of tweets rather than thousands. Hawkes explains how he wrote a scraper with a built-in cleaner:

As you can see in the Ruby code that I included above, I tried reducing the disk spaced required by only sending a small amount of data about each tweet to Mon-goDB – just the data that was necessary, like the tweet text, its ID, and the date that it was sent. The difference was instant and astounding, with each tweet roughly consuming about 0.3KB – they were around six times smaller! (Hawkes 2011).

So apart from cleaning as a separate step and an explicit action, one is also able – and maybe encouraged by the avoidance of data storage difficulties - to clean without looking at the data first.

Obviously, this problematizes a popular held notion that data visualization means only making visible what pattern or structure is already there, since the data – in Hawkes' case geo data was left out for example – is reduced before it is visualized or even scraped and stored. At the same time, it makes clear that the decision about which data is relevant and which is not – and thus about what data is visualized – is not one of just human agency. The collection, selection and analysis of data are not subsequent and explicit stadia in the process of data visualization: they are intertwined by and embedded in the software tools one uses (Marres & Weltevrede 2012, 1).

Explicit and implicit reduction in Gephi

After the data is cleaned and transformed into a workable format, it is imported in the data visualization program. In Gephi, one uses the *Data Laboratory* mode when importing data. The fact that Gephi uses the metaphor of the laboratory really makes explicit that we should consider Gephi as a place for manipulation and

experimentation: it points us to the Latourian notion of the laboratory as a place where facts are being fabricated, not discovered (Latour 1983, 155). After importing the data, the data is translated to edges and nodes. The Gephi user is able to adjust the sizes of nodes in relation to each other and the distances between the nodes and one can also filter nodes for relevance which means deciding how many times a certain value must be represented in the imported database in order to be represented in the visualization.

But the reduction and manipulation in Gephi works not only on an explicit level, but on implicit levels too. As mentioned earlier, the data has to be transformed into a workable format; in the case of Gephi this means the GEXF, GraphML, Pajek NET, GDF, GML, Tulip TLP or the CSV format (Gephi 2010). Using other formats, or having your formatted data structured in a way Gephi does not recognize will mean you cannot visualize your data. Gephi thus enables certain ways of structuring and analyzing your data visually, and represses others. This does not mean that Gephi determines the eventual structuring of the data, but it does pre-structure and pre-analyze the data before the researcher even gets to see a preliminary visual in *Overview* mode. We notice again – like we did with the

scrapers with built-in cleaners – that there is obscured reduction happening during the process.

Reduced truth potential in the static network

Bruno Latour makes clear in his book *Reassembling the Social* (2005) that for an Actor-Network theorist the network is a material metaphor one uses as a concept to study the actions, work and movements going on in and between actors: "A good ANT account is a narrative or a description or a proposition where all the actors do something and don't just sit there" (Latour 2005, 128). Having the actors *just sit there* would imply that the social or society is a stable given, which is an idea Latour strongly contests (Ibidem, 37). Thinking of how static a lot of the social network visualizations we encounter are as an image we can see how they lack flows of translations, failing to see that actors are also actor-networks. And indeed, Latour is not a fan of the way networks are visually represented either as he states that "[t]hose visual graphs have the drawback of not capturing movements and of being visually poor" (Ibidem, 133). In

this section I will show how social network visualizations do not and cannot come close to an account that does not assume the social as a stable entity: not even with the addition of movement in the visualization.

Not coming close

A popular example of a static social network visualization is the Facebook Friend Wheel (*figure 1),* which was also mentioned shortly in the introduction. As we can see it is a perfectly round and colorful graph. The graph is static in the way that the graph does not change along as the ways one's Facebook friends are linked evolve: there is no movement in the network. The reason for this seems simple as the developer explains in his FAQ (Frequently Asked Questions) that "[t]he best we could do is to regenerate it once per day. To regenerate everyone's wheels once per day, we'd need a much faster server (around ten times faster than the current one) which costs money" (Fletcher 2007). Apart from the financial limitations the developer said he encounters, one could also argue that it is not necessary to invest time, money and computing power in bettering the visual accuracy of the Facebook Friend Wheel since the images it renders are meant to be just pretty and fun and not used

for serious research.

But in the academic field of data visualizations there are – apart from financial issues - also other big limitations, namely the conventions of academic journals. Science photographer Felice Frankel already pointed us to proliferating prejudice existing in academia - and the editors of academic journals specifically - about pretty pictures not being able to transfer serious insights (Frankel 2004). It is safe to say that moving visualizations are even rarer in academic journals than pretty pictures. A lot of the academic journals are still printed on paper, which makes including moving visualizations impossible. There are of course journals that are only published online, but they are usually published in a PDF-format, excluding the possibility of integrating videos or interactive charts.

The moving image is not the solution

Apart from the technological, financial or conventional difficulties of using interactive (or even just moving) visualizations of social networks there might be, a question still remains: would these visualizations come closer to true investigations of the translations taking place? An example of a tool for

making interactive, moving social network visualizations is *Comment Flow (figure 2)*, developed by Dietmar Offenhuber and Judith Donath – two researchers affiliated with MIT Media Lab. Offenhuber and Donath claim that their Comment Flow goes beyond studying and visualizing a supposed stable structure in social network sites as they state that

> [m]uch recent research has focused on understanding the structure of these networks, whereas our approach focuses on the activity that flows along the network paths: the support offered, the information given, the gossip exchanged. This activity is invisible in traditional network depictions (Offenhuber & Donath 2007, 118).

Their aim is to make visible the different interactions and relations one has with people in their social network. Not all contacts or 'friends' on SNSs have the same value or meaning in one's network, and by letting their tool dynamically retrieve and visualize data from SNS profiles, they want to provide insight in these highly differentiated relationships. Comment Flow does this by taking into account several parameters like the frequency of interactions, the quantity of messages

and analyzing if there is one- or two-way communication (Ibidem, 119).

At first sight, it seems indeed that Offenhuber and Donath do not assume a stable structure, since the visualizations they render are indeed dynamically fed by data and constantly moving. However, taking a look at *figure 2,* we can see how the flow of interactions visualized is still situated in an underlying structure. The distance between one node and another may increase or decrease, but the pre-existing structure remains the same. Also, flows of interactions are not what Latour meant when he was talking about flows of translations. To Latour, the very idea of interaction is wobbly, since according to him it defines individuals as simple atoms, "[a]s self contained entities *deprived of all the other entities* necessary for their subsistence" (Latour 2010, 13). What Comment Flow does is render a dynamic and complex visual structure, but it does so by reducing the individual indeed to a limited number of parameters. According to Latour, this means failing to see the actor as an actor-network (Ibidem).

Is it then at all possible to produce social network visualizations that would do right to the complexity of the part, instead of only reducing the part to a simple atom fitting in the structure of the whole? In a keynote

Figure 1
The Facebook Friend Wheel

Figure 2
Comment Flow

speech Latour held for a seminar on network multidimensionality in the digital age, he concludes with pronouncing the fact that he expects appropriate visual instruments to be developed:

> We should be able to speed up the time necessary to transform the mass of quali-quantitative data into agreed upon and comfortable looking datascapes. Which of course means that we should be able to solve the question of compounding masses of individual profiles in a fully reversible way, that is exactly what traditional statistics have not been able to do (Ibidem, 16-17).

We must conclude here however, by not siding with Latour in his expectancies. Visualizations and the software they are made with are always structured in a certain way, which means that the part always needs to be reduced and constructed in a way to fit that structure. The only way a visual instrument would work in the way Latour would like to see it, is if it could make *every* association traceable. The image would have to be able to investigate itself and the software it is made of too.

Reduced to a context

Earlier in this paper, we discussed the questionable representativeness of the spritzer and the gardenhose boyd and Crawford addressed in their article on working with Big Data. But not only is it unclear whether these data samples provide a good representation of all tweets, according to them there is something else we have to consider: the mistaken idea that the social network is equivalent to the personal network (boyd & Crawford 2012, 671). Researchers should thus be careful using Twitter data for example to jump to conclusions about 'real life' relations of individuals. This does not mean however, that we should evaluate the relationship between offline and online life as strictly dichotomous, but we have to acknowledge that the value of social data visualizations should be considered in their context.

A social network is not a personal network

Long before the advent of research dedicated to connections and behavior on social network sites, sociologists and anthropologists were

engaged in researching personal networks by employing a combination of research methods like interviews, surveys and observations (Ibidem, 670). Combining insights from several sources, social researchers have been able to make very detailed descriptions of how individuals maintain and develop relationships in their personal networks. Boyd and Crawford point out that "[B]ig Data introduces two new popular types of social networks derived from data traces: 'articulated networks'[3] and 'behavioral networks'[4]" (Ibidem, 671). Of course, these types of networks can be valuable, but are frequent interactions online indicative of close relationships? No, because after all, "[w]hen mobile phone data suggest that workers spend more time with colleagues than their spouse, this does not necessarily imply that colleagues are more important than spouses" (Ibidem). Not only do we have to conclude that we cannot equal the frequency of interactions to the strength of ties, broadly speaking we should be cautious when using social network data to make statements transcending the context of social network data.

Since 2008, the Stanford Humanities Centre has been working on an ongoing research using 'historical Big Data' from the Electronic Enlightenment Project of the University of Oxford as a source. Their overarching goal is to gain more insights in the spreading of Enlightenment ideals through visualizing these data sets. In *figure 3* we can see a visualization the Stanford researchers made of metadata concerning Voltaire's correspondence. The thicker the edge in the graph, the more letters Voltaire exchanged with that correspondent (Republic of Letters 2008). We can see how this historical research actually has parallels with research done on social network sites. Implied by the visualization is that a thicker line not only mean more exchanged letters, but also more mutual influence or strength of tie. But what is it that we can really conclude about the spreading of Enlightenment ideals seeing this image? We do not know for example who Voltaire talked to in the streets – apart from who he talked to in letters - and we do not know what the content of these letters were.

Misleading content

Following this critique on the Republic of Letters' visualization of Voltaire's correspondence network, it would be tempting to think that including the content of the letters in the visualization somehow would make the visualization more meaningful. That could be the case, but would this also work

Voltaire's correspondence, 1755-1776.
Only letters for which complete location information is available are shown.
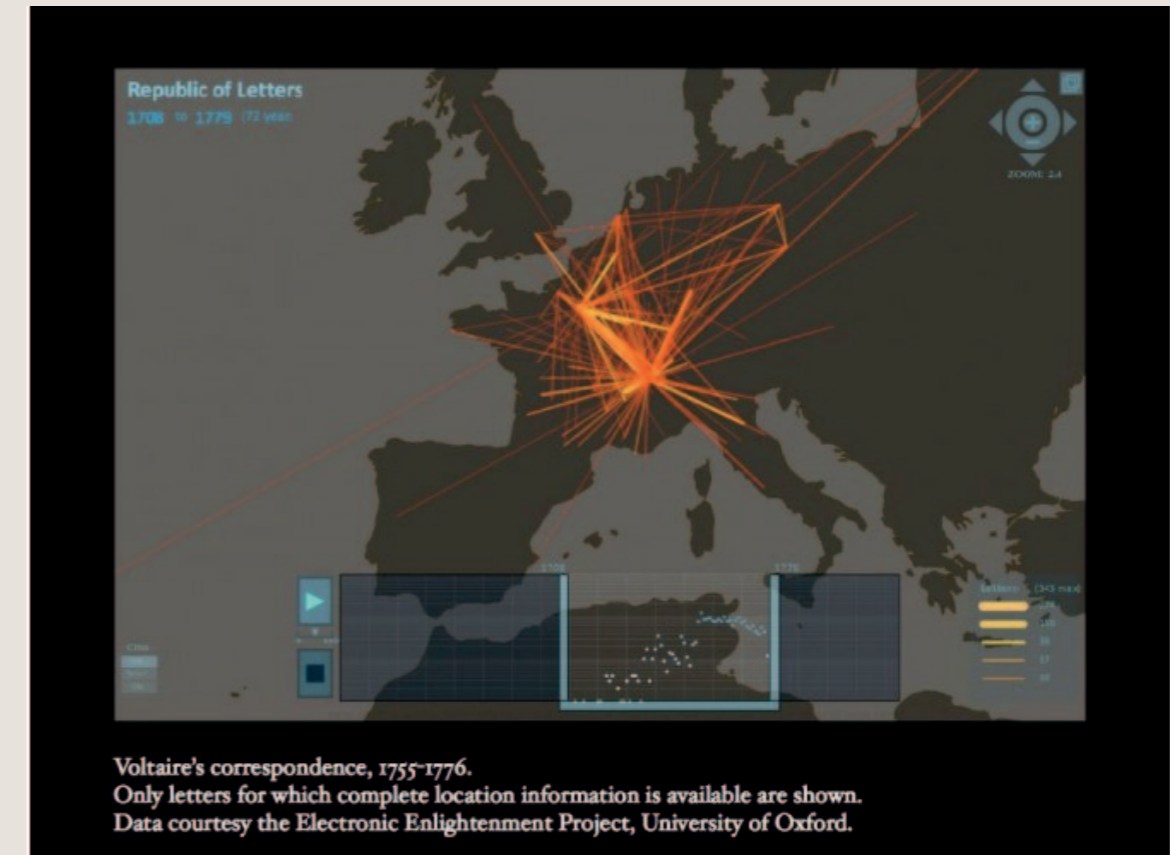Data courtesy the Electronic Enlightenment Project, University of Oxford.

Figure 3

Republic of Letters: Voltaire's correspondence 1755-1776. Stanford Humanities Centre 2008

when researching social networks online? If you were to include the content of the posts and messages sent in your research, you would have to account for the fact that people are managing impressions online. In his paper "Trending: The Promises and Challenges of Big Social Data" Lev Manovich makes a comparison between online communication and late 1930s communist Russia:

> Imagine that you wanted to study cultural imagination of people in Russia in the second part of 1930s and you only looked at newspapers, books, films, and other cultural texts - which of course all went through government censors before being approved for publication. You would conclude that indeed everybody in Russia loved Lenin and Stalin, was very happy, and was ready to sacrifice his/her life to build communism (Manovich 2011, 6).

Although Manovich's statement here is of course a hyperbole, it makes clear that we cannot study the content of interactions in social networks uncritically. Including content and not just the number of interactions does not necessarily mean the research done is more substantial, it has to be placed in context.

Conclusion

The main question of this paper was to investigate what type of knowledge and truth claim remain after different kinds of reduction have taken place in the making of a social network visualization.

We have ascertained that through the use of APIs, scrapers, data cleaning tools and visualization software data is explicitly, but also implicitly reduced. When using data from social network sites we are confronted with methodological challenges because the software tools we employ have specific built-in qualities that might be obscured. The collection and selection of data is for a large part out of our hands: we do not know exactly how Twitter API renders a sample of the whole corpus of tweets. The same goes for using scraping tools. In the example we encountered in this paper of the scraper with the built-in cleaner, this was a scraper programmed by the same person who used it for scraping – but not all academic researchers are building their own tools. With the source of the data being uncertain (APIs) and being relatively unfamiliar with the tools used, research becomes methodologically weak, and determining what knowledge

you gained by doing the research becomes problematic. Academics should becomes programmers of their tools, or at least invest in a better understanding of their working.

Apart from that, we should also develop a better understanding of the limitations of social network visualizations when it comes to drawing conclusions about relationships outside the context of social network sites. We must not forget that the data retrieved from social network sites is structured by the social network site. Just as software tools for scraping have built-in qualities, so do the social network sites. They enable certain types of interaction, and they repress others. Retweeting is typically something Twitter enables, but what then does a visualization of a retweet network convey? It is not the equivalent of agreeing with someone, but it also does more than just

showing what the social network site makes us do. After all, social network sites *enable* us to do certain things; they do not *make* us do things. More investigation in this area is needed to determine the value and meaning of these types of visualizations.

But no matter what tools we use to produce social network visualizations or what understanding of them we might develop, there is always the assumption of an underlying structure in the visualization of the social network, so the individual - the part - is reduced to a simple atom interacting with the other atoms in the structure. Visualizations, contradictory as it might seem obscure more than they make visible: the most valuable knowledge is not in the visualization, but in the retracing of how we got there. ∎

Notes

1

Calling data 'raw' is an interesting matter of speech, actually. Although it might imply some sort of natural state, the form in which data presents itself is always culturally constructed. Data is never raw since it is always 'cooked' in one way or another. In this case, the data is already precooked so to say by the API of Twitter.

2

For example, think of baptism rituals or the 'wisdom well', a common element in mythologies.

3

Articulated networks are derived from explicit connections like friends on Facebook, followers on Twitter and the contacts one has in their cell phone address book. The Facebook Friend Wheel, mentioned earlier in this paper, can be seen as a means to visualize such a network.

4

Behavioral networks are a result of analyzing communication patterns. Comment Flow, the MIT Media Lab developed web tool that was mentioned earlier, can be seen as a tool for the visualization of a behavioral network.

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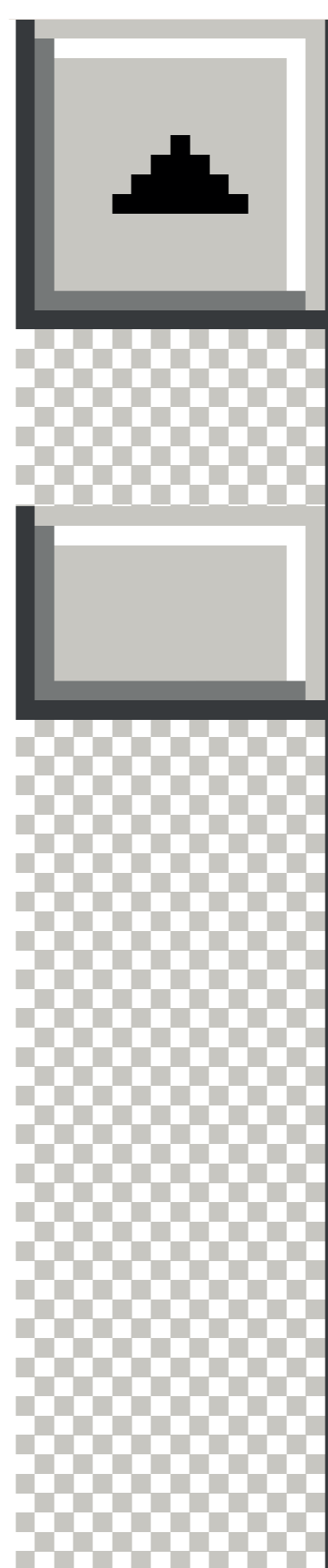
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#PAPER

Sense and Simplicity

An investigation of the Windows Phone tiles

Adriaan van Bart
<no such user found>

The #Windows Phone-tiles are about content before #chrome; they give immediate access to information instead of hiding it behind a metaphoric icon.

about 3 hours ago via web

Microsoft's Windows Phone 7 breaks with a lot of conventions around user interfaces. Most strikingly are the tiles, which are the successors of the icons in this operating system. This paper strives to find out what they are and how they function. This is important, as more and more people will be using them, since Windows 8 and Xbox Music also feature the tiles. The research will be done via Charles Sanders Peirce's semiotics and a comparative analysis with the 'old-fashioned' icons. It appears that the tiles do take over functional elements of the icons, since they are still gateways to programs, but in the form of representation, they differ from icons. Windows Phone 7 seems to be a 'transitional' system, since icons are still somewhat used, but they are embedded within the tiles. Moreover, some tiles differ completely from icons, like the people tile and the calendar tile, as they are dynamic, live and contain several language signs. It appears that the differences come from the kind of connection the tiles

have with their applications/ objects. In terms of representation, icons are iconically or symbolically connected and generally refer metaphorically to their applications, while tiles are indexically connected – since they show content from which they refer to. This means that the tiles are formed by their applications and by that which the user puts into the application. In other words, tiles are the result of a joint effort of the user and the applications/ object in Windows Phone. ¶

A new start

In November 2010, Microsoft released a new kind of operating system (OS) for mobile devices: Windows Phone 7. Compared to its predecessor, Windows Mobile, the user interface of the new OS has been completely redesigned, with the so-called *tiles* as its '*heart and soul*' (Windows Phone). These tiles replace the 'classic' icons on the start screen. The tiles are a result of the design principles of the new design language used in and made for Windows Phone 7 – codenamed Metro – which, roughly speaking, stands, in terms of design principles, for clarity, simplicity and textuality (Lau). The interface may not distract from content, so every element of the interface must make sense, in other words, '*content before chrome*' (Ibidem). The tiles, serving as gateways to applications or other objects on the phone,

are in their simplicity and textuality a good example of the Metro-style. On top of this, they also show information of what is going on in the application. For example, the calendar application tile shows the first upcoming appointment or the weather application tile shows the weather on a certain location. The idea is that the user only needs to glance at the screen to get information, instead of opening the complete application – so the user does not really have to go in and out, he can just stay on the surface (winphone7). The user does not have to go further than the start screen, which is now nothing more than the brightly colored square or rectangular tiles and a black or white background. Of course, to do something with the application, it still has to be opened, but it is not necessary to go in anymore to know what is going on in the application.

So, the tiles could be seen as successors of icons, as they took the place of the icons in terms of function and functionality. This is an interesting development, as icons were always, and still are in most OS's, like Android, Windows 7 and iOS, a pivotal element of the interface. I think it is important to investigate how these tiles differ from icons, as they are now the pivotal element of the Windows Phone interface. Windows Phone may have 'only' 3.5 per cent of the market

share, but it is growing (Van Hoek). On top of this, several big phone manufacturers are using and going to use Windows Phone as OS for their phones, like Nokia, Acer, HTC, LG and Samsung (Rathod). Moreover, Windows 8, the new music service Xbox Music and Windows Phone 8 all feature the tiles. In other words, we will be seeing more of these tiles in the future, so it is important to know what these tiles are about, as more people will use them. For an academic are the tiles also important to investigate, as linguist Ferdinand de Saussure noted, linguists are not happy when a language is innovative, because then we have to re-learn the language (De Saussure 107). However, Microsoft did change the 'iconic' language into a dynamic, more textual language. So, what is this 'new' language and how does it differ from the 'old' one?

Process

First, I will make a draft definition of the 'tile', so that it is clear enough what the tiles are to investigate them. In this section, I will also try to find its roots in earlier techniques, like icons and widgets. Once we know what the tiles are about and where they are coming from, we are in a position to investigate them further. In the second section, I will investigate the

tiles via Charles Sanders Peirce's semiotics as appropriated to the digital world by Marianne van den Boomen; in her *Interfacing by material metaphors*-article (Van den Boomen 253). With semiotics, we can understand how the tiles function within the context of the OS and the user's world, so this is the perfect approach to understand these tiles, especially since Peirce's semiotics is particularly apt to explain connections of signs and their object of reference. At the same time, I will compare the findings with how the icons are constructed according to Peirce's semiotics, so this second piece could be best characterized as a comparative analysis.

Now, let us investigate these Mondrianesque objects.

A crash course in tiling

Image 1 shows the start screen of Windows Phone 7 with seven pinned tiles on the screen. Some of these tiles can display live information from within the application or object where they are referring to; this information is generally sent via push messages or regular updates (Microsoft a). If tiles show live information, they are called 'live tiles'. Microsoft also

distinguishes *application tiles* and *secondary tiles*, with the latter referring to 'objects' on the phone, like a musical album, a location for weather reports or a contact and the former to a application (Ibidem). Tiles are either square or rectangular.[1] Tiles can contain text, pictures, images or, as Microsoft calls it, a background image. However, these images often look more like icons, like in the Music+Videos tile, which contains the Zune icon (Microsoft a).

In image 1, there are seven tiles. All the tiles are, accept for the Music+Videos tile, more or less, live. The e-mail tile, messaging tile and the phone tile show the amount of unread messages and missed calls. The people tile is a lot more interesting: it shows the profile photos of all the people in the so-called 'People hub' by alternating through rotating. This People hub is an augmented address book, since it not only contains contact information, but also photos, a *recently contacted people*-section and status updates of all contacts on Facebook, Twitter, LinkedIn or any other connected social networking site. Interesting about this tile, which also applies to the calendar tile, is that the tile shows updated information from within the application to which the tile is a gateway to. Moreover, these tiles are more sophisticated than the e-mail and the phone tiles.[2] The last

two tiles, Music+Videos and the Weather tile, differ from the other five. The Weather tile, showing the weather in Berlin, is a secondary tile, as it does not refer to an application, but only a certain part of the application; a weather location. As for the Music+Videos tile, it does not show any other information than the 'background image' and a very revealing description (Music+Videos). This tile is not live, it shows only a 'background image', which actually looks like an icon.

It should be noted that some tiles embed icons, but also embed the description, and in some cases embed live information as well. See, respectively, the Music+Videos tile and messaging tile in image 1.

Icons in other OS's, like iOS and Windows 7, have a description hanging, loosely, underneath them. Moreover, the tiles and their icons, compared to icons from other OS's are flat, 2D and generally only one color. Most icons from other OS's, on the other hand, do have shadows, gradients, shadings and some kind of 3D effect. So, the tiles are something different than icons, but do, in terms of representation, sometimes share some traits. In terms of functioning tiles and icons also share traits. Tiles, like icons, also hide things,

like machine processes. They depresent things, as Van den Boomen would say (Van den Boomen 254/ 256). Perhaps we can speak of Jay David Bolter's and Richard Grusin's notion of *remediation*, as tiles clearly use elements of icons, and in some cases, literally absorb the icons (Bolter and Grusin 3). Moreover, icons, and these 'remediating' iconical tiles, refer metaphorically to an application. However, in terms of representation, live tiles, like the calendar tile and the people tile, differ completely from icons: tiles are not metaphors. They, also, do not 'translate to substitute' by representing, like icons, as Van den Boomen mentions (Van den Boomen 254). Moreover, thanks to the slick animations of Windows Phone, there is less depresented. Once the user taps the tile, the application does not just 'appear' out of nothing, but it is 'pushed' into the screen by turning from the middle via the right. So, thanks to the animations, it looks like you are being transported to another place on the phone. In other words, not all the computer labor is being cannibalized by the tile.

One can also approach the tiles as some sort of *direct visualization*, a form of information visualization that Lev Manovich promotes (Manovich 134). This form of visualization uses the original medium to make the original data more understandable

Figure 1
The Start Screen

via a different way of presenting it (Ibidem). So, text stays text and images stay images. However, these tiles reduce the original data somewhat, but try to make up for it by constantly changing, like the revolving images in the people tile. This could also be seen as a form of representing the dynamic nature of the application and contact entries, as they change when people post updates on a social network site. Icons, on the other hand, could be seen as extreme reductionists, by depresenting via that translate to substitute, removing elements from the application in the representation and by being fixed, instead of dynamic (Ibidem 122).

A definition

With the explanation above, we are in a position to make some sort of definition to work with. Tiles are gateways, shortcuts, to applications or objects on the phone. They refer to which they are gateways to in text, in image and in several cases, by showing text and images from where they are referring to, which can change, like that which they are referring to changes.

This definition is created by using the tiles in the Windows Phone OS; and as philosopher Ludwig Wittgenstein notes, the meaning of a word, a tile, is its use in a language, the Windows Phone OS (Wittgenstein 32). So, this is the best way to make a preliminary definition of the tiles to find out what they are exactly.

What's in a name?

Another interesting question is why the tiles are named 'tiles'. Of course, the start screen seems to resemble a wall of tiles, but there is more to it. I spoke with the general manager of the Windows Phone team, Albert Shum, about this during a master class at Fabrique Amsterdam (Fabrique). The team chose the name to stress the dynamic nature of these tiles. By viewing them as 'real' objects, instead of windows, pictures or frames, it is possible to view the tiles as objects themselves, instead of being a fixed vista to another place. This is actually pretty logical. If we look at how tiles are be used in games, like *Scrabble, Rummikub* or *Dominoes,* it is possible to mix all the tiles and match them in a lot of ways. It appears that this game-tile-combination is a language-determined term, as in Dutch, for example, the pieces of *Rummikub* and *Dominoes* are called 'rocks', so this dynamic element of 'tiles' may not be understood perfectly outside the English-speaking world (dmoz).

Historians might think about the decoration of (wall) tiles, which has been done for hundreds of years, in The Netherlands in particular (Nederlands Tegelmuseum). While Shum and his team did not take this into account, this could also be an interesting approach. While these tiles are not dynamic, they are personal works of art. Like the Windows Phone tiles, these wall tiles express the personality of the owner or artist. Moreover, in the Netherlands, people also used tiles for expressing proverbs, folk wisdom, so-called *'tegeltjeswijsheid'*. Perhaps this is comparable to a live tile showing the contents of a message?[3]

Roots and beginnings

The iconicity and the defining element of these tiles, the liveness, can be found in other and earlier OS's as well. What follows might look like an enumeration, but a story with causal connections is not possible, as the tile-system was no real evolution, but revolution. So, the approach here is genealogic.

Pictorial iconicity goes almost back to the beginning of graphical interfaces of computers. In 1975, Xerox PARC 'debuts' the first graphical user interface, in which menus, overlapping windows, and most importantly, icons are featured (Xerox PARC). In 1981, Xerox releases a computer with the interface commercially, the Xerox Star (Hailey). However, it would take until 1984 to see an affordable release for consumers which feature icons in its interface: the Apple Lisa (Perkins et. al 42). Microsoft, on the other hand, used at that time a command line interface, completely textual: DOS (Berka a). It took Microsoft until 1990 to release a graphical interface, with icons: Windows 3.0 (Berka b). Since then, Windows used icons by default to serve as shortcuts and as metaphoric references to programs or other objects on the computer. Now, in October 2012, Microsoft is releasing Windows 8, which is the first desktop Windows version which does not feature icons by default (Microsoft b). This interface is inspired by Metro and its design principles of Windows Phone 7, so the tiles of Windows 8 will roughly function in the same way as in Windows Phone.

This, however, does not tell us anything about how the dynamic nature of interface elements came into life. This is a less steady line of development. It seems that the most common way to show live information was through 'widgets', which generally are small programs that run on the (desktop) screen. These widgets can show live information in a

small box about weather, stocks, CPU, news or Twitter updates. Companies like Apple, Google, Microsoft and Yahoo! created a lot of widgets over time (Yahoo; Apple; Purewal). Microsoft (who called them gadgets) and Yahoo! shut their widget-division down; Microsoft due to security reasons and Yahoo! for unknown reasons, but the financial problems are likely to be one of the motivations of this decision (Microsoft c; Yahoo; Computerworld). Google created very sophisticated widgets for Android, in which users could even scroll (Whitwam). However, most of these widgets are just small programs, while tiles also refer, in some way, to an application, so tiles themselves are not really programs. Most widgets do not function as gateways/ shortcuts either. Most importantly, widgets did not replace icons; Android is still icon-based, as well as Windows Vista and Windows 7.

