

# Interpreting Artefacts

MSc Thesis on the influence of Artefact  
Affordances on Human Behaviour



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Affordances on Human Behaviour

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## ABSTRACT

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Because of the increasing pressure on urban public space, mainly due to over tourism and urbanization, it becomes even more important to think about designing these spaces. Objects play an important role in shaping public space. The Affordance theory by Gibson states that the affordance of an object, the so called action possibilities, can stimulate specific interactions between the object and the users of public space. It is up to the user to interpret these affordances. The Actor Network Theory, developed by Latour, states that humans and artefacts can both have agency, the amount of influence one actant has on another. In this article research has been done on how affordance is perceived by human actors and how it relates to agency. By using the Actor Network Theory, the network of agencies of all actants can be represented and the effects it has on human perception of space and the derived forms of behaviour. What appears is that humans always seek logic in public space. They do so by grouping actants together, in order to cope with the otherwise overload of information. Affordances are bundled together and a single group affordance is created. This process of bundling agencies is also a process of making borders, based on personal preferences. Where there are borders, possibilities for territorial claims arise. In contrast to the Actor Network Theory, we state that agency does not belong to artefacts itself. Agency is a human's susceptibility to an artefact's affordance and therefore cannot be attributed to non-human actants. There is no single Actor Network, but only someone's perception of reality. Because of the tourist gaze, tourists all have a similar limited susceptibility to specific artefacts. The tourist gaze can be reframed as the tourist agency.

**Keywords:** ACTOR NETWORK THEORY, AFFORDANCE THEORY, TOURIST GAZE, POLITICS OF ARTEFACTS, AFFORDANCE, AGENCY, HUMAN BEHAVIOUR, PUBLIC SPACE, MUSEUMPLEIN, GRIFTPARK, PERCEPTION, EXPERIENCES, ENVIRONMENTAL PSYCHOLOGY, TOURISM

## PREFACE

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Esteemed reader,

In front of you, you will find my Thesis as part of the Mater's program Spatial Planning of the Wageningen University. This thesis will discuss how the world around us influences our actions and behaviour and what role public objects play. This combines the fields of spatial planning with environmental psychology, a discipline in which I have specialized myself and hopefully will work in the next couple of years.

The goal of this research is to give insight into how a single object in public space can influence our behaviour and how it cooperates in doing so with the other objects surrounding it. This network of objects is essential to understand for urban spatial planners in order for them to cope with the increasing pressure on public space. My hope is that this article can contribute to that process.

Via this medium I would very much like to thank my supervisor Martijn Duineveld for his support and cooperation in writing this thesis. His remarks guided me toward this final product. I also would like to thank everybody who kept me company during the observation days and nights, something I enjoyed very much. It helped me to keep my concentration for the full 6 hours of observation sessions and to cope with the dark nothingness during some nights.

All that remains for me to do is to hope that you, dear reader, after reading this article, will also be capable to look at the world from a different perspective. To see the environment as the vast network it is and to understand that our behaviour is not always our own but intertwined with the beautiful complexness of all things around us.

I wish you all the best,

Ruben Jonker

# CONTENTS

|  |           |
|--|-----------|
| <b>Abstract .....</b>                            | <b>I</b>  |
| <b>Preface .....</b>                             | <b>II</b> |
| <b>1. Introduction .....</b>                     | <b>1</b>  |
| 1.1 Actor-Network-Theory .....                   | 2         |
| 1.2 Research question .....                      | 3         |
| 1.3 Thesis structure .....                       | 4         |
| <b>2. Theory .....</b>                           | <b>5</b>  |
| 2.1 Politics of Artefacts .....                  | 5         |
| 2.2 Artefacts: Affordance & Agency .....         | 7         |
| 2.3 Actor Network Theory & Agency.....           | 9         |
| 2.3.1. Critique .....                            | 10        |
| 2.3.2. ANT, Engineering Ethics & Boundaries..... | 10        |
| 2.4. Summary Theory .....                        | 12        |
| <b>3. Methodology &amp; Method .....</b>         | <b>13</b> |
| 3.1. Methodology .....                           | 13        |
| 3.1.1 ANT & Grounded theory .....                | 13        |
| 3.2. Method.....                                 | 15        |
| 3.2.1. General data .....                        | 15        |
| 3.2.2. Follow-up Research .....                  | 17        |
| 3.3. Research locations.....                     | 18        |
| 3.3.1. Museumplein .....                         | 18        |
| 3.3.2. Griftpark .....                           | 19        |
| <b>4. Results .....</b>                          | <b>20</b> |
| 4.1. Users.....                                  | 20        |
| 4.1.1. Users at night .....                      | 22        |
| 4.1.2. Users: Individuals & Groups .....         | 23        |
| 4.2 Characteristic Sub-area's.....               | 24        |
| 4.2.1. Museumplein .....                         | 24        |
| 4.2.2. Griftpark .....                           | 26        |
| 4.3. Artefacts .....                             | 27        |
| 4.3.1. Benches .....                             | 28        |
| 4.3.2. Lampposts .....                           | 29        |
| 4.3.3. Bicycle racks .....                       | 30        |
| 4.3.4. Museumplein: Fountain .....               | 31        |
| 4.3.5. Griftpark: Entrance.....                  | 32        |
| 4.3.6. Griftpark: Bicycle traffic sign(s) .....  | 32        |

