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Article

Mobile Cameras as New Technologies of Surveillance? How Citizens Experience the Use of Mobile Cameras in Public Nightscapes

Tjerk Timan

University of Twente, The Netherlands.
T.timan@utwente.nl

Nelly Oudshoorn

University of Twente, The Netherlands.
N.e.j.oudshoorn@utwente.nl

Abstract

In Surveillance Studies the terms 'sousveillance' and 'inverse surveillance' describe forms of surveillance that have a bottom-up and democratic character. However, in this paper this democratic notion is questioned by looking into practices and experiences with both Closed Circuit Television (CCTV) and mobile cameras by Dutch citizens. By intervening in the nightlife district of the Rotterdam[1] city centre, data has been gathered on both mobile- and CCTV camera confrontations. From this, an exploration is made into how mobile cameras are experienced in the nightlife landscape. Comparing these experiences with CCTV provides insight into new surveillance issues that emerge due to the mobile camera. The perspective of analyzing surveillance technologies as hybrid collectives that may take different shapes in different places, allows for a contribution that attempts to improve our understanding of the current changes in the surveillance technology landscape.

Introduction

In the last decade, industrialized countries have witnessed an increase in surveillance by different forms of technologies. The increased fear in the West since the 'war on terror' has provided fertile grounds for surveillance industries to expand both in depth (advanced technologies) as well as breadth (an expansion of spaces to be 'surveilled'). Furthermore, in public space, we have seen an increase in Closed Circuit TV (CCTV) camera usage.[2] Most importantly, surveillance is no longer restricted to fixed CCTV cameras. Since the introduction of personal media devices, including mobile phones equipped with cameras and pocketsize photo and film cameras, public spaces are invaded by technologies that bear the potential to act as surveillance technologies. Due to an increase in functionality of these devices, more and more mobile cameras are carried around by citizens which leads to an increase of bottom-up recordings (movies/pictures) of public spaces. These recordings can be publicly shared on local computers, between phones, or on the internet, thus becoming a form of Open Circuit TV (OCTV).

Although both fixed and mobile cameras can produce images of public spaces, there are important differences between them as well. Whereas CCTV is put in public space by governmental or private sector

1 Rotterdam is the second largest city in the Netherlands.

2 See for instance Norris and Armstrong (1999) and a recent Dutch study by the CBP: *Camera's in het publieke domein. Privacynormen voor het cameratoezicht op de openbare orde.* College bescherming persoonsgegevens, Den Haag, november 2004.

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agencies, thus representing a top-down form of surveillance, mobile cameras are used by individual citizens and represent a bottom-up form of recording and distributing images of public spaces. Equally important, there is a major difference in agency granted to citizens. Although both technologies enable surveillance of public spaces, CCTV cameras do not delegate agency to the public. In this form of surveillance, individual citizens are configured as passive subjects.[3]

In contrast, OCTV cameras configure the citizen as an active participant—the watched are equipped with potential surveillance tools. Consequently, surveillance is no longer solely in the hands of formal surveillance agents.

To be clear, although OCTV cameras may be used as surveillance tools, they are not introduced as such. Mobile camera devices are used for a wide variety of purposes, particularly for the leisurely recording and sharing of images. Nevertheless, the capacity of OCTV to produce and circulate images of public spaces, including the people who populate these spaces, facilitates the use of mobile cameras as surveillance tools. In current urban nightscapes,[4] which will be the focus of this paper, citizens visiting these spaces are not only being watched by anonymous CCTV cameras but also by OCTV cameras of other visitors in the city centre during the night. These new recordings are increasingly used as a method of surveillance by institutions, such as the police, exemplified by the use of citizen-made recorders put online that enable the police to identify felons and victims for solving crimes.[5]

Despite the growing role of OCTV in surveillance, most Surveillance Studies still focus primarily on CCTV and other top-down technologies.[6] This paper addresses this gap by exploring how nightscape visitors relate to OCTV cameras. Although their recordings of these spaces maybe used as surveillance tools, citizens making these movies might not link their activities so strongly to the realm of surveillance. But even before the act of sharing, the act of filming in a public nightscape can already have an influence on this nightscape and its visitors. We may thus expect that these bottom-up devices change the experience of surveillance in public spaces and current surveillance practices. The central question of this paper focuses on how citizens experience these mobile cameras. More specifically, we aim to explore whether and how OCTV is perceived as a form of surveillance and how this compares to citizen's perceptions of CCTV.

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3 Although the differences between CCTV and OCTV mentioned here hold for most of the camera technologies currently used in public nightscapes, more recently introduced CCTV cameras do not fit in this categorization. Some CCTV systems, like *Internet Eyes* for example, use the public to monitor them, whereas other public space CCTV technologies are streamed so that anyone can watch and thus report matters but these can still be government systems. In other words, the agency of citizens can be part of state controlled 'CCTV' as well. We thank one of the three anonymous reviewers of this paper for drawing our attention to these novel CCTV technologies.

4 We use the term nightscape to refer to nightly public spaces in city centres where bars, discos, cinemas, etc. are spatially clustered. The selection of urban nightscapes is related to the focus of the overall project in which this research is conducted (see endnote 9). Although we are aware that mobile cameras may be used and experienced differently in other contexts, like demonstrations for example, we restrict the analysis to urban nightscapes. Nightscapes are an important and relevant site of research because here mobile cameras are used in spaces which are already part of the surveillance landscape due to the presence of CCTV cameras and because we aim to compare OCTV with CCTV.

5 Recently, the police force in the Dutch city of Groningen solved eight crimes via YouTube. By using citizen-made footage posted online, the police force was able to identify and trace felons and victims. (http://www.republic.nl/nieuws/2011/04/YouTube-sterk-opsporingsmiddel-voor-politie.htm last visited 26/04/2011).

6 See for instance David Lyon (2007) or Waiton (2010). In these studies, often the unit of analysis is CCTV. Issues such as user-generated content and mobile phones are discussed, but often in relation to what institutions can do or are doing with this data (and discussions on data-doubles). Although there are recent studies on empowerment and surveillance , dealing with for instance mobile phones (e.g. Shilton 2010), these studies focus mainly on creating a counterforce, 'Surveillance is diffusing decisively into society at large, although it should be noted that this does not mean that the capacity to answer back has now exceeded the power of state surveillance upon its citizens' (Lyon 2001), rather than look at the situated action of filming by citizens and its influence on other citizens.