Tiles as sign language

Now that we know more about the tiles and their usage, we can investigate them further. I will approach them semiotically, as mentioned earlier, via Peirce's semiotics. As Van den Boomen notes, it has an explicit vocabulary on (visual) signs and the relation between the, in

De Saussurian terms, *signifiant* and the *signifié* is, as their relation is not random, following Peirce's semiotics (Van den Boomen 256).

Peirce's semiotics

Peirce distinguishes three relations a sign can have with the objects it refers to: iconic, indexical and symbolic (Van den Boomen 257; Peirce).

Icon. The icon refers by resemblance, similarity or by analogy to its object.
*Index.*The index refers by an existential, physical or causal connection to its objects.
Symbol. The symbol refers by habit, convention or law to its object.

Let us see what happens if we apply this approach to the people tile, see image 4.[4]

Icon

The tile is not referring to the application by an image that looks like the People hub, so there is no resemblance. It does have some similarity: it shows the profile photos of the people in the hub. But the tile does not have some analogous formation which bears some relation to the hub, although the dynamic
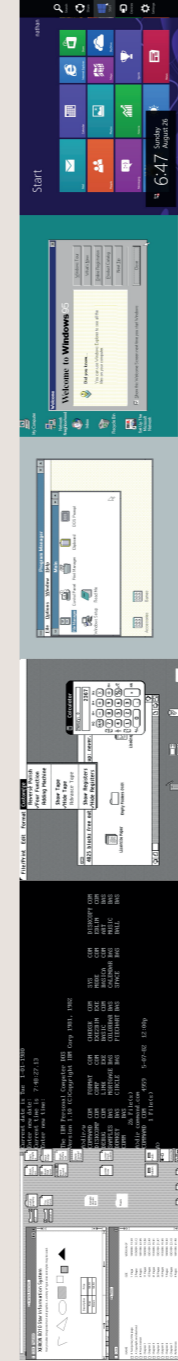

Figure 2
Xerox Star (1981), MS-DOS (1981), Apple Lisa (1984), Windows 3.0 (1990), Windows 95 (1995), Windows 8 (2012)
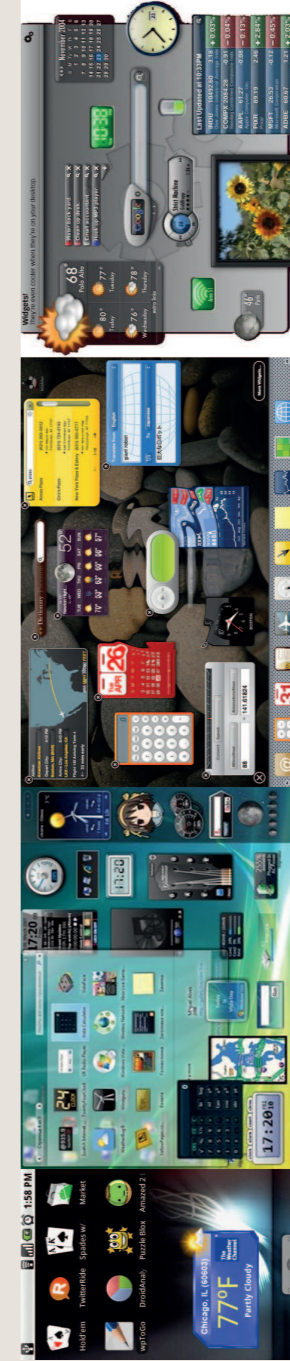

Figure 3
Widgets from respectively Android, Microsoft, Apple and Yahoo!

nature of the tile could be seen as some kind of analogous reference to the hub.

Index

The tile is not referring to the application in an existential way, since the tile can exist without the application (and vice versa). However, it would be *just* a tile without the application, so it seems that the application influences the tile. This becomes clear when there are no people (or no profile photos) in the application. The tile will not come to life as in image 4, but it will look like image 5. If there are no people in the hub, the smaller squares would still revolve; but in different colors of the chosen color theme only, so it appears that the *liveness* is existentially connected to the application. There is also a physical connection between tile and application: elements of the application are in the tile, just like with a fingerprint on a piece of paper. This fingerprint is not the complete finger or person, but part of it, just like the tile; a partial representation of the application. Fingerprints are a unique identifier for a person, as the tile is a unique identifier for the People hub – especially since that *all* people tiles will look different, as no one has the same contacts in their hub. Every hub is a unique representation of the user's connections, so

Van den Boomen's fingerprint-example for the tile is fitting in our case. Interestingly, Windows Phone program manager Joe Belfiore also uses this term; *'unique fingerprint'* (GSMinsider). However, this physical connection says not much about the dynamic nature of the tile, as finger*prints* are fixed, once they are printed. The causal connection is of help here. As we have seen with the existential connection, the application forms the tile. Or more precisely, the user determines what is in the application, so the user and the application determine how the tile is formed. In other words, the tile is the result of a joint effort of the user and the application. Van den Boomen mentions a sundial indicating time as example; the sundial can exist without the sun, but needs the sun to show the time. This applies to the tile as well: it needs to application (the sun) to get its final form.

Symbol

In terms of tiles as symbols, the tiles are not really connected by convention. Connection by law is a possibility, as the description 'People' is an un-ignorable reference to application's name. There are also traces of a connection by habit, just like a flag of a country. In other words, the reference is based on an

agreement; Microsoft just chose tiles to refer to applications, instead of icons. Just like a regular language, we have to learn to what the tile with its pictorial and textual reference belongs to; like Wittgenstein, De Saussure and even Peirce himself say: the connection between the *signifié* and the *signifiant* has to be learned (De Saussure 107; Wittgenstein 32; Peirce 493).

Interpreting the semiotic tile-signs

It appears that tiles have all types of connections a sign can have, although the indexical connection is, most dominant. Consequently, the tiles do look less chosen randomly formed than icons, as the connection to their application is perhaps a little by habit, but mostly causal, existential and physical. Although the tile-system may have been chosen 'randomly', it does not look random as the tiles contain a striking description in text in them. Moreover, and perhaps most importantly, the tiles literally show content from the application in a dynamic way, just like how the applications are. It appears that, on the level of representation, the indexical connection is a lot stronger than an iconic or symbolic connection, like icons have (Van den Boomen 257-258). The people tile refers

to the People hub by showing contents of the application in a way the application functions: dynamic. As several applications are filled with personal information, like the People hub or the calendar, their tiles are unique and personal. Moreover, tiles are made up of several signs, like text, pictures or icons. So, in our example, one could, in theory, deduce the functioning of the application via the tile: the Facebook-icon and the word people says that it is some kind of place where you can contact (Facebook = contact) your friends and colleagues (profile photos + word 'people') on several levels (Facebook-icon + other networking site logos + 'people').[5]

Compare this with an icon, like in image 6. What does it refer to? It should refer to the iOS contacts application, but in Peirce's iconic terms, it resembles an old-fashioned address book. However, the iOS application does not contain a spiral, paper; in fact, there is no book at all. It seems that the icon resembles something else to make clear to what it actually refers to. It uses something *outside* the OS to refer to something *inside* the OS – while the tile refers to something *inside* the OS by using something *inside* the OS. This is an interesting difference: the tiles take/receive elements from the hub to make clear to what it refers to, instead of trying to resemble the hub. So, the

tiles are connected differently than icons to their applications due to its indexical connection on the representational level, since the icon tries to represent its application iconically. Another difference is that icons are one sign, here, the connection of the spiral, outline of a person, letters A-F stands for: *address book*. However, the tiles are made up of several distinct signs; changeable photos, icons and changeable text, so the tile can say more than the icon, plus, due to its dynamic nature. One may argue that the contacts application in iOS is less dynamic than the People hub, so the icon does not need to be dynamic either. True, but the contacts application can grow or shrink, as the user can add more or remove contacts, add phone numbers, e-mails, photos, so in some way, the contacts application can change somewhat, but the icon cannot represent this.

What has not changed is the depresentation of software code and elements of the application by the tiles. Earlier, I mentioned the software code/ machine labor, which is somewhat resolved by the slick animations, perhaps also because the applications are full screen now. In this way, the user is 'sent' somewhere else, instead of staying at the same place with a new screen seemingly popping up out of the blue. So, software actions are made somewhat

visible by the animations and the full screen-approach. This also happens in iOS, where it seems that the application 'comes out' of the middle of the screen by expanding. However, all these animations are not the tile, and what is more, these animations are just an illusion of the user going somewhere else, so the tiles, still seem to depresent software code.

This exemplifies a two-part distinction made by Peirce: *immediate* object and *dynamical* object (Van den Boomen 257). Respectively, the object as represented by the sign (icon/ tile) and the object as it exists in the world. Van den Boomen already found out that icons themselves, immediate objects, refer indexically and causally to *'an act of executing machine code'*, so their dynamic code is machine code (Van den Boomen 258). This connection is, according to Van den Boomen, indexical, because of the *'existential, physical chains of causation'* (Ibidem). This is where the tiles and the icons differ. A tile does take over the dynamic object-form element from the icon, but its immediate object-form differs thanks to the nature of its connection to the application: mainly indexical instead of iconic/ symbolic. The immediate form of the tile may be referring to something similar as the icon, but the way the tile does this differs completely, it is not metaphoric anymore. The immediate form of
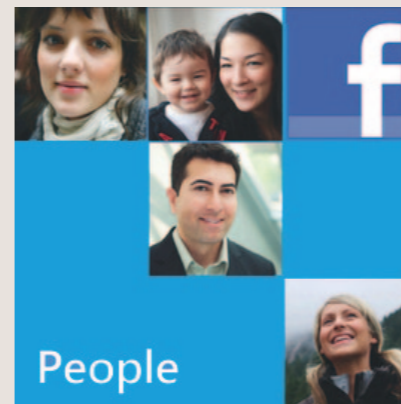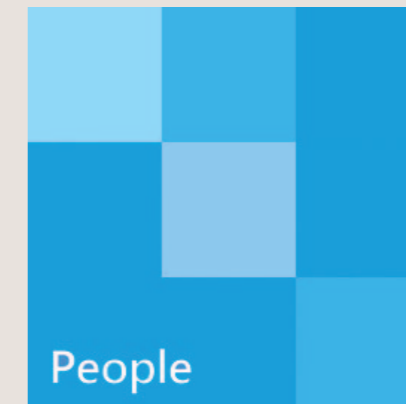

Figure 4
The people tile (1)

Figure 5
The people tile (2)

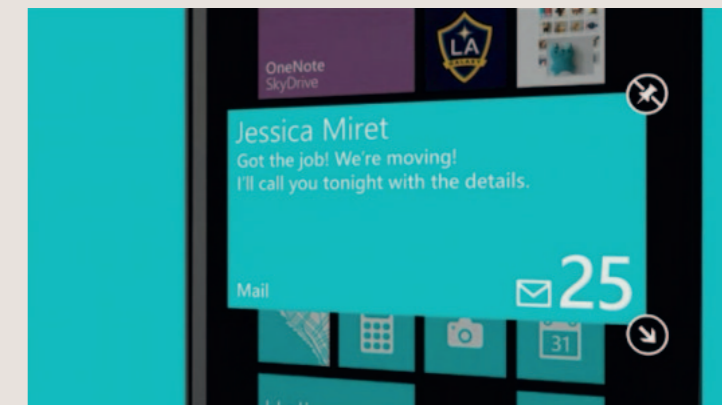*Figure 6*
iOS contacts icon

Figure 7
Windows Phone 8 e-mail tile

tile form also refers to human code, but as we already saw, while the icon refers to something *outside* the OS, like the contact application icon to an old-fashioned address book, the tile refers to something *inside* the application itself, so inside the OS. The icon refers to something that dynamically exists in the world: an old-fashioned address book. The tile refers, on the other hand, by embedding something that is immediate in terms of human code, but has a dynamic form of machine code again: contents from the application to where the tile refers to. So, we can understand tiles as Peircian *indices* (referring to the dynamical object of machine code, like fetching profile photos, showing appointment details) wrapped in Peircian *symbols* (referring to the dynamical object of human code, like calendar, mail) which makes them Peircian *indices* at the same time again, since the signifié-signifiant connection is causal and existential. Tiles also 'admit' this indexical nature, by showing contents from the application, so in terms of presentation, they are more indexical than they are symbolic, as the connection is not as random as in the case of a symbolic presentation.

Van den Boomen proposes a third kind of 'object' that icons refer to, next to the human and machine code, to better understand the double dynamical object of an icon. She mentions a 'virtualized' object, which is not yet actualized, but which can become 'actual' when the human interacts with the computer (Van den Boomen 258). This means that *'it is not your mail program running, it is that you might have received mail'* and where *'machine possibility and human effort come together'* (Ibidem). If we tie this to the tile, to understand its double dynamic better, we can see two things. Firstly, once the application is filled with personal information; Windows Phone gets to work and actualizes the *'might have received e-mail'* all by itself. In Windows Phone 7, the tile prompts when there is e-mail, but Windows Phone 8 takes this to a whole new level: it shows the contents of the new e-mail (see image 7). Consequently, human effort does not have to be there so much anymore to actualize what might be actualized, compared to other OS's. Secondly, in terms of representation, the tiles are a good example of human effort and computer effort in an object. If we take, for example, the Picture tile, which shows a slide show of all the photos stored on the phone. The user indirectly determines which photos are sent to the tile by keeping photos on his device. The OS determines when and how these photos are shown in the tile. Interestingly, the e-mail and People tile are actually determined by the user's contacts, by

sending him e-mails and changing their profile pictures. So the tiles do get a life of their own.

Van den Boomen mentions in her *Interfacing by material metaphors*-article a friend who understood her e-mail icon as the actual e-mail (Van den Boomen 255). Well, this is pretty much what is going in Windows Phone 8: the tile becomes the e-mail, by showing the contents of an e-mail message. This 'showing' of the Windows Phone 8 e-mail tile may the solution Van den Boomen suggests in 'solving' and understanding the depresentation of software code in the icons.[6] She borrows a term from Katherine Hayles, *material metaphor,* which Hayles uses to understand actions of 'electronical words' can do in electronic literature, like dancing, dissolving, mutating and so on (Ibidem 262). In other words, approaching a sign as a material metaphor means that one sees a sign as a symbol, but also an indexically connected object to the actions that are evoked by the sign. The Windows Phone 8 e-mail tile shows that it stands for our e-mail, by telling it in text, the word 'mail', showing an icon (the envelope) and showing actual e-mail messages.[7] So the tile not only shows what it represents, but it is also what which it refers to (among other things) does and affords: fetching and displaying e-mail messages. Perhaps this is

not possible for all applications or shows all the machine code, as we still do not know *how* e-mail is being delivered to the phone, but it is a step forward, as tiles show more than icons do. We may reach the conclusion that our old-fashioned icons were just, to use Manovich's terms, a *historically specific strategy* to refer to applications, so, icons are not an essential characteristic of the graphical user interface, as one might think due to the ubiquity and implementation of icons in new OS's like iOS and Android (Manovich 149). In other words, we may see the tile as successors of icons. If we follow this notion, we can see that Windows Phone 7 is part of a transitional strategy, because its predecessor Windows Phone 8 takes the usage of tiles to a new level, but as one can see in image 7, icons are still alive in Windows Phone 8 as well. So, for those who do not want to have icons replaced entirely, it is still possible to keep them, even in 8, be it embedded in tiles.

Tiles and the user

In the previous parts, I investigated what the new tiles in Windows Phone are, via semiotics and a comparative analysis with the 'classic' icons. Tiles borrow functional elements from

icons, and some representational, but for the most part, tiles are different than icons. In some tiles, like for the calendar application and the People hub, icons are absent. They do not remind us to icons so much anymore – remediation in a late stage, if we talk in terms of remediation. In other words, Microsoft invented a new kind of sign system to serve as gateways to applications and objects. The linguist's nightmare. Moreover, according to several scholars, the iconic system worked fine; with, for example, computer scientist Susan Wiedenbeck arguing that icons can easily be remembered and recognized (Wiedenbeck 68). Or with professor of design William Gaver arguing that icons can offer some insight in the affordances of an object (Gaver 82). Or, Charles Kacmar, Jane Carey and Jakob Nielsen argued that users prefer icons, even though icons may not help them work more efficiently (Nielsen 441; Kacmar and Carey 443). Although this research may be outdated, it shows why icons were used in graphical interfaces in the first place.

Microsoft threw a lot of this iconic system overboard. Consequently, one important question remains: how does this new tile-system exactly benefit the user? To 'get away' with this, Microsoft must have had a good reason.

My-phone. For starters, the start screen is a lot more personal than before. Sure, people can select wallpapers and the sorting of icons in other OS's, but these tiles are parts of someone's life. By being indexically connected, the tiles show personal things from the applications, like appointments, e-mail messages, photos, the me- and friend-tile (in which photos and status updates from social networking sites are shown). This may not add something to the easiness of using the OS, but it adds something to the experience: it is *my* phone, and not someone else's. Following this train of thought, one might argue that some tiles (like the People tile or the Pictures tile) not refer to 'contents' of the applications, but to the persons and their lives themselves.

Uni-phone. Thanks to the tiles, the user does not have to open applications all the time, at a glance; he can see what is going on. The experience is less fragmented: by seeing information at a glance, it is easier to combine information than seeing it apart in several applications. This saves time and saves battery life. Compared to widgets, live tiles, and especially those in Windows Phone 8, are no battery-drainers, so live information can come without too much trouble (Chip Chick Staff 2012). It is like having a cake and eating it too.

Art-phone. Perhaps this is not the most academic reason and it may be a matter of taste; but these tiles are just beautiful. They are dynamic and you can jointly form them with the application; that is a lot more interesting to look at than icons that never change.

Windows-phone. Finally, these tiles refer differently to their applications, by showing what is going on *in* the applications, instead of referring to something *outside* of the system, like the icons did. Most people know the meaning of the majority of the icons these days, though. However, thanks to the tiles, we might better understand what these applications do and are, as they show what is in the application: the result of the joint operation of the user and the application. I think that we can approach these applications better now, as the tiles more show what they represent; exactly like a fingerprint does. Perhaps we can, in the future, leave out certain metaphors that can clutter the understanding of the affordances and functions of an application. Imagine an e-mail program where the envelope is not featured; in that case there is no reference to mail anymore. This is almost the case with the Windows Phone 8 e-mail tile, see image 7 on page 45 – remediation in a very late state. Remember Van den Boomen's friend who confused the e-mail icon for the actual e-mail? This is going on in Windows Phone: the tile becomes the e-mail. Is this not a lot easier? Instead of hiding the application behind a metaphor, the information is now shown immediately, live and dynamically. Actually, in most cases it is about the information, instead of the application itself. The tiles give the user immediate access to that information; *content before chrome*. It is that simple, so Microsoft's new tile-language does make some sense after all. ∎

Notes

1
In Windows Phone 8, however, users can decide the size of a tile. In WP7, the size of a tile is determined by the developer.

2
Although, these tiles will show more information in Windows Phone 8.

3
This will be possible in Windows Phone 7.8, Windows Phone 8 and Windows 8 with the messaging and e-mail tiles.

4
Examples of connection types are taken from Van den Boomen 257.

5
The tile can also show the Twitter and the LinkedIn logo, if the user is connected to Twitter and LinkedIn.

6
Although the OS partially solved this via animations and full screen applications, but we have not tied this question to the tiles either just yet.

7
Although the word 'mail' could be any word here – depending on what the user wants. The Lumia in image 1 has 'Xs4all', referring to an e-mail provider; this is a common approach.

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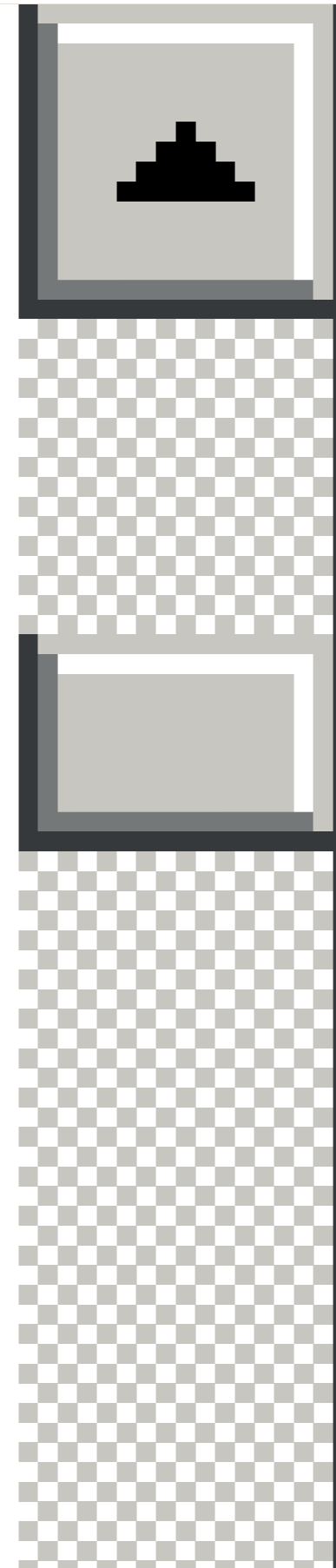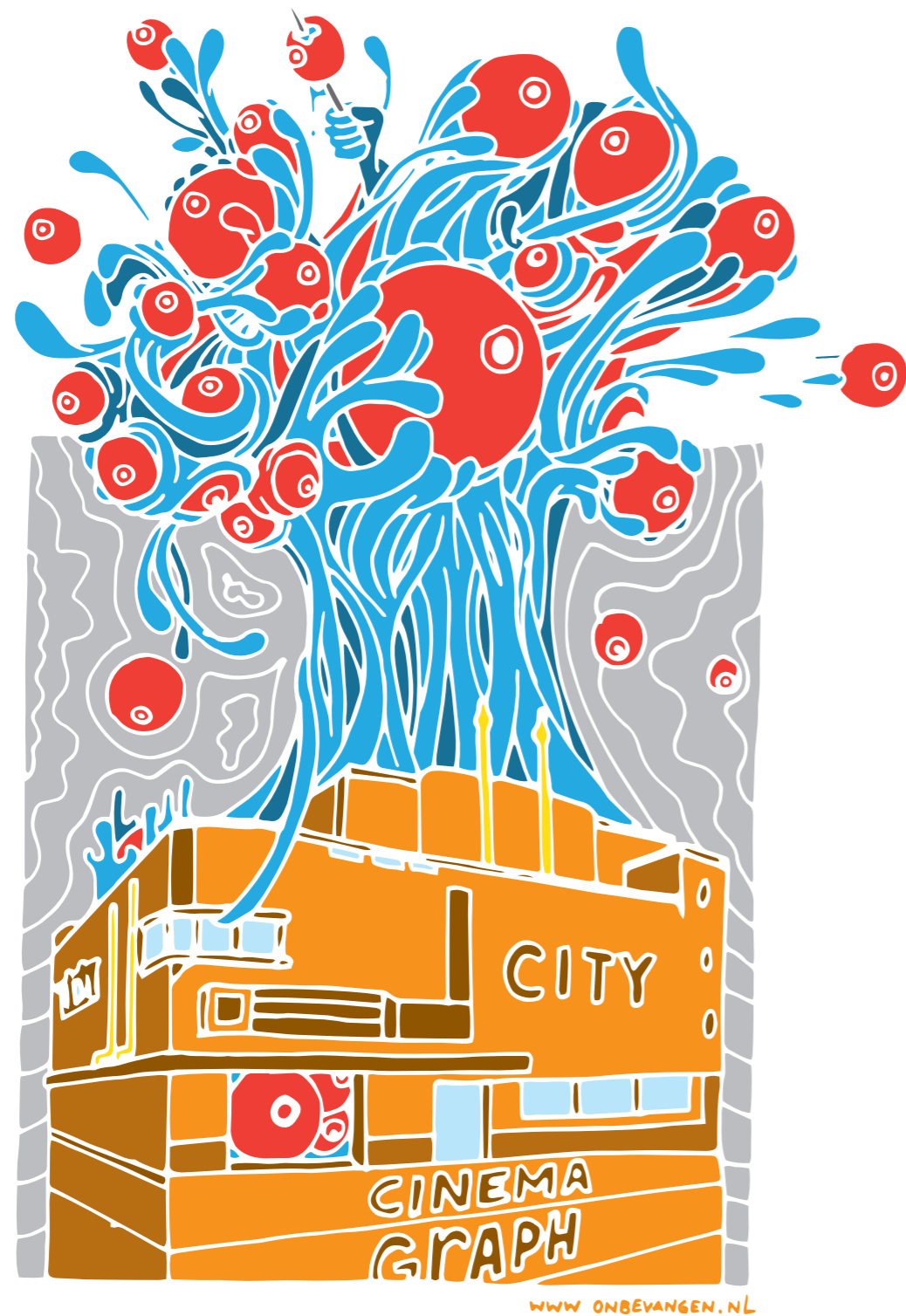
From Muybridge to Cinemagraph

Renewed interest & Nostalgia in the Animated Image

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From #Muybridge to #cinemagraph: an exploration of the cinemagraph in melancholic retrospect through Barthes' notion of Death in Camera Lucida

about 5 hours ago via web

About 18 months ago, a new type of image emerged: the cinemagraph. This is a hybrid between a photograph and cinema, displayed in GIF files on the web, suitable and meant for sharing with others. The cinemagraph is a very fascinating type of image, creating a magical feeling and a nostalgic longing. In this paper, I describe the cinemagraph in retrospect, going back to its roots through a nostalgic trend. Also, the appeal of the cinemagraph is explored, connecting it to the writings of Roland Barthes in Camera Lucida, explicitly relating the image to death. ¶

Introduction

There is a longing for nostalgia in digital culture. It is to be seen in different ways; from a renewed interest in archives and old books becoming accessible for many people through the Internet to the 'vintage' filters on Instagram and other visual applications. This is a trend that is noticeable in more fields than just the digital. A nostalgic touch is added to everything; there is a renewed interest for history, specifically that of the early late 19th, early 20th century and the Industrial Revolution. Old factories are being reused for housing, art galleries and clubs; the commercial audiovisual industry produces series like *Mad Men* (Matthew Weiner, 2007-now), *Boardwalk Empire* (Terence Winter 2010-now) and the Oscar-winning silent black-and-white movie *The Artist* (Michel Hazanavicius, 2011); new interest for craftsmanship; the immense popularity of 'retro' clothing and music etcetera. I would like to focus on a visual aspect of this nostalgic trend in digital culture: the *cinemagraph*. It is often said that fictional ideas are the cue for nonfictional development – one might know this type of picture when thinking of the Harry Potter books (J. K. Rowling

1997-2007); it is wizards' type of photography in this series (see the last chapter for further explanation). The cinemagraph is a relatively new type of image, first created in October 2010[1]. The term itself was coined a little later, in March 2011, after fashion photographer Jamie Beck and graphic designer Kevin Burg posted the first of a series of cinemagraphs on their personal Tumblr[2]. The cinemagraph appealed to a lot of people and got popular right away. Since then, several apps for your mobile phone have been developed, cinemagram[3] being the most well known. Everyone who has a smartphone can make cinemagraphs; the magic is in your hands.

The cinemagraph gives the viewer a special feeling. The image is partly moving, partly frozen. It both alienates and comforts the viewer at the same time. The object is familiar, yet the way it moves (partly) seems strange; the object is stuck in space and time, forever looping. The cinemagraph is exclusively viewable through a digital device, in the form of a GIF file. This type of file has become one of the most popular forms of images on the web. A GIF consists of a series of images, forming a short animation, ideally at 15 frames per second and lasting no longer than just a few seconds. This grabs back to the first animated pictures created over a hundred years ago.

Using devices like the zoopraxiscope and the praxinoscope, people could watch looping animated pictures, lasting only a few seconds. The development of those instruments meant the start of the motion picture, longer films and movies. Still, I see this type of animated image as a type of its own, not just as a starting point for movies; the image created with a device like the zoopraxiscope as an analogue animated image on the one hand, and the GIF and more specifically the cinemagraph as digital animated image on the other. Between the development of those two 'versions', there have been hundred years in which this type of image was absent. This is an observation that fascinates me, since the digital animated image is so immensely popular. The cinemagraph has this magical, nostalgic and also vintage feeling, which apparently appeals to many people *nowadays*, even though the roots of this type of image can be found about a hundred years ago. Therefore, in this essay, I will explore how the cinemagraph - in retrospect - is related to the nostalgic desire.

I do so from an (art)historical perspective. I have written a chronological overview of the development and trans-formation of the animated picture, moving from Muybridge to the cinemagraph. An ontology of the cinemagraph cannot be left out; what is a cinemagraph exactly? Furthermore I analysed how their findings on photography relate to the appeal of the cinemagraph, specifically relating to death – I will argue how the cinemagraph is even stronger in this than the photograph, connecting it to Roland Barthes' *Camera Lucida*. The first chapter will focus on form, while the latter describes the perception. Connecting the cinemagraph to the nostalgic trend, this essay will end in a conclusion combining all elements, aiming for a good explanation.

From Muybridge to cinemagraph

The analogue

In the 19th century, the art of photography was developed. Starting around 1820, photography was not quite the hobby it is now. It required a lot of knowledge and expensive equipment. The developments went fast, and around the time photography became just a little bit more accessible, some photographers started to experiment in order to animate their pictures. As said, 'Makers of images have always wanted to make them move and change in time.'

(Norton Wise 2006: 77)

One of the pioneers of the animated picture was Eadweard Muybridge. As a photographer of animals, he desired to make his pictures move. In order to do so, in 1879 he developed a device called the zoopraxiscope. This installation projected images from a glass disc rotating in high speed, creating the illusion of motion. By nature of the round disc, the images were looping. First, the images on the discs were painted by hand; later on, they were printed photographically and coloured by hand afterwards – quite a laborious task. There are several of these devices that make short animated pictures possible. Other well-known examples are the zoetrope and its successor, the praxinoscope. Charles-Émile Reynaud, a Frenchman, developed the latter in 1877 (Bordwell & Thompson 2003: 16). In figure 2, you can see the praxinoscope; a strip of images was placed on the inside of a cylinder. Through the mirror in the middle you can see a 'steady' moving image.

Now, all of the images coming out of these devices have some things in common. First, all of the images resemble something *real*; they refer directly to a person or action we encounter in real life. As seen on the picture of the praxinoscope, it displays a woman and man dancing together. Eadweard Muybridge usually made motion pictures of animals or sports activities. They all refer to *life*. This is very important to keep in mind; I will refer to this later, when analyzing Barthes. Second, the images consist of a short series of pictures, combined in order to create an animation. It is important that this animation is only short, and furthermore it has to loop. In this way, the image only shows a fraction of movement; still we recognize and perceive the movement naturally. Those two elements are characteristic for this type of image.