|  |           |
|--|-----------|
| <b>5. Discussion &amp; Analysis .....</b>          | <b>34</b> |
| 5.1. Logic in space .....                          | 34        |
| 5.2. Grouping artefacts .....                      | 36        |
| 5.2.1. Affordance & Agency .....                   | 37        |
| 5.3. territorial claims .....                      | 38        |
| 5.3.1. Groups .....                                | 39        |
| 5.3.2. Personal space.....                         | 41        |
| 5.4. Tourist Gaze.....                             | 41        |
| <b>6. Conclusion.....</b>                          | <b>44</b> |
| <b>References .....</b>                            | <b>46</b> |
| <b>Appendix A – Research day’s .....</b>           | <b>51</b> |
| <b>Appendix B – Conducted Street Survey’s.....</b> | <b>52</b> |

# 1. INTRODUCTION

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How do cities plan for the future? That depends, of course, on what people expect the future will bring. For most Western European cities, one of the most important points of concern in the future is how to deal with the overcrowding of public space (Alirol et al, 2011). More and more people want to use the same park, square or street. Thanks to the influx from within the country itself (urbanization) and from abroad (mass tourism), the pressure on public space is increasing. It's a pressure that has caused many cities to falter. Just think of Venice where people are already being banned from certain parts of the city with harsh measures because of the enormous crowds. Both visitors and local residents notice the effects of the crowds and are increasingly dissatisfied with this situation. They feel that the public space can no longer be regarded as common good. The primary role of (urban) public space is to facilitate social interactions between citizens and outsiders (e.g. tourists) in order to improve social cohesion within the community (Worpole & Knox, 2008)(Peters et al., 2010). It is precisely this social coherence that puts what is under pressure, looking at the current trend in public space use.

Because of this growing pressure on public space, decisions on how to design it will have a great influence on human behaviour, with the primary goal for public space to satisfy the needs of the users. However, Gifford (2007) states that within the planning process, studying human behaviour is an underused analytical tool of spatial planners. A tool that can study effects of a design on a very local scale, on object level. Spatial planning is still too much carried out on a city level, which results that the role of some minor interventions remains underexposed (Churchman, 2002). This thesis however focusses precisely on this issue, the role of very local interventions on steering human behaviour and experiences. This is within spatial planning, in which people increasingly struggle with the pressure of public space, an area that has received increasing attention in recent years (Clayton, 2012), but is still under development and in need of a stimulant.

When we look at the most important tool spatial planners use is (re)designing public space, objects play a central role. Objects can stimulate or discourage certain kinds of behaviour, they greatly determine the use of public space. The design and location of objects can change people's behaviour. Both tourists and locals use these spaces, but with different reasons. However, they both are influenced by the same materiality, the same physical surroundings like benches, trees, paths and buildings. Understanding how these artefacts influence these groups in changing conditions is key in designing public spaces in dense urban areas. That is why this research aims to provide insight in how to use objects in urban areas to deal with the intensive use of public space.

The Cambridge Dictionary states that an object is "a thing that you can see or touch but that is not usually a living animal, plant or person". This definition

insinuates a form of interaction between the object and its user. A form of interaction where the object itself influences human behaviour from the people around it (Warnier, 2001). The type of interaction is greatly determined by the physical structure of the object; its shape, size, surface, colour and so on. This physical structure is also called the materiality of an object (Innis, 2008). It determines which interactions are possible, even interactions not compatible with the supposed purpose of the object, like sitting on a fence. This determination of possible interactions through materiality is described by Gibson (1979) as affordance, what the environment offers the individual. Norman (1999) reframes this as “action possibilities”, which human actions are made possible by the materiality of objects. Affordance and action possibilities are independent of someone’s ability to recognise or even use it (Gibson, 1966), an object’s materiality is constant. A varying factor is whether and how people understand this affordance, how they use it for their own purposes. Affordance is therefore relational and depends on how the space is seen by the user (Gibson, 2014). This research will therefore look at how people understand affordance and what consequences it has on human behaviour.

## 1.1 ACTOR-NETWORK-THEORY

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Not only the affordance of a single object influences human behaviour, but also the relation of an object to its surroundings. The agency of an object, how the objects is perceived by humans and how other objects play a role in this, influences human behaviour as well. Affordance is relational, depending on the users. When combining all agencies of objects in public space, what arises is a whole network of influences and dependencies. This network is constantly undergoing change, since external variables change the characteristics and (sometimes) materiality of objects. Rain can for instance make a surface very slippery, making it dangerous to walk on and changing its affordance and agency. This theory of a network of constantly shifting relationships is presented in the Actor-Network-Theory (ANT from now on), developed by Bruno Latour (2005) and John Law (1992). This constructivist theory approaches events and situations without the search for essentialist explanations (Simandan, 2018). ANT rather functions as a strategy which helps people to understand the underlying mechanisms of these events (Mol, 2010). Both the materiality of objects as the material-semiotics between users and objects are part of this theoretical approach. When talking about human behaviour in public space, which is a central element of this research, material-semiotics are a key factor in understanding this behaviour, especially the difference in behaviour between people with different backgrounds in culture, age or social group.