Theoretical background

To capture the differences between top-down and bottom-up observing technologies, Surveillance Studies scholars have introduced new terminology for differentiating between forms of observing spaces. In this vocabulary, the term 'surveillance' is restricted to refer to observing activities executed from above, e.g. organizations observing people. The current CCTV cameras exemplify this form of observing spaces that is also described as organizational surveillance (Mann et al. 2003: 335; Ball 2005: 105). In contrast, the terms 'sousveillance' and 'inverse surveillance' refer to observing practices in which the watching is performed by ordinary people, rather than organizations, and based on the use of portable recording devices rather than fixed cameras. Steve Mann and colleagues introduced these terms to problematize panopticon approaches to surveillance technologies by creating a space to think and act with mobile recording devices in public spaces (Mann et al. 2003: 333). Whereas the term 'inverse surveillance' refers to recording activities aimed to collect data about organizational surveillance, or actions of its proponents, the notion of 'sousveillance' reflects recording practices which do not necessarily involve any explicit function or objective.

The terms sousveillance and organizational surveillance provide a useful heuristic to understand how visitors of nightscapes experience the use of mobile cameras in public nightscapes and how this may be different from static cameras.[7] Although CCTV can be clearly classified as a form of organizational surveillance, the use and meaning of OCTV cameras is more ambivalent and not yet stabilized. On the one hand, the use of mobile cameras in nightscape spaces may be considered as a modified, mediated form of organizational surveillance in the case of police using the images of the nightscapes produced by citizens. In this context, the only difference with CCTV is that the images are not produced by an authority but by citizens themselves. On the other hand, OCTV cameras can also be considered as tools that support sousveillance because citizens use them to produce images of public spaces just for fun or to socialize rather than recording incidents that may require intervention by the police.

Although this vocabulary provides a useful heuristic to understand how visitors of nightscapes experience the differences between CCTV and OCTV, we should be careful to avoid the view that the use and meaning of technologies is only defined by the intensions of people pertaining to how, where and for what purposes it can be used—a view that seems to be adopted by Surveillance Studies scholars discussed above. We suggest it is important to adopt a perspective on human-technology relations that takes into account both human and non-human actors as constitutive parts of technologies. As scholars in the field of Science and Technology Studies (STS) have argued, the ways in which technologies shape society and human behaviour cannot be reduced to either human intentions or intrinsic capacities of technological artifacts (Hacket et al. 2008). Over the past decades, several strands in STS, most notably Actor Network Theory (ANT), have developed more symmetrical approaches in which both people and things are considered active participants in shaping human-technology relations.[8] To avoid a technological or social determinist view, ANT scholars suggest that agency is not an *a priori (*given) feature of an actor but is the outcome of the interactions between the heterogeneous actors in a network. Technologies only work when they are embedded in heterogeneous networks in which people, organizations, knowledge, skills and technological devices interact to produce a specific practice (Latour 1990, 2005; Law 1999, 2008).

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[7] In the context of this paper, the term inverse surveillance is less appropriate because our empirical research did not focus on incidents which may have triggered recording activities aimed to collect data about organizational surveillance.

[8] The view that technologies play an active role in transforming perceptions and experiences of the world has been elaborated by many scholars in the field of Science and Technology Studies. See Oudshoorn and Pinch 2003 for a discussion of the different conceptual approaches to user-technology relations.

We suggest that this approach is quite relevant for understanding current changes in the surveillance landscape described above. Rather than naming and describing a pre-supposed surveillance network consisting of a set of human actors with pre-described roles and agencies, and technologies with fixed properties, this paper aims to explore what meanings of OCTV and CCTV are created in the interactions between human and nonhuman actors and what agencies and responsibilities are attributed to these constitutive parts. Following Latour we conceptualize OCTV and CCTV technologies as 'hybrid collectives': a set of human and non-human actors in a certain place and a certain time that create a unique set of values or possibilities (Latour 1992). The added value of conceptualizing OCTV and CCTV technologies as hybrid collectives is that it allows for thinking about human-technology relations that go beyond pre-given roles or topologies of people and things. Due to the variety of combinations of humans and non-humans, CCTV and OCTV collectives may involve different ways of interpreting what cameras do to visitors of urban nightscapes and vice versa. The CCTV camera, for instance, is part of a collective where the act of continuous monitoring of a pre-defined spot in public space is delegated to fixed cameras and professional staff inhabiting control rooms, where recordings of public spaces are distributed within a closed system. In contrast, the OCTV camera participates in a collective in which actions are delegated to nightscape visitors who walk around with a mobile phone/camera that enables the production of fragmented images of public spaces which can be distributed in an open, digital space. This begs the question, how do these different forms of hybrid collectives of people and technical devices facilitate moral issues unique to that collective? What's more, how are issues of privacy and safety enhanced or constrained by these collectives?

Using the metaphor of technologies as text (Woolgar 1991: 60), the following paper aims to understand how nightscape visitors themselves read the differences between OCTV and CCTV technologies. After an explanation of the methods, the first empirical section of this paper addresses the question of how visitors of urban nightscapes read the OCTV and CCTV cameras. What appearance, or presumed agency of these non-human actors, turns these different cameras into surveillance objects according to our respondents? We continue with an analysis of how visitors read the different forms of hybridity of the OCTV and CCTV collectives. Because these collectives differ in terms of visibility of human actors—the mobile camera user is making pictures in close reach of other visitors of the nightscape, whereas the staff operating the CCTV system is hidden from view—and the mobile and fixed camera may also differ in their active presence in the nightscape, this section aims to investigate who or what is held responsible for surveillance. Are visitors triggered primarily by the differences between the cameras (mobile of fixed) or by who is filming or watching them? Recently, the enhancement of citizens' safety has developed into an increasingly important incentive for the introduction of CCTV cameras in public nightscapes, particularly prominent in, although not exclusively to, the UK and the Netherlands (Anonymous 2004: 3).[9]

The third section of the paper presents an analysis of what OCTV and CCTV collectives do to nightscape visitors in terms of safety. To what extent do these hybrid collectives enhance or constrain feelings of safety that visitors of urban nightscapes experience in interaction with OCTV and CCTV cameras?