The digital

In order to draw a line between the first animated images and the cinemagraph, I will first present a short outline of the development of the GIF. I consider it necessary to know how this type of image developed, before coming to the type of GIF I'd like to analyze, compare and (in the next chapter) place in the context of the nostalgic trend; the cinemagraph.

A short history of the GIF

The first developments regarding the GIF (short for Graphics Interchange Format) took

Figure 1
Zoopraxiscope

Figure 2
Praxinoscope

place in 1977. These were the first algorithms, which were improved by Terry Welch, an American computer scientist. He developed a faster version, named LZW. Curiously, both Welch and two other researchers (Victor Miller and Mark Wegman, who both worked for IBM) tried to apply for a patent, within a period of four years – and both patents got granted. This was respectively in December 1985 and March 1989 (Roelofs 1997; Miano 1999: 179). At the same time, a researcher at CompuServe designed the GIF as we now know it, based on the LZW algorithm. They have always rejected the accusation that they knew the algorithm was in fact patented, which makes the developments around the GIF and the question whom to credit for it quite vague.

The most important quality of the LZW (Lempel-Ziv-Welch) algorithm is the lossless compression it generates. Lossless compression means that if you compress an image with such a technique and expand the file again, the image outcome is in every detail and bit identical to the original, non-compressed image (Miano 1999: 12). Therefore, the image quality is good. The most important feature of a GIF is that it can store a multiple of images, forming an animation. Although a GIF does not *necessarily* have to be animated, the animated version is the one I focus on.

Since its introduction, the animated GIF has been used in a lot of different ways. Olia Lialina was one of the first GIF artists, experimenting with the animated image on the web, while at the same time analyzing them. She is one of the net art pioneers, creating since the early '90s. She is mainly known for her animated GIFs of dancing and hula hooping women[4]. In *A Vernacular Web*, she gives an outline of the different appearances of the image. The first web pages consisted of a collection of images and text, or a 'free collection of web elements', as Lialina puts it. GIFs took a prominent place in this first web pages, mainly for functional reasons; a popping yellow *NEW!* sign, black and yellow *UNDER CONSTRUCTION* bars and flickering navigation buttons, informing and directing their visitors (Olia Lialina 2005).

Another artist that started in this field more recently is Tara Dougans. She is interested in combining more traditional line drawings with the digital, and therefore made a series of GIFs inspired on menswear showed at the Paris Fashion Week (see figure 3). The fashion industry is one of the few industries that uses GIFs in a serious way; see also the example in the introduction, whereas it appears that two fashion photographers were the first to come up with the cinemagraph.

It took a while before artists widely

discovered the GIF as a medium for their art. The other way around, GIF art has not been taken seriously for a long time – and even now, this is still questionable. This year, the first large-scale GIF festival is organised during the Miami Art week[5]. The fact that this is the first time such a festival is set up, might mean that GIF has become a 'serious' medium in the world of art.

The most common use of the GIF, however, is to be found in (digital) social environments. Since I am placing the cinemagraph in an art-historic tradition, the social use is not the main focus, yet it is impossible not to mention. The GIF is often used online to express thoughts, emotions, jokes; things that people want to share. Its 'digital nature' makes the GIF an easy-to-share file, being small in size and displayable on all kinds of devices. I will go in further on the social aspect of the cinemagraph in both a practical way (the next paragraph) as a deeper understanding of the consequences of this social dimension, mainly referring to Susan Murray (2008).

The cinemagraph

Recently, a new type of image came up: the cinemagraph. I'd like to define its ontology,

before bridging the hundred-year-gap between this and the animation devices.

A cinemagraph depicts a hybrid that consists of a moving and still part. It is exclusively used in the form of a GIF, suitable for display and sharing on the web. It consists of a series of pictures, typical for a GIF, in which only one part of the pictures is animated throughout. The animation runs in a loop, usually lasting no longer than just a few seconds. These, in a nutshell, are the characteristics of the form of the cinemagraph. Both the term 'cinemagraph' as the concept are quite new, the term being used only since February 2011.

This is very well visible when using Google Trends for search queries containing the term; there were no search queries before March 2011 (see figure 4). A peak is shown in March 2012, which is when *cinemagram* was released, a popular app for iPhone that allows you to easily make, edit, upload and share your own cinemagraphs. After that, the amount of search queries declined, balancing on a slightly lower level. However, when comparing searches for 'cinemagraph' with 'cinemagram', it appears that after the launch of *cinemagram*, more people have been searching for the app, rather than the image type, especially booming in the last month (see figure 5).
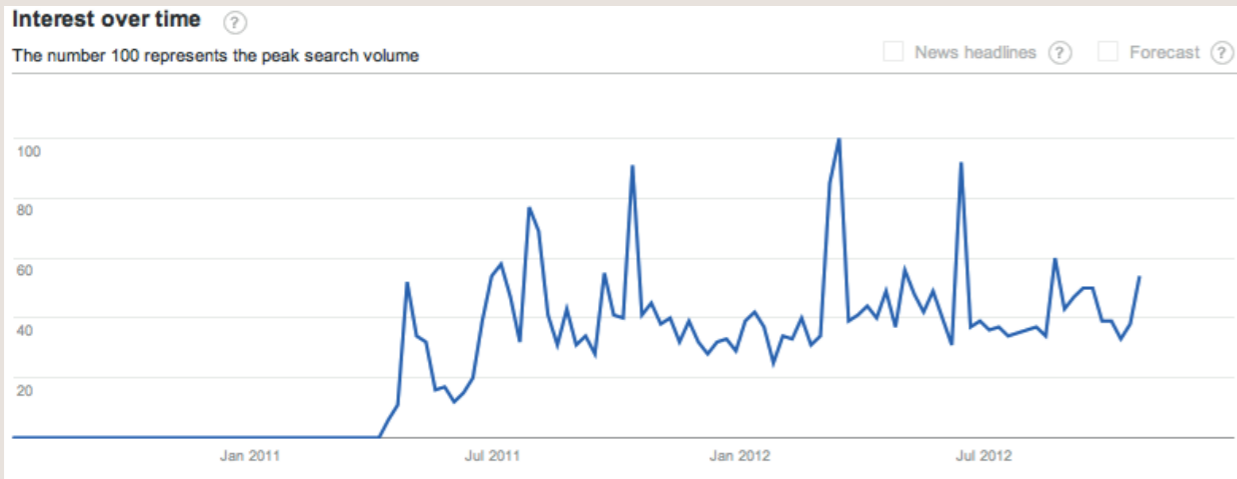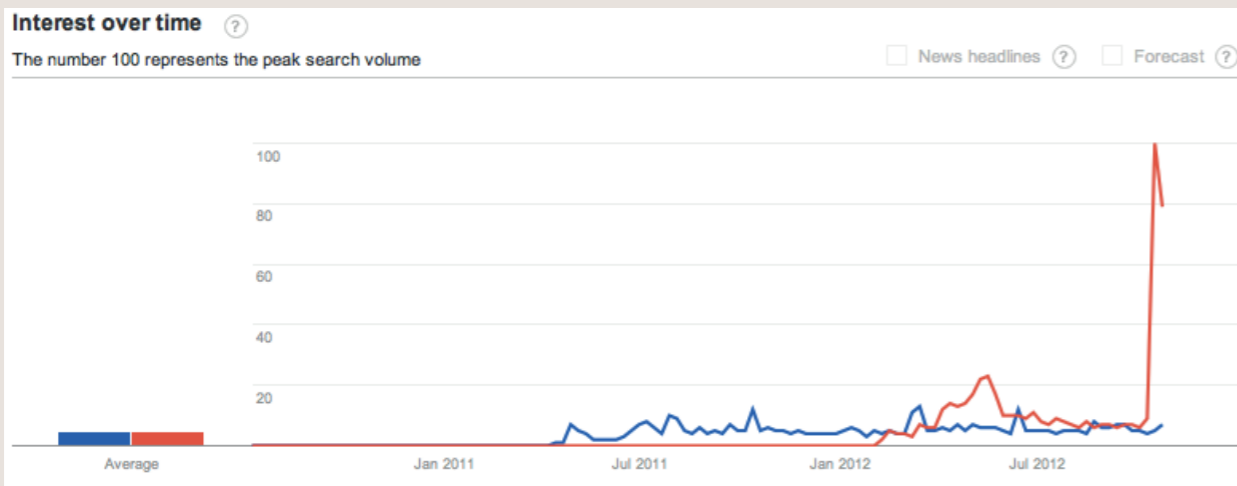

Figure 3
Tara Dougans

Figure 4

Figure 5

When looking at related searches, I can relate it to a sudden popularity breakout of the app – people are searching for the app on different types of mobile phones and for their page on facebook. On the other hand, when looking on the website of *cinemagram* itself, a blogpost on the first of October shows that more and more people also use the app to make for example fan art, or companies that use *cinemagram* to make a new type of advertisement[6]. The company makes pages dedicated to for example One Direction[7] fan art, where many fans can upload their cinemagraphs dedicated to their idols[8]. Remarkable, however, a large part of the uploaded GIFs are fully animated, instead of being 'true' cinemagraphs where only part of the image is moving.

This shows how the cinemagraph is used socially; it is shared all over the web to express for example fandom. Also, pictures are all together automatically shared, as is the case with Instagram, in a news feed that automatically shows the cinemagraphs with the most likes or the most recent ones. When looking at the bottom menu (consisting of five buttons), the two on the left are called 'popular' and 'friends', whilst the middle one is 'capture' and the two on the left are 'activity' and 'you'. In a language where reading is normally from left to right, one could argue that this (apart

from the fact that it is made possible to share cinemagraphs) is a cue that the social function of the app is more important than the individual.

So far the form, rise and use of the cinemagraph; how can we relate it to the first animated images? As said, they both consist of a limited amount of images. When displaying these images quickly one after another, one creates the illusion of motion. A limited framerate counts for the cinemagraph, as the ideal framerate for the GIF is set at 15 frames per second. When using an early hand-powered device for animated images, one could set the framerate themselves, probably not being any faster than the GIF framerate; also because for example the glass discs in the zoopraxiscope could only carry a very limited amount of pictures, as seen in figure 1.

This was all about form; more interesting for my argument, both the early animated pictures and the very new cinemagraph have the quality to fascinate people.

Nostalgic desire & magical feelings

In this chapter, I will argue why the cinemagraph fascinates so many people. I will show this is because of two different aspects; on the one hand, the nostalgic desire that is visible throughout post-modern Western society; on the other hand, the nature of the cinemagraph, whilst referring to earlier reflections on photography. I will explore those aspects in this particular order, starting with the nostalgic desire.

Nostalgia

The past few decades have been overly filled with the past. The past in images, in music, movies, clothing – in culture. When exploring this nostalgic trend, it seems to have started already in the 70s and 80s of the previous century. Nostalgia, in literature, is mainly associated with negativity and crisis; a feeling that mostly occurs in times of social, economic and/or political transition or cultural crisis (Grainge 2004; Pickering & Keightley 2006). But importantly, 'while the production of nostalgia may have grown in tandem with a sense of cultural crisis, it cannot be reduced to this explanatory model; the commodification and aestheticization of nostalgia, in the 1970s and beyond, cannot be obtained within theories of loss and malaise.' (Grainge 2004: 27). It would not be right to define this nostalgia as a style - still it is a trend that one feels and recognizes when present. Paul Grainge argues that this type of nostalgia has to be seen as a *mode*, not as a *mood*, since it, according to him, cannot be explained in narratives of longing or loss; instead, he argues, the current trend of nostalgia has mainly come up because of the types of media we use everyday. Through video, photography, music recorders and digital media (among which the web) we are able to reproduce the past, which allows us to make the past marketable; to commodificate the past, bring it back into daily life in several ways (ibid: 33). I disagree with Grainge; of course, diverse types of media make it possible to recycle and reproduce elements from the past. Still, this alone is not enough to motivate one to do so.

The nostalgic, even melancholic longing is essential. Focusing on photography and visual culture, we have a nostalgic desire, wanting to know 'how it was back then'; what the world looked like; what our parents looked like; etcetera. Images from the past carry out a feeling of authenticity, something we always seem to strive for in post-modern society. As Jennifer Green-Lewis puts it, 'desire for authenticity may be understood in part as a desire for that which we have altered and then fetishized, a desire, perhaps, for a past in which we will find ourselves; but it is most frequently experienced and figured as a desire, or a sickness, for home.' (Green-Lewis 2000: 69). Home is associated with authenticity; the place where one comes from and always can go back to; something that feels real. Photography is the medium *par excellence* for nostalgia; 'everything exists to end in a photograph' (Sontag 1977: 24), and the death or loss is a precondition of nostalgia (Green-Lewis 2000: 71). So, death and nostalgia are related in some way. Connecting this to photography, we automatically move towards Roland Barthes.

Magical feelings: relating the cinemagraph to photography through Barthes

Barthes can be connected to Sontags famous quote mentioned above, writing the following in his final work *Camera Lucida*: 'What the Photograph reproduces to infinity has occurred only once: the Photograph mechanically repeats what could never be repeated existentially.' (Barthes 1980: 4). The photographed ceases to exist when the photograph is taken; left is a mechanical reproduction. In *Camera Lucida*, Barthes describes what attracts him to photographs. Doing so, he writes there are two elements that together establish his interest in photography; the *studium* and the *punctum*. The studium is large, a whole, something deducting from culture. The studium is the larger part in which the punctum operates. The punctum breaks the studium, stands out and makes the photograph interesting (ibid: 25-28). Moving away from photography and applying this to the cinemagraph, makes a very concrete analysis of one of the elements of attraction of the cinemagraph, less surprising; the still part of the image as the studium, the moving as the punctum. This can be the case from the operators' point of view, the creator of the cinemagraph; the creator *wants* this part to stand out. Still, from Barthes perspective, this does not necessarily have to be the punctum, since the punctum is 'that accident which pricks me' (ibid: 27) and therefore subjective and personal, differing depending upon who is seeing the image. Also, he points out that when a detail doesn't interest or excite him, it is probably because the photographer put it there intentionally (ibid: 47). Of course, this

is the case with the cinemagraph; the moving part is always *intentionally* animated, and most of the time the moving part is the one that attracts the attention of the viewer, since one is usually automatically drawn towards a moving element, when present. A very good example of a cinemagraph in which the moving and still together express a strong feeling but in which the point of attraction is not animated was made by Jamie Beck and Kevin Burg, the two (fashion) photographers mentioned earlier in the introduction. Being the pioneers of cinemagraphs, they have a large series of them on their website. The cinemagraph shown in figure 6 was made in Paris; a boy and girl sitting next to the water, kissing, while the wind plays with the autumn leaves and the water flows. They are captured in their moment, in their own space and time, while the rest of the world continues; exactly that feeling that lovers get; being one, being together is all that matters.

Barthes explicitly relates the photograph to death. I have touched upon this before in this paragraph, as an existential reproduction is impossible when photographing and this is what makes photography stronger and more intense than cinema; 'everything which happens within the frame dies absolutely

once this frame is passed beyond' (Barthes 1980: 57). This means not only that the photograph is motionless, but also that the photographed is forever in the same position, as to say anesthetized. A cinemagraph consists of multiple frames; when strictly relying on Barthes, this would mean that the magic appeal would not be apparent, since the otherwise 'dead moment' would be passing on. But since the cinemagraph has a part that *is* frozen and the moving part only consists of frames that run for no longer than a second or so, one *could* argue that the appeal of the cinemagraph in relation to death is even greater than that of the photograph.

All cinemagraphs that are popular and have this magical feeling have *people* as central object. Also, many of them focus on eyes, hair or play with mirrors; different objects that have a rich history in symbolism (see figure 7).

Now I will not work out this symbolism, but rather write why it is even more related to death than the photograph and therefore even more appealing and magical, whilst connecting to Barthes' writings on death and photography and the distinction between photography and cinema. When seeing a cinemagraph, one is surprised, since it is relatively new; it moves,

Figure 6
Kiss me in Paris

Figure 7

but only partly; the movement is usually very subtle; it is something we recognize and yet we don't really know at the same time. We are familiar with photographs and cinema, but not with this type of image; still it does not feel *that* unnatural. When talking about cinema, Barthes writes:

> "Like the real world, the filmic world is sustained by the presumption that, as Husserl says, "the experience will constantly continue to flow by in the same constitutive style"; but the Photograph breaks the "constitutive style" (this is its astonishment); it is without future (this is its pathos, its melancholy); in it, no protensity, whereas the cinema is protensive, hence in no way melancholic (what is it then? It is, then, simply "normal", like life)." (Barthes 1980: 89-90)

Here, Barthes refers to what he wrote before; a photograph is a captured moment, not to be reproduced existentially, and something that will forever be the same; one can close ones eyes for a while and reopen them again – the photograph will still be the same, as is not the case with cinema since the story continues and so the image changes. The cinemagraph is somewhere in between. It produces a feeling of melancholy and has a slight element of protensity, only very short. Since the time loop is so short, one is able to look away and look again and still see the same image; it depicts the same feeling, shows the same object, but *moving.* This moving element in particular makes the spectator aware of the (past) liveliness of the object, and thus relating to death; the moment is over, gone, dead; mechanically reproduced, but not in any way possible reproduced existentially. The moving contrasting with the still arouses the feeling of melancholy and the awareness of death more than a photograph alone, since we associate moving with life, the opposite of death, yet we cannot grasp it. In a post-modern context, remember the very first moment when Harry Potter saw a (moving) image of his parents in a photo book, showed to him by Hagrid[9]; he could not understand what he saw; he immediately longed for his parents more than ever. Since his parents were moving, Harry associated this with being alive, while he knew that this could not possibly be true; a strong feeling of longing and melancholy and a rise of the notion of death appeared at the same time.

Besides relating death and photography in social and economic perspective, Barthes also writes about an anthropological approach:

[...] we should also inquire as to the anthropological place of Death and of the new image. For Death must be somewhere in a society; if it is no longer (or less intensely) in religion, it must be elsewhere; perhaps in this image which produces Death while trying to preserve life. Contemporary with the withdrawal of rites, Photography may correspond to the intrusion, in our modern society, of an asymbolic Death, outside of religion, outside of ritual, a kind of abrupt dive into literal Death. (Barthes 1980: 92)

I agree with Barthes that death is given a new place in our Western society, whereas (traditional forms of) religion is still declining and death is largely ignored or at least something people do not 'have peace with'. Yet, I do not see the withdrawal of rituals; this might be in the context of religion, but I'd rather argue there is a whole new type of rites, concerning digital media. Here, I would like to dive into Susan Murrays findings on the communal behaviour regarding digital images. She writes how there is a new aesthetic, an everyday communal aesthetic that focuses on the mundane, the small and urban (Murray 2008: 161). As she writes,

In Flickr, we find an altered temporal relationship to the everyday image [...]. Instead of evoking loss, preservation, and death, users and viewers are encouraged to establish a connection with the image that is simultaneously fleeting and a building block of a biographical or social narrative. (ibid 2008: 161)

In the cinemagraph, I feel that one could combine both the approaches Murray talks about; the mundane *and* death are combined in a very effective and fascinating way. The cinemagraph connects to the new aesthetic, made possible by the social functions mentioned before; people often make 'snapshots', like as in the picture shown before, with the woman in the mirror. Yet at the same time it has a deeper level, relating to death and nostalgia; they are explicitly and inevitably combined in this type of picture. This is the strongest when people are pictured, in for example portraits. I would like to refer again to Barthes; at the end of his book, he explicitly talks about the appeal of photography by displaying people and more specifically, faces. A person can have a certain *air*, a direct indication to the soul, which can be expressed through a photograph, but only seldom; he gives the example of his own mother. While flipping through photographs he

only recognized her (as he knew her, her *air*) on one photo. For him, this was a really powerful emotion; one that makes photography stronger (and, closer to death) (Barthes 1980: 107) Within the cinemagraph, this is even stronger. First, there are more 'frames' to choose from. Second, because the image moves, one can more easily relate to the object, recognizing the pictured person or one's *air*. Therefore, the cinemagraph is a good type of image for making expressive portraits that come close to the 'real', photographed person.

Alltogether, the cinemagraph is a very fascinating type of image. Let's wrap it up.

Conclusion

The cinemagraph is appealing in many ways. Having its roots in the first stages of image animation, it has a strong connection to nostalgia, a visual trend that is recognizable at many levels in both digital and non-digital culture nowadays. There are strong similarities between the analogue animated images from more than a century ago and the animated GIFs that are immensely popular on the web, used in different ways; from tools for expression to art objects. The cinemagraph is very new (the

term was coined only two years ago) and in a phase where its use is constantly shifting; in the art industry, they are often used for fashion campaigns; in personal use, there is not really one trend recognizable.

The appeal of the cinemagraph can be assigned to different elements, although most of them relate to the distinction between the moving and the still. The moving is (often, but not always, as shown in figure 6) the *punctum*, that which attracts the spectator, appeals to the eye; also, it is exactly this distinction that makes relation to death inevitable. The cinemagraph is even more appealing and striking than the photograph, strengthening all the arguments Barthes has made about photography. It is also a even type of image for portraits when one wants to express ones *air*.

Yet there is something that bothers me: I feel the cinemagraph will or can never become as big or popular as photography, for the fact it cannot be printed and taken wherever you like. On the other side, the digitized is more and more available at every location, from desktop to pockets, which should allow it to become bigger than it is now. We must not forget the cinemagraph only just started; many things can happen.

How I'd love to take a cinemagraph with me

in my inner pocket, printed on paper, just like Harry Potter. This would be the most wonderful, magic, nostalgic and melancholic image I can imagine. ∎
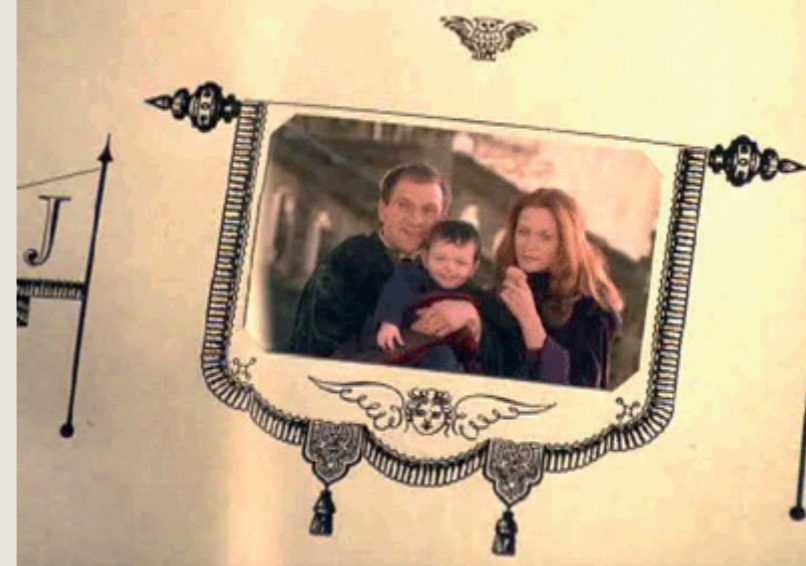

Figure 8
A still from Harry Potter

Notes

1
First cinemagraph, on tumblr *If we don't, remember me.* Trough: http://iwdrm.tumblr.com/post/1439925923. Last viewed on 20.10.2012.

2
Les Tendrils. First cinemagraph by Jamie Beck and Kevin Burg. Through: http://annstreetstudio.com/2011/02/12/les-tendrils-kaelen/. Last viewed on 05.11.2012.

3
Cinemagram. http://cinemagr.am/. Last viewed on 03.11.2012.

4
Olia Lialina. *Animated GIF Mode*l. Through: http://art.teleportacia.org/exhibition/AGM/. Last viewed on 20.10.2012.

5
Moving the Still. The first large-scale GIF festival. Through: http://movingthestill.tumblr.com/. Last viewed on 23.10.2012.

6
'Paramount Pictures and One Direction Added to "Featured Videos"'. Published at 01.10.2012. Through: http://cinemagram.tumblr.com/post/32676384796/paramount-pictures-and-one-direction-added-to-featured. Last viewed on 21.10.2012.

7
One Direction is a British-Irish boy band formed in the 2010 edition of X-factor. They have a huge online fanbase, active on different platforms.

8
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9
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Image credits

Figure 1+2

Kingston Museum and Heritage Service, Zoopraxiscope. http://www.kingston.gov.uk/browse/leisure/museum/museum_exhibitions/muybridge/machinery_and_equipment/zoopraxiscope.htm

Figure 3

Tara Dougans Studio. http://www.taradougans.com/content/2.projects/12.2012/3.gif

Figure 4

Google Trends, *Cinemagraph*. http://www.google.nl/trends/explore#q=cinemagraph&date=7%
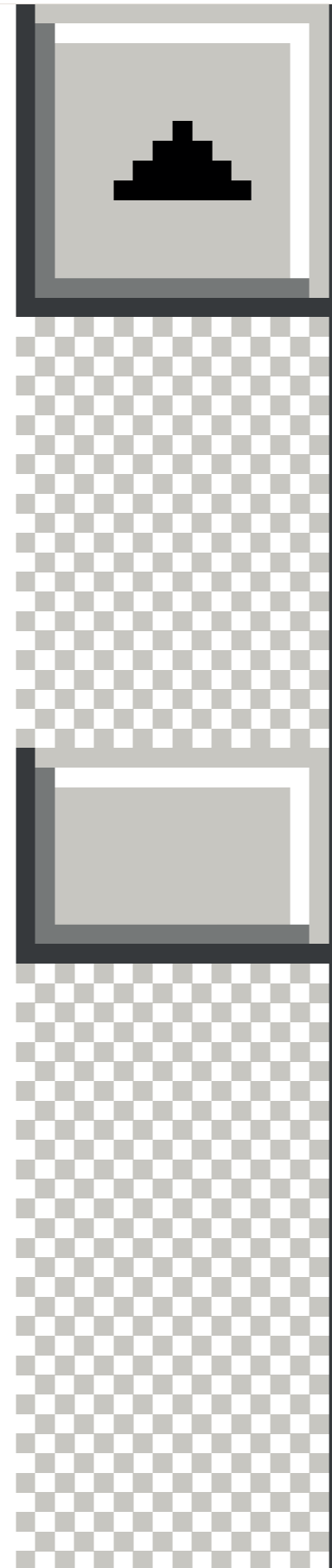
2F2010%2030m&cmpt=q

Figure 5

Google Trends, *Cinemagraph versus Cinemagram*. http://www.google.nl/trends/explore#q=
cinemagraph%2C%20cinemagram&date=7%2F2010%2030m&cmpt=q

Figure 6

Ann Street Studio, *Kiss me in Paris*. http://annstreetstudio.com/2012/09/21/kiss-me-in-paris/

Figure 7

Cinemagr.am, *I'm leaving or I stay?* http://cinemagr.am/show1/15221770

#PAPER

Reviving the Past

Conventions of realism in the virtual reconstruction of Rome Reborn

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A fundamental task for virtual #archaeologists is to erase illusions instead of reconstructing the past as "truth"

about 2 hours ago via web

This paper aims to be a contribution towards a deeper understanding of archaeological virtual reconstruction, using the Rome Reborn project as a case study. Embedded in the use of virtual reconstruction methods as well as the technologies and software algorithms are cultural/historical conventions. Consequently a virtual reconstruction, as a simulation, may be regarded as accurately representing the past in the form of imitation and it may also be comprehended as a simulacrum constituting a hyperreality. These two viewpoints are regarded as two ends of a continuum in which the comprehension of a simulation oscillates due to the embedded conventions of realism. While not arguing for a fixed position, subjected to cultural conventions and therefore the understanding of realism is never fixed, this paper argues that above all a simulation should be comprehended as real in itself. A simulation will never be able to fully imitate and at the same has real consequences

that do not remain silence in a separate virtual world but concern the 'real' world in which we actually live and the virtual is most definitely part of. ¶

"Losing an illusion makes you wiser than finding a truth"

Ludwig Borne

Introduction

In its glory days the borders of the Roman Empire encompassed the whole of the Mediterranean and stretched from the Northern of England to the Euphrates in Syria; and from the flat lands of Europe to the rich plains of the North African coast and the Nile valley in Egypt. At the center of this enormous ancient Roman Empire was the city of Rome.

The history of ancient Rome makes Rome nowadays one of the most interesting sites to research for archaeologists. Professor Bernard Frischer, founder of the Virtual World Heritage Laboratory of the University of Virginia and director of the *Rome Reborn* project, is one of those archaeologists.

The goal of *Rome Reborn* (RR) is to create scientific 3D digital models (virtual reconstruction) that illustrate the development of the city of Rome from the first settlement in the late Bronze Ages to the dramatic depopulation of the city in the early middle Ages – ca. 552 AD (Frischer 2008, 2). However, the project team started modeling at the moment of 320 AD

because at that time Rome is considered to be at the height of its urban development (Dylla, Frischer, Mueller, Ulmer & Haegler 2010, 62).[1] Since 2007 *the project team of Rome Reborn* (RR Team) releases and disseminates images and videos of the virtual reconstruction on the internet for public viewing (Dylla et al. 2010). After all, next to excavating and interpreting ancient remains, one of the archaeological tasks is the dissemination and presentation of these interpretations (Frankland & Earl 2011, 62). According to Frischer the videos or fly-through presentations (fly-throughs) present the current stage of the virtual reconstruction of ancient Rome's urban development in 320 AD (Dylla et al., 2010). The fly-throughs mainly show the architectural buildings although the most recent fly-through, *Rome Reborn 2.2*, for the first time incorporates animations. In this fly-through civilians walk through the buildings and gladiators fight in the Coliseum.

Every time a new fly-through is disseminated it results in many, mainly positive, reactions from the lay public; "This is how beautiful Rome once looked!"[2] and "Just Amazing!!! Rome looked incredible and beautiful!"[3] Based on such reactions I observe that people are mostly concerned with the imitational or representational qualities and characteristics of the fly-throughs and consider

the content to be representations of ancient Rome, understood in terms of imitation (Lister, Dovey, Giddings, Grant & Kelly 2009, 129). They are concerned with the correctness and accuracy of the representation and thus about how the city once looked. However, Rome does not exist anymore and the preserved artifacts are by no means in the same state as they were back then. The 3D virtual reconstruction model and fly-throughs, thus, cannot exist merely as objects that represent the ancient city of Rome but also exists as simulations which are real things in themselves (Lister et al. 2009, 127).