According to ANT, not only objects are part of the material-semiotic network, but also humans. In spatial planning, ANT states that all artefacts and humans are part of a social and spatial network in which they all influence each other (Latour, 2005). It seeks to define and explain the relational ties between humans and non-humans in a network. ANT puts both humans and artefacts on the same



level, which will not only lead to artefacts influencing humans, but also humans influencing artefacts. The concept of 'actant' is being introduced, which covers both human actors/users and non-human artefacts with the same level of influence. Leigh Star (1995) describes the result of ANT as an 'arrangement of priorities', which is giving shape to our everyday spatial arrangement and the possible choices and actions people can make in such an arrangement. Further on, each actant by itself is an interplay of several characteristics influencing each other, making it a smaller network of its own. Therefore the design of both the artefacts and the area with several artefacts are a planner's tool to shape, facilitate and/or discourage human social behaviour (Murdoch, 1998).

In this research, ANT will be used in order to analyse the relationship between artefacts and humans, and how affordances and agencies play a role in this. The constantly changing network of actants is visible in the change of human behaviour, the result of the perception of affordance. With the use of observations and analysis, these interactions between the public space and its users will be researched.

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## 1.2 RESEARCH QUESTION

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To summarise, in this research the influence of objects in public space will be analysed by observing human behaviour. This influence is an interplay between affordances, determined by the physical structure of the object itself, and the object's agency, the relation to the network of relationships and dependencies to other actants. These two terms, affordance and agency, are very connected to each other. Withagen et al. (2017) states that within a purely mechanical world these are the same. This implies that the main difference between affordance and agency is within the social, the perception of human actants. Gibson (1979) states that the affordance of an object is constant, but the agency can vary.

In this research it will be analyzed how affordance and agency relate to each other. ANT already states that agency influences human behavior. Unclear however is the influence of an object's affordance in this process and the relationship of it with the object's agency. Consequently we arrive at the following research question:

### ***How does the affordance of artefacts influence human behaviour?***

Three sub-research questions are determined, in order to focus on the different aspects of the research question. The first sub-research question will focus on how affordance is being perceived by the observers, how do people see the possible functions of an object and how do they determine what to do with it. Gibson stated that affordance is independent of someone's ability to recognise it. Therefore it is interesting to research how people recognise affordance and how they act upon it. The second and third sub-research question will focus on the relation of an object to other actants, both objects and human actors, being

part of the social-spatial network mentioned earlier. Within these research questions the relation between affordance and agency plays a central role.

- *how are people influenced by affordance?*
- *how do affordances influence each other?*
- *how does human behaviour influence affordance?*

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### 1.3 THESIS STRUCTURE

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This thesis is intended to give an overview of the effects of artefacts on human behaviour. Not in order to come to generalist theories, but to give insight into the consequences that objects in public space have on the behaviour of people in public space.

In Chapter 2 an overview will be given of the existing theories concerning the influence of objects in public space. Among other things, the Actor Network Theory and the politics of artefacts will be discussed here, two important theoretical concepts that are needed to explain public space and the interplay between actants.

In Chapter 3, the methods and methodology used will be introduced. An introduction of the deductive and inductive research methods will be given, followed by a detailed description of the research process and its phasing. The research locations will also be further introduced here.

In Chapter 4 the results of the observations are presented. Both the measurement results and an overview of the observed phenomena are discussed here. The analysis of these results, as well as their implications on the existing theories, will then be discussed in Chapter 5.

## 2. THEORY

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In this chapter a short summary will be given of the debate on artefacts. The first point of discussion is whether artefacts contain politics, which will be discussed in paragraph 2.1. The second point of discussion is whether artefacts have agency and if so, in which form. From this whole debate a compromise arises, a formation of a third movement, which ultimately results in the Actor Network Theory (section 2.3) which plays a central role in this research.

### 2.1 POLITICS OF ARTEFACTS

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In the field of technology and society, many ideas are presented about how technologies shape and influence the world around us. These structures are deeply embedded in our modern society. One of those ideas, with many supporters among social scientists, is presented by Langdon Winner. He argues that artefacts are political, an idea he himself calls provocative (Winner, 1980). Winner argues that artefacts refer to technologies around our world. Both modern technologies, such as cell phones, and older technologies, such as the first cars, are included. Next to that, technologies can be seen in a much broader sense, such as bridges, streets and even whole city layouts. He states that technologies embody specific types of social order, and work to enforce existing power relationships with the society. In regard to politics, Winner is discussing the arrangement of power and authority which are present in our current society (Winner 1980). When combining these two elements, artefacts and politics, most people within the social sciences will not agree on the statement that artefacts have politics.

However some examples can make people think otherwise. One of the most notable examples can be found in New York City, a city which infrastructure and architecture was largely influenced by Robert Moses, also known as the “Master Builder of New York” (Urban, 2016). He was responsible for the design of the city's infrastructure in the 20s and 30s, as for the construction of several bridges linking the different parts of the city together. These bridges were constructed with such a low clearance, that some elements of public transport, such as busses, could not use these parts of the infrastructure (Ballon & Jackson, 2007). Because these were the cheapest ways of public transport, whole groups of the population, especially the poor and black community, were excluded from using public transport and therefore using other parts of the city. However this story turned out to be false, it can serve as an illustration in which artefacts have politics.