Method

Inspired by ANT, we developed an intervention method that enabled us to study the interactions between human and non-human actors in urban nightscapes by confronting visitors of a specific nightscape with OCTV and CCTV cameras in a situated and contextualized manner. Using this method, information concerning the actual experience of OCTV (being filmed by another citizen) and CCTV (being monitored by a CCTV camera) was collected. During 32 short interventions in public spaces during the night,

[9] See for instance http://www.cameralocaties.nl/ or http://www.slimbekeken.nl for the actual camera situation and discussions in the Netherlands (both last visited 26/04/2011).

visitors of nightscapes in Rotterdam, (a large city in the middle of the Netherlands), were triggered to offer a response to both OCTV and CCTV.

These interventions were held during weekends, on Friday and Saturday nights, between the hours of 10.00pm and 01.00am. The specific protocol followed for an intervention can be found in appendix A. Note that the intervention found in the appendix is exemplary.

In selecting potential respondents, we followed a protocol of 'every n-th person is asked'. During these interventions, we asked visitors at a specific spot within close proximity of a CCTV camera how secure they felt. Importantly, at this stage in the method respondents had not been notified about the CCTV camera under which they stood. Subsequently, a handy-cam (see Figure 1) representing OCTV, was pointed at them and again the question was asked how this affected their feelings of safety and what else this visual recording did to them. They were then asked whether they were aware of other cameras recording visual information. Finally, they were made aware of the nearby CCTV camera.[10] The transcriptions of the recorded interventions entail both a real time (there and then) as well as recollected experience of cameras in the nightscape.

Figure 1 (left): *The type of camera used during the interventions;*
Figure 2 (right): *The location in the nightscape of Rotterdam where the interventions were held*

The empirical research was situated in the city centre of Rotterdam, the Netherlands. This area was considered appropriate for our study given that repeated on-site observations previously conducted had shown that the nightlife premises in the city centre of Rotterdam attract a diverse public in terms of gender, age and ethnicity. Additionally, a high number of CCTV cameras can be found in the city centre of Rotterdam. Thirdly, the city centre houses a large number and variety of venues (clubs, bars, cafes, theatres and restaurants).[11]

In the next section we present the analysis of our empirical study by describing how visitors of the nightscape in Rotterdam reacted to the OCTV and CCTV cameras used during the interventions. In the concluding section we will summarize our major findings and reflect on the insights gained pertaining to new, emerging human-technology collectives in nightly public spaces.

Mobile and static cameras as technologies of surveillance?

[10] This field work was conducted by Tjerk Timan and Jelle Brands, the latter of whom is a PhD student at the department of Social Geography at the University of Utrecht. The research presented in this paper is part of a larger collaborative research project between the University of Utrecht and the University of Twente (*Surveillance in Urban Nightscapes*) which is financed by program *Societal Relevant Innovation* of the Netherlands Organization for Scientific Research.

[11] We have collected data on, amongst other sources, venues and number of cameras in the centre of Rotterdam. See http://www.stadsnachtwacht.nl/resultaten for images (last visited 26/04/2011).

In order to explore whether and how the respondents of our study perceive mobile cameras as technologies of surveillance and whether and how this differs from the ways they experience static cameras, we first present our findings of how the respondents read the artifacts. What aspects turn these cameras into surveillance objects, according to our respondents?