Therefore I argue for a 'deeper' understanding of visualizations such as the project of RR. To better understand such visualizations we should develop a visual literacy. According to Luc Pauwels, Professor of Visual Culture at the University of Antwerp, this may seem quite paradoxically since we live in such an image saturated world and images are often regarded as 'universally understandable'. However, living in a society inundated with images does not make one necessarily visual literate (Pauwels 2008, 79) just as listening to an iPod does not teach one to critically analyze or to create music (Felten 2008, 60). Visual literacy encompasses; learning to look more consciously at visual manifestations of reality, learning to understand various forms of

images and visual representations and areas of application, being able to place images and visual representations in a broader context of production and consumption, and becoming aware of the personal and cultural coloring in visual reflection and action (Pauwels 2008, 80). This paper aims to do just that and wants to contribute in better understanding the visualization of RR; concerning both the viewing audience and the experts involved in the RR team.

The following aspects of the project of RR will be analyzed thoroughly; *the production context*; the *visual object* or *phenomenon itself* and the *utilization context* (Pauwels 2008, 83). This paper is structured in two parts corresponding to the main competencies of the archaeological discipline. The first part focuses on virtual reconstruction as a visualization method within the *excavation and interpretation* process of RR as a central case. The second part is aimed at the way virtual reconstructions are *presented and disseminated* by the RR team. Before starting with both parts of the analysis, the archaeological discipline and the functioning of (visual) models will be clarified to understand better the role of archaeological visualization in general.

After this clarification we will first

continue with the virtual reconstruction of RR as part of excavating and interpreting using several archaeological papers to get a grasp at the process.[4] The text of Beverly Jones' (1989) text *Computer Imagery: Imitation and Representation of Realities* and Pauwels' visual literacy approach serve as a theoretical framework.[5] Jones points to the embedment of previous aesthetic theories and reality constructs in computer generated imagery (Jones 1989, 31) such as the virtual reconstruction of RR. The second part builds forth on the first part of the analysis and is aimed at the presentation and dissemination of virtual reconstructions and the way this is done by the RR team.

Finally this paper tries to clarify the implications that come along with some of the viewpoints regarding the comprehension of RR. Whilst I will not argue for a fixed position in comprehending the simulation of RR, I do argue that RR as a simulation should be comprehended as real in itself. RR will never be able to fully imitate ancient Rome but at the same has real consequences that do not remain silence in a separate virtual world but concern the 'real' world in which we actually live and the virtual is most definitely part of.

Archaeological visualization

Before 'excavating' the embedment of aesthetic theories and reality constructs in the form, content and practice (Jones 1989, 37) of archaeological virtual reconstructions, I will first explain a bit more about the discipline and the role of visualization within archaeology.

Visual models in archaeology

According to Juan Anton Barceló in 'Virtual Reality for Archaeological Explanation' archaeologists in general are concerned with those processes that caused our present (Barceló 2001, 224) and as such strive to "make visible the invisible" (Frankland & Earl 2011, 62). Tom Frankland and Graeme Earl make clear in 'Authority and Authenticity in Future Archaeological Visualisation', that next to archaeologists' task of excavating the remains and to interpret their meaning, it is also their task to make the interpretations accessible for a broader public through the dissemination and presentation of their excavations (Frankland & Earl 2011, 62).

Archaeology's goals are not merely aimed at documenting ancient sites and objects but at studying the dynamics of society (Barceló 2001, 226) and thus "reconstructing human history and daily life from cultural remains and their natural context" (Hermon 2008a, 36). To understand and analyze the complexities of the real world such as the just mentioned social dynamics, people draw pictures or build models/ abstract descriptions (Ibid.). So, to understand how specific regularities of artifacts relate with the production, use and discard of artifacts through time, archaeologists create archaeological *models*, often a visual model (Barceló 2001, 225).

Building a model is done to learn more about a particular *system*, some aspect of reality where one is "concerned with space-time effects and causal relationships among parts of the system" (Barceló 2001, 221). "The purpose of any archaeological model should be to allow the understanding of the causal dynamics of social actions" because the goal is to understand why the described entities have specific visual features and not just to describe the visual features (Ibid. 226). In other words, it is not about creating 'pretty pictures' but it is about essential benefits to archaeological research (Sylaiou & Patias 2004; Frankel 2004).

However, visualizing the archaeological data into visual models, makes these models, what Latour (1986) termed, *immutable mobile*[6]: easily reproducible images and inscriptions that can widely travel (Dyke 2006, 371; Hermon 2008a, 36). *Immutable mobiles* are never merely innocent representations of the past, although they may appear objective and neutral, through their optical consistency they encourage some perspectives and interpretations while obscuring others (Van Dyke 2006, 371). Therefore it is important that it should be made evident in the visual model how one gets from the perceived reality to the explanatory model (Barceló 2001, 242).

Computer graphic programs

Visualization, in the form of visual represen-tations, is integral to the production of knowledge and scholarly authority in archaeology (Dyke 2006, 370). The recent developments of computer graphic programs offer archaeologists powerful tools for building visual models. Hence many archaeologists consider the application of computer reconstructions a good opportunity to visualize and reconstruct elements of the often unclear and difficult to understand archaeological data. According to Stella Sylaiou and Petros Patias (2004) in 'Virtual Reconstructions in Archaeology and some Issues for Consideration', computer graphic programs are increasingly being used to build virtual reconstructions and serve as models to gain knowledge about the past. However there are issues for consideration regarding such virtual reconstructions, the power of graphic programs can hide dangers especially when presenting them to the public. One danger for instance is the sense of *misleading accuracy* through the advanced computer graphics in which we sooner understand the image as true (Sylaiou & Patias 2004).

An important factor regarding this matter is our perception of realism. This perception is not fixed but subject to change dependent on cultural/historical conventions that are also embedded in technologies used (Jones, 1989). These conventions affect our understanding, the viewing audience and its creators, of virtual reconstructions as accurately mimicking historical or archaeological reality or parts of it (a form of objective realism). However, from a postmodern position they are perceived to constitute a (hyper) reality; a *simulacrum*[7] (Ibid. 36-7). We will therefore look at the different perspectives for understanding the virtual reconstruction of RR and subsequently present considerations with some of the viewpoints as *food for thought* which will be brought together at the end in the conclusion/discussion.

Virtually reconstructing Rome

The use of computer reconstructions in archaeology dates back to the early eighties (Sylaiou & Patias 2004). With the computer graphic programs becoming more powerful archaeologists increasingly use virtual reconstruction as a method to visualize the archeological data (Hermon 2008b; Frankland & Earl 2011). First we will look at how virtual reconstruction is used for excavating and interpreting, with the RR project as a central case, and more important, we will look at the conventions behind these views and technologies used for the project.[8]

Excavating and interpreting Rome Reborn

In 'The Importance of Scientific Authentication and a Formal Visual Language in Virtual Models of Archeological Sites' Bernard Frischer and Philip Stinson make clear that the concepts of *model* or *simulation* which are implied by the term *virtual reconstruction* are by no means universal and need to be spelled out. Frischer and Stinson distinguish between four

kinds of models; (1) an original model, (2) a state model, (3) a restoration model and (4) a reconstruction model.

The original model shows the bits of ancient material that survive intact. The state model shows the site as how it exists today, for example the surviving bits supplemented by added later restorations. The restoration model is based on the original model and shows everything that has been destroyed over time. It may show any or all phases in time. And fourth the reconstruction model is used when there are so few original surviving pieces that it requires a large amount of hypothesizing to fill in the missing elements. Therefore a reconstruction model is seldom based on the original model since so little remains that there seems no reason to even build an original model (Frischer & Stinson, 2007, p.51-2).[9] Considering the virtual reconstruction of RR this obviously consists out of several restorations and reconstructions. During the course of the analysis it will become clear how this discrepancy can cause some problematic issues as they are both integrated in the virtual reconstruction and form one simulation.

Techniques and realism

For the virtual reconstruction of RR several

techniques and software programs have been used, however, the model can roughly be divided in two types of elements which incorporate a different use of technique. Dylla et al. (2010) distinguish between the Class I elements and Class II elements.

Class I elements

Class I elements are those sites whose position, identification and design are known with great accuracy. 250 elements fall in this category of which they modeled, back then, thirty. They are modeled "using commercial 3D database authoring software such as 3D Studio Max and Multigen Creator" and mostly include important monuments such as the Circus Maximus [figure 1] or Coliseum (Dylla et al. 2010, 62).

In virtually reconstructing the Class I elements, the goal is to do this as accurately as possible through an intense collaboration between archaeologists, computer experts and architects. The RR team strives for *scientific authentication*. The main points in scientific authentication are; "authorship by qualified experts; transparency of metadata; and a clear understanding of the typology of virtual reconstructions" (Frischer & Stinson 2007, 55-57).

According to Jones' (1989) this aim for accuracy could probably be compared to Sir Joshua Reynolds' view, who claims that an artist should derive his ideal of beauty from the physical world through direct observation. Emphasizing on the exactness and precision in representation, Reynolds further advocates a method of instruction that requires students to draw exactly from the appearance of the model before them. Both Frischer's and Reynolds' views coincide with the *scientific realist's* orientation[10] to imitation, a view of the world that derives information from scientific research (Western Europe) to make the most perfect representation of the world based upon the best information to date.[11]

Frischer thinks of a virtual reconstruction as being a representation of a certain kind of monument, be it contemporary or historically. He thus considers it to be an *isomorphic* representation of reality (Jones 1989, 34-5). A belief that such a representation may form an objective one-to-one, value free correspondence to reality (Ibid. 34) and thus enables the 'actual' or past monuments to be studied in their absence from the virtual reconstruction (Pujol 2011, 42). That is why Frischer understands visualization, with the aid of computer graphic programs, as a powerful tool for understanding and discovery through

Figure 1

The class I element Circus Maximus with the Class II elements as filler content

Figure 2

On the left: Rome Reborn 1.0. On the right: Rome Reborn 2.0

which it is possible to "become aware of features always present but never apparent to the naked eye or unaided mind" (Frischer 2008, 3). We already learned that a virtual reconstruction as an immutable mobile is never innocent and value free, therefore Frischer's viewpoint may cause some implications which we will discuss right after the next section.

Class II elements

Class II elements include around 6750 buildings and monuments about which the RR team lacks detailed information and were therefore procedurally modeled. Based on two late-antique catalogues of the building stock of the city the RR team used *procedural modeling* techniques to create visually compelling and detailed models of the Class II buildings.[12] By using procedural modeling techniques the aesthetic discrepancy between the Class I elements and Class II elements, which was visible in the former version, now almost diminished [figure 2] (Dylla et al. 2010, 62-63). Most of the Class II elements can be regarded as reconstruction models whereas the Class I elements can be regarded as restoration models.

"Procedural modelling makes use of a set

of rules and functions input by the user in order to generate a 3D model"[13] (Frankland & Earl 2011, 65). Now the archaeologists can reconstruct a structure based on architectural rules derived from similar buildings at other sites of the same period. Compared to traditional modeling tools procedural modeling is much more efficient and cheaper without aesthetically having to compromise, unlike when using other techniques such as non-photorealistic rendering. Procedural modeling requires the archaeologist (or 3D designer) to script their visualization through a *shape grammar*, a structural and semantic description of the architecture (Frankland & Earl 2011, 64-6). In RR the shape grammar rules were developed, using the *CityEngine* software from *Procedural Inc.* and under careful guidance of archaeological consultants who provided extensive images, floor plans, statistics, and useful data (Dylla et al. 2010, 63). Frankland & Earl argue that this records and makes explicit the interpretive process the archaeologist undergoes which in turn will make it harder for an archaeologist's interpretation to overlook any gaps in the data (2011, 65).

Furthermore procedural modeling uses *stochastic variation* to generate 3D content. This makes it easier to create different models based on the same archaeological evidence.

With these stochastic rules, different kinds of visualizations can be created which respect the different levels of certainty ascribed to interpretations of the archaeological data, using procedural modeling (Frankland & Earl 2011, 64-5).

At first procedural modeling seems to link with a view similar to an *imitation of essences* by Aristotle. According to Aristotle, works of art should not be literal copies rather they should express the essence of the subject portrayed (Jones 1989, 33). This seems to fit because procedural modeling is based upon underlying geometric forms of similar buildings through a shape grammar and is not based on exact imitations of actual reality. However the stochastic randomness[14] and the development of the shape grammar under careful guidance of archaeologists reveal the view of a scientific realist's orientation (Jones 1989, 34-5). The 'need' to add small irregularities and details (Ibid. 35) through the provision of; extensive images, floor plans and statistics, relates to the aim for scientific authentication. Frisher and Stinson argue: "Just because a reconstruction is virtual does not mean that it can be done shoddily, quickly, or unprofessionally" (Frischer & Stinson 2007, 56). This coincides with the aim to make the 'overall picture' look more naturally real, visually compelling, aesthetically

in accordance with the Class I elements.

Implications

In the modeling of both the two different elements, class one and two elements, which are put together in the virtual reconstruction, the scientific realist's view is utterly present. Although the techniques differ and are based on information that varies in detail, the intention stays the same. This is evident as Frischer sees a virtual reconstruction of a monument, as a *representation* of this monument (Frischer & Stinson 2007, 56). It serves as a representation of their, the RR team's, current knowledge. This indicates his attempt of an isomorphic representation of reality because according to him a model serves not merely as an illustration of what already was known. It even has the potential of revealing new knowledge that was always lurking below the surface of the facts but it needed to be visualized in 3D, to emerge and to be grasped (Frischer 2008, 3-4).[15]

Frischer's approach although understandable[16], presents some implications. Both Sylaiou and Patias (2004) as well as Colleen Morgan (2009) in '(Re)Building Çatalhöyük: Changing Virtual Reality in Archaeology' address that the main problem with the

graphics becoming more advanced is that the virtual reconstructions may become too realistic. For example when an item has a lot of missing elements and the archaeologist has to use a lot of imagination the image still may look good though the image is far more subjective. The very good picture, or 'pretty picture' as I prefer in this case, could give the impression that the archaeologist knows more than he actually does, after all the computer reconstruction seems accurate and therefore seems scientifically accurate (Sylaiou & Patias 2004).

Such visualizations are able to make fantasies seem very real. Therefore not only non-specialists but also specialists may have difficulties understanding that the model is only a hypothetical reconstruction that may be based on weak evidence (Sylaiou & Patias 2004). Think of the procedurally modeled Class II elements. A lot of data is missing but the buildings seem very accurate and aesthetically fit perfectly with the Class I elements in one reconstruction. Also highly problematic according to many researchers is the tendency for archaeological computer reconstructions to show the capabilities in terms of graphical realism rather than serving archaeological aims (Ibid.). Sylaiou and Patias are therefore skeptically towards the contribution of large

computer firms such as IBM in their sponsoring of archaeological computer projects – just as in the case of RR where IBM is also involved.[17] With the advent of the latest photorealistic renderings it is easy to create confusion between the (photo) realism of a reconstruction and the archaeological reality.

The fear for these reconstructions becoming too realistic coincides with the postmodernist's view of the constitution of a *hyperreality* where the artificial is experienced as real which is synonymous to Jean Baudrillard's understanding of simulation as simulacra (Lister et al. 2009, 38-40). In attempting an isomorphic representation of reality through techniques which enhance the photorealism of the simulation as a whole (also the elements of which they have less data) the RR team commits the 'perfect crime' so to speak in Baudrillard's terminology. This entails not a destruction of reality itself but rather the destruction of an illusory reality beyond the technologies that make it work. The effect is not a loss of reality but the consolidation of a reality without an alternative (Lister et al. 2009, 39).

I am not arguing that RR should be comprehended as a simulacrum but through pointing to such an understanding I would like to address the crux of the problem with

regards to the visualization of RR which is *isomorphism.* Pujol (2011) brilliantly addresses and situates the problem in her research where she investigates if virtual reality is a natural, objective and universal way to represent and analyze the world (Pujol 2011, 41).

By comparing the Eastern and Egyptian art, Pujol (2011) demonstrates that the concept of realism does not have an absolute value linked to the visible reality, but rather it depends on each cultural and historical context. Our representation of the world is a construction that depends on three variables: "the sensorial perception of the world; the processing of this experience from a visual and intellectual point of view; and its preservation through memory" (Pujol 2011, 44). And such processes happen within a particular cultural environment that instills its forms of representation through education and daily contact (Ibid.). This makes all representations realistic from the point of view of the society that creates them since they contain all the signification features necessary for their function (Ibid. 46).[18] And as Jones pointed out, Western European cultural conventions for depicting visual reality have also influenced the development of computer algorithms and hardware that are now being used in countries all over the world (Jones 1989, 34).

So while the virtual reconstruction of RR aims to be objective and accurate through the use of scientific techniques and therefore supposedly simulating the world (as a representation) or at least simulating as we humans perceive it (in this case of representing the archaeological knowledge) this is by no means the case (Pujol 2011, 48). According to Pujol (2011) the project of RR therefore does not simulate ancient Rome the way Archaeologists see/perceive it; *it simulates ancient Rome as they represent it.* "VR does not simulate the world as we see it but… as we represent it" (Pujol 2011, 48).

Although I do not fully agree with the this notion of Pujol because it implies that the simulation is a matter of human agency, i.e. it simulates the world as *we represent it*, and thereby ignores the complexity of a network in which many different actors are related to each other and in their relation acquire a certain agency, this does not mean that her argument is not useful. I think it addresses quite well, the 'opaque layer' (of intervening conventions) that is present but not directly noticeable in the simulation/ virtual reconstruction and in its aim for representing the world as how we see it. This does not mean that a virtual reconstruction is not useful in the field of archaeology, it means that the aim for accuracy through the presentation of photorealistic renderings, and

thus limited to the isomorphic reproduction of the world, can have negative influences as well on; the archaeological interpretative process, in gaining new knowledge and subsequently may lose its potential as a communicational tool (e.g. as presenting different perspectives). This coincides with the view of Colleen Morgan (2009) and Sylaiou & Patias (2004).[19]

Before coming to a general conclusion and discussion we will first proceed towards the analysis of the way RR is being presented and disseminated through the use of fly-throughs. This part is based on the previous analysis.

Presention and dissemination

Now that we know more about how RR is build up, we will look at how RR is presented towards the (lay) public. This section builds on the previously gained knowledge and is therefore significantly shorter.

In 'Truth and credibility as a double ambition: reconstruction of the built past experiences and dilemmas' Geeske Bakker, Frans Meulenberg and Jan de Rode examine the implications of building a virtual reconstruction not only from a maker's perspective but moreover their text emphasizes on the virtual reconstruction as a means of presentation (Bakker et al. 2003, 1). Where the RR team

first had to concentrate on the *content* during the excavating and interpreting and it was important that all experts (archaeologists, architects, digital modelers) worked together under the authorization of the archaeologist to enhance scientific authentication, now it is important that again a team of experts, a scriptwriter, an artist/designer and the archaeologists, cooperate to think about the *form* of presentation (Bakker et al. 2003, 4-5).

Bakker et al. realize though that the objectivity of a computer model is relative just like any other reconstruction. The archaeologist will therefore never be able to claim anything more than an interpretation (Bakker et al. 2003, 7). From Jones' (1989) and Pujol's (2011) texts we have learned that even this simulation of interpretation is subject to historical and cultural conventions that stand as an *opaque layer* in between the archaeological evidence and the archaeologist's aim to simulate the archaeological evidence when making or presenting the virtual reconstruction. To make this *opaque layer* more transparent or less opaque when presenting the virtual reconstruction the RR team has to concentrate on the *form* while not forgetting the content – form without content is like an empty shell (Bakker et al. 2003, 4). This thus has nothing to do with making it appear more realistic,

since realism is based on cultural and historical conventions.

Based upon Firscher's; publications, involvement and role in many other virtual reconstruction projects and his emphasis on scientific authentication (Frischer & Stinson, 2007), it is plausible that he would be aware of the many implications and dilemmas when presenting or communicating a virtual reconstruction to the public. For example in 'From CVR to CVRO: The Past, Present, and Future of Cultural Virtual Reality' which he wrote together with Franco Niccolucci, Nick Ryan and Juan Barceló, he argues that: "VR techniques should be used not only for description, but for expressing all the explanatory process" (Frischer et al. 2002, 9). They also critique the lack of transparency in some other archaeological reconstructions, "rarely, if ever, are we told who made the model, whether there was any consultation between the modelmaker and the archaeologists, and what elements of the model are known with certainty and which are hypothetical" (Ibid. 4). Therefore I am surprised by how the RR team disseminated RR in the form of fly-throughs.

The problem of Fly-throughs

My surprise is directed towards the monolithic and non-explanatory character of how the virtual reconstruction is presented by fly-throughs. The most recent fly-through starts with "ROME REBORN, A virtual tour of ancient Rome in A.D. 320" and guides the viewing audience in to a monolithic experience which argues that the content shown is based on archaeological evidence and is an accurate (as accurate as possible) representation of the past. Although there is a hyperlink to the website of the RR project placed below the fly-through, disseminated on websites such as YouTube and Vimeo, this form of presenting totally neglects the interpretative process of archaeology which characteristically leaves space for multiple views on the past (Sylaiou and Patias 2004). Colleen Morgan describes it quite well, after the critique Frischer et al. (2002) posed towards the virtual reconstruction of Pompeii that was argued to be uncanny, slick, clean and sometimes cheesy, Frischer's team now themselves "created an uncanny, slick, digital Rome where the user "flies through" column-lined streets" (Morgan 2009, 472).

Based on the first analysis where we elaborated on the excavation and interpretation process of RR; we know, or may assume from the papers of the RR team, that the interpretative process in making the virtual reconstruction of RR, although highly subject to conventions,

was by no means monolithic contrary to the fly-throughs. With the fly-throughs the RR team makes no effort in explaining the process which is behind the virtual reconstruction. Subsequently the viewing audience has no clue of which buildings were procedurally modeled and which were not, which were the Class I elements and which were the Class II elements, which parts of the simulation can be considered more as restoration models and which parts are reconstruction models. The viewing audience is not even aware of these discrepancies that exist in one and the same simulation. People who have no archaeological or computer graphic design knowledge, are not aware of the existing techniques. In other words people not involved in the project, are practically compelled to only regard these fly-throughs as attempts of representing ancient Rome. And even when some of the viewing audience has knowledge about ancient Rome and notices discrepancies between what is generally known of ancient Rome and the simulation, still these comments are quite superficial and aimed towards the accuracy of the representational characteristics (in terms of imitation) of the simulation in general instead of criticizing any of the hypotheses or methods for creating the virtual reconstruction which is presented.

The fly-throughs do not have any explanatory value in that they only address particular monuments in case the viewer does not know the names of the important monuments or sites. As immutable mobiles they are by no means innocent or objective representations of the past although they appear to be so. With the peaceful music on the background and the monolithic way of showing the buildings and monuments the immutable mobile does not only encourage particular interpretations or perspectives and obscure others (Dyke 2006, 370). In a fly-through all perspectives and different elements, constructed from different levels of certainty, with different techniques are merged together in one simulation it becomes a 'black box' so to say.

Instead of presenting a more nuanced perspective and different hypotheses, which is characteristic to the task of an archaeologist (Sylaiou & Patias, 2004) the RR team only focuses at the isomorphic representation of ancient Rome and merges all elements (isomorphic oriented but very different in levels of certainty) in to one 'black box' and loses its potential as a communication tool (Pujol 2011, 48). As an immutable mobile this 'black box' is not only obscuring or encouraging particular perspectives but radically altering the previous perspectives from which the RR

team constructed the virtual reconstruction. It is altering their own perspective on the archaeological evidence and therefore from a poststructuralist perspective it could be argued that this immutable mobile is a simulacrum that constitutes a *hyperreality* (Lister et al. 2009, 38-40) instead of representing ancient Rome or representing the archaeological evidence of ancient Rome.

Where the public regards a fly-through as representing ancient Rome or at least as a representation of the archaeological evidence of ancient Rome, it is precisely this uncritical stance towards the simulation that strengthens the argument for comprehending a fly-through as a simulacrum. There is almost no possibility to be critical towards any of the many hypotheses that were used while making the virtual reconstruction. At the same time because the fly-throughs are comprehended as real, real representations of ancient Rome; "this is how Rome once looked", it becomes evident that a simulation is always real in itself at the first place (Lister et al. 2009, 43-4), it will never fully imitate ancient Rome and does not only constitute a hyperreality because it is already real in itself the first place.

Conclusion

What do we make up of this? First of all as already mentioned in the introduction I am not proposing for a fixed position in comprehending the simulation of RR however I do argue for understanding the simulation of RR as real in itself in the first place. It exists and is experienced in a real world. The way we think about the past and subsequently about ourselves (nowadays) derived from the simulation are equally real.

Second from Pujol's and Jones' arguments I argue that the way we comprehend virtual reconstructions (as RR) is *paradoxical* and oscillates in between two parts of a continuum. The more real the virtual (re)construction seems through conventions of photorealism, the more the visualization appears to be representing the real/actual world in terms of imitation; while at the same time the more it will be subject to constitute an own reality, a hyperreality, of which we are not able any more to distinguish the real between the artificial. Hence it can lose its potential as a scientific and communicational tool, especially with photorealistic virtual reconstructions for cultural/ historical heritage.[20] Therefore the makers of virtual reconstructions will always

have to look for the right balance and be critical towards their aims and their methods for getting towards their aims.

Discussion

While this paper shows just the tip of the iceberg because I did not have access to all the resources that are behind the virtual reconstruction of RR, I argue that it would be sensible for the RR team to seriously think of non-photorealistic rendering techniques as well in conveying and gaining knowledge, since an isomorphic orientation for representing ancient Rome maybe counterproductive in transferring knowledge to both specialists and non-specialists. Finally this paper will not claim the knowledge gained by the RR team is not credible, though it will never imitate ancient Rome. *Sometimes it is just better to erase an illusion instead of trying to depict the truth…* ∎

Notes

1
"Since 1997, the Virtual World Heritage Laboratory of the University of Virginia (VWHL), the UCLA Experiential Technology Center (ETC), the Reverse Engineering (INDACO) Lab at the Politecnico di Milano, the Ausonius Institute of the CNRS the University of Bordeaux, and the University of Caen have collaborated on a project to create a digital model of ancient Rome as it appeared in late antiquity. The notional date of the model is June 21, 320 A.D." The project team consists out of 25 scientific advisors, 17 hand modelers, 12 experts on 3D data capture and modeling, 8 software developers for user interfaces and the advisory committee consists of 4 scholars from different disciplines. Retrieved from: http://www.romereborn.virginia.edu/people.php

2
Dutch website: http://www.droomplekken.nl/nieuws/zo-mooi-zag-rome-er-ooit-uit.html

3
Comments on the website: http://vimeo.com/32038695

4
Papers from the project will be analyzed including several more general texts of Professor Frischer to get a grasp at his personal vision which percolates through the Rome Reborn project.

5
A second important text is Realism in Virtual Reality applications for Cultural Heritage written by Laia Pujol (2011). Pujol examines Virtual Reality (VR) as an (objective) attempt to replace the world by simulating our perception of it and traced a conventional way of representation in VR (also virtual reconstructions) that comes forth from the western pictorial tradition.

6
As Sybille Lammes (2011) explains in *The map as playground: Location based games as cartographical practices* Bruno Latour coined the term *immutable mobile* to explain the social production and status of techno-science artefacts. "Immutable mobiles don't lose their fixed shape when used in different locations and situations" (Lammes 2011, 3). Latour uses the map as an example. E.g. when a map of an island is drawn in the sand at the beach of the island, the map is mutable and immobile because the tide will eventually wash out the map; when the map is on a computer it is immutable and mobile. The point here though is that through the map the concept of comprehending the land as an island is accelerated while this does not mean that the information is exact. This can be compared to the virtual reconstruction of RR (especially the fly-throughs), as immutable mobiles they accelerate the comprehending of ancient Rome vastly.

7
Never again will the real have the chance to produce itself—such is the vital function of the model in a system of death, or rather of anticipated resurrection, that no longer even gives the event of death a chance. A hyperreal henceforth sheltered from the imaginary, and from any distinction between the real and the imaginary, leaving room only for the orbital recurrence of models and for the simulated generation of differences. Baudrillard 1997, 2-3.

With simulacrum this paper points to Baudrillard's identification of simulation that coincides with his understanding of hyperreality. According to Baudrillard the signs within a simulation and that to which the signs refer (reality) are merged in such a way it will be impossible to distinguish between the reality and the sign. Therefore Baudrillard understands these signs as simulacra "that cannot be exchanged with 'real' elements outside a given system of other signs, but only with signs within it" (Lister et al. 2009, 38). However these sign-for-sign exchanges have the same functionality and effectiveness as real objects, therefore they are hyper-real instead of hyper-fictional.

According to Baudrillard any reality though innocent of signs disappears into a network of simulation and therefore reality is replaced by a hyperreality (Ibid., 38-39). This paper will not go as far as Baudrillard who understands a simulation as an all-encompassing hyperreality (Lister et al. 2009, 40-2), the notion of simulacrum will though be useful to address some implications concerning the virtual reconstruction of RR.

8
Unfortunately during the research for this paper I did not have access to the actual virtual reconstruction and the programs the Rome Reborn project is working with. The only way to gain knowledge about the virtual reconstruction, that is behind the fly-through presentations, was through reading the papers (written from and about the Rome Reborn project) and examining the project website and websites from associate companies and institutions. Due to these limitations I was not able to fully comprehend (if this were at all possible) the process that is behind the virtual reconstruction, however I was able to get a general knowledge about techniques being used and some conceptions behind the project and presentations.

9
As such the virtual reconstruction of a site can consist of both reconstruction and restoration models e.g. the Forum Romanum in which the Arch of Septimius Severus would be subject to restoration whereas the Basilica Julia would be subject to reconstruction (Frischer & Stinson, 2007).

10
This view contrasts sharply with the imitation of ideals as well as the imitation of essences which attempted portrayal of perfect models with no counterpart in the phenomenal world (Jones, 1989, p.34-5).

11
From the objective realist view "…it is assumed that the relationships of objects depicted on a three dimensional grid can depict areal view of phenomena" and "it is assumed that this structure exists as real *in itself, independent of human understanding*." In order to portray reality the correct way, one should utilize the conventions common to Western Europe because these are assumed to be based upon the best scientific knowledge of that time (Jones 1989, 34).

12
In the former version – rome reborn 1.0 – the Class II elements were modeled and textured by hand. Their positions were derived from a laser scan of Gismondi's Plastico di Roma Antica – the large scale physical model of ancient Rome – and implemented by a team of engineers from the Politecnico di Milano led by Professor Gabriele Guidi (Guidi, Frischer & Lucenti 2007; Dylla et al. 2010). The Class II models were very schematic though and their architectural detailing came from textures and not geometry. This caused an aesthetic discrepancy with the detailed Class I models. In Rome Reborn 2.0 the project team solved this aesthetic discrepancy through the use of procedural methods (Dylla et al. 2010, 63).