Another example can be found in Atlanta, Georgia, which is considered to be a car-centric city (Henderson, 2006). The city council wanted to expand the subway system into the northern suburbs, mostly inhabited by wealthy white residents. Large opposition towards the expansion of the subway system was heard in these neighbourhoods, for people were afraid that it would give people

of other social classes easy access to “their” part of the city (Leslie, 2011). The lack of public transport to the northern parts of the city was considered to be a good thing, since it would exclude people who rely on public transport, mostly of lower financial standard, to access job opportunities in this part of the city.

These two examples both contain the very important political process and message of inclusion and exclusion, embedded into the affordance of physical structures. To some this process is a process of discrimination, but to others a process of regulation (Schindler, 2014). Whatever you call it, scholars in the field of planning and geography assert that the physical built environment is constructed to reach certain political goals (Vale, 2014). They even can agree that these decisions will benefit or exclude certain parts of the population. However, spatial planners do not always understand the severe impact of the design they make when implemented (Schindler, 2014), thus underestimating the political load of their physical design.

Spatial planners therefore can be seen as messengers of political statements (Joerges, 1999). “A highway that divides two neighbourhoods limits the extent to which the neighbourhoods integrate. That a town has a square, easily accessible with a diversity of shops, increases the integration of residents in that town. That Paris has large boulevards limits the ability of revolutionaries to protest. That the Constitutional Court in Germany is in Karlsruhe, while the capital is in Berlin, limits the influence of one branch of government over the other. These constraints function in a way that shapes behaviour. In this way, they too regulate.” (Lessig, 1999, p.4)

In the examples Lessig (1999) mentioned above, inclusion and exclusion of certain people or behaviours through physical space are seen as examples where artefacts contain politics, but other examples are also visible in our society. Artefacts can also contain a political message or statement. The “Gaybrapaden” (or rainbow crosswalks), a crosswalk painted in rainbow colours to draw attention to the acceptance of gays and lesbians (and others), is an example of an artefact with a political message. One can agree or disagree with this statement and people can interpret the Gaybrapaden differently, but the fact that the physical space is designed for a political message, is proof that artefacts can contain politics.

Winner argues that technologies can, or maybe, even are used in ways that enhance the power and authority of some over others. However, this enhancement is not always intentional, such as the previous given examples. The development of new technologies will always create a difference in the social structures. Modernisation of the farms is a great example. By using machinery, one farmer can plant, grow and harvest a much larger amount of crop in the same time span as without any machinery. Therefore he can cope with a larger amount of land, reducing the number of farmers in the area. Starting in the 40s, the amount of farmers plummeted, due to modernisation. Jobs were lost, as a result of technological improvement, proving the

unintentional enhancement of power and authority over others. However, the yearly yields of crops increased substantially, but at the cost of rural communities (Winner, 1993).

All given examples illustrate how technology and the physical space around us determine our social activities. Maybe we are not always conscious of it, but politics are embedded in the technologies around us. This will affect how we travel, communicate and basically run our daily lives. When artefacts are being placed, people are effected in various degrees of power, authority and awareness, thus proving artefacts having politics. However, scholars don't always agree on the way these effects are constructed. Realists and social constructivists are debating with each other on the way agency is embedded in artefacts and/or social constructions. This discussion will be summarized in the next chapter.

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## 2.2 ARTEFACTS: AFFORDANCE & AGENCY

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We have discussed how objects can influence our daily lives and how interaction with humans is inevitable. Because objects can limit, steer and stimulate, we can conclude an object has agency, the possibilities to act and influence our actions. A bench, for instance, can be used to sit on, but also support other activities such as lying down or skateboarding. But a bench with armrests in the middle will alter the possible uses, making lying down impossible. This is in line with affordance thinking, as presented by James Gibson (1979), where the object is described in what it offers the individual. It has certain action possibilities, readable possible actions which the object supports. All decisions on placing these objects are made in order to stimulate or discourage types of human behaviour. This interaction between the object and its users plays a central role in this research.

However, the effect of an objects agency is not predictable, it differs under influence of time and place and other external factors. Agency itself is being influenced by other objects nearby, it is relational. The affordance of an object may play a role in determining the agency, but never to the fullest. Therefore the agency of an object is dependent on a number of external variables, we can call it situational agency. Some external variables are weather conditions and light, which have great influence on the affordance, how people can use objects in public space. A clear example of this change of agency is a lamppost, which changes character and function during the day. The function of lighting an area during the day is somewhat unnecessary, but is very useful during the night. At least, for the usage types which need some visual clearance. So the absence of light increases the amount of influence a lamppost can have, thus changing its agency. This change in agency is not always one-sided, under every condition. A small shed can protect someone from the rain, but can also function as an oversized sunscreen. People using this shed, performing the same kind of behaviour, can be caused by totally different external variables. The affordance is multi interpretable, it offers more than one type of usage. Situational agency

is made visible here by people's behaviour. Spatial planning should keep these uses into account when designing public spaces, since a space is (nearly) always used under all circumstances.

Among the external variables influencing the agency of an object are also other objects and their agency. Two objects next to each other are therefore in certain ways dependent on one another. Thinking of the lamppost mentioned earlier, a bench next to the lamppost would undergo the influence of the light coming of it. At night, the affordance of this particular bench differs from other benches, which are placed in the dark, because of the influence of surrounding objects. Because of their dependence on each other, users of public space will also group these objects together (Carmona et al., 2012), to be seen as one unit. Since the agency of one object is not always the same, it differs under influence of external variables, the influence one object has on another is also not the same. The lamppost will not have the same influence on the bench next to it during the day as it will have during the night.