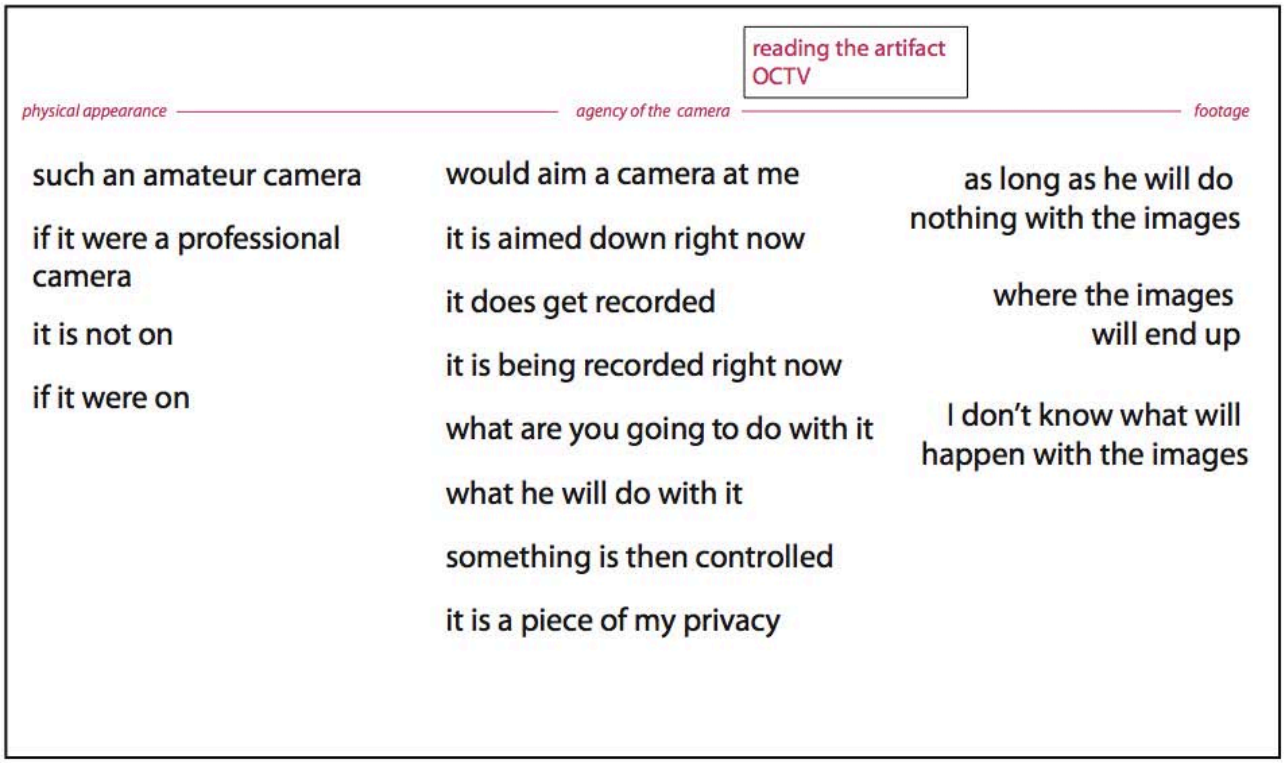

Figure 3. *Reading the OCTV artifact*

As shown in Figure 3,[12] in the case of the mobile camera, the artifact is recognized as being a real and present camera ('that camera'). Also, the type of camera used for this method is recognized ('such a camera'), implying that there are different types of camera and this is a recognizably specific type of camera. Another reading performed by a respondent is that the camera is an amateur-camera, and that it (the reaction of the respondent) would be different 'if it was a professional camera'. Respondents also made clear statements about the agency of the camera. The fact that there was no red light flashing, indicating that the camera was apparently off, triggered the attention of the respondents: 'if it were on' or 'it is not on'. Most importantly, the ways in which the respondents read the OCTV camera is not restricted to the visible features of the camera. As Figure 3 shows, the respondents also expressed concerns about what will happen with the images recorded by the mobile camera. The reading of the OCTV camera is thus not confined to the non-human actor but explicitly addresses the human actor. The statements listed at the right side of the chart show that respondents do not trust the person making pictures with his mobile camera, in which uncertainty about what he will do with the recordings plays an important role. Moreover, these remarks suggest that the respondents expected a certain goal or intention of the person making pictures with the mobile camera, a reason for capturing a certain event, not only for the sake of filming,

12 The content of the figures in this paper is taken from transcripts of 32 short interviews with Rotterdam nightscape visitors. The figures serve the goal of creating an overview of the most relevant material, as selected by the researcher. This selection is qualitative as is the mapping. No formulas or quantitative measures were used to make these maps. The ordering devices found in the figures are based on clustering along scaled lines, where the words at both ends of the line are extremes. However, they convey a direction that helps in linking theoretical concepts to empirical data.

but also for some form of processing of these images. Consequently, the issues raised by the respondents here concern the 'final destination' of these images, which one of respondents linked explicitly to issues of privacy. These readings of the OCTV hybrid collective thus reveal that visitors of the nightscape experienced feelings of uncertainty about where the footage will end up and how it will be used, an issue we will discuss further in the following section of the paper.

But let us first take a look at how the respondents read the CCTV camera.

Compared to the OCTV camera, the CCTV cameras are not directly recognized by the respondents. This was the case even though when we asked respondents to look for a CCTV camera in the proximity, they could almost all point one out (e.g. 'that dome-camera over there'). As in the case of the mobile camera, none of the participant reactions revealed doubt about what the artifact was or could be. Equally important, many respondents attributed agency to the CCTV camera: 'it records everything' or 'it only records', as well as what can be done with it, e.g. 'rewind images' or 'only reviewing'. Figure 4 shows also that many respondents also included the footage in their reading of the CCTV camera. Some respondents show that they expected a specific reason for filming public space: 'they can find the perpetrator' or 'as a victim, you would have evidence'. Further, some respondents clearly articulated trust in what happens with the images: 'it will be handled in a trusted manner' and 'the footage can't get anywhere else'.