13
This is the exact citation. They used UK spelling whereas I am using US spelling.

14
That serves the interpretive practice of archaeology (Frankland & Earl 2011, 66).

15
For instance when models are placed on a Digital Terrain Model (DTM) – acquired from a digital map – reconstructions can reveal symbolisms or an explanatory view to settlement patterns through which they can examine the relationships between the buildings of an architectural complex and test theoretical issues such as 'impressiveness' (Sylaiou & Patias 2004).

16
Reasoning from his viewpoint in reconstructing the city as accurately as possible; when there is data missing, the reconstructions at least have to be based on grammar shape rules that are characteristic for that period or site of which they do possess the knowledge, in this case the more imaginative buildings are still based on scientific 'knowledge'.

17
For these firms sponsoring such projects are good for both publicity and testing their developing technologies. Therefore Sylaiou and Patias (2004) argue that often the outcome of such efforts resulted in high-profile projects that are of little archaeological significance.

18
This coincides with Rome Reborn as an immutable mobile would, it appears to be objective but it is subject to many conventions which encourage some perspectives and obscure others.

19
Pujol's opinion towards the isomorphic aim of so many archaeological virtual reconstructions I think is valuable for thinking about how to construct a virtual reconstruction and in making sure that it does not lose its potential as a scientific and communicational tool. She argues that in many of the cases (in cultural heritage and subsequently in archaeology) it is not necessary to make a (photo) realistically virtual reconstruction because the level of visual detail may distract and prevent users (both experts and non-experts) from focusing on the content (Pujol 2011, 47).

20
In the opposite case the virtual reconstruction maybe too simplistic or abstract without (photo) realistic detail and therefore may impede the creation of a link between the artificial and the real. While (model) makers may argue to have created a representation of their archaeological knowledge – in case of RR – their presentations may closer relate to a simulacrum that constitutes a hyperreality.

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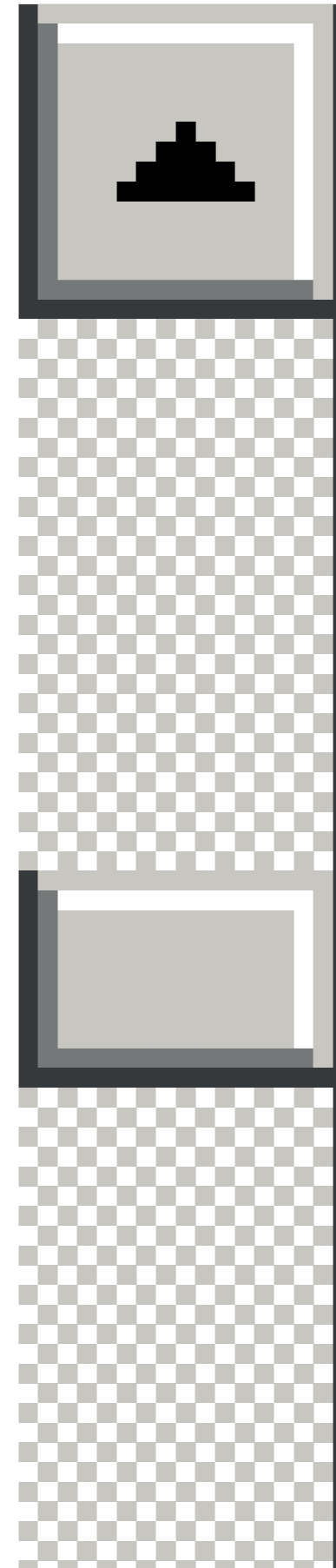
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Figure 1+2

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THE AESTHETICAL COLOSSUS

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#PAPER

Digital Photography and its Aesthetic

A critical analysis of the term aesthetic in relation to Pierre Bourdieu

Therese Schedifka
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Pierre #Bourdieu's distinction meets digital photography on #Flickr. My objective is to investigate the relationship between a cupcake and #aesthetics

about 4 hours ago via web

A very popular topic in the visual culture today is *the new aesthetic*. James Bridle and a few others are collecting artifacts about the digital world and translate them in other forms and genres. Then they present them on a *tumblr* blog. The reaction in the tumblr sphere as well as among scholars is significant but I am questioning whether this is really a new phenomenon. In this paper I will focus on one form of new aesthetic dealing with photography. ¶

Introduction

I was inspired by Susan Murrays article: *Digital Images, Photo-Sharing, and Our Shifting Notions of Everyday Aesthetic* in which she also briefly refers to Pierre Bourdieu and his book about photography as a middle-brow art which was released in 70s. Pierre Bourdieu is a French philosopher of the 20th century who deals with the structure of the French society. He creates the concept of habitus which I sense as meaningful for the investigation of *Flickr* and its rules, norms and values. My research question tries to combine all the different parts mentioned above: Flickr, communal/ everyday/ new aesthetic and the theory of Pierre Bourdieu, and leads the following central question.

How could we relate the habitus concept of Bourdieu to Flickr and is there really a new aesthetic in the sense of Murray?

The paper will start with a brief paragraph on Flickr including key facts and the history of this platform. Afterwards, I am going to focus on Pierre Bourdieu and structuralism, the habitus and his thoughts on photography. Referring to Bourdieu will give me the theoretical framework for an understanding of aesthetics today. Therefore a discussions of Susan Murrays communal aesthetic will be critically analyzed. The paper will end with a conclusion.

Flickr

To get an idea of Flickr as a community it is useful to know the history and learn some key facts about Flickr.

Flickr was created by the two web design consultants Steward Butterfield and Catarina Fake in 2002 (Fitzgerald). They started with the idea of developing a game to trade and interact with other people (Fitzgerald). In the field of game studies these kind of games are called social games (McGonigal). Instead of creating a game Butterfield had a better idea during the development process. He had the flash of inspiration and programmed a photo sharing platform which they would later named Flickr (Fitzgerald). The social character was immanent in both ideas.

After six months the platform was growing so rapidly that Yahoo became interested in it. Another six months later in March 2005 Yahoo finally acquired Flickr for $30 millions (Fake).

Flickr provides an easy way to store, organize and share photos with family, friends or even the whole community. To make full use of these functions members can create albums, join groups to share special interest pictures, tag photos or put them on a virtual map by just naming some functions.

The platform itself also offers a Flickr blog with daily posts about a special topic. Susan Murray mentions the Flickr Blog as one important aspect of creating an aesthetics because the Flickr blog creates an ides how a pictures has to look like (Murray). Besides this Flickr's members can create their own galleries and post interesting pictures they explored on Flickr. This reminds of the photoblog service tumblr.

In 2008 *the commons* starts. The commons combines the knowledge of Flickr users with the world's public photography archives. Flickr has the goal to make these collections accessible for users and ask them to add their historical photos and collect knowledge about special historical events by commenting on them. A huge project to save knowledge and enrich the public's archives. The commons are worthy to mention because in the last years there were so many articles about the memory function of photo sharing platforms. Many of those memories are very personal. I would suggest that it is also interesting to inquire about the relationship between the memory functions and the commons.

Apart from big projects and official blogs users especially register on Flickr because they want to share their pictures with friends and family who can easily be found via the search function on Flickr or by importing contacts from *Googlemail* and *Facebook*. Every Flickr user can create lists and organize their contacts. This helps to restrict the visibility of pictures and define privacy settings. An interesting aspect for the debate about private and public photographic practice in modern times.

In general there are many ways to participate on Flickr and become an active member of the community. The most relevant of the functions mentioned above for this paper are the photo groups as smaller communities on Flickr and the comment function. Both show social interactions and classification which are at the intersection to Pierre Bourdieu's structuralism and habitus model.

Pierre Bourdieu

"Das wirklich Schwierige und Seltene ist nicht, sogenannte eigene Einfälle zu haben, sondern sein Scherflein dazu beizutragen, jene nicht personenge-bundenen Deckweisen zu entwickeln und durchzusetzen, mit denen die ver-schiedensten Menschen Gedanken vor-bringen können, die bisher nicht gedacht werden konnten." (Bourdieu, "Sozialer Sinn. Kritik der theoretischen Vernunft" 12)

Pierre Bourdieu was a French philosopher, sociologist and political person who was born in Denguin 1930 and died in Paris in 2002 (Fuchs-Heinritz and König). During his life he was always foreign to intellectuals and described himself as a scholar who simply tried to show objectively the structure of society during that period of time. To do this he used the terms of social class, field and habitus which have been discussed in sociological circles until today and which was also mentioned by Murray in her article. As often imputes his theoretical work is not based on Karl Marx but rather on Imanuel Kant and Max Weber. His most important book is called *La Distinction, Critique sociale du judgement* and was released in 1979. The book describes the structure of society with the help of taste and consumption of cultural goods. People's different understanding of aesthetic dispositions help to discover a pattern of taste which again helps to describe classes and so to say the structure of society (Suhrkamp). Bourdieu defines social class by using three kinds of capital: the economical, the social and the cultural capital (Tischberger, Rascha and Widholm). In his research *Distinction* he was able to proof that there are correlations between the social position of individuals (social class), education and taste (Bourdieu, "Distinction"). Consequently cultural capital including habitus and taste become an important expression of class. Habitus is besides taste the most important term in Bourdieu's theory. So I will give a short definition of Habitus. Habitus is the embodied generative schema of social structures (Nash). Referring to Lèvi Strauss habitus has the ability to mediate between structure and agency and regulates social practice. It also leads to the development and reproduction of an ethical and social value system as well as an idea of aesthetic about cultural goods (Fuchs-Heinritz and König). This seems to be essential for the creation of aesthetic and therefore relevant for this paper. Additionally taste could be seen as a product of habitus which also leads to distinction between social classes. Every cultural practice such as photography could be classified by taste and subsequently by habitus and social class.

"Tastes are the practical affirmation of an inevitable difference." (Bourdieu, "Distinction" 49)

This is the foundation for Bourdieu and his explanation of photography which is presented in the next chapter.

Bourdieu and Photography

During his life Bourdieu not only focused on the educational system and the structure of society but also on media and art. As early as 1979 Bourdieu mentioned photography in La Distinction and expressed his opinion on it. The following two quotes highlight his classification of photography in Distinction. "Technicians seem to offer the purest form of middle-brow taste. Their tastes in photography locate them centrally in the structure of the middle classes" (Bourdieu, "Distinction" 52).

In 1965 he published a book called *Un art moyen* which primarily deals with photography. Bourdieu described photography as an ordinary practice which was not only cheap but also easy to use because no training or education was necessary. The lack of institutional or educational level placed photography only in the middle of the hierarchy of legitimacies. This hierarchy was a general organization of the cultural system of expressions (Vromen). Photography was between vulgar and noble cultural practice. The lack of educational knowledge was one explanation for Bourdieu's classification. He further explained the classification of photography by using social classes and described the primary function of photography as practice to solemnize family events.

He continued with a distinction between people using photography in its traditional way -which was an integration function established by sharing pictures of family live with their relatives and friends- and people having an intrinsic interest in photography and therefore wanted to isolate themselves from the mass of practitioners (Bourdieu, "A middle-brow Art"). He called the latter devotees (amateurs with a more sophisticated approach on photography than the mass of practitioners) (Bourdieu, "A middle-brow Art").

This group tried to establish photography as a fully legitimate art which he judged as foolish (Bourdieu, "A middle-brow Art"). According to Bourdieu photography had a social component to it, an aesthetic which is mainly created by the group ethos - a "set of values which tend to organize the conduct of life of social classes." (Bourdieu, "A middle-brow Art" 97).

For Bourdieu it was impossible to counteract a social component because by contradicting it one only established it further. Clearly the practice of photography was linked to the class and ethos/habitus of its practitioners which prohibited the legitimation of photography as a noble taste.[1] That was his second explanation next to the educational level of legitimated worked for the classification of photography as pictured in the above exhibit.

Analyzing the group of devotees in this paper is vital because they are similar to the Flickr users who also have an intrinsic interest in photography. Additionally even in the past the devotees were joining groups, so called camera clubs, in which they were able to meet other enthusiastic photographers. Typical for these clubs was the desire of its members to isolate themselves from ordinary photographic practice as well as from the mass of practitioners (Bourdieu, "A middle-brow Art"). The members of those camera clubs came mainly from the middle class (Bourdieu, "A middle-brow Art").

Robert Castel and Dominique Schnapper investigated the camera clubs and their esthetic ambitions and social aspirations during the 1960s. The results of their research should underline Bourdieu's classification.

The authors focused on two specific camera clubs which explicitly characterized themselves by their aesthetic ambitions and not by technical aspects of photography. This is why they refuse a social classification of photography based on its technical component. In general the focus on the aesthetic aspect of photography is one of two possible and complementary tendencies of camera clubs during that period of time. Contrary to the focus on aesthetic clubs with a technical focus also existed, the called youth clubs (Bourdieu, "A middle-brow Art").

Castel and Schnapper researched two clubs in particular, the camera club of Bologna and the avant-garde Parisian camera club *Trente et Quarante*. The Parisian club included some amateurs and also professionals which is makes it easier to compare to Flickr due to the similar structure.

Another common characteristic of the two clubs was their ambition to look for an implementation of photography as an autonomous and true art.
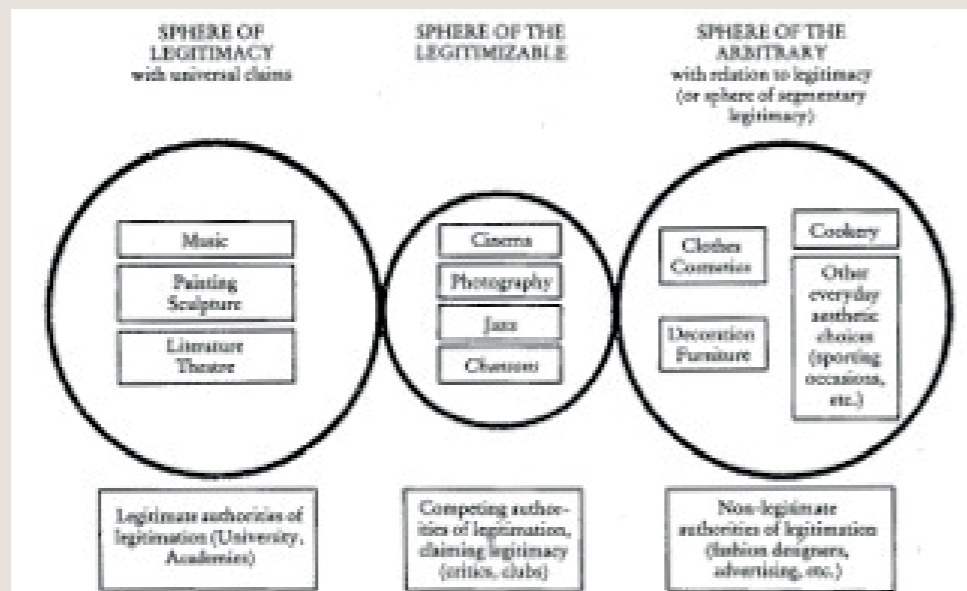
Both clubs relied more on norms

Figure 1
Bourdieu's classification

created by aesthetic components and therefore neglected the technical side of photography. This was caused by their fear of being reduced to a technical practice or mechanical process which would classify photography as an ordinary practice with a vulgar aesthetics (Bourdieu, "A middle-brow Art"). To prevent this the camera club of Bologna for example implemented aesthetic judgements or norms which devalued too objective or too sentimental photography. The members had the aim to transfer a new aesthetic by a "freedom of style" in their pictures (Bourdieu, "A middle-brow Art" 109). As the authors explained if photography had a freedom of style that is concentrating on the transposition it became closer to art and creativity rather than just being an ordinary mechanical practice. The act of photography was classified as a creative process by the devotees which seemed to be the solution for them to get rid off the mechanical character and closer to the creativity and legitimacy as a noble art. This classification started with the photographing subject and his or her transposition and not with the object which was pictured. The following quote underlines this clearly. "The field of the photographic is therefore defined in relation to the photographing subject, and not in relation to the object photographed."

(Boudieu, "A middle-brow Art" 109).

I would argue that this could be seen as a first tendency to link photographic practice to identity which is called an aspect of a new aesthetic according to Murray.

In addition members tried to link photography to fine art and more particularly to painting because of the pictoralism in photography (Bourdieu, "A middle-brow Art"). Due to Castel and Schnapper this relation to painting does not work because photography and painting differ dramatically referring to the hierarchy of legitimacies and the technical component of photography (Bourdieu, "A middle-brow Art"). The motivation behind that relation is more of a question of social classes in the opinion of the authors. "It is in this way that members of photographic clubs seek to ennoble themselves culturally by attempting to ennoble photography" (Bourdieu, "A middle-brow Art" 9).

It was their desire to achieve noble taste found in fine arts which would offer a guarantee for aesthetic. This guarantee would also provide a traditional aesthetic norm (Bourdieu, "A middle-brow Art").

This leaded to the discovery that photography was not able to define itself as an autonomous genre with an own aesthetic norm

mainly created by the denial of the technical part as it related to popular taste and the desire to define photography with a traditional aesthetic norm and so a noble taste (Bourdieu, "A middle-brow Art").

At this point the relation between taste and social class becomes quite clear and it explains the tendency of the middle class to become part of the upper class.

In comparison to these two camera clubs Bourdieu also talks about youth clubs and their definition of photography based on its technical component. For the youth photography appeared to be a way to show their fascination for techniques and their domination of nature. Apparently there was a big gap between the middle-class camera clubs and the youth clubs strengthening the argument that photography was unable to create its own aesthetic judgement (Vromen).

"Let us say, in any case, that this analysis confirms the inability of photography to establish an autonomous aesthetic on its own, and that the pursuit of justification is determined, via the image of photography itself, by the social image of art and technology, their roles and their conditions." (Bourdieu, "A middle-brow Art" 128).

The next chapter will discuss with a comparison to camera clubs and the modern photo sharing platform Flickr.

Flickr and Bourdieu

This chapter is one of the more creative ones in this paper because it tries to transfer Bourdieu's thoughts about photography and its aesthetic to Flickr taking into account Murray's understanding of communal aesthetic. It differs from other articles about digital photography in a way that it does not discuss the change in aesthetics, digital memory or self-representation. Instead it zeroes in on Bourdieu's thoughts. Evaluating Murray I do not totally disagree with the change in digital photography and photographed objects yet I would like to show that there is maybe another perspective about digital photography which deserves more attention.

First, it is not useful to compare today's photography on Flickr with the mass of practitioners from the past because the latter did not take pictures with a special love for photography as Flickr users do. A comparison of Flickr users and the mass of practitioners in former times is so to say an unbalanced

reference. Although I am aware of the huge amount of Flickr users (as of today 51 million) I would not suggest that Flickr represents the majority of people taking pictures in society (Pingdom). That is why I prefer to compare Flickr users with camera club members. This is one critique of Murray's article. However, she is not the only author comparing function and storage in photo sharing platforms with photography's former role in society. David Palmer and Annette Kuhn also belong to this group of authors.[2]

In comparison to the majority of people, camera club members did not see photography limited to a family function but rather they wanted to show their abilities and creativity by using photography as a medium (Bourdieu, "A middle-brow Art").

Consequently, the historical comparison between Flickr users and camera club members makes a big difference for the argument presented in this paper.

Murray as well as Palmer also dealt with the aspects of self-representation as part of the new aesthetics on Flickr and contrasted this to the old function of photography (Murray). The following quote from the research on camera clubs could be interpreted as a first hint to the focus on the photographed subjects even in former times.

"If the photographer has a personality, he will have a way of taking photograps so that you can recognize him." (Bourdieu, "A middle-brow Art" 109).

Obviously, there was at least a tendency to use photography as an identity reference in the past. Naturally we have to ask if this is really a recent development as mentioned by Murray or also an aspects of the camera club members?

Further, she points out that people tend to photograph the mundane things such as food, clothes, etc. and upload them on Flickr. That is why she names digital photography practiced by Flickr users the *everyday aesthetic*, a very valid point. Reading the article we are given a clear idea about the aesthetic and its characteristics but we do not really understand her reasoning. People start photographing the mundane, urban, everyday things and upload them on Flickr to share their experiences. That is the social component in modern digital photography and again Murray presents us with a term: *communal aesthetic*. Up to this point she is very clear and the article well structured but the question why people begin to photograph mundane things in the first place still prevails. She mentions the role of technology briefly in the following quote.[3]

"It is, perhaps, the confluence of digital image technology along with social network software that has brought about this new aesthetics." (Murray 156)

Also Palmer mentions the role of technology and points out that especially the recent evolution of camera phones is responsible for the integration of photography in our daily lives (Palmer).

I would argue that especially the technology incorporated in today's gadgets and in online networks are the basics for the change in photography. Technology is mainly responsible for the creation of this new aesthetics and thereby the most important aspect of photography today. Without technical devices which make it easier for us to take pictures in our daily lives we maybe would not even think about photographing the cupcakes which we are enjoying with friends. The technics has obviously changed and what is important is not only its development but also the role it plays for photography itself.

I would suggest that the separation of technology and photography is no longer possible and its refusal finally came to an end in the past decades. Technology started being an immanent aspect of digital photography and is even included in the term by using the word *digital*.

This automatically implies a connection to technical devices, i.e. computers and therefore hard- and software. To carry forward with this argument there is not only a change in the devices being used in photographic practices today but also a change in the way people share pictures. Photo sharing is strongly connected to technology as it relates to Flickr. The community is no longer a camera club that meets offline. Instead, it is a virtual world consisting of members from all continents. This virtual environment creates a big club with countless devotees whose primary interest is photography. Flickr is more heterogeneous than the camera clubs in the past as a result of the different types of people with different cultural backgrounds and level of motivation. Due to the diversity people started splitting up in smaller subgroups again. What is so surprising or exciting about Flickr is that professionals and different levels of amateurs coexist and share their pictures with each other. Looking at this description of the online platform two aspects become quite obvious. The first one is that technology can no longer be avoided. The second aspect deals with the heterogeneity of Flickr's members and so to say the social side in photo sharing. These two aspects refer to Bourdieu's thoughts

and therefore I am excluding the change in photographed objects, digital archives or self-representation.

I will start with the technology aspect because it will bring us directly to the second, the social aspect.

Technical aspect

William J. Mitchell pointed out that in the early 1990s the change from analog to digital photography took place. He named this development as the *post-photographic era* (Mitchell).

At the center of Mitchell's work is the technology used in photography which has "logical and cultural consequences" (Mitchell 4). He tries to separate digital from analog photography by talking about pixel, information in digital pictures and the possibility of manipulation.

Furthermore José van Dijck deals with the technology and its role in social media especially Flickr. She describes the technology behind photo sharing as the most important aspect which creates social interaction and shapes social practices in our society (van Dijck). As a reference van Dijck uses Andrew Hoskins and his thoughts on network memory as the following quote expresses „[C]ontemporary

memory is thoroughly interpenetrated by a technologyical unconscious in that there occurs a co-evolution of memory and technology." (Hoskins 96)

José van Dijck expands Hoskins' concept to a *culture of connectivity* which means that "social interaction and cultural products are inseparably enmeshed in technological (and legal-economic) systems" (van Dijck 404). As one can see technology is immanent in our social and cultural lives which includes photography (van Dijck). Interesting about Hoskins' notion in my opinion is that he hints to the ambiguity of technology today. On the one hand, the importance of technology cannot be denied anymore and has become an immanent part of our lifes and on the other hand, people care little about technology and also have a limited understanding of it which is termed by Hoskins as *technological unconscious*. David Beer calls this by referencing to Scott Lash the "power through the algorithm" and with this emphasizes the role of software even more (Beer 995).

Leaving the theoretical concepts and coming back to Flickr it is the platform itself where we can find arguments for the importance of technology. As one example there are more than 8.000 Flickr groups that simply share

iPhone photos. The technical device is part of the groups' names, a strong symbol of the technical component.

Stressing the important and non-refusable role of technology allows to us to link it to Bourdieu and the foundation of this research paper. Bourdieu pointed out that it is especially the refusal of techniques which prohibited the development of an own aesthetics and therefore the establishment of photography as a true art. Today, it must be possible for photography to create an own aesthetic for the refusal of technology in photography has been overcome. As a result, the gap between camera clubs and youth clubs has also become narrower which in turn allows for the development of an own aesthetic. It is not a question of a new everyday aesthetic but much more a question of generating one in general.

The following subitem continues with the social aspect which according to Bourdieu is a crucial one and directly connected to techniques in the term of photography.

Social aspect

This second aspect about Flickr has to do with the nature of the Flickr community and its members. Flickr members are more heterogeneous than camera club members because of variables like size or cultural background. Using Bourdieu again the habitus of a group like Flickr is almost impossible to investigate or define nowadays. Bourdieu's research on habitus was centered around French society and not a worldwide community. I would assume that the levels of professionalism as well as the social classes and cultural background of Flickr users differ vastly from each other and therefore cannot be related to one habitus and social class anymore. That is why the concept of habitus and taste which led Bourdieu to the classification of photography as a middle-brow art is questionable in the virtual photo sharing generation. Moreover, it is hard to define a clear class structure within Flickr because the network is not only to heterogenous but also to big. Rather the habitus could be used to explain social interaction and aesthetic judgements of single groups. This is also mentioned by Murray:

> „that the size of the online photo community, along with its decentralization, results in the devolpment of subcommunities of users [..] may contain variations and alterations of a larger Flickr aesthetic." (Murray 158)

I would suggest to conduct empirical work of individual Flickr groups to investigate social structures, habitus and aesthetic judgments. Unfortunately, the research about former camera clubs does not outline how the members interacted with each other in detail. Probably, they commented on each other's work in an analogue way however we do not know if there were additional ways to judge photographs.

Flickr users interact with each other by using the comment function, a reward system and 'favorite function' which is comparable to the *likes* on Facebook. As an example I chose the *iPhone camera shots* group and randomly selected a picture with many comments.

There are 21 comments and this photo has been viewed 51 times. We can see that five members liked the picture. Besides comments like "excellent image!" or "Yes, it's pure artwork end.......!" users also officially rewarded the image with the *Flickr Award* (Flickr). User can tag beautiful pictures with different kinds of awards and the pictures appear in the Flickr award gallery. If a picture receives more than five Flickr awards it will appear in the 5+ award gallery. The appearence of a picture in a group like the 5+ award gallery increases the distribution and exposure of a picture and at the same time upgrades its value in the community. With this system pictures are assessed by all Flickr users who ultimately create a judgement system which not only depends on comments and likes.

These functions are more multilateral than the comments in the analog world. Nevertheless we cannot compare this to the camera clubs because of a lack of information on the physical interactions that were besides other aspects for the creation of an aesthetic norm. It would be interesting to investigate the Flickr interactions and classify the value system as well as the process how single groups exactly create aesthetic norms. Regardless a connection to habitus could not easily be made because in order to do so we need additional personal information about the users and there social, economical, educational and cultural backgrounds. It becomes more and more apparent that the comparison to Bourdieu is not that easy to manage. In my opinion describing the relation to Bourdieu in a few sentences and explain that the value system, norms and judgments could be developed with the habitus concept is too vague.

In general, there are many aspects of Flickr which have to be looked upon from different perspectives. The technique seems to be a very important one, so are the social structures

Figure 2
Sample from the Flickr iPhone camera shot group

of the Flickr community. Comments and user information should be mentioned here too.

Conclusion

To sum it up the article emphasizes the role of technology in photography today which could be seen as a development in the history of photography referring to Bourdieu. The refusal of technology was one of the reasons prohibiting photography to become a true art and create an own aesthetics. This has changed and one expression is Flickr. The refusal has come to an end which raises the question if it is now possible for photography to establish an aesthetic and maybe become an accepted art. Bourdieu also relates photography to social classes and their habitus and taste which represents the sociological aspect of photography. He assumed that photography is part of the middle class and therefore could only develop an ordinary taste due to the lack of training and education. The research question

How could we relate the Bourdieu's investigation on photography and his habitus concept to Flickr and is there really a new aesthetics in the sense of Murray?

could be answered with the discussion of technical and social aspects in photography today. We could also incorporate Bourdieu's concept by emphasizing multiple social classes in a community such as Flickr which were not present in camera clubs of the past. The latter contained members having a similar cultural background although they might differ in economical, educational or social background. In the Flickr community the investigation of member's various capitals seems to push all boundaries of effort and time. The classification of classes related to Bourdieu's research method is simply impossible for the entire community.

The argumentation of this article differs from Murray's which is more focused on the photographed objects and its changes. She explains a change in the aesthetic but not its establishment in general or the reason for the appearance of a communal aesthetics. Murray's attempt to explain the development of aesthetics by simply naming Bourdieu appears as too short-sighted here.

To dive deeper into the topic we need empirical research with personal data of the members as well as a structure of interaction in Flickr. This would enable us to give a factual answer on how the habitus concept could be related to Flickr. In conclusion, Bourdieu's

thoughts are extremely complex and therefore it is tough to determine whether an aesthetic in photography is established or not. In my mind, it is not sufficient to only touch on his work in a few sentences like Murray and Palmer do because of Bourdieu's complexity and their attempt to relate it to virtual photo sharing communities. ∎

"Yet the struggle to work with Bourdieu's concept [..], is worthwhile, just because to do so forces one to think." (Nash 185)

Notes

1
Note: In his later researches Bourdieu only used the term habitus because it is broader and included ethos.

2
Note: also see Daniel Palmer, *Emotional Archives: Online Photo Sharing ad the cultivation of the self*; José Van Dijck, *Flickr and the culture of connectivity: Sharing view, experiences, memory.*

3
Note: The term *technology* derives from the the greek téchne (techniques, art, skill) and Logos (logy) and is defined by oxford dictonary as a systematic treatment of an art. In this paper the term technology includes the term techniques and can be used interchangeable.