The question whether artefacts have agency has not had an unambiguous answer up to this date. Which is also not possible, regarding the many positions scholars take on this issue. Depending on the lens you use, you will arrive at a partial conclusion. The two dominant approaches, however, are opposed to each other. "On the one hand, the literature in technology studies is filled with examples and projects that involve that technological artefacts and systems do: they have been committed to prescribe behaviours, constrain political arrangements, induce cultural beliefs and practices and aspects of their social context. On the other hand, the social constructivist orientation of a large part of technology studies seems to be incompatible with artefacts because it maintains all properties of artefacts and reduces to actions and interpretations of social groups." (Brey, 2005, p.61)

In determinism, it is assumed that the design of objects can be directly related to social changes. Objects therefore have the ability to change things and when this happens it can be analysed as being an actor (Brey, 2005). Many examples in the available literature support this realistic view. Latour (1992) states, for example, how objects like hotel keys influence human behaviour. Sclove (1995) gives the example that a sofa with three separate cushions displays a certain pre-selected distribution, with three seats being shown. Each seat has a certain personal space, which is characteristic of the Western culture in which individualism is an important motive. On the opposite site is Asia, where people rely much more on group structures. The sofas in Asia are therefore made without separate cushions. However, by emphasizing the physical design of the artefacts, they devalue the social factors. In particular the social factors in which we as a society generally agree, the so-called social representation (Moscovici, 1981). Baby clothes, for example, are available in blue for boys and pink for girls. It is not the colour itself that has a particular preference for gender, but the social meaning that is given by society to a colour. A deterministic approach will therefore fall short here.

Opposite to determinism is social constructivism, where social representation plays a central role. The agency of artefacts is completely determined by the social constructions in which it is located and thus used. They have a form of flexibility in interpretation (Pinch & Bijker, 1987), the same objects can be used differently by different user groups. For example, a bench can be used to sit on, something that is generally considered to be normal. Yet young people prefer to sit on the back and with their feet on the couch itself. Homeless people can use that same bank to lie on. Pfaffenberger (1992) therefore argues that the term artefact can be better defined, not as an isolated object, but as a social representation of the object. Social constructivism goes against the argument that artefacts have an objective social representation (Kukla, 2013), because it consists of social constructions. In this way objects can influence the immediate environment, so they can act as an actor.

However, it can be argued that social constructivism relies too much on social representation. It neglects the materiality of objects and its affordances. For example, an armrest in the middle of the aforementioned bench can ensure that it can no longer be used as a lying platform. Or in the case of the story of the bridges in New York (chapter 2.1) where it was not physically possible for buses to take a certain bridge because of the clearance height. Social constructivism here replies with the argument that so-called physical limitations are also part of social constructions. These are certain ways to read the physical space, which are influenced in one way by the apparent preference of people read the limitations in space, and in the other way to be influenced by the social constructions in which the analyst finds himself (Brey , 2005). It is a discussion about interpretation of space, in which terms such as common sense and objectivity play a role.

Determinists and social constructivists at least agree that a distinction must be made between the social and the materialistic. A third movement, which presents itself as a 'solution' in the aforementioned discussion of which Langdon Winner is also part of, states that it is precisely that separation that has to be removed. This movement equates the materialistic and the social, that is to say human and non-human, with each other. Something which is the focus point of the Actor Network Theory.

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### 2.3 ACTOR NETWORK THEORY & AGENCY

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Originated as a compromise between realism and social constructivism, in which the separation of the human and non-human is held, stands the Actor Network Theory. The Actor Network Theory (ANT for short) considers both realistic and social constructivist approaches to be flawed and proposes instead a socio-technical account in which neither social nor technological positions are preferred.

ANT was developed by Bruno Latour (2005), Michel Callon (1986) and John Law (2008) and states that both human and non-human actors, together called

actants, have the same level of agency. Separation between those elements is difficult. For example, when talking about cell phones, it is debatable which part results from human interaction and which part results from technology. It seems difficult to separate the technological aspects from the way a software development team, influenced by their socio-cultural background, is responsible for that technique. So what seems to be social, also contains technology and the other way round.

In order to treat both human and non-human actors equally, ANT is based upon three principles: agnosticism, generalised symmetry and free association (Callon 1986). In summary, this means that ANT makes no distinction in approach between the social, the natural and the technological. As Callon (1986, p. 200) states: "The rule which we must respect is not to change registers when we move from the technical to the social aspects of the problem studied."

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### 2.3.1. CRITIQUE

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ANT states that humans and objects have the same agency potential, and therefore influence every other agency as well, creating a large socio-spatial network with both objects and users on the same level. The term 'actant' is introduced, which will group both human and non-human together under one banner. This feature of ANT is controversial in social science and has received criticism over the years, including social scientists as Langdon Winner. The main argument in this criticism is that the properties like being an actor and participating in networks and systems, are unique to humans and cannot be given to non-humans. Humans intent to participate, while objects do not. This criticism is countered by stating that the concept of agency of objects does not presuppose an intent to participate. Another key critique is presented by Collins and Yearley (1992) that ANT will result in an endless relativist regress and will always need judgement calls from the researcher on what to include in the network. Actors cannot be left-out because of the boundaries of the researched network.