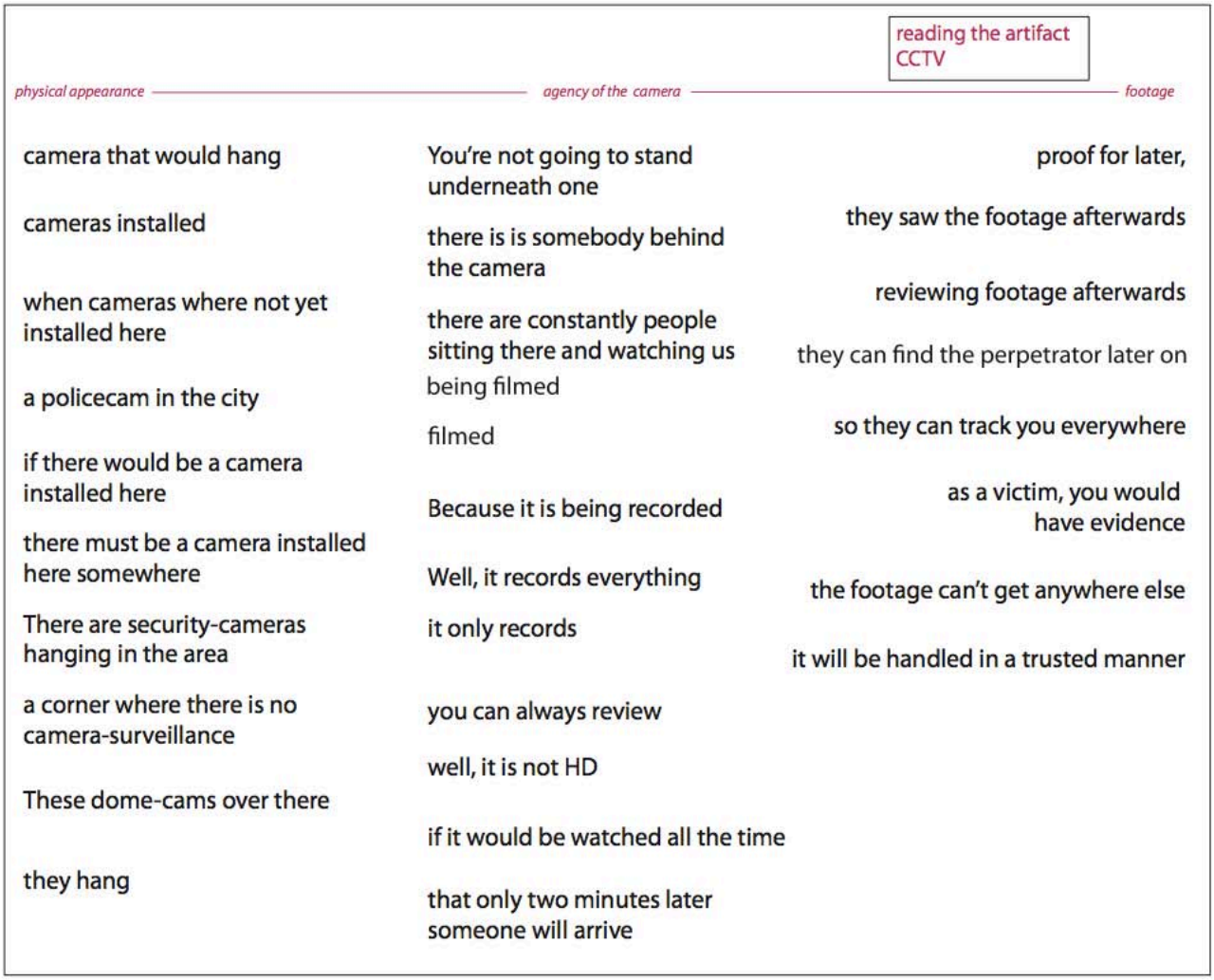

Figure 4. *Reading the CCTV artifact*

Significantly, the latter remarks are in contrast with readings of mobile camera footage, where the main concern is where the images will end up, or what is done with the footage. Another point of contrast is that, while in both cases a human behind the camera is acknowledged, the role of authority plays out in two directions. In the OCTV case, the human behind the lens is an issue: 'as long as he will do nothing with the images'. In the case of CCTV, the human behind the camera is expected to do something with the footage: 'there is somebody behind the camera' or 'there are constantly people sitting there and watching us'. From the perspective of these visitors of the nightscape, the surveillance role of CCTV camera technologies in public space might be found in the fact that one cannot read from the outside what happens inside. The cameras might record images and operators might watch these recordings but the act of visual recording and watching remains invisible. In terms of hybrid collectives, the difference between OCTV and CCTV is that the former constitutes a collective where a human behind the lens can be asked for clarification on the intentions of filming. Although in the case of the CCTV collective the intentions of both human and non-human actors might seem clear, this collective is much less transparent in its workings. In terms of surveillance, a tentative conclusion is that respondents perceive both cameras as surveillance technologies; however, issues raised concerning privacy were more prevalent in the OCTV case.

OCTV and CCTV as hybrid collectives: Who or what is held responsible for filming?

Since respondents considered both OCTV and CCTV as surveillance technologies, it is important to question which constitutive parts of these hybrid collectives they hold responsible for making images of public space: the human actors, the non-human actors, or the hybrid collective as a whole. As part of the intervention method we therefore probed the nightscape visitors, after they noticed the handheld camera, about being filmed in public. In their answers different types of actors came to the fore. In Figures 5 and 6 the answers are classified on the basis of the type of actor mentioned. The first category includes answers in which the camera is pointed out as actor, the second comprises answers that refer to a hybrid collective, and the third consists of statements that refer to the human behind the camera as main actor.

The first category of Figure 5 shows how OCTV respondents grant agency to the camera. The mobile camera is seen as the actor ('this camera records', or 'cameras in themselves'), ignoring the human behind the lens. However, many respondents also mentioned human and camera together, as if they were one. The second category of Figure 5 shows how respondents ascribe the act of filming to the human and the camera. Although at first glance phrases such as 'if somebody starts filming you' or 'that he points a camera at me' seem to attribute agency to human actors, the act of filming is specifically mentioned due to the recognition of a camera in the hands of the human. The human holding the camera is thus seen as a collective that can film. Although seemingly a minor detail, this hybridity marks a crucial difference in responsibilities; it is not the isolated human that is questioned here, but the human-camera collective. In the third category, respondents ascribe agency solely to the human, ignoring—or at least not mentioning—the camera as the active component of the technology. Respondents often refer to otherness and personal space, as is evident from remarks such as 'somebody that is watching me', 'I don't know who you are' and 'somebody enters my personal space'. In these relations the other is invading through the act of filming. Although a camera is needed to trigger this feeling, the instigator for this action is not in any sense ascribed to the camera; technology is seen as neutral. Respondents mention the intentions of the human as decisive for considering OCTV as invading and annoying, or assistive and aiding in feelings of safety ('if the camera belonged to the police, then it would help'). A comparison between the three categories of Figure 5 suggests that most respondents hold the human behind the camera or the hybrid collective responsible for filming.