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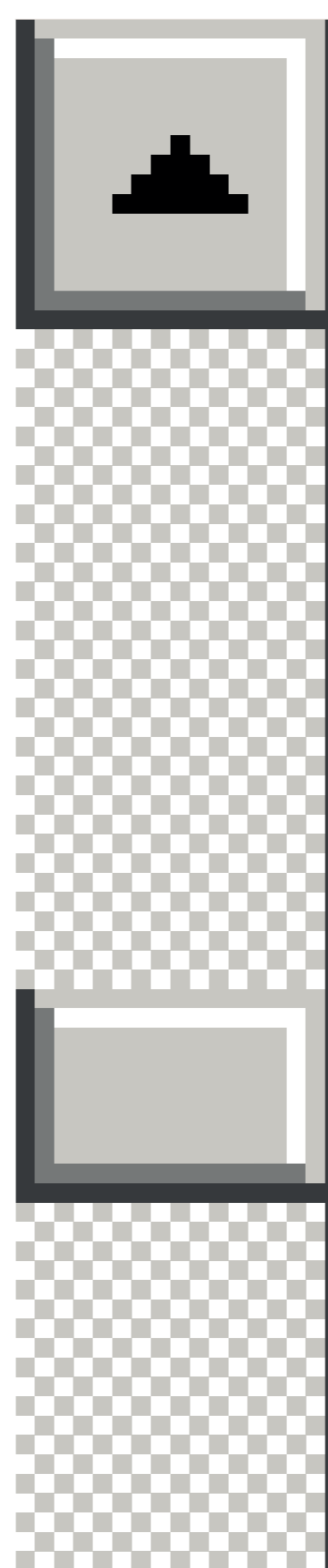
Image credits

Figure 1

Bourdieu, Pierre. *Photography: A Middle-brow Art.* cambridge: Polity press, 1990. Print

Figure 2

iPhone camera shot, group pool on Flickr. http://www.flickr.com/groups/iphone_users/

The Beauty of the Byte

Towards an Aesthetic Model of Demoscene Intros

Stijn Peeters
@stijnstijn

A 3D #animation in 4KB – impressive for its file size and its amazing graphics. Is it art? Is it craft? Or something completely different?

about 2 hours ago via web

The introduction of computer technology has revolutionized many different avenues of human creation, not the least of which is art. Digital tools allow artists to manipulate visuals down to the (sub)pixel and easily re-use and remix existing artworks, while real-time collaboration with peers continents away is commonplace. Computer technology has become a fertile platform for creativity in itself. Computer art has appeared in museums such as the famous New York Museum of Modern Art, which has exhibited digital art ranging from font faces to work from Pixar's animated movies. ¶

Introduction

In this paper I will analyze a specific kind of computer art, one that is commonly called *sizecoding*. Sizecoding could be summarized as "more graphics, less code" (auld); it refers to the practice of creating computer programs that generate impressive real-time graphics while using minimal disk space. Competitions exist in which programmers can enter such programs to see which program is deemed the most impressive by the audience, which usually consists of other tech-savvy people who judge the programs on their technical and visual merits.

In this way, such programs, called *intros*, are often used as a showcase of their programmers' skills. Winning a competition is a way to gain respect from peers and builds reputation. To generate impressive visuals within the constraints imposed by the medium, the programmer needs to be good at his craft, which like in any medium is a way to gain the respect of her or his peers. On the other hand, one can only check the program code's performance and whether it does anything interesting by the visuals it generates. These visuals in turn may be impressive in their own right, but knowledge of how hard they are to generate within the given constrains can provide important context that changes the perception of these visuals.

It is this dialectic, then, which I will investigate in this paper. Demoscene productions are hard to classify within conventional perceptions of culture, as they require distinct kinds of skills and utilize many technologies and platforms (Hastik & Steinmetz 37). This multifaceted nature of intros and demos begs the question how one should regard such programs; is the code in itself what is impressive, and are the visuals simply a necessary by-product? Or does the essence lie in the visuals, and is the code merely a means to an end? In short, what kind of aesthetic model could one use to analyze intros and sizecoding in general?

This is not to imply that there is one "true" way to look at these works. Yet, their multi-layered nature puts them at an interesting spot, as they constitute a mixture between the traditional art form that visual art is, and programming which is still often regarded as something akin to mathematics; an exercise of logical reasoning, not necessarily creativity. Programming is however an essential factor in this case and, as I will argue, a venue that can be appreciated for its own merits, and not just

as an exercise of reasoning and technical skill.

I will start this paper by giving a short overview of sizecoding, and in particular intros, and its cultural background, primarily using Reunanen's excellent monograph on demoscene history. I will then explore existing aesthetic theory to construct a framework within which to place sizecoding. To do so, I present arguments to support the notion that on the one hand code in itself can be craft (as argued by for example Peter Seibel and Gregory Bond, and Ian Bogost and Rick Montfort's *Platform Studies* approach). As the visual aspect of intros is also of great importance, I also present aesthetics research by, most prominently, Helmut Leder, who explores the interplay of the "face value" of visual art and its creative context.

Having considered these positions, I shall investigate how and why this existing discourse is insufficient to analyze multifaceted art forms such as intros, and how to expand it to be adequate. I do this by integrating insights from both aesthetic theory and code studies, combined with a qualitative analysis of comments on sizecoded programs on the website *Pouet,* a prominent online gathering place of demoscene enthusiasts. Finally, I reflect on how these insights fit together and

how this presents a novel way of looking at intros with which one can make sense of such digital art forms.

What is sizecoding? A short history of the demoscene

Sizecoding in the sense it is discussed in this paper has its roots within a subculture named the *demoscene*. The word demoscene refers to a loosely affiliated network of computer enthusiasts, programmers, designers and hackers with a shared interest in computer graphics, music and related media, with an emphasis on real-time graphics (Burger et al 205; Reunanen 1). The demoscene has its origins in the "cracker scene", people who cracked software and spread illegal copies of it before the advent of the internet. These *sceners* would often organize themselves in groups; being in a group became a badge of pride, and cracked software would often be changed so that it included a reference to the group name or the friends of the cracker (the *greetings*) or derogatory comments about rival groups and crackers (*fuckings*). These messages were put in a separate "screen" (a

fullscreen picture displayed on the TV screen) that was often made to be shown before the actual software started. One of the earliest known examples of this is the *Berlin Bear* intro by the *Berlin Cracking Service*, published in 1984 (csdb), which simply showed the group's logo and name on the screen. Such intros would then be seen by anyone who acquired the software, which was often done via BBS (*bulletin board software*, a pre-world wide web online platform) or real-world gatherings, called *copyparties* (Reunanen 37).

This "digital graffiti" became more and more elaborate, evolving from static pictures to full-fledged media productions with animation and music. Eventually creating the nicest *intro* became a goal in itself and *intros* were released separately, though many groups also continued cracking software initially (23). As *intros* got more and more elaborate, and larger both in file size and ambition, they came to be called *demos* – demonstrations of the author's skills – and the surrounding subculture named itself the *demoscene*, while the term *intro* came to be beholden to smaller productions with a specific file size – sizecoding. Developing its own slang (a graphic artist was a *graphician,* programming *coding*) and subcultural capital, the demoscene established itself as a small but thriving new media subculture (47).

As the focus of the scene switched from cracking software to making impressive intros and demos (larger-scale intros with less restrictions on file size and length), so did the nature of its internal competition. Where originally the goal was to crack new software before anyone else did, groups now attempted to outdo others by producing the best intros and gaining the respect of their peers. Copyparties began to incorporate demo screenings and competitions, evolving into *demoparties*, and as such they would be the place to release new productions, as competitions were an important part of these conventions (38). To level the playing field, commonly several competitions were held, with a separate competition for each popular platform (such as the Commodore 64, the Amiga and later the PC). Furthermore, commonly a limit to the file size of the demo was part of the rules, to prevent groups from "cheating" by using pre-rendered video instead of real-time graphics and to make sure coding skills would play a role. Another reason for file size limits was the limited memory size of early platforms; even though this no longer was a factor for later platforms such as the PC, a mixture of tradition and the rules' encouragement of pushing the boundaries of the platform is still characteristic of the demoscene even today (Reunanen 52,

Hartmann 152).

Nowadays, competitions host a variety of intro competitions; most prevalent is a 4 kilobyte or 64 kilobyte limit, but smaller sizes such as 1 kilobyte or even 256 bytes are common as well. This is the absolute limit; all intro data must be included in this, including music, art assets and animation data. In addition to the regular demoparties, Scene.org (an organization that curates one of the most comprehensive demoscene archives, the eponymous website www.scene.org) has a yearly awards show in which an expert jury presents awards in categories such as "best technical achievement", "best effect" or "most original concept". There are also award categories such as "best 4k" or "best 64k", which have additional rules mimicking those of demoparties (Reunanen 14, Schaefer 117).

Thinking outside the box: creating art within constraints

These rules obviously have implications for how the intro is developed and what the end result looks like. Depending on the file size and platform, components such as music and realistic animation may need to be simplified or even left out altogether. This practice of working within self-imposed constraints is not unique to developing intros; in poetry, for example, the haiku or the sonnet forms present a very specific structure within which the author must work. In the case of programming, such constraints often inspire creativity in coders; squeezing the most out of the available hardware and memory, they often employ techniques that use the platform in ways not intended or expected by its creator.

An excellent analysis of how constraints inspire creative programming in the case of the Atari VCS platform can be found in Ian Bogost and Nick Montfort's *Racing the Beam*. The Atari VCS (also known as the Atari 2600) was released in 1977 and had a relatively simple, minimal design, with a low amount of memory available to game developers. To work around this, programmers employed techniques such as multi-purpose code to make the most of what limited resources was available. In the words of Bogost and Montfort, this "sometimes made the resulting source files appear to be puzzles encrypting their content rather than roadmaps elucidating it" (103). It also made for developers that had a very thorough understanding of the

platform and its capabilities; later in their book, the authors mention a programmer who could, on the fly, make up code to emulate a specific sound effect, without needing to test it first (104).

Such thorough understanding often allowed for innovative ways of using the platform's features. In the game *Adventure,* for example, developer Warren Robinett faced the challenge of creating a game in which the player moves from room to room, carrying objects and battling creatures, while the VCS's capabilities were explicitly geared towards single-screen games in which the main mode of action was shooting the enemy with missiles or balls. To allow for such features as walls and a sword the player could pick up, Robinett had to repurpose the "missiles" as walls and the "ball" as the player character's avatar (52). Such out-of-the-box thinking in the end produced results that were different from any other game published, and more attractive for it.

It is not surprising, then, that the Atari VCS and other Atari platforms were also popular with intro and demo coders, given the ways in which the platform's capabilities could be exploited in novel and impressive ways. Obviously part of the popularity is also attributable to Atari's nature as a video game

platform, where crack intros originated, but the sheer amount of Atari intros available even today (demoscene database *Pouet* lists almost 6000 productions for Atari platforms, many released long after the demise of the platform) confirms that there is an appeal in such limited platforms beyond mere nostalgia.

Masters at work: code as art

Having in-depth knowledge of a platforms' inner workings and possibilities would obviously gain someone respect from others familiar with the platform. Demoscene site *Pouet,* which keeps an archive of almost 60.000 productions for over 80 platforms, allows its users to comment on any production listed on the site and express their opinion of it by means of a thumb up or down or a "piggy" (a pig head icon that denotes a neutral opinion). Comments on popular demos for "oldskool" platforms such as the Atari VCS often remark how hard the platform is to program for and how impressive the demo is in the light of that. It is in such cases also the programming skill that is considered impressive; the visuals that are generated are appreciated because they

are hard to generate on such a limited platform, not primarily because they are impressive in their own right.

Is it the code in itself, then, that should be considered the work of art in such cases, with the visuals as a necessary but essentially irrelevant side-effect? Zooming in on a specific Atari VC intro, *ISO* (currently among the highest ranked on Pouet), brings several facts to light that could support this point of view. Its *nfo-file* (an author's description of the intro that is often released in conjunction with the intro itself) does suggest that the programming is the focus of the author; the nfo-file for *ISO* has an exhaustive listing of technical challenges and achievements, pointing out the programming challenges the author had to face:

> "This is my second Atari 2600 demo and it was a tough journey. Anybody who thinks retro coding is simple should give this machine a try. (…) I wanted to create smooth effects with 21 bits of screen RAM and 8+8+1+1+1 movable pixels. I also wanted as many effects as possible in 8k with a fast pace and proper transitions. The complete lack of interrupts makes the last one especially hard and expensive in terms of RAM and ROM usage." (nfo-file for >>> ISO by JAC! <<<)

Code as art in itself is a concept that has recently received considerable academic attention from scholars. In his essay *Software as Art*, for example, computer scientist Gregory Bond puts forward the notion of lucidity in code, meaning a clear, elegant and transparent way of coding that is easy to maintain or explain to others. Bond states that *[l]ucidity is often pursued as an aesthetic goal unto itself and, when it is achieved, it can impart the most powerful of all reactions* (120). Such lucid programming requires knowledge of the subject matter to understand, but can be appreciated as beautiful for its elegance and for displaying the skill of its author. This reading of the code exists in parallel to the actual purpose of the code; the code is not intended as art, but can still be appreciated in a manner similar to how art is appreciated. Regarding an especially "lucid" algorithm by distinguished computer scientist Edsger W. Dijkstra, Bond notes the following:

> "This little program not only solves the important problem of synchronizing access to shared data by concurrent processes, but also demonstrates the genius of the program's author— his deep understanding of concurrency, and his mastery of programming." (121)

While Bond argues, convincingly, that there is aesthetic value to be found in program code, the fact remains that this aesthetic value is a product of an attempt to make an as efficient algorithm as possible. It is therefore maybe better comparable to the work of a really skilled carpenter or other workman, rather than, for example, a poem or painting. This does not mean there is no creativity in the craft of coding: Mignonneau and Somerer, for example, explore the similarities between programming and composing prose or poetry; programmers have different styles, there is room for creative input and depending on experience work can be clearly recognizable as that of a beginner (172).

Such a notion of coding as a craft to be honed can also be found in Peter Seibel's collection *Coders at Work,* in which he interviews several experienced programmers on their background, methods of work and how they see their work. Reading these accounts, it quickly becomes apparent that programming is a craft with its own peculiarities; there are different styles of programming, paradigms that are vehemently defended or passionately derided, and a clear sense of a sort of "tradition", with different kinds of programming languages that build upon their predecessors and influence new

practices and dialects in turn. This theoretical knowledge is an essential part of being a good programmer, next to simple technical skill and knowledge of various languages. For example, Brendan Eich (creator of the *JavaScript* language), explaining how he goes about hiring programmers in his company, notes that he does not simply look for just programming prowess, but also for analytical talent, signs of critically evaluating *how to use* a programming language rather than simply repeating tried and tested methods and patterns (163). In Eich's words, it's a matter of *knowing [not just] the source language, but the runtime*[1] (ibid.).

Such an intimate knowledge of the inner workings of a program ring true to the notion of Atari VCS programming as mentioned earlier. Programming for the VCS was not an entirely arcane art, but achieving the breakthroughs that produced memorable games such as *Adventure* required a level of understanding of the platform beyond merely knowing the grammar of the VCS's programming language. In other words, programming was a craft to be honed, a skill that could go beyond simply "going through the motions."

Therefore, there is a strong case to be made for code as a form of craft in itself, and thereby something to be appreciated for its

intrinsic aesthetic value or the skill displayed through it. To a knowledgeable viewer, a piece of code can evoke emotions through its simplicity, elegance or *lucidity*, and the skill required to produce such a particularly striking example of programming requires insight and an intimate understanding of the matter the programmer is working with. Intros neatly fit into this notion; they often go beyond the basic humdrum programming that constitutes the typical program, and explore unconventional use of the platform to achieve an unexpected and impressive result.

However, it precisely this *result* that is what the programmer is judged on in the end in the case of intros. If the generated scene does not impress in some way (be it through pretty pictures or never-seen-before 3D effects), lucidity of the code and craftsmanship of the coder is not conveyed to the viewer. Ultimately, then, the notion of the code as the primary source of aesthetic value in intros falls short, in spite of strong arguments in favor of code as being able to have aesthetic value in itself. Looking back at the nfo-file for *ISO* mentioned earlier in this paper, it is clear that in spite of the technical hurdles and programming constraints the author mentions, the code is primarily there in order to produce an

experience that impresses the viewer. Hence, however lucid the code is, if it doesn't generate impressive visuals, it is not likely to impress an audience either. Though "code as craft" and lucid code are strong concepts by which to analyze program code, on their own they are insufficient to understand the aesthetic value of intros.

The power of context

Code could perhaps be seen as a sort of tool in hand of the artist, analog to the paint brush of a painter, the paper and pen of a writer or the hammer and saw of a carpenter. "Code as a tool" is a concept that has been explored by Steinmetz and Hastik, who also note that developers often protect these "tools", not releasing any of their source code, reinforcing the idea that the intro should primarily be experienced through its visuals (37). Indeed, demoscene magazine *Hugi* found only 138 examples of demos with released source code when it compiled a list in 2008, while Pouet alone lists almost 60.000 productions.

So, code falls short as the main source of aesthetic value, as the audience primarily watches the visuals, and seems to be of less
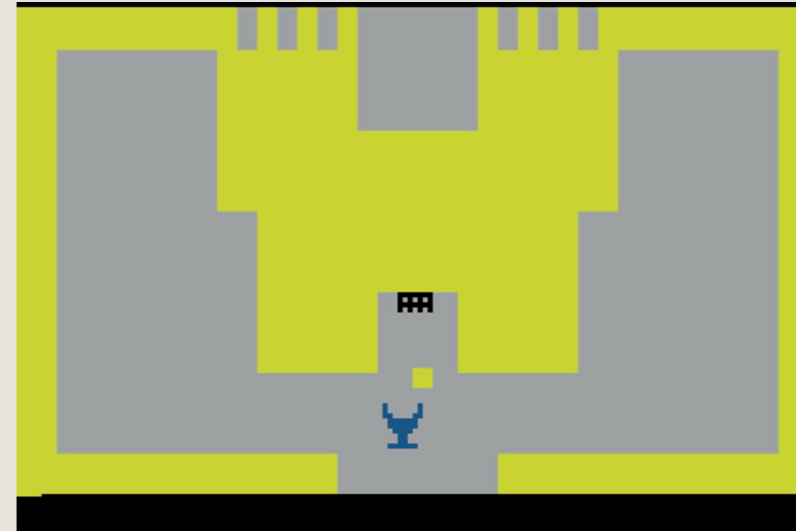

Figure 1
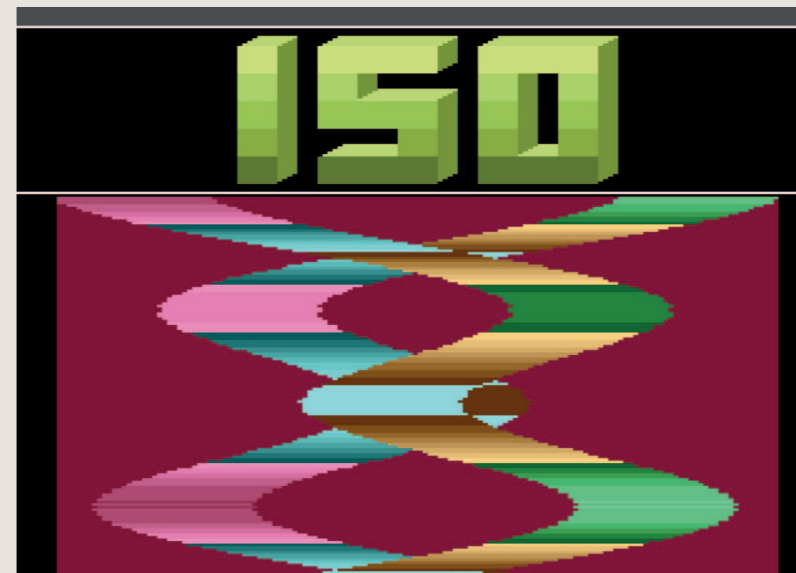Warren Robinett's Adventure (1979) running on an Atari VCS

Figure 2
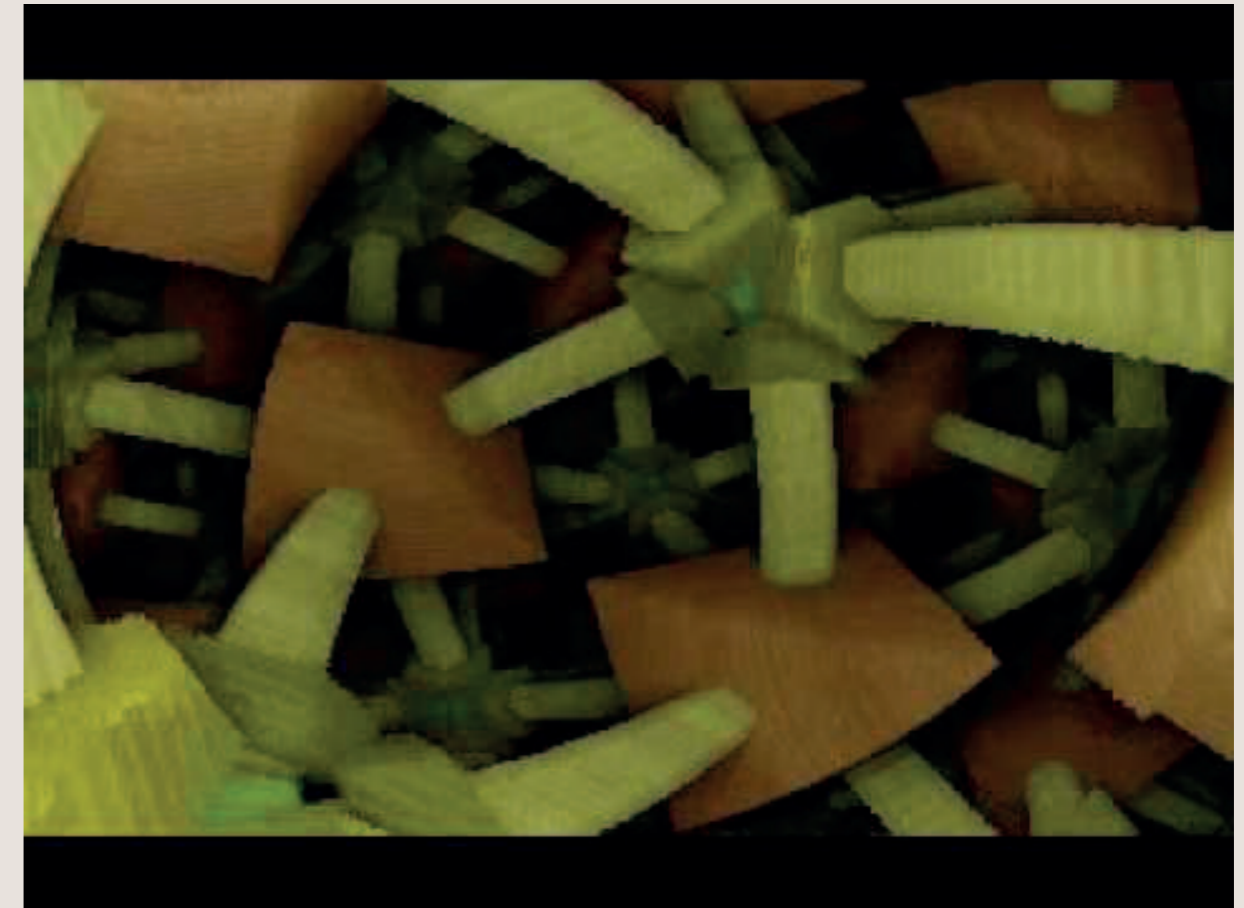The intro ISO by JAC (2011) on the same console

Figure 3
The first intro ever made, on the Commodore 64 by the Berlin Cracker Service (1984)

Figure 4
The 256b MS DOS intro puls by řřřola (2009)

importance than the visuals it produces. Yet, even as program code can (hyperbolically) be seen as essentially a tool that has one purpose – to produce pretty and impressive visuals – it would also be wrong to say that the visuals, taken at face value, are the sole source of aesthetic value in intros. The existence of *Scene.org* award categories such as "best technical achievement" alone implies that at least the demoscene itself is not concerned with visuals only. Furthermore, the earlier example of Atari VCS demos clearly shows that the visuals are considered impressive *because of the constraints* the developer faced. While they may be nice in their own right, they do not attain the ability to impress the viewer if the viewer knows nothing of this context within the visuals are created.

The importance of context is well-explored topic with relation to more tradition forms of art, such as paintings. Details as small as the title of the work can have a powerful influence on how the viewer perceives a work of art; for example, knowledge of art history and theory has significant effects on how a viewer perceives a work of art; "untrained" viewers are more likely to focus on individual objects and other more immediate characteristics of a painting, while "trained" viewers instead focus

on overall structure, composition and narrative themes (Nodine et al 226; Bal & Bryson 207). Perception of other art forms such as music videos more or less follows the same rules; without knowledge of pop cultural norms and what music videos are, the short clips might seem utterly alien to a viewer (Vernallis 142).

Similarly, Helmut et al found, in their research concerning a cognitive model for aesthetic appreciation, that for abstract paintings a descriptive title like "lakeside view" elicited significantly different responses in viewers than elaborative titles such as "impulsiveness" (186), and that such context has a large influence on art appreciation. As they explicitly present their findings as a general aesthetic model, not necessarily limited to traditional art, it is reasonable to extrapolate these findings to computer art such as intros. They are quite visually oriented, like traditional paintings, and knowledge of material constraints and painting techniques can be compared to familiarity with coding practice and platform limitations. Indeed, the Pouet comments on *ISO* also focus on such aspects as narrative structure and how well traditional intro effects (such as a "twister" or a scrolling text) are done, rather than just pictorial quality.

Such comments are usually only left by people who have the subcultural capital that allows them to place *ISO* within the larger framework of demoscene productions, as this would be the primary way to discover a site like Pouet in the first place. An alternative point of view is expressed by Pouet user Wade, commenting on the intro *puls* by řřřola, a windows program with a file size of 256 bytes:

> "I guess it's something special, but I'll have to take everyone's word for it as it did nothing for me. (…) I certainly have no criticism against this intro, but I'm not a coder so it means nothing to me. For all I know it could be using megabytes worth of libraries, Windows resources or some trick…I have no way of judging except from what I see. (…) I don't understand the code behind demos either, but there is some visual, atmospheric, entertainment, motivational or other value I can judge. With this I get none of the above, which was the point I was making." (Pouet user "Wade", commenting on *puls* by řřřola)

This can be contrasted with the majority of the rest of the comments, which express awe at the fact that the visuals generated by *puls*

are the product of a program that is only 256 bytes. Without context within which to see the intro, Wade can only take the visuals at face value, which in this case does not impress him. This is largely analog to how traditional art is appreciated; knowledge of the specific style of the work that is viewed generally increases the aesthetic appreciation of a work of art, as it offers a cognitive framework in which to attribute meaning to the work (Belke et al 129-130).

It is clear, then, that visual merit in itself is also not the source of aesthetic value of intros. Appreciation of visuals is informed by knowledge of style and the medium's history; this allows the viewer to place the work that is viewed in a historical and stylistical context in which one can take the medium's limitations and characteristics into account. In the specific case of intros, this context would include the file size constraints and other limitations such as a platform's available memory, features of the programming language that was used, et cetera. Considering this, it is obvious that rather than two distinct aspects of the same artifact, coding and visuals are tightly interwoven when it concerns aesthetic appreciation of intros.

Discussion: the intro, a two-faced beast

Intros constitute a peculiar form of computer art that can be appreciated on two levels. On the one hand the program code itself can have aesthetic value; a well-coded program can have an emotional impact similar to a well-crafted object or a work of art. However, aesthetic value of the program code itself is insufficient to understand the appeal of intros, as is the appeal of the visuals alone; both need each other to be understood and appreciated. The short distance between producer and consumer within the demoscene means that an intro audience generally has sufficient knowledge to see the code "shine through" the visuals, providing the context and guidance needed to appreciate the visuals for what they are (hard to create within the constraints given). Within this interplay the visuals serve as context for the code, as a way to evaluate whether it works and runs smoothly, while the code serves as context for the visuals, as a way to evaluate whether they should be considered impressive given the circumstances.

Rather than code *or* visuals, or both separately, intros therefore constitute one integrated form of computer art in which the constraints of the platform – and by extension, the code – reinforce the aesthetic value of the visuals. Conversely, impressive visuals viewed within historical and stylistical context can inform appreciation of the author's programming skills. Hence, aesthetic appreciation of intros is a dialectic in which two distinct ways of appreciation form a dynamic in which both reinforce each other. The intro itself, then, is more than the sum of its parts. ∎

Notes

1
The runtime is an important part of what actually makes the program execute on a computer.

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Figure 1

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Figure 2

JAC (2011), *The intro ISO* running on an Atari VCS. http://demo99z.web.fc2.com/11/sillyventure11/ISO.jpg
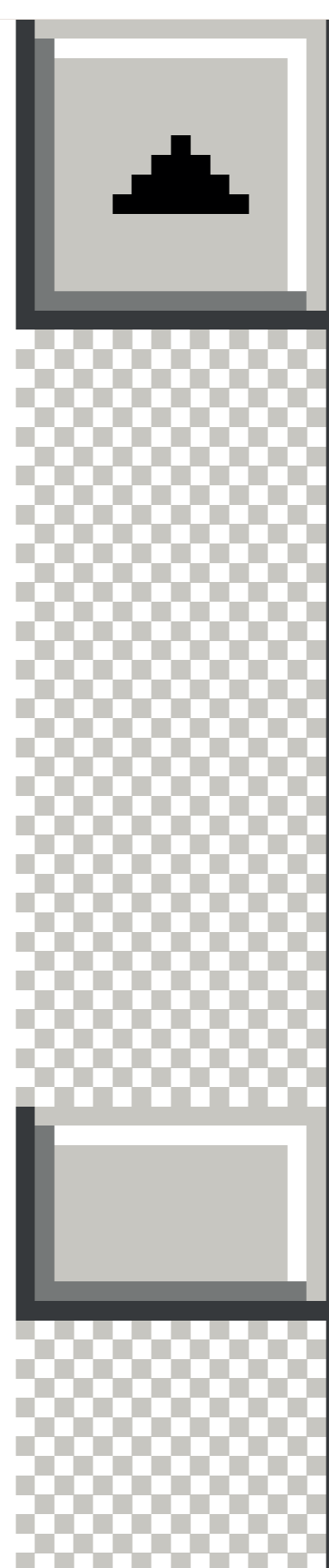
Figure 3

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Figure 4

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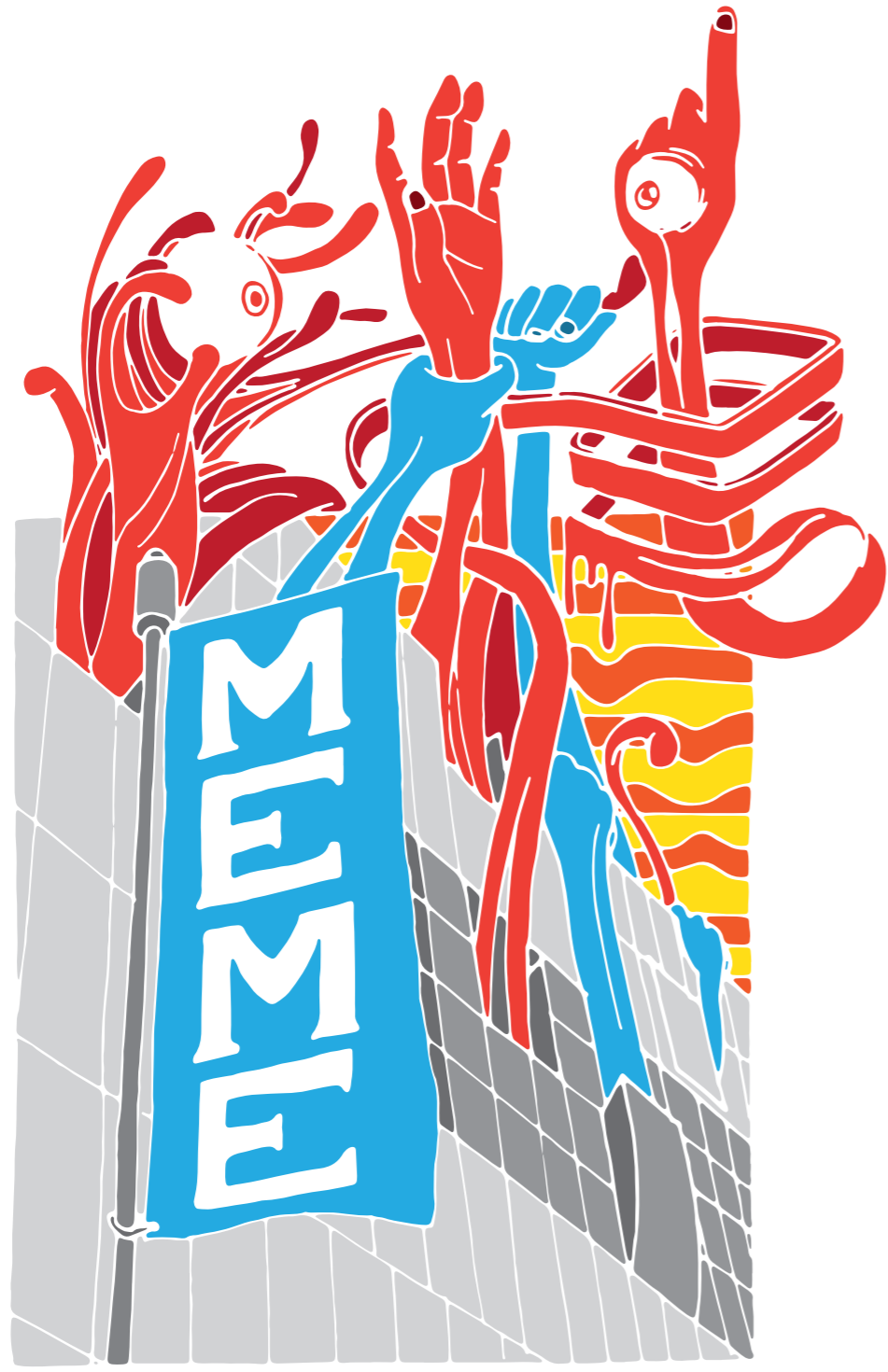
www.ONBEVANGEN.NL

#PAPER

Makes a Meme Instead

A Concise History of Internet Memes

Linda Börzsei
<no such user found>

Capturing the world in the form of Internet #memes fits perfectly into the everyday #aesthetics of our age.

about 6 hours ago via web

The aim of this research paper is to investigate the ontology and history of the Internet meme (a piece of content spreading online from user to user and changing along the way) from the 1980s to the early 2010s. After looking at the question of defining the Internet meme, I will analyse the evolution of the phenomenon from social, cultural and technological perspectives, such as chaos theory, the new aesthetics, generative systems, as well as trace the origins of certain elements of the Internet memes from a media-archaeological aspect. ¶

"Used to give a bit of pseudo-academic gravitas to stupid viral shit."