Another pitfall of ANT is the tendency to over describe things, for each node in the network is a small scale network itself (Alcadipani & Hassard, 2010). It is comparable with a birthday cake at a birthday party. The cake is an actant in the room, together with the table, chair, people etc. But also the social aspects play a part, the fact that it is a birthday cake makes it even more special, which influences other actants differently. Going into more detail, the cake itself is a network of its own, containing the sponge, the frosting, decoration and so on. There is no limitation to ANT which leaves the researcher with a choice in what to include or exclude, which is a subjective process.

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### 2.3.2. ANT, ENGINEERING ETHICS & BOUNDARIES

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ANT is a compromise between a realist and social constructivist approach, stating that a separation between the social and material is flawed. Still, ANT is



more like a constructivist approach, focusing on social relations. This is also visible on its standpoint on the question whether artefacts have politics. When going back to the paper of Langdon Winner (1980), previously mentioned in chapter 2.1, we see two groups of thinkers. On one hand realists as Lewis Mumford, agree with Winner in answering the question “do artefacts have politics?” with ‘yes’. They even go further in saying that “all technologies throughout history would either be authoritarian (system-centred and powerful, yet unstable) or democratic (man-centred, relatively weak, but resourceful and durable)” (Soares, 2014, p.1). On the other hand are scholars who do not agree with Winner in stating that artefacts have politics themselves. They state that people who use these objects are the ones who think and act politically, therefore stating that the kind of politics is in the mind of the beholder. Artefacts themselves are only a physical structure of materials, which people give meaning to. The affordances do not cause behaviour, but only make it possible. It is up to human actants to give meaning to the materialistic features of an object and to come up with possible uses of this materiality. This is the more constructivist approach, focussing on social relations, which is more in line with ANT.

This debate between realists and constructivists is basically an debate over the neutrality of technology. Most scholars will agree on the fact that technology actively shapes and influences the social and physical world around us, instead of being a neutral mean for humans to reach certain goals (Verbeek, 2008). However, constructivist scholars will argue the responsibility and moral decisions to be of the designers and not so much the technology itself. This principle discussion of engineering ethics has been going on since the second half of the 19<sup>th</sup> century, where designers and engineers presented themselves as independent professionals, without any responsibility and accountability to a higher institution. This changed during the start of the 20<sup>th</sup> century, when a series of structural disasters took place. The collapse of the Ashtabula River Railroad Bridge (Peet, 1877) and the Tay Bridge (Prebble, 1979) changed the discussion of accountability of designers, and raised questions on the moral obligations and ethical code of designers. A discussion which is still relevant today, even in small scale planning cases, such as the one in this paper.

The placement of artefacts is a process of placing possibilities, creating affordances. On the counter side of possibilities are artefacts which cause some sort of boundary. This boundary can be clear and physical, such as a wall, fence or hedge, but it can also be a more subtle mental border. In that case the border is dependent of the interpretation of the user. An example of this is a traffic sign which says: “trespassing prohibited”. It is still physically possible to walk there, it affords people to do so, but certain social rules prevent people from doing that, thus maintaining the border. These rules however are subjective to the person’s interpretation (again). These boundary artefacts, as Thomas et al. (2007) calls them, have a certain political power. This form of power is subjective to the social structures surrounding the artefact, creating a whole network of socio-power-relations. The meaning of an artefact is never homogeneous, especially in

the case of boundary objects, a very constructivist approach. This does not mean that these meanings are never contested. There will always be a battle among its users about the interpretation of artefacts (Deetz & Mumby, 1990) and as a result of these battles, there will be people who benefit and who lose out. As Carlile notes (2002), artefacts are both pragmatic and political.

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## 2.4. SUMMARY THEORY

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We have discussed how objects can shape the space around us and will influence human behaviour. We can interact with objects, we use them for our own purposes. Which interactions we make is dependent on the affordance of an object, the action possibilities and the social-spatial network it is placed in. In this research we will research the relation between the affordance of an object and its agency, the possibility to engage with the social structure, according to the Actor Network Theory. This theory states that both humans and objects, together called actants, are on the same agency level and are both capable of interacting with each other. In this report we will research how the affordances of objects and the agencies of all actants influence human behaviour in public space.

Chapter 3 will explain how ANT will be used to analyse human behaviour and which methodology will be used.

### 3. METHODOLOGY & METHOD

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In this chapter, the methods and methodology applied in answering the research question and sub-questions are being described. First the used methodology will be described, relating to the theoretical framework set in the previous chapter. Afterwards a more detailed overview of the research method is presented. The two research locations will also be introduced in this chapter, along with some background information and reasoning on why these locations were chosen.

In this research different methods were used, which can be divided into two phases; data collection and the analysis. Both phases are introduced in the next chapter. The results from the data collection phase will be presented in Chapter 4. The results from the analysis phase will be presented in Chapter 5.