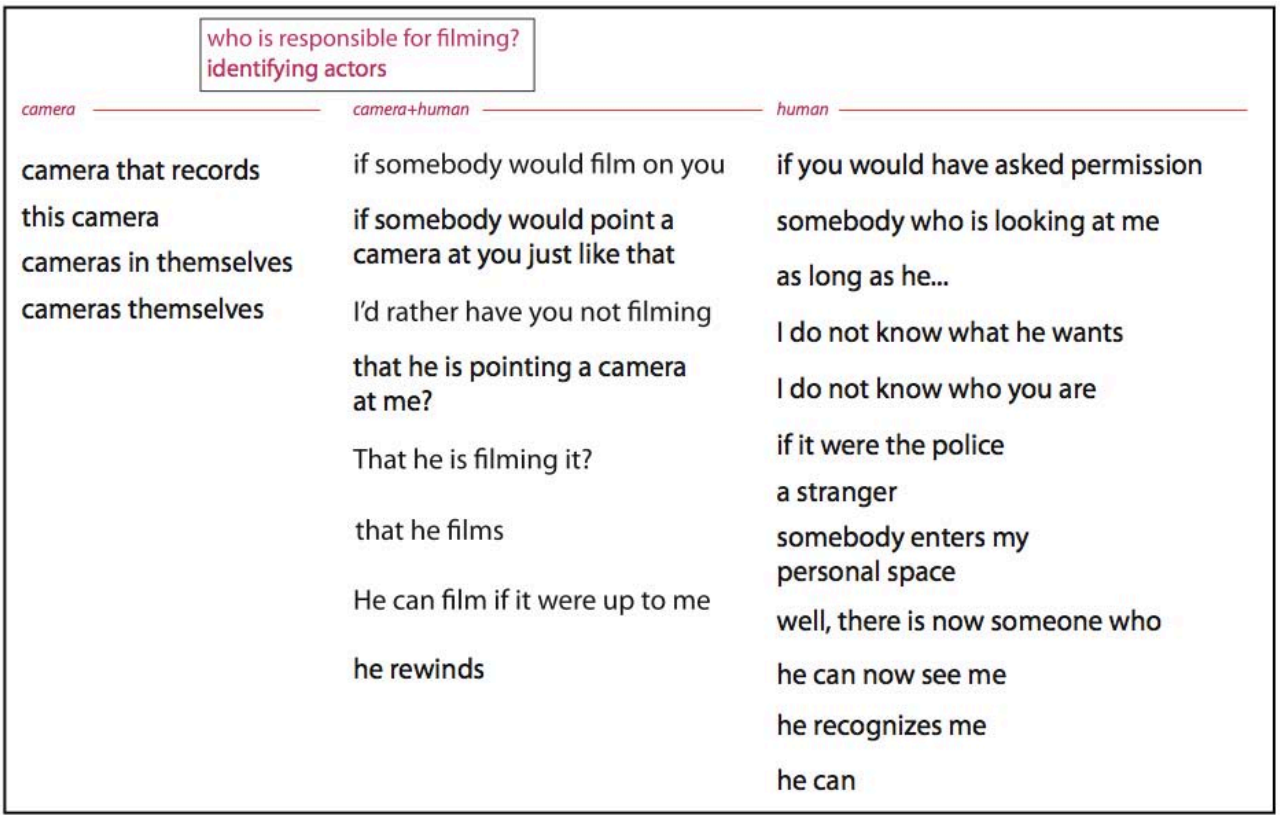

Figure 5. *Responses to OCTV and agency distribution*

Compared to the OCTV case, respondents grant more agency to the CCTV camera. When looking at the first category in Figure 6, we see that quite a few respondents attribute agency to the camera as a separate entity: 'that is it standing there' and 'it will be seen by a camera'. Here, the camera itself is mentioned as being capable of acting. This acting is sometimes passive: 'it hangs there' or 'that is it standing there' and sometimes active: 'it will be seen by the cameras' and 'the camera records everything that happens here'.

However, similar to OCTV, many respondents attribute agency to the human behind the camera as well. The third category of Figure 6 shows that they relate the CCTV camera often to a type of worker, or a type of work that is associated with the CCTV camera, where the camera serves as a tool for these workers, for example, 'somebody who reviews what is happening' or 'then the person behind the cam(era) knows'. Here respondents also refer to the role of footage and how the CCTV system works. This is evident for instance in the remarks 'where they specifically focus on' and 'then they can review afterwards'. Compared to the human as actor, the collective of human and camera is mentioned less often as an acting party. One typical remark is that 'they can never pay attention to all of them equally thoroughly', which points towards human and technology in a co-operative manner whereby both camera, screen and human interpretation are needed in order to make the system function. In two cases, a clear connection was made between the watched (the respondent) and the CCTV camera: 'then I know it has been filmed' and 'these security cameras are there for me'. What happens here is that these respondents make themselves part of a collective, by including the CCTV camera in their experience of the nightscape. In other words, they become 'users' of these cameras. When comparing these types of granting agency to those discussed in the case of the mobile camera, a clear difference can be seen in how respondents position themselves vis-a-vis possible acting entities. Exemplary for this difference is the response to OCTV: 'he can now see me everywhere' compared to a response to CCTV: 'they can only review'. Here, we see a difference in framing of the object who is acted upon. In the OCTV case more responses point towards being filmed as

a way of becoming an object: a passive victim of the unclear intentions of the human behind the lens. Considering CCTV, fewer responses are linked to the individual as an object in a negative sense.