('Meme.' Urban Dictionary[1])

Introduction

The study of memes and memetics began in 1976 with Richard Dawkins' *The Selfish Gene*, the book in which the concept was born. However, of all the different types of memes, the focus on Internet memes – a piece of content spreading online from user to user and changing along the way – is only a recent development. Researchers have mostly tried to capture single moments of the story and produced studies with a synchronic approach towards Internet memes, such as migration (Shifman & Thelwall), appeal (Miltner, of LOLcats) or their role in subcultures (van de Fliert). The history and evolution of the ever-growing phenomenon of Internet memes have been overlooked by academics so far.

The story of memes is crucial to the understanding of digital culture, and not only as a characteristic of an Internet subculture, but as a cultural artefact that is gaining new meaning and function as it is breaking more and more into the mainstream. The aim of this research paper is to trace this process from the earliest Internet memes to the current trends, when memes are not only amassed on specialised humour sites, but the Internet meme is also a way of communication and genre. To understand this evolution, I will try to pinpoint the technological, sociological and cultural reasons for the emergence of the Internet meme culture that is so prevalent today.

Trying to achieve a diachronic analysis of culture, I created a short timeline of Internet memes. For researching, collecting data and fact-checking, I mainly relied upon Know Your Meme, Wikipedia, and an already compiled (yet often inaccurate) timeline on an interactive timeline creating website (Tatercakes). Unfortunately, the sheer amount of Internet memes makes it a difficult task to gather everything (Know Your Meme is the biggest site currently attempting to do this task with numerous volunteer contributors), let alone mention everything, so the timeline and history in this paper is – in a way – incomplete and arbitrary. Instead of setting on a mission that is most likely impossible, I have chosen a number of examples that all show different aspects of the evolution of Internet memes. They were probably not the first in a certain trend, but they are useful and interesting

examples that have a wide reach (i.e. not only a subculture). Attempting a media-archaeological approach, I will use theories such as generative systems, chaos theory and the new aesthetic to find out what is new and what is old about this phenomenon; as well as to analyse the recurring patterns, and the social and ideological influences that shaped one of the most interesting phenomena of digital culture.

Challenge Accepted: Identifying Internet memes

Most definitions of Internet memes rely on a concept in evolutionary biology, coined by English evolutionary biologist and author Richard Dawkins. He proposed the term 'meme' (based on the Ancient Greek word *mīmēma* 'something imitated') to denote all non-genetic behaviour and cultural ideas that are passed on from person to person, spanning from language to the conventions of football (Davison). The concept became highly debated, and "[s]ince then, like any good meme, it has infected the culture" (Dawkins). The debate mainly concerns what is and

what is not a meme, but so far, creating a substantive definition has seemed impossible (Knobel & Lankshear). With the emergence of the Internet, the term 'meme' was also applied to content that spread from user to user online. The first "academically rigorous" definition for this particular variation was proposed by Patrick Davison in 2009 in his essay *The Language of Internet Memes:*

> An Internet meme is a piece of culture, typically a joke, which gains influence through online transmission. (122)

He also developed a framework for analysing Internet memes, which involves the deconstruction of memes into three elements: the ideal, the behaviour and the manifestation. This method builds on the replicability of memes, and it can also help in tracing migration and evolution, as well as in categorisation. Knobel and Lankshear denoted two types of Internet memes based on replicability in their 2005 typology of meme media. They differentiated between high fidelity static memes and remixed memes which are "replicated via evolution, adaptation or transformation of the original meme vehicle." The largest non-academic website for meme and Internet phenomenon research,

Know Your Meme makes the same distinction in their definition of memes, arguing that content that is only shared and which has not changed or evolved while being passed on to others is viral content, and not a meme.

Strangely, even though high fidelity static memes are properly elaborated on in their tree diagram, Knobel and Lankshear only add a short description of remixed memes ("collaborative, absurdist humour in multimedia forms") and then list examples (2005, figure 3). Know Your Meme is the most updated, focused meme research site that bases its definition on the regular users' perception of a meme, which (as mentioned above) seems to indicate that the term 'Internet meme' has recently gained a new meaning in online meme culture; Davison's definition is not specific enough any more. This new genre of the remixed Internet meme is the subject of this research paper.

Despite these definitions and categorisations, the Internet meme remains a highly subjective concept. Still, there are a number of characteristics that seem prevalent, and these will form the basis of this investigation. The Internet meme is a form of visual entertainment, which can manifest in many different formats, such as a still image (for example an image macro[2]), an animated GIF, or even a video. For practical reasons, this paper will focus on still

images, but all findings should be applicable to animated types as well. Most of these images are simplistic, often low quality and mundane in style. They are not meant to be beautiful or particularly realistic; the focus is on the message. They are often multimodal, however: to single images there are often "additional texts, images and even sound or animation (…) added to enhance the meme's contagious qualities" (Knobel & Lankshear). The ideals of remixed still image Internet memes can be reflected in text and image: the meme can be a phrase, a standalone image, or an image accompanied by text or the expected style of text (fig. 1). The possible sources of a meme are limited 'only by the number of things there are in the world for us to discuss' (Allen, cited Shifman): it can be cinema, video games, celebrities, as well as politics. In one image, a meme can be used with a certain topic, or it can be juxtaposed with other memes. Last but not least, a remixed meme is not only shared online (through email, websites, social media) but also encourages participation, inviting people to often anonymously contribute to the entertainment.

Figure 1

Basis of variation in remixed Internet memes. From left to right, top to bottom: Haters Gonna Hate (text-based); Joseph Ducreux and the song 'Ice Ice Baby' by Vanilla Ice (image and style of text); Sad Keanu with the Hungarian constitution (image-based); Demotivator with a memorable line from Return of the Jedi (image and text style).

True Story: Beginnings

One of the earliest (and maybe even the first) Internet meme was the emoticon (Davison). The "sideways smiley face" composed entirely of punctuation marks was created on 19 September 1982 by Scott E. Fahlman. An avid USENET user, Fahlman realised that the lack of a visual channel in online communication needed to be overcome to avoid misunderstandings, for example while using humour or sarcasm. He suggested the usage of ':-)' as a way of marking posts that were not meant to be taken seriously. He also created ':-(', which he proposed to be the sign indicating that the post is indeed serious.

The smiley quickly spread to other communities and it soon became a meme. The emoticon, as it began to be called, already displays many definite characteristics of Internet memes in a very minimalistic form. The early years of the Internet were script-based[3] – like USENET, the "original text-only social network" (Biggs) – and yet visuals were seeping in. Emoticons are pictograms (or icons) of faces, created by putting certain characters (e.g. letters, numbers, punctuation marks) on a regular computer keyboard in a certain order; similar to ASCII Art (which has

been around since about 1966) yet simpler, as knowledge of ASCII codes was not necessary. Their function was two-fold: to intentionally communicate specific non-verbal information (Yus 167) and to entertain.

Their pragmatic use is well-known to all Internet users, as many emoticons are still in use today: they are so much a part of language, of the idiolect, that many people choose their own preferred emoticons, based on fashion or what their peers are using (e.g. whether to use [:)] or [=)]; [:DD] or [XD]). Thus the meme as a vehicle for communicating certain ideas is very much present in emoticons already, especially as Dresner & Herring (qtd. in Yus 166) point out "many facial emoticons do not seem to express a single emotion, or indeed any emotion at all" but they convey more complex ideas or emotional states[4].

The use of emoticons as entertainment is a fad that seems to have long disappeared. For a considerable time, however, people were playing with emoticons, aiming for more and more complex pictograms of faces, often of famous people and funny characters (Fig. 2). These emoticons are not necessarily easy to understand, which means these "jokes" work only with the explanation (as in what the emoticon means); it is the surprising "solution" and the simplistic means of creating these

images that yield the humour. Multiple books were published showcasing these, such as the *Smiley Dictionary* (1993) by Seth Godin, and with the emergence of text messaging, even telecommunications companies like Vodafone circulated similar glossaries. However, the remixing of emoticons for humour has mostly faded since.

The emoticons were in a way an experiment with a new technology, and this one experiment had a lasting effect. In becoming a meme, and their iconic nature played a crucial part. As Douglas Rushkoff writes, "[t]he simpler an icon, the more universal its application" (55): and so the icon – the meme – will be shared, used, reused, remixed. But it cannot be too simple either, for then its meaning can become ambiguous; as Balázs Karafiáth put it, a meme has to be big enough to have its own substantial meaning (Kurucz). At the same time, it also has to be small enough to not be able to mutate in its basic form (Karafiáth qtd. in Kurucz), and Rushkoff echoes this thought in saying that an icon too detailed "becomes too specific and less widely applicable" (55).

Another experimentation with new technologies was the website *Bert Is Evil*, which hosts images that can easily be considered examples of the first modern remixed Internet

meme (fig. 2). Created by Filipino artist and designer Dino Ignacio in 1997, the site aims to collect "documents and images that show that Bert [character from Sesame Street] is evil." The whole site is dedicated to proving Bert evil by these pictures[5]. Ignacio made all the images, in which Bert is photoshopped into existing photographs, showing him in incriminating situations (e.g. at the assassination of President Kennedy, or in the company of Adolf Hitler). Every image was accompanied by a short background story to make them seem more realistic.

Bert Is Evil is an early example of online visual humour. Although there are still relatively long texts on the website, the real attractions are undoubtedly the images. The layers feature had already been introduced to Photoshop in 1994, which made the manipulation of digital(ised) photographs easier than ever before (West). Nevertheless, participation in Bert is Evil was not open, as Ignacio was the only one posting images. Half a year after the site began, he started to receive submissions, but only a selected few made it to the site (Ignacio). Nevertheless, this did not stop the Internet from playing with the meme, and soon numerous parodies and mirror sites starting appearing, dedicated to the spreading of the "truth about Bert", even after Ignacio

Figure 2

A selection of humorous emoticons from the collection of David W. Sanderson

stopped updating the original site (Cassel).

In his books, Douglas Rushkoff alludes to the Rodney King tape multiple times as a "high-leveraged butterfly's wing" (25). Bert is Evil is another example. "Chaos can be disheartening" (Rushkoff 25): Ignacio never expected "the horror", as he phrased it, that would come from him trying to get featured in an underground Internet magazine and to make his friends laugh. On 5 October 2001, Photoshopped images of Bert and Osama bin Laden appeared on countless banners in a pro-bin Laden protest in Bangladesh (FoxNews.com). At that moment, the hurricane spawned, and "[f]rom his bedroom, Ignacio sparked an international controversy" (Jenkins 2006:2). In 2001, Ignacio was frightened by how "reality was imitating the Web[6]." Indeed, the dynamical system of world media (Rushkoff 25) and the convergence of different media platforms (Jenkins 2006) provide just the right space and atmosphere for memes to flow and be passed on in previously unexpected ways. Evil Bert was one of the first "children of chaos", and definitely not the last.

Yo Dawg I Herd You Like Memes: The Rise of the Internet Meme

The term Web 2.0 was coined in 1999 to describe a number of new technologies that seemed to be changing the landscape of the decade-old Internet. A misleading term, however; as Tim Berners-Lee pointed out, Web 2.0 is just "a piece of jargon", as the Web was always planned to have the possibilities that it offers now: connecting people around the world, sharing content and experiences. Something still changed around the turn of the millennium, and this shows in the story of Internet memes as well. Learning from such popular viral personal websites as Mahir Çağrı's[7], advertising agencies created the first instances of viral marketing, such as Super Greg by the Minneapolis based agency, Fallon Worldwide[8]. Memetics was gaining significance.

One of the most significant Internet phenomena in the early 2000s was *All Your Base Are Belong to Us* (fig. 4), a meme that spawned from the badly translated opening sequence of the 1989 arcade shooter game *Zero Wing*. The meme has been popular since 1998, but it has reached previously unimagined heights after November 2000, when the first Photoshop thread dedicated to the meme was opened on the forums of Something Awful. The thread reportedly had 2000 images, and that was only the beginning of a saga that later

involved even more manipulated pictures of "[s]treet signs, restaurant awnings, cinema fronts, advertising, cartoons, T-shirts, tattoos, golf balls inserted into turtles, all bearing this new phrase" (Johnston) uploaded to the Internet.

No remixed meme had reached such heights of virality before, and there are a number of reasons why this particular meme became so popular at that particular time. One secret for its success lies in the increasing generativity of Internet memes in the late 1990s and early 2000s. Remixed Internet memes are generative systems in that they are "a set of of tools and practices that develop among large groups of people" (Zittrain 74). In the case of Internet memes, one generative system is built on another generative system, the Internet (Zittrain deems this to be often "the best recipe"). In his book, *The Future of the Internet*, Jonathan Zittrain defines five principal factors that affect the generativity of a system or a tool: leverage, adaptability, ease of mastery, accessibility, and transferability (71). The more these qualities are maximised, the more contributors can take part in the system, and generativity can develop and be sustained.

The main leverage for creating memes is provided by graphics editing softwares and

the Internet (the generative layer below). Software make the creation possible by having the necessary functions. The Internet serves as the platform for sharing, where the meme can migrate, reach others and evolve. In a recent development, these leverages have even blended to make the process even simpler: this shows in the appearance of meme generators, the most famous being *Memegenerator.net.* These generators are "meme editing software" built into websites, making other software like Photoshop redundant as the whole process can be done on one platform (although this only works for certain types of memes).

In terms of adaptability, we have already seen a few different uses of Internet memes. The most obvious use is the meme as the vehicle for a joke – All Your Base Are Belong to Us is a perfect example. The emoticons are the first example for using them to express certain emotions and retain non-verbal conversational cues in a medium where the visual and audio channels are absent in communication. This use is also a recurring pattern in Internet memes; one modern example is *Do Not Want* (2005), which most often manifests as a reaction image macro, illustrating disgust and/or disapproval. Their value to marketing specialists and advertising agencies has also already been mentioned, and

Figure 3

Bert and some compromising pictures. The picture below is the infamous photograph from a Bangladeshi protest.

even more, newer functions and possibilities for Internet memes lie in the road ahead – to be discussed in later paragraphs.

As it has been mentioned before, one of the most important characteristics of remixed Internet memes is their simplicity, and such a simplicity that makes their creation easy with the available leverage. Most of them are made by using two functions at maximum: cut-copy-paste and text tool. The most widely used graphics editing software Adobe Photoshop went through crucial development in the years leading up to All Your Base Are Belong to Us. The functions needed for creating Internet memes have become considerably easier to master; this is not surprising as already from its initial release in 1990, Photoshop was marketed as a "mass-market, fairly simple tool for anyone to use" (Computer Arts). As it has been mentioned before, Photoshop 3.0 introduced layers, to make the manipulation of images easier. Photoshop 5.0 (1998) offered improvements in adding text to images, a crucial element of Internet memes. Photoshop 5.5 (1999) came with the option of adjusting image quality and size so that the image would be fit for Internet use – the 'Save For Web' function. Photoshop 6.0 (2000) again made the layers interface and the text tool more practical (West). Mastering the creation

of a meme is thus open to everybody, and the aforementioned meme generators are even easier to use with their pre-made templates and straightforward instructions.

The accessibility of Internet memes first depends on the accessibility of their natural habitat, the Internet. According to demographic reports published by NielsenNetratings.com, "more widespread possibilities of access to the Internet (…) can be dated from roughly 2000 onwards" (Knobel & Lankshear). The growing number of message boards, forums, and social networks offer a platform to share and enjoy Internet memes, and most require only a free registration. Due to it being marketed to the masses, the accessibility of Photoshop (as a creative tool) was also provided by keeping it at a low price and compatible with all operating systems (not to mention the emergence of peer-to-peer file sharing application in the early 2000s, where Photoshop is available for "free" download).

The last factor, transferability is related to the most important quality of memes: replicability. The simplicity of memes ensures that it can be learned, copied and changed according to the creator's wishes. The Internet offers visibility and unprecedented speed for the migration and evolution of memes. Images also transcend cultures more

easily than language, and even if there is text in the image, it is most likely to be in English, the language that "one out of four of the world's population speak (…) to some level of competence" (statistics of the British Council).

Apart from their generativity, an important reason for the success of All Your Base Are Belong to Us is its humour, which is a key component of the meme. It was the desire to continue this joke that sparked the "remixing epidemic" (Knobel & Lankshear), to spread this particular example of "geek kitsch humour" (Taylor qtd. in Knobel & Lankshear). Enjoying the ridiculous outcome of bad translation between languages (here from Japanese to English) is not a peculiarity of "geek culture", however. This type of humour had been popular for many years by then; it is no surprise that All Your Base Are Belong to Us has struck a chord with people on a scale wider than just subcultures. One celebrated earlier example is *English As She Is Spoke,* a Portuguese-English conversational guide written by Pedro Carolino in 1883, containing predominantly incoherent English phrases. A celebrated source of unintentional humour stemming from faulty translation, author Mark Twain heralded the work as a true classic[9]. The real difference between such works and All Your Base Is Belong to Us is in the reaction to the

humour – passive enjoyment has turned into active involvement in creating (and adding to) the joke.

All Your Base Are Belong to Us was popular enough to reach out of the circles of Internet subculture into the mainstream. The story was covered in multiple major papers in early 2001 (one example is the Guardian article referenced in this paper), and it is one of the most well-known Internet memes to this day. The reaction that crossed media platforms and swept through the world in a matter of days shows again the dynamical nature of the Internet and memes. "The tiniest change within the tiniest detail", such as the surfacing of the Zero Wing video at the right place and time turned the entire media world upside down for a few weeks (Rushkoff 24; Johnston).

Such dynamics provide the perfect environment for spreading false information and hoaxes, as it can be harder to tell what is real and what is not in a chaotic mediaspace. In September 2001, after the 9/11 attacks, a Hungarian man named Péter Guzli took an old picture of himself standing on top of the World Trade Center in New York, and with the help of Photoshop, added a plane heading towards the tower in the background. He sent it to some of his friends, intending it to be just a bit of a joke. The image went viral, however, and a

story started circulating about how a camera was found in the debris after the collapse of the towers, with a picture on it of a tourist who had his picture taken just seconds before collision. The photograph was sent around en masse in emails in all seriousness[10], inciting all kinds of conspiracy theories. The hoax was so efficient, there are people to this day believing the picture was genuine.

On 26 September 2001, the generative machine started working, and a thread appeared on Something Awful, just like in the case of All Your Base Are Belong to Us. Guzli (although his identity still unknown) was dubbed the *Tourist of Death* (touristofdeath.com is the website dedicated to the phenomenon and collecting the remixed images of the meme), and he was photoshopped into photographs of countless other historical and fictional tragedies, from the assassination of Abraham Lincoln to the bomb-rigged bus in the 1994 movie *Speed* (fig. 4).

Although Guzli came forward in November 2001 and admitted to the image being manipulated (Index, 2001), the news of the image being fake did not spread as efficiently as the original hoax, or even the remixes. Guzli issued a public apology in 2011, a few days before the ten year anniversary of the attacks,

saying how sorry he was about a private joke going wrong as the police was still receiving calls about the photograph[11] (Orange News). Reality and the Internet entwined dangerously again, and Tourist Guy turned out to be another butterfly's wing, photoshopped to stand at the edge of chaos. All Your Base Are Belong to Us came from an obscure video game already a decade old during the meme's rise to popularity, while Tourist Guy stemmed from an event very real when it appeared. As Rushkoff says, we need to adapt to this life of chaos, of which the Internet meme culture is just a small fraction.

Little Fatty (known as Xiao Pang in China; fig. 6) also came from a similarly unexpected source: a private photograph of 16 year old Qian Zhijun from Shanghai. Originally posted on the Internet by one of his teachers in 2002, the image soon ended up in numerous Chinese forums, and people started photoshopping Qian's face onto celebrities, especially on movie posters. Qian quickly became a nationwide celebrity, and in early 2003, the remix meme reached US forums, and soon he was known worldwide. Little Fatty is one of the earliest instances of a meme spawning from private digital photographs uploaded to the Internet.
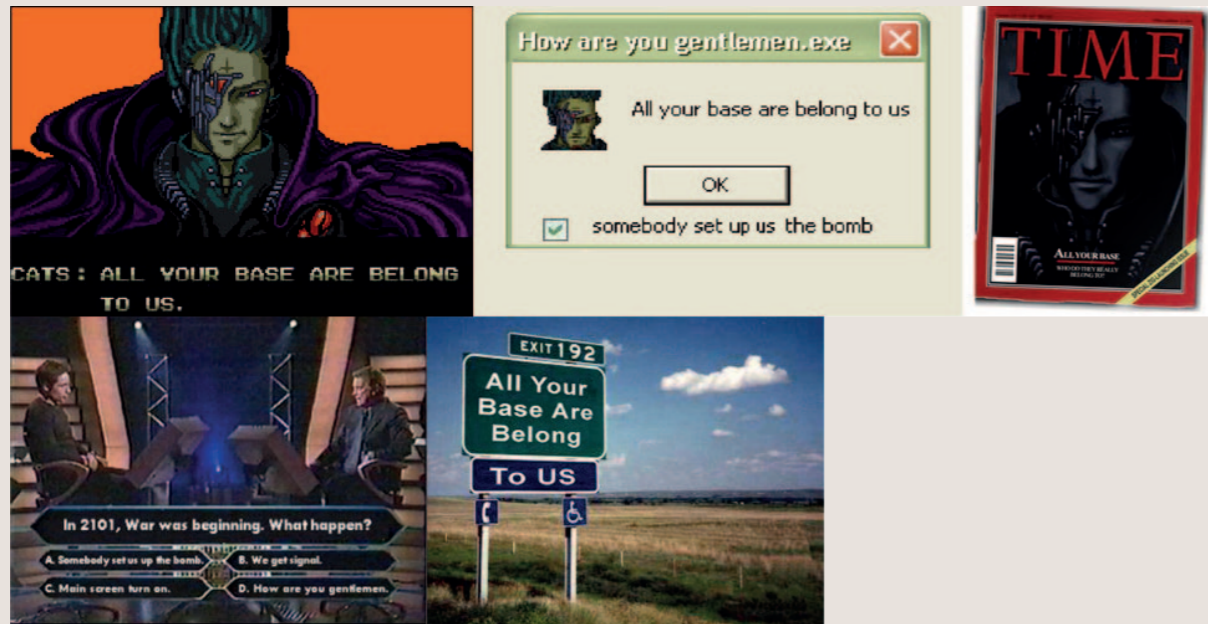
Figure 4
The original screen capture from Zero Wing, and some of the variations.

The advances in the technology of digital photography, as well as its accessibility to a wider public, resulted in an increasing number of private images appearing online, right at the meme community's disposal. Alongside domestic photographs of people, by the mid-2000s, it was the large amount of pet photos uploaded[12] that played a part in formulating new trends in Internet memes. The two famous instances *Advice Dog* and *LOLCats* are both said to originate from 2006, and they proved very influential in shaping today's meme culture.

Advice Dog is the first example of the *Advice Animals* (fig. 7), a series of Internet memes all based on the same format: a cut-out of an animal or the head of an animal, pasted over a generic colourful background, with text added above and/or below the face. The original Advice Dog was used as a reaction image in a thread on the Mario fansite *The Mushroom Kingdom*. The creator of the thread was asking for advice on having his first kiss, to which user T.E.M. replied with an image of his own dog's head on the colour wheel background, and commented 'Just do it, man'. This original advice was soon followed by not only remixed versions, but multiple spin-off memes featuring different animals (and people[13]), such as the *Socially Awkward*

Penguin, Courage Wolf, or *Foul Bachelor Frog.*

The history of LOLCats (gif. 8) also began in 2006, possibly on PHP and vBulletin message boards (e.g. General Mayhem), but the popularisation of funny cat pictures happened through and on 4chan[14], especially in their weekly feature *Caturday*[15]. Most of these images were image macros with the text written in lolspeak[16]. *I Can Has Cheezburger?*, the most popular LOLCat site to this day, opened on 11 January 2007 and with that, funny cat pictures were undoubtedly launched into the mainstream.

The popularity of the Advice Animal series and LOLCats can be attributed to them being a digital reimagining of anthropomorphic animals traditionally in folk culture. In her investigation into the appeal of LOLCats, Miltner noted that people identify with LOLCats; they often see themselves in the animals, and in the situations they are facing. This notion is also the basis of the beast fable genre, which was "a particularly popular continental literary type throughout the Middle Ages" (Treharne 332), and in which animals "speak and behave like human beings in a short tale usually illustrating some moral point" (The Concise Oxford Dictionary of Literary Terms). As Howard Needler writes, "the identification of humans

Figure 5

The Tourist of Death "photographed" on the World Trade Center and at various historical tragedies.

Figure 6

The original photograph of Qian and some of the remixed images. This meme still appears sometimes, as the image on the far right references a 2012 news story.

with animals is a reflexive operation of humans seeking to view themselves by 'holding the mirror up to nature,' as it were- albeit to a nature manipulated by human agency" (426).

It is no question that anthropomorphic animals have always been a significant part of culture, and since the Middle Ages they have appeared in fairy tales, animal jokes and Disney films among others[17]. Animals in these stories often have a stereotype attached to them (many of which transcend cultures), such as the cunning fox, the brave and noble lion, or the wise owl. These memes can be considered the source of Advice Animals, which similarly have certain characteristics attributed to them. The reason why cats as LOLCats are endowed with so many different qualities probably stems from the wide variety of stereotypes associated with them traditionally too, such as the cool cat, the lazy cat, or the evil (black) cat.

Advice Animals and LOLCats also resemble comics, which Rushkoff argues are our key to understand the modern language of visual information – and that includes the language of Internet memes. Just like in comics, where actions, emotions and events are iconic (Rushkoff 57), the ideal that an Internet meme wishes to represent is also done iconically; thus making comics in several ways a precursor to

remixed Internet memes. The *Rage Comics* phenomenon is a very literal example for this parallel. The first of these stereotypical stock characters created with simple drawing softwares, *FFFUUUU Rage Guy*, appeared on 4chan in 2008 in short comics form. This was later followed by a subreddit on Reddit in January 2009 where people could upload their own comics, and soon a great number of new characters were introduced by contributors in and outside Reddit, such as *Forever Alone Guy, Trollface, "Y U NO" Guy* and *Cereal Guy* (fig. 9). Many of these iconic characters soon were turned into Advice Animal-style memes as well, showing the connection between the two genres.

Rushkoff explains how one of the most bizarre aspects of the Marvel Universe is that superheroes from different comics set in different times, places and fantasies often appear together in one comic strip; even the drawing styles might differ inside one frame (60). In a way, this is what happened to Rage Guy and his fellow characters when they were inserted into the completely different format of Advice Animals. However, just like Marvel characters "[a]lthough they are divorced of their original contexts, the characters maintain their own iconic identities and traits"

(60); similarly, memes are often purposely juxtaposed in one single image but they still retain their character. By communicating mostly through icons, both comic books and Internet memes are teaching readers about understanding such a language – "to recognise new patterns or new combinations of established ones" (Rushkoff 56) – as well as inspiring them to communicate in a similar fashion.

I Can Has Cheezburger and Public Opinion

There exists a LOLCat image macro which reads "Memes: inside jokes for people with no lives." For the longest time, Internet memes were seen as a strange output of an Internet subculture, which are separated from reality except on those occasions when a mainstream news article reported on the unusual ways people spend their time on the Internet. In the "chaotic mediaspace" (Rushkoff 49), however, more and more people are in on the online inside jokes known as Internet memes. Websites such as *9GAG* (2008) and *Memebase* whose main profile is to feature user-uploaded Internet memes are one of the major, most

frequented humour sites today (9GAG has an estimated 4 million unique visitors every month, and as of November 2012, it has an Alexa Rank of 252).