#### 3.1. METHODOLOGY

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When collecting data, a positivistic case study method was used. This is a deductive research strategy, which was used as a exploratory and descriptive method to find explanations for a particular topic, in this case human behaviour in public space. Deductive research methods are preferred when collecting data. According to Babbie (1998), a deductive research method has the advantage that it can be done in a limited amount of time, which was the case in this study. In addition, it also has the advantage that deductive methods can handle the abundance of sources, also present in this study, better than inductive methods. "The deductive approach follows the path of logic most closely. The reasoning starts with a theory and leads to a new hypothesis. This hypothesis is put to the test by confronting it with observations that either lead to a confirmation or a rejection of the hypothesis" (Snieder & Larner , 2009, p.16).

Where deductive research mainly focuses on formulating theories from observations, inductive research walks this path in the opposite way (Pellissier, 2008). In this research an inductive method was used for the analysis, the Actor Network Theory. As already indicated in chapter 2.3, this is more a method for analysing spaces and (social) networks. The acquired knowledge from the deductive research methods was then used as a starting point for the analysis. The research questions had a more prominent place here and the analysis will mainly focus on explaining why certain behaviours were observed. A further explanation and usage of ANT can be found in the next paragraph.

##### 3.1.1 ANT & GROUNDED THEORY

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As a base for the analysis, the Actor Network Theory (ANT) was used to conceptualise social and spatial patterns. In chapter 2.3 ANT has been mentioned and described as a compromise between a deterministic and social constructivist approach. However, ANT can be described as a theory which

focusses on the relation between both human and non-human actors. It describes how these relations create new entities which don't necessarily share the same level and type of agency as the involved actors (Dankert, 2011) "ANT helps the researcher not to think in terms of human/non-human binaries and the different discourse with which each may be aligned" (Tatnall & Gilding, 2005, p. 963). This focus on (social) connections and relations shows that ANT acts as a constructivist theory rather than a realist theory.

ANT is not always useful to use in research, it depends on the goal of the research and research question. It is time consuming and because of the complexity of the networks, it is not easy to execute. However, when doing exploratory research into subjects that have not been researched much before, ANT is a method in order to give new insights. The same goes for hyper-complex issues that cannot be described by using the traditional research methods. Because of the lack of limitations, ANT aims to come up with new and possible unexpected conclusions. (Dankert, 2011)

In this research ANT was used to map the current human behaviour in relation to its surroundings. This is an example of a complex network covering physical, social and political relations. Latour describes ANT as a method to discover and understand the dynamic ways in which these relations between actants are forged and maintained (Latour, 2005). The word "dynamic" indicates a fluctuant relationship between actants, thus a shifting network of relations. Murdoch (1998) defines the networks and its relationships to be 'more or less' stable, with the actants constantly negotiating with each other. As long as there is a stable network, the network can be described as successful. However, when a disruption in the balance occurs, in this research for instance because of an overdose of tourists, the network is searching for a new balance and is (temporarily) out of balance. Because of its focus on relations and complex shifting networks, ANT is often used in order to search those causes of imbalance in the network (Rydin, 2013).

One weakness of ANT is the tendency to over describe things, as mentioned before in chapter 2.3.1.. Moreover, ANT is not considered to be a research method, but rather as a tool for interpreting the results (Latour, 2005). In order to tackle these problems, all data were gathered by a case study method. Case studies are used to map the relations between elements and the complexity that goes with it (Hutjes & Van Buuren, 1996). By doing observations and interviews, a case study method gathers as much information as possible within one entity, in this case the Museumplein or Griftpark. This data will subsequently be interpreted from ANT.

Similarities can also be found with another research method, Grounded Theory (Glaser & Strauss, 1968). With a combination of induction and deduction, this research method can be described as post-positivist (King & Horrocks, 2010). Although Latour objects to a comparison between ANT and Grounded Theory (Blok & Jensen, 2011), in this particular research some benefits from the

methods of Grounded Theory are considered to be useful. What characterises Grounded Theory is the circular process of data-gathering, analysis and reflection. After the first cycle of data gathering, the researcher can reflect on the research method by reflecting the usefulness of the data to the research question. If the data are considered not to be useful, the researcher can alter the method accordingly, in order to get more applicable data. The researcher might opt to set up a minor sub-research within his main research, answering possible minor research questions. It is, as it were, a circular form of doing a case study. This circular process is needed in order to gain specific valuable data to understand some observations. That way, data-gathering is always in the service of data-analysis and the conceptualisation of theory and patterns, in which ANT is being used. The key to this conceptualisation is constant comparison between sets of data and the relationship between them.

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### 3.2. METHOD

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As mentioned in the previous paragraph, the data collection phase has consisted of a (positivistic) case study method. This method however was split into two parts. First general data of the research locations was collected, which will be elaborated on in paragraph 3.2.1.. Deriving from this general data, some issues did require more specific data. The second part has consisted of follow-up research into these issues, to collect these required data. The methods which have been used will be presented in paragraph 3.2.2..

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#### 3.2.1. GENERAL DATA

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As a research tool on how to analyse public interactions, part of the methods presented by Holland et al. (2007) were being used. In this paper a thorough case study was being done on how people use public space and the interactions between people. Because of its similarities between this research and our own, the methods on how to analyse social interactions in these research locations have been adapted. A mixed-method approach has been conducted, consisting of both non-participative observations and street surveys. Both research methods are focussing on constructing theories by observing and analysing what is happening on the specific locations, which is why this method has been used under the umbrella of Grounded Theory methods. The collection of general data consisted of the following methods:

##### *Non-participative observations*

During this activity a large amount of “cold” data was collected. Data on how people use the public space, the use of objects and the amount of interaction between actants. The influence of a (steering) research question was minimized, as not to limit the sort of observations, hence the term “cold” data. Both day and night activities have been recorded, since public space is being used throughout the whole day, possibly with different motives. So, for each research

location, a 48 hour observatory study has been conducted in sessions of 6 hours, in order to gain an understanding of the user of these places (see Appendix A). For each user it was noted on which location they were and which activity they performed. A difference has been made between 5 types of activities for which people make use of public space; tourism, recreation, sitting, walking the dog and sports. The activities we group under these overarching terms are formulated in the following way. Tourism; walking about with a tour guide, taking pictures or cycling about with a rental bike. Recreation; making use of the playground, sitting / lying down on the grass, small sporting activities such as frisbee or football. Sitting; using a public bench, sitting on raised edges or borders. Walking the dog; walking with the dog. Sports; active sports activities such as running, fitness or yoga. Only the users of artefacts within the research location are included in this measurement. People who have only travelled through the area without doing a specific location-bound activity or without using one of the objects, are not included in the measurement. Because regardless of the design of the public space, these people would have been walking/cycling through this area anyway and because the measurement would be very difficult to perform, since following all these people is an impossible task.

#### *List emerging patterns and striking behaviour*

During the non-participative observations the most notable patterns have been labelled. Both patterns observed by the researcher in the field as patterns which were visible in the collected data. Not all patterns were clearly visible through observations, but by using the collected data an overview of the standard human behaviour and its repetitions has been made. Moreover, behaviour, which would be expected but is not happening, is also interesting to note. These patterns and behaviours were used to determine possible follow-up research questions.

#### *Street survey's*

In addition to the non-participative observations, street surveys have also been conducted. There wasn't a standard survey which could be filled in, as street surveys are mostly conducted. The researcher has the option to ask users of public space on their motivation of certain behaviours and their thoughts of their environment. These surveys were an exploration of how public space, with all its actors, is perceived by the audience. These surveys have been an important new insight into why people make certain choices. Interesting to see was whether the collected data and the survey answers support or contradict each other. This gave insight into how humans perceive space and artefacts subconsciously, which usually determines our primary reaction. These surveys have also helped to determine whether further research on a specific topic is needed. A list of conducted street survey's can be found in Appendix B.

### 3.2.2. FOLLOW-UP RESEARCH

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As second part of the data collection phase, we have looked at the need for follow-up research. The general data gave insight on the users, their activities, their location and the emerging patterns, but some knowledge gaps have appeared. The collection of specific data was necessary to fill those gaps and to express the observed patterns in numbers.

Four follow-up studies have emerged from the collection of general data. The research day's are visible in Appendix A. For each follow-up study, a specific sub-research set-up has been made. The already collected data has helped, but in order to get targeted information, a new set of observations has also taken place. With each test design, the responsible variable was isolated and the other variables were kept as uniform as possible. The test formats have then been carried out at both locations in order to reduce the location-specific influences, unless the specific test design required that kind of format.

These are the four follow-up studies:

#### *Group size vs. openness Area*

In this research we have looked at the relation between user group size and the openness of their location. We have divided the research locations into different parts, according to artefact density. Per area the group size of all user groups was noted. A distinction was made between individuals, groups between 2 and 4 people and groups consisting of 5 and larger. The results are visible in chapter 4.1.2..

#### *Usage of public seating*

In this research we have looked at the usage of public benches at both research locations. Three characteristics were tested in relation to preferred seating locations. The first characteristic is whether benches are alongside (within 1 meter) or away (>1 meter) from the footpath. This measurement was only conducted between 12.00 and 18.00. The second characteristic is whether benches have tree coverage. In this research measurements were executed in rainy conditions as well as sunny conditions. The third characteristic is whether a bench is located nearby (<5 meter) a lamppost or further away (>5 meter) from a lamppost. This research was executed during all timeframes. The results are visible in chapter 4.3.1. and 4.3.2..

#### *User distribution around the fountain (Museumplein)*

In this research we have looked at the distribution of users around the fountain on the Museumplein. During the collection of general data the whole area around the fountain was grouped together. There was no specific data on how the different users were as it were divided by the fountain, which was visible

during the observations. Non-participatory observations will be done again, but targeted at this area only. Results are visible in chapter 4.3.4..

#### *Following/Ignoring prohibition sign (Griftpark)*

In this research we have looked at the behaviour caused by the prohibition sign visible when entering the Griftpark. The difference between following and ignoring the prohibition sign was researched. This research was conducted under two conditions, when the Griftpark was crowded and when it was quiet.

Because social control can play an important role a third option was researched as well. Following or ignoring the prohibition sign was researched on a quiet day with the researcher prominently visible at the entrance of the Griftpark. Results are visible in chapter 4.3.6..

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### 3.3. RESEARCH LOCATIONS

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This research has taken place at two locations; the Museumplein in Amsterdam and the Griftpark in Utrecht. These two locations were chosen because of their similarity in spatial structure, function and location in the city, use of different surfaces and diversity in spatial objects. The biggest difference between Museumplein and