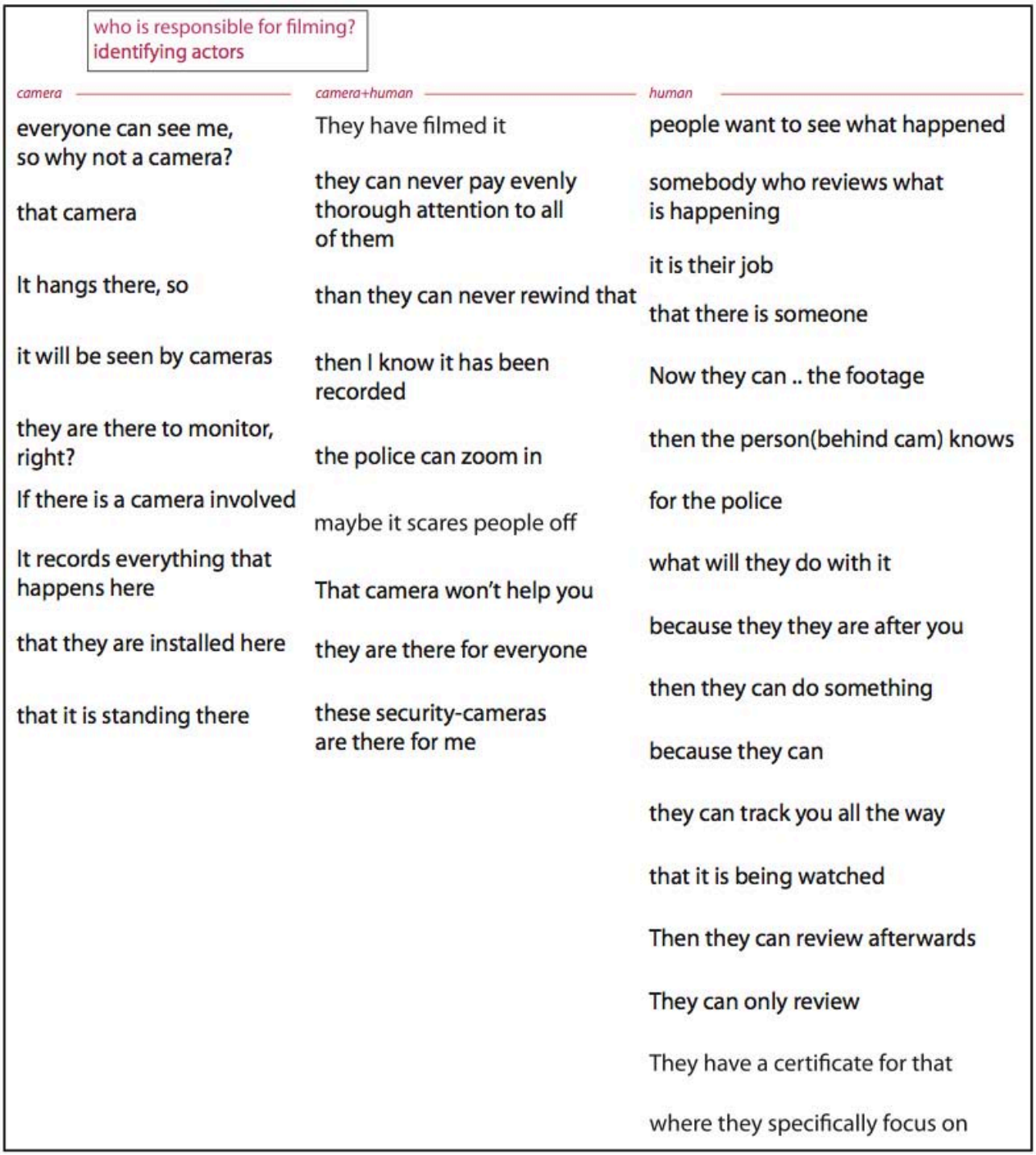

Figure 6. *Responses to CCTV and agency distribution*

Summarizing the findings listed above, we may conclude that in the OCTV case as well as the CCTV case respondents hold the human behind the lens and the human-camera collective responsible for making recordings of the nightscape. It was only in the case of the CCTV that respondents attributed more agency

to the camera. In contrast to what we described in the introduction, differences in visibility of the mobile and fixed camera thus cannot explain what parts of the hybrid collective are held responsible for filming.

OCTV and CCTV as technologies of safety?

Because policy discourse considers CCTV cameras as important technologies to increase the safety of citizens, a third step in our analysis was to explore more in detail whether and how the respondents associate either mobile cameras or static cameras with their personal safety. Do respondents make this connection and, if so, how do they articulate the relation between cameras and safety?

In Figure 7, all responses are mapped to the question 'does this mobile camera do something to your feelings of safety?', followed by the question 'what else do you think about such a camera?' Responses are mapped from negative on the left to positive on the right. Most answers concentrate around the middle and left of the middle; these are relatively indifferent responses, slightly leaning towards the negative ('I don't mind', 'I don't think it is that interesting' or 'not really a problem'). On the left side of these reactions, stronger statements can be found ('I am more afraid', 'I find it annoying'), but also more subtle expressions of unease ('I feel slightly more uncomfortable' or 'I was scared for a moment'). On the positive side of the chart, only two respondents link a mobile camera to feelings of safety ('I even feel more safe' and 'feels safer'). One respondent classifies this being filmed as 'exciting' and arousing 'curiosity'.

Based on the assumption that an increase of feelings of safety is usually included as one of the possible effects of surveillance technologies, the answers of the respondents seem to suggest that being filmed by the mobile camera of another visitor of the nightscape does not enhance their feelings of safety. Most intriguingly, respondents do not articulate any views that suggest that they assume the camera is just for fun. Reactions such as 'are you filming me for fun?' for example, were absent. A preliminary conclusion we might draw from this is that respondents do not consider the mobile camera to be a form of sousveillance, i.e. a technology that is used for leisure and socializing. In contrast to the reactions of the mobile camera, respondents were more positive about the CCTV cameras when asked how this technology affected their feelings of safety.

Figure 7. Mobile camera and responses to safety

In Figure 8, answers to the question 'does this camera do something to your feelings of safety?' are plotted in the same manner as Figure 7: from negative remarks and connotations to positive ones. The figure shows a tendency towards neutral, mildly positive, and very positive associations between CCTV cameras and feelings of safety. Most responses can be found in the middle, which suggests that for many respondents CCTV does not make a difference in enhancing their feelings of safety.

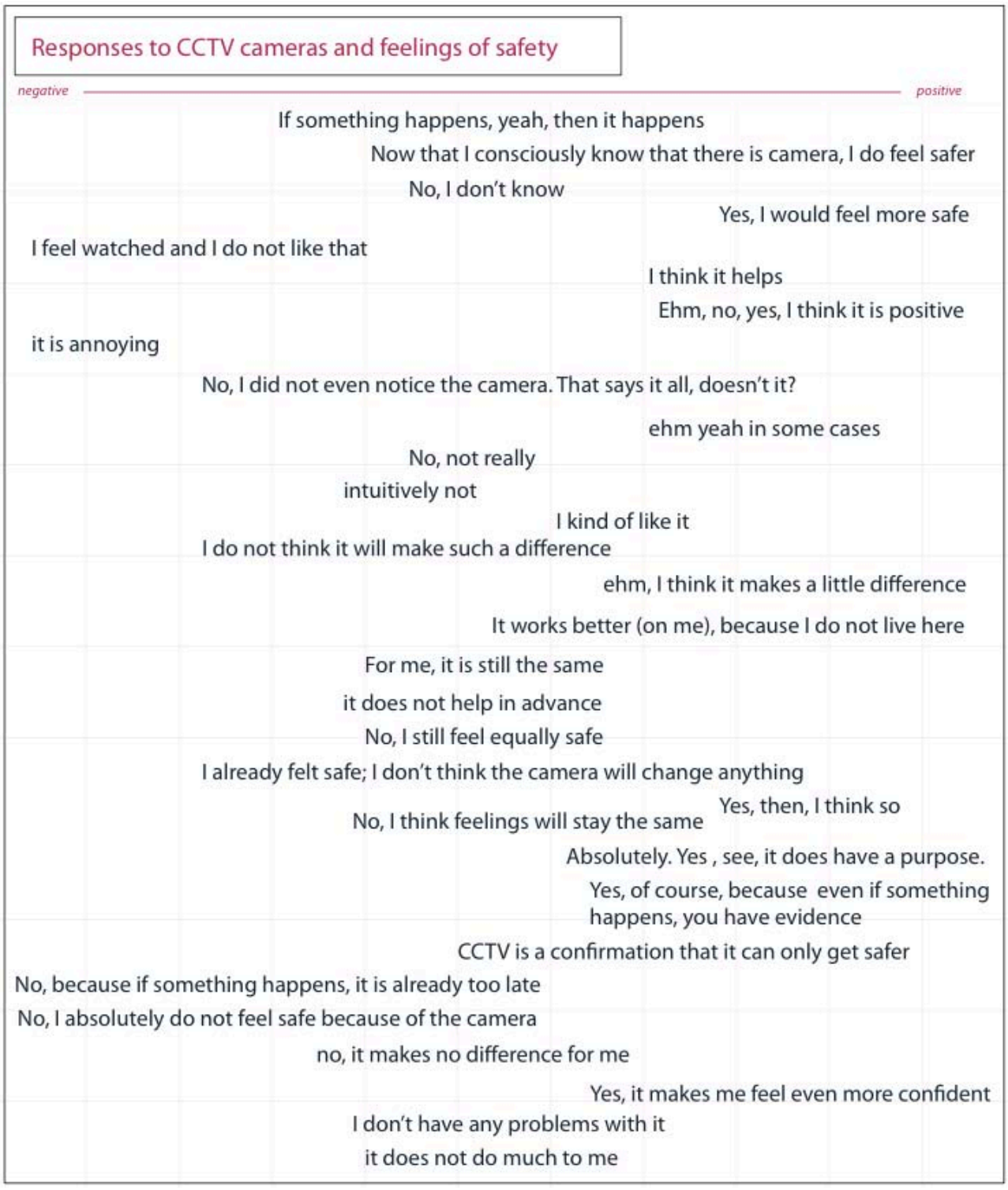

Figure 8: CCTV and responses to safety

However, many respondents also stated the opposite. On the right side of the chart, two very positive responses can be found: 'now that I consciously know that there is a camera, I do feel safer' and 'yes, it makes me feel even more confident'. Equally important, Figure 8 also shows numerous mildly positive responses, such as 'I think it helps', or 'I kind of like it' and 'I think it is positive'. Remarkably, only two

respondents articulated very negative responses. Nevertheless, when comparing the responses to the CCTV cameras with the responses to the OCTV camera, there is greater consensus among the respondents that CCTV may contribute to increased feelings of safety in public nightscapes. Moreover, the fact that CCTV triggered less negative responses than OCTV suggests that the respondents seem to view static cameras as generally making a positive contribution to safety.

Conclusions

In this paper we aimed to explore whether and how mobile cameras in public space are experienced as a form of surveillance by citizens in public nightscapes. By confronting 32 people in the city centre of Rotterdam at night with a mobile camera and a CCTV camera, responses were gathered on how citizens relate to these technologies. Rather than analyzing these answers in terms of organizational surveillance (the CCTV camera) and sousveillance (the mobile camera), which are both terms that focus on human intentions, we conceptualized OCTV and CCTV as hybrid collectives which allowed us to go beyond human intentions and pre-given topologies of people and things. One of the major findings of our empirical research is that, as with CCTV, OCTV cameras are also considered surveillance technologies. While in Surveillance Studies these mobile cameras are often referred to as a form of sousveillance, our analysis suggests that the mobile camera is experienced as a form of surveillance. By opening the blackbox of these non-human actors, the paper showed important differences in the ways in which OCTV and CCTV act as surveillance technologies. In the case of CCTV, both the physical make-up and the destination of footage were clear to our respondents. In the case of OCTV, it was the footage rather than the appearance of the mobile camera that triggered negative responses among the respondents. Although the physical make-up was clear to all respondents, the destination of footage was not, and this aspect made respondents feel ‘surveyed'. We thus can conclude that the mobile camera acts in a surveilling way.

With this, a counter-intuitive aspect of OCTV can be observed as well. While mobile cameras can be considered a more democratic technology compared with CCTV because they allow for bottom-up control of camera (what is filmed) and footage (what will happen with the images), in contrast to the closed and black-boxed technology character of CCTV, this openness creates uncertainty. The majority of our 32 respondents experienced this uncertainty as unpleasant and unwanted. Most importantly, this uncertainty was mostly coupled with privacy concerns. These privacy concerns, however, did not evolve due to the physical presence of the camera or the active presence of the film-maker but were rather the result of the possible non-official uses or dissemination of the footage. A possible explanation for this being a main surveillance issue can be found in a more established trust in the Dutch government in taking care of CCTV footage versus a fear of the lack of control in new media. An openness in data (in this case OCTV footage) means less control over this data.

Another important finding is that the respondents not only considered the mobile camera as a form of surveillance but that they experienced this surveillance as being stronger than the use of OCTV cameras, particularly when it concerns privacy. The respondents did not articulate any concerns related to a privacy violation of CCTV but instead emphasized how the technology enhanced their feelings of safety. In contrast, the case of the OCTV revealed the reverse picture. We might explain these contrasting findings by concluding that the mobile camera, and other new media, pose a threat to issues of privacy and liberty of action in public spaces, whereas CCTV does not. That being so, we should be careful here because this conclusion reinforces a technological determinist view of technology. In line with the ANT approach developed in this paper, we conclude that these differences cannot be explained by the intrinsic properties of these technologies. We therefore need another explanation and suggest that the concept of domestication (Silverstone 1996) provides a better heuristic to understand the different ways in which the respondents relate to OCTV and CCTV. Because CCTV cameras have now become part and parcel of everyday life in public spaces, citizens don’t question or experience these technologies any longer as

unpleasant or threatening their privacy.[13] In contrast, mobile cameras and cameras in mobile phones are relative newcomers in public spaces. Moreover, the hybrid collectives in which these cameras act, in term of how the footage can be distributed over many different social media (including YouTube and Facebook etcetera), are much less transparent and not (yet?) stabilized as in the case of CCTV.

Moreover, we should be careful to conclude that the ways in which citizens relate to mobile cameras is the same everywhere. In this respect it is important to notice that the specific places where the mobile cameras are used may also play an important role in shaping the experiences and values created in the OCTV hybrid collectives. As one of the authors has argued elsewhere, places matter in shaping user-technology relations (Oudshoorn 2011; Oudshoorn forthcoming). Adopting this techno-geographical approach, we may wonder what experiences and values will be created by OCTV hybrid collectives in other places. During demonstrations, for example, participants might relate to mobile cameras in a different way, where they may experience feelings of safety when being filmed by other participants, because this ensures that possible abuses of power by police can be documented independently. In this context, mobile cameras might appear as empowering technologies while these hybrid collectives can be understood as a form of inverse surveillance. We conclude with suggesting that the ANT approach developed in this paper provides an important heuristic to investigate this flexibility. By conceptualizing OCTV and CCTV as hybrid collectives that may take different shapes in different places, we may improve our understanding of the current changes in the surveillance landscape.

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[13] We thank one of the anonymous reviewers for the suggestion to include normalization theory in the discussion of our research findings, however, considering the different notion of the concept of normalisation, rather *domestication* is deemed a more accurate term by the authors.