As Internet memes are becoming a more and more conventional type of humour, their use is becoming more varied. For a long time, Internet humour was mostly focused on global topics such as sex, gender and animals (Shifman) – fitting for the "global village", greatly outnumbering local topics like politics and sports. The visual form of Internet memes and the overwhelming use of the English language as the lingua franca (the same reasons that make Internet memes an accessible system) have also played in a role in their global nature. Starting from the late 2000s, however, online meme culture has seen a continuous increase in more localised Internet memes. The ongoing process of "glocalization" (Roberston qtd. in Shifman & Thelwall), or blending of global and local, turned the Internet meme into a *global* vehicle (reflecting global culture with its Western influences) that allow people to talk about their *local* topics, closer in time and space (and often language), alongside the more universal themes.

Remixed memes also showcase this change, as seen in the memes that talk

about celebrities and mainstream popular culture. On 13 September 2009, at the MTV Video Music Awards, as singer Taylor Swift was accepting her award for "Best Female Video", rapper Kanye West went up stage, took the microphone from her and gave his infamous speech about how Beyonce should have won the award[18]. The event turned into a scandal, to which the reaction of the Internet was the *Kanye Interrupts* meme (fig. 10).

Kanye Interrupts and similar memes point to a new trend in Internet memes, which is a result of the increase in cognitive surplus, a novel resource described by Clay Shirky. Cognitive surplus is created from the increasing free time available to educated population, and the spread of public, participatory media (Shirky 27). The Kanye West scandal was not only gossiped about but people put time and energy into creating new content, for example, by using the generative system of Internet memes. As Shirky notes, production and participation can bring enjoyment, and the output is generally shared: a similar thing can be observed with Internet memes, as they are created by millions of enthusiasts around the world.

In the chaotic, dynamical mediaspace, cognitive surplus can be a useful asset in processing the large amounts of information

fired at the population at all times. Memes show that, even if at a low level, even if just for the sake of a joke, more and more people are engaging with the news and what is happening around them, trying to make sense of it all. The generativity of Internet memes allows instant reaction and encourages virality, so people can comment on the most current issues, events and people, as well as find an audience. Memes can "tell the news": sites like Memegenerator reveal that, to this day, the most popular memes at any given time will likely cover important news stories.

Capturing the world in the form of Internet memes fits perfectly into the everyday aesthetics of our age. What Susan Murray realised while researching Flickr and digital photography rings true when looking at Internet memes too. She describes our new everyday aesthetics as "fleeting, malleable, immediate", where one image lasts until the next one appears. Johnston already noted this in relation to All Your Base Are Belong to Us, where not only the life of one image is short but of the meme itself. The information overload of the current media does not permit longer engagement with one piece of news, as the next hour will supply with many new ones. The Internet meme (and its popularity) is a

Figure 9

Clockwise from top left: Y U NO Guy, Forever Alone Guy, Cereal Guy and Trollface

Figure 10

Examples of the Kanye Interrupts meme. On the right, the Bayeux Tapestry meme and a remix with the Kanye Interrupts meme.

Figure 11

Examples of Sarkozy Was There

Figure 12

1. LOLCat reaction image mentioned by Zuckerman; 2. Hungary: "Brusseles in not Moscow... unfortunately" - parodying the stereotype of the Hungarian "Socialist Pensioner"; 3. Netherlands: a comment about Dutch politician Geert Wilders; 4. United States: the Binders Full of Women meme - criticisng the offensive statements of Mitt Romney; 5. China: calling for the freedom of lawyer and civil rights activist Chen Guangcheng

poignant illustration of this condition.

On 8 November 2009 a photograph was posted by then French president Nicolas Sarkozy's official Facebook page of the president at the Berlin Wall on the day it was taken down in 1989. Already the same day, several journalists raised concerns about the photograph being genuine, and inspired by a user comment on their site, Le Post announced a contest for the best parodies of Sarkozy's misfired attempt to raise his reputation on the social network. The Internet meme *Sarkozy Was There* (Sarkozy y était) was born, where mostly French users created manipulated pictures of Sarkozy appearing at famous historical events (fig. 11).

Sarkozy Was There brings yet another comic-related genre into mind: the political cartoon. Similarly "succint, sharp analyses of the events unfolding around us" (Dougherty), Internet memes seem to be the digital age political cartoons, with infinitely extended participation. Addressing political and social issues in a humorous and iconic form, cartoons and memes alike can grab "attention in a way that an article does not" (Dougherty). As Zuckerman phrased it: "My single favorite comment on SUP's acquisition of LiveJournal is a lolcat, which sums up the situation better

than any angry post could have."

Sarkozy Was There was one of the first examples of a trend that continues to this day. In 2005, Knobel and Lankshear found a mere 5 memes to be social commentary (employing humour) out of the 19 analysed in their study. They reported that these memes were generally high fidelity memes (meaning such content was only passed on and shared), while evolving memes were the vehicle mostly for online jokes with little to no serious content. People often turn to popular culture and humour to find answers to societal dilemmas (Rushkoff 68); in the early 2010s, the Internet meme is one of the ways people are addressing such issues. Their nature and virality made Internet memes a fitting genre to express opinions, encourage participation, and stand up for a cause, be it in France or China[21] (fig. 12).

Internet memes showcase a new kind of understanding of the world, and a new kind of creative and social outlet. In 2012, a student of the Radboud University of Nijmegen created the Facebook page *Nijmegen Uni Memes* dedicated entirely to Internet memes about "[w]hat's happening at the [university]". In such communities, general gossip, university rivalry,

as well as discussions about exams and papers all happen online and by using Internet memes that users submit to the page. Nijmegen Uni Memes is only one of the numerous university meme pages that launched on Facebook, which show how Internet memes have become a part of vocabulary for Internet users. In 2012, the Internet meme is undoubtedly one of the most widespread modes of online communication, and it is not only the emoticon any more.

This development also often serves as proof of the idea that the attention span of the younger generations is decreasing dangerously. Rushkoff not only points out that this is relatively undocumented, but argues that "the ability to piece together meaning from a discontinuous set of images is the act of a higher intellect, not a lower one" (49-50). Internet memes would not be this popular if users did not know how to read them. Similarly to (political) cartoons, memes "require knowledge if the viewer is to 'get it'" (Dougherty). Remixed Internet memes are intertextual by nature, and consequently, people who enjoy and create memes - like readers of cartoons and comic books - are drawn towards a more non-linear way of thinking, because of the "icons, gaps, and discontinuous relationships" they are faced with (Rushkoff 60).

Problem?: Conclusions

Shifman says that humour can be "a unique key for the understanding of social and cultural processes." Internet memes also offer this unique insight into the changes in our perception of the world, the media and our own lives. Although cut-and-paste techniques are nothing new, "such dislocated imagery" has never before been so conventional and in the mainstream (Rushkoff). Internet memes are only a small fraction of the converging mediaspace, where "stupid viral shit" (Urban Dictionary) is just as visible as anything.

Rushkoff writes that as members of a chaotic mediaspace, everybody will have to be "equipped to absorb the data flying across our screens, make sense of the postlinear grammar with which it is formatted, and participate in its production as amateur journalists" (49). He claims children of the late 20th century – the "children of chaos" – are already doing this, and they are ready to face what lies ahead in terms of social and cultural processes. They are making memes. ∎

Full image version of this paper at lindaborzsei. net.

Notes

1

Definition by Lord Grimcock, submitted on 23 June 2009 to Urban Dictionary.

2

An image with text (generally white letters with black borders, and in Impact font) superimposed. Most widely used format for e.g. LOLCats.

3

A number of scholars even applauded this quality of the Internet, claiming that it restored "the power that the written word has lost in the 20th century" (Shifman & Blondheim qtd. in Shifman).

4

A good example is [:P] which is generally attributed to be a sign of teasing, flirting and sarcasm (Dresner & Herring qtd. Yus 166).

5

This collective strain was already characteristic of websites, and not only links to interesting content but collecting visual content. One striking, also humorous example was *Fat Chicks in Party Hats* (2000) and this pattern reappears to this day, on sites such as Tumblr (e.g. *Kim Jong-Il Looking at Things* or *Nick Clegg Looking Sad*). Remixed meme versions include *Kim Jong-Il Dropping the Bass* and *Selleck Waterfall Sandwich*.

6

Ignacio was also not the creator of the Bert-bin Laden image, which came from a fansite. On 11 October 2001, he inactivated his own (the original) Bert is Evil website, as it was not "contained and distanced from big media" any more.

7

Mahir was one of the first Internet celebrities. In 1999, he created his personal website, where he introduced himself in bad English and posted domestic pictures of himself. The unintentional humour of the website made it into one of the first viral websites in Internet history.

8

Their most notable project include three fictional characters with their own homepages: *Super Greg, Roy (Born to Destroy)* and *Curry* (a.k.a. Rubber Burner).

9

Mark Twain wrote in the introduction to the US edition of the book: "In this world of uncertainties, there is, at any rate, one thing which may be pretty confidently set down as a certainty: and that is, that this celebrated little phrase-book will never die while the English language lasts. Its delicious unconscious ridiculousness, and its enchanting naiveté, as are supreme and unapproachable, in their way, as are Shakespeare's sublimities." (1883)

10

Know Your Meme quotes the original text accompanying the image: "We've seen thousands of pictures concerning the attack. However, this one will make you cringe. A simple tourist getting himself photographed on the top of the WTC just seconds before the tragedy … the camera was found in the rubble!!"

11

His full apology reads: "It was a private matter – I assumed my friends would recognise me and call me to see if I was alright, but they didn't, they posted it on to other friends and suddenly it was all over the world. … I am ashamed that even now the police still get calls about it, I never did it for money and I never intended to cause any harm to the real victims or their families … I didn't really stop to consider the consequences and never thought it would go outside of my small circle of friends."

12

As Ethan Zuckerman ironically phrased it: "Web 1.0 was invented to allow physicists to share research papers. Web 2.0 was created to allow people to share pictures of cute cats." (2008)

13

Notable examples include: *Success Kid, Good Guy Greg, High Expectations Asian Father* and *The Most Interesting Man in the World*.

14

The website that is considered to be the home of countless Internet memes was launched on 1 October 2003. Also known as the base of Anonymous.

15

The earliest archived thread for Caturday on 4chan was started 26 December 2006, but this is quite possibly not the first ever thread dedicated to cat pictures on the /b/ board. The Livejournal community *Caturday: Post Some Fucking Cats* (caturday.livejournal.com) was created 5 February 2005, also encouraging users to post cat image macros.

16

In her thesis on LOLCats, Miltner describes lolspeak as "the *lingua franca* of the LOLCat world. Its exact origins are unknown, but it appears to incorporate elements of Motherese (baby talk), AOL Chat Speak ("BRB", "LOL") and Leetspeak."

17
Anthropomorphic animals also appeared in a series of postcards created by Harry Whittier Frees in the early 20th century, which featured the animals dressed up in human clothes, posed in human situations. They even had humorous captions, which also makes them a progenitor of LOLCats.

18
West's entire speech was turned into a catchphrase by the Internet: "Yo Taylor, I'm really happy for you, Imma let you finish but Beyonce had one of the best videos of all time...one of the best videos of all time!"

19
An Xiao Mina has analysed many Chinese Internet memes, calling them social media street art, and heralds their use in that they can avoid censorship and still provide political commentary on a range of issues.

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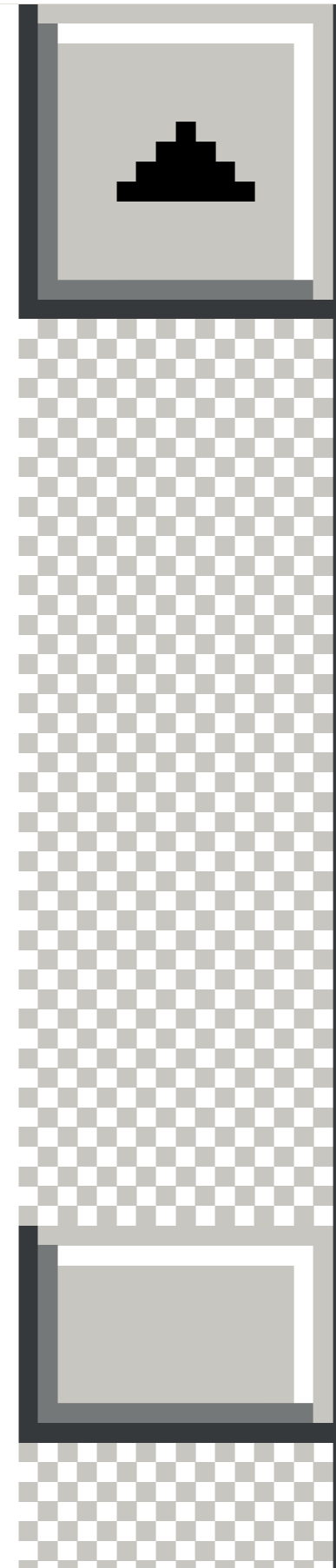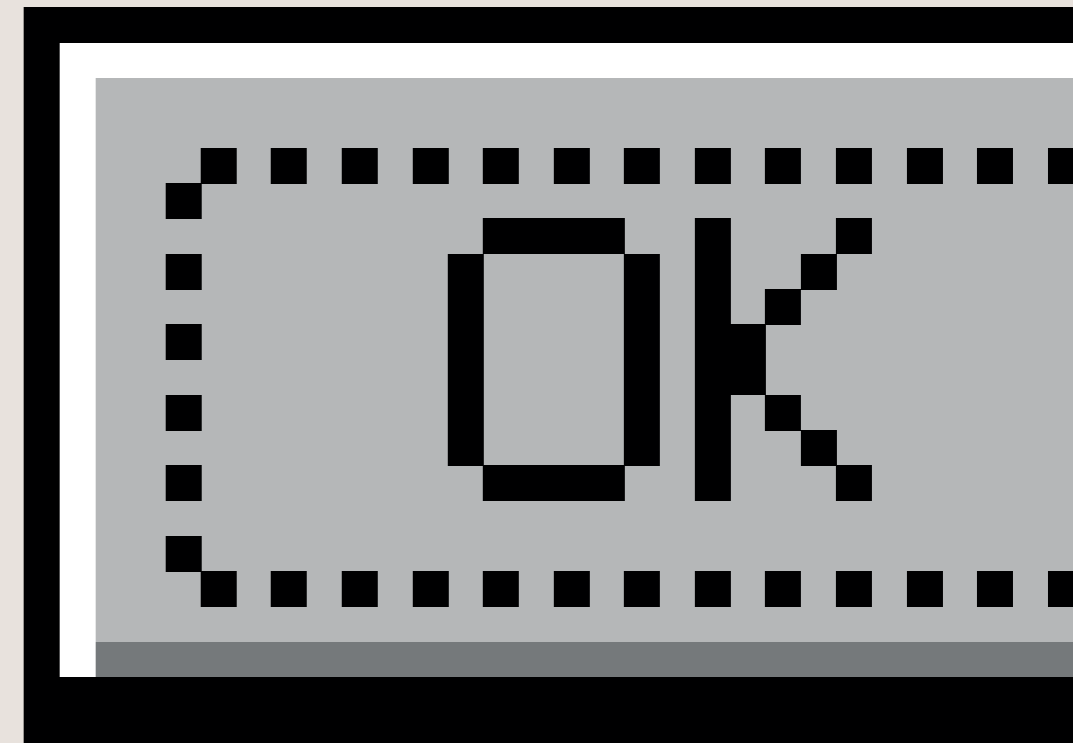
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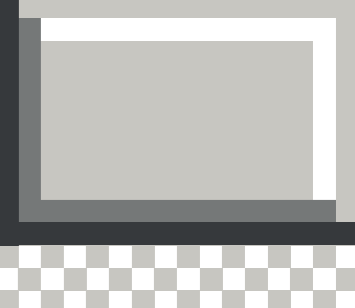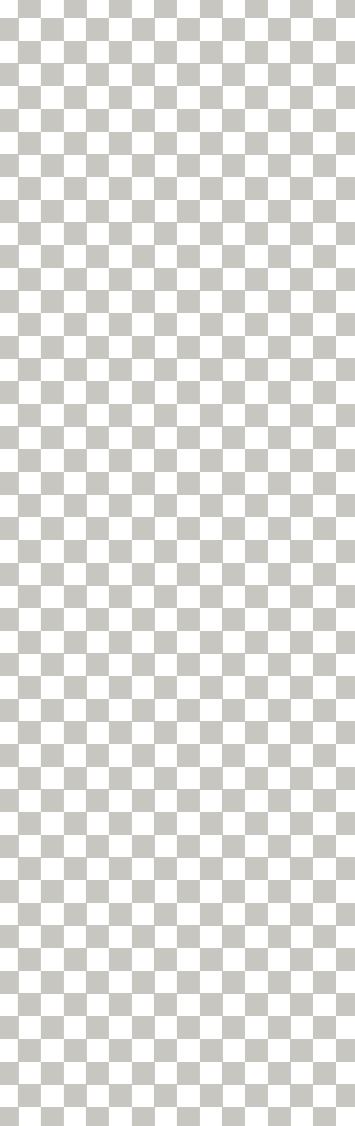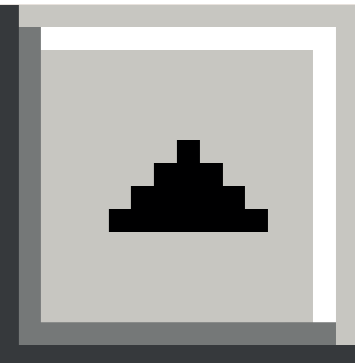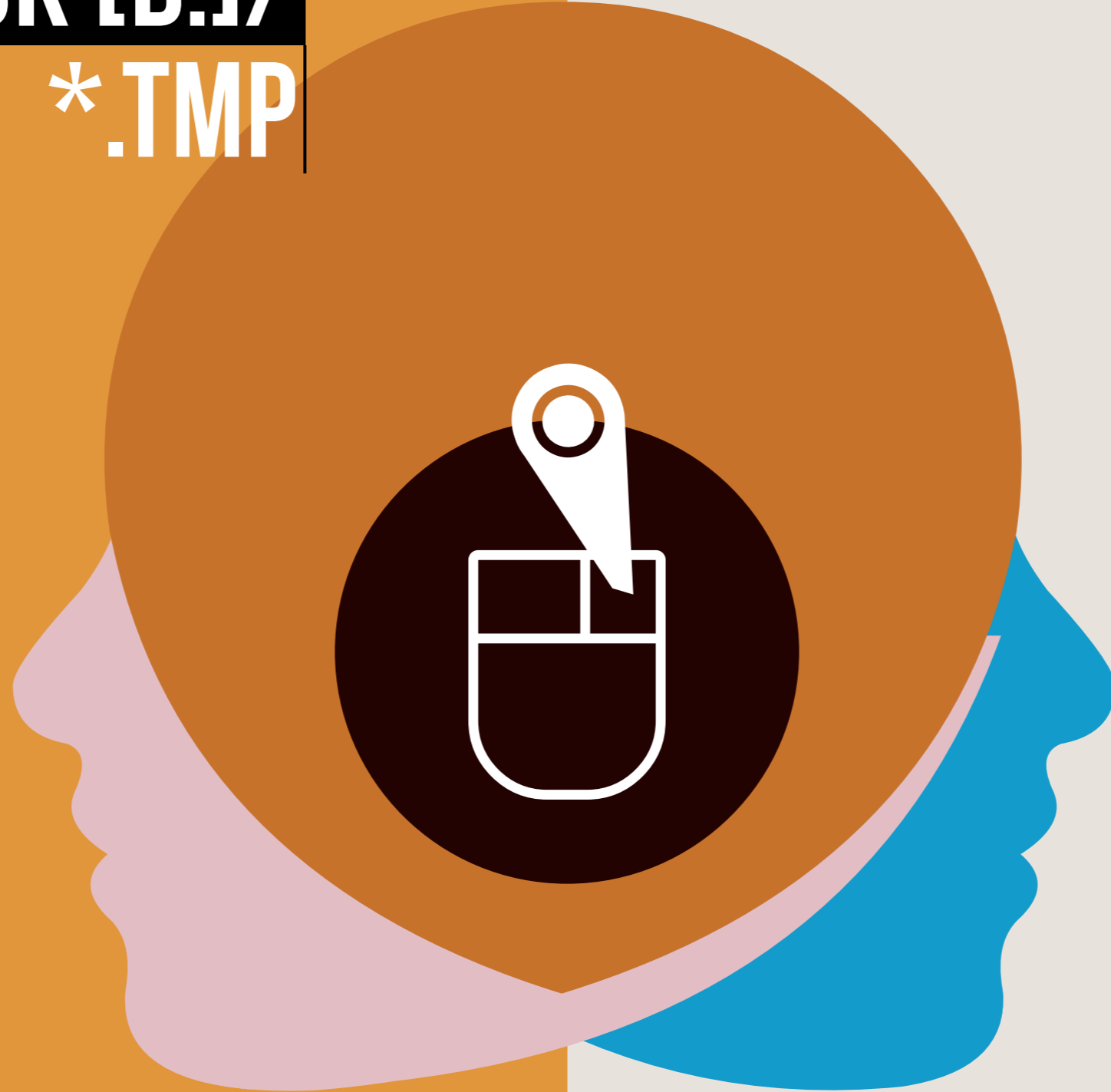
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WHERE/
TO GO_

March 22 - 23, 2012
Unlike Us #3 Social media: design or decline

TrouwAmsterdam, Amsterdam
Conference, workshops, party and hackathon

networkcultures.org/wpmu/unlikeus/

April 22 - 28, 2012
Big Data Week Utrecht (Greenberry + SETUP)

City centre (locations TBA), Utrecht
Symposium, workshops, screenings and hackathon

bigdataweek.com/utrecht/

April 24 - 25, 2012
Festival of Games #9

De Overkant, Amsterdam
Knowledge, networking and deals

festivalofgames.nl/

REVISITING/ THE GOLDEN_LIST

Of new media titles

[AND YOU'RE INVITED]

In 2006, graduate students and teachers at the Utrecht New Media & Digital Culture research program presented a list of books, films, movies and games that we considered essential for understanding new media. This Golden List of New Media Titles is now up for a thorough review.

Together, we compiled the Golden List of New Media Titles. The extent to which those titles represented the aesthetic and logic of new media was crucial for adding them to this collection. We deliberately avoided following short-lived hypes and popular choices. Our aim was to look for texts, movies, music and games which are representative of the qualities of new media and which would also stand a test of time. As such they would constitute a canon of new media titles, a cultural compendium of new aesthetics, media practices, technologies and its discourses. However, a canon is never stable but a temporary representation of what a specific cultural formation considers as their key works. We were not aiming for dogmatism, but rather looking for a common ground to develop a discussion about new media culture. Reaching out to our peers and our students, we perceived this list as a canon for producing an ongoing debate about a key works on new media; we want to perpetually revisit and rethink which titles are suited best to represent our field and the media practices developing with the diffusion of information and communication technologies.

After over 6 years, it is time to lead this discussion to a thorough revisiting of our 'Golden List' list, and to create in a collective effort a new compendium. We invite colleagues and students to participate by sending in their choice of literature, movies, music and games. Please state why the titles of your choice are essential for representing and understanding new media. Please send in your suggestions no later than March 30 to m.t.schaefer [at] uu.nl

The new list will be published in April 2013 at www.newmediastudies.nl ∎

Mirko Tobias Schäfer
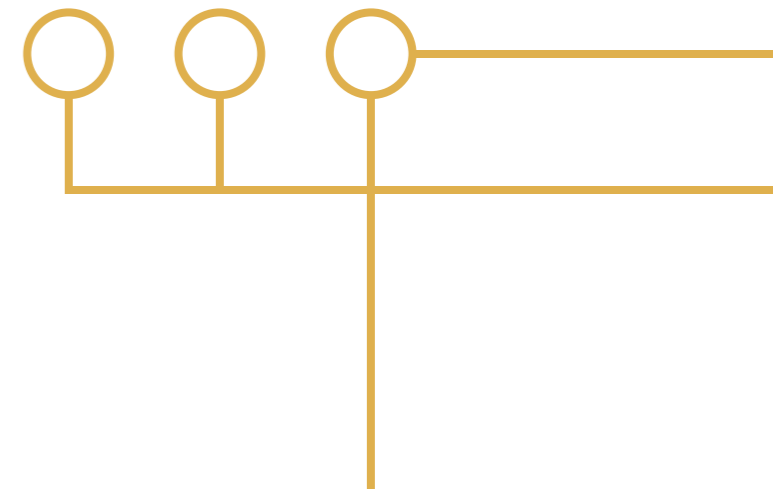
UTRECHT DATA SCHOOL

A research initiative
TO ANALYSE AND VISUALIZE DATA

The Utrecht Data School is a research initiative to analyse and visualize data. Using data from social media platforms or analysing hyperlinks of websites reveals social interaction and patterns of communication. ¶

Using digital media means creating 'digital' traces that can be employed for investigating how media are used, how users connect through online platforms, to what extent established media are intertwined with the emerging social media. In cooperation with NGO's, public administrations and companies, the Utrecht Data School investigates such data.

The Utrecht Data School answers to the growing interest of students to learn more about how to analyse the plethora of data that emerges online. Simultaneously the Utrecht Data School helps public administrations, NGO's and businesses to make sense of the data concerning their activities. Many organisations are unaware to what extent those data can help to understand debates, interaction with other parties and participation of users.

The first edition of the Utrecht Data School is integrated into the course Participatory Culture and New Media taught by Mirko Tobias Schäfer. The case studies fit very well the overall objectives of the course to investigate the profound transformation of public sphere, socio-political debates and fragmented audiences in the age of connected media.

Partners of the first edition are the Ministry for

Infrastructure and Environment (Ministerie Infrastructuur en Milieu http://www.rijksoverheid. nl/ministeries/ienm), Unicef (www.unicef.org), Emma Communicatie (www.emmacommunicatie.nl/), the PO Raad (www.poraad.nl/) and Utrecht University (www.uu.nl). As technology partner, Amsterdam-based media metrics analyst Buzzcapture (www.buzzcapture.com) provides support in data aggregation and further media analysis. Their assignments for student research revolve around the transformation of organisations in a knowledge economy and how technology and media practices allow improvements in knowledge organisation, information distribution and how to reach out to audiences and external partners. "Students have the unique opportunity to learn 'on the job' how to make sense of data, how to interpret and to contextualise them" says New Media & Digital Culture programme director Ann-Sophie Lehmann enthusiastically. "And we have the chance to teach them skills they will need in their carreers and provide them additionally with the critical mindset to question tools and data, which will be a key skill in the emerging information society."

Digital Humanities

Besides the applied results of the case stud-

ies, the Utrecht Data School explicitly serves the implementation of digital humanities into the curriculum of new media research. Applying digital methods to the analysis of media phenomena affects traditional research methods in the humanities. While these methods are very helpful in gathering information, analysing data and presenting results, they also stimulate a critical thinking about the role of technology in epistemic processes.

Joost Raessens, who holds the chair of media theory at Utrecht University is positive about the new initiative: "Using new methods to analyse and understand the digital realm is very important for media departments. With the Utrecht Data School, we aim to structurally integrate the related key practices into our curriculum and simultaneously provide a platform for research activities." That way the Department for Media and Culture Studies at Utrecht University shapes its Digital Humanities profile. The practices will be seamlessly integrated into research efforts on digital citizenship, game studies, media audiences and participatory culture. Revisiting critically the methods and tools used informs the study of epistemic cultures and the role of data visualizations in our knowledge economy.

Smart organizations

The Dutch government has recently issued a policy for defined top sectors of the knowledge economy for intensified collaboration between the private sector and universities. Contrary to the formal processes of collaboration in that area, the Utrecht Data School is a bottom-up initiative that operates unbureaucratic, fast and maintains a low threshold. "These are mainly student projects, which can be set up quickly and executed within ten weeks." argues Thomas Boeschoten, one of the initiators of the Utrecht Data School. "Our partners are interested in working with students, because they provide a fresh and open-minded view on the topics we investigate. They also bring in their distinct cultural knowledge about the digital world." The partners appreciate the open brainstorm and hackathon sphere of the venture. For both, the students and the partners, this platform bears many opportunities. Organisations can meet potential employees and the students receive an impression of potential careers and the expertise needed and expected there. The initiative emphasises that their activities do not compete with professionals in the field. "What we do is fundamentally different" says Mirko Tobias Schäfer. "We can afford to play with the data, to think from various ap-

proaches and to experiment with various tools and research questions. We help organisations to think broader about the quality of data they have and to formulate specific questions of research queries. We help them to think about their media practices and their position in a societal discourse in general. Eventually, they can make a very informed decision on which (commercial) specialist to approach for specified analysis."

Utrecht Data School is a research initiative at the New Media & Digital Culture Programme at Utrecht University: www.dataschool.nl ∎
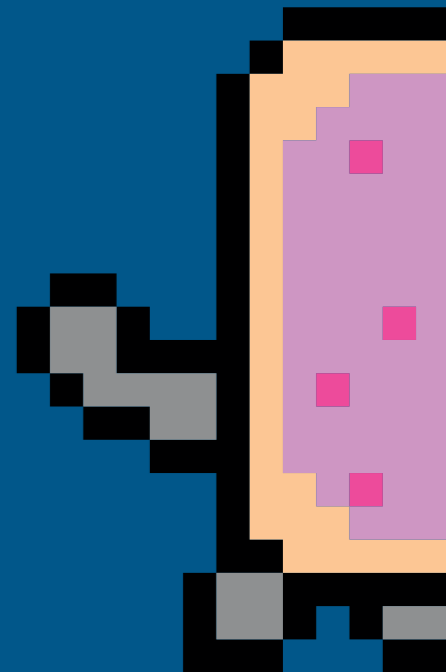
The Utrecht Data School team:

Lisette van Blokland (project manager)
Thomas Boeschoten (instructor)
Dr. Mirko Tobias Schäfer (instructor)

TUNE__IN
HELP_OUT

We need your help putting this together

The NMDC magazines are put together by our students and alumni. We're still looking for enthusiastics of all kinds to join the team; project coordinators, designers, illustrators and especially web developers for upgrading the current website. Want to find out if you can contribute as well? Please contact Frank-Jan van Lunteren (info [at] fjvanlunteren.nl) and join us. Onwards to Magazine no. 8!

COLOPHON/
NO.7

About:blank

**THIS IS A STUDENT INITIATIVE WITHIN THE
NEW MEDIA & DIGITAL CULTURE MASTER PROGRAMME
DEPARTMENT OF MEDIA AND CULTURE STUDIES, UTRECHT UNIVERSITY**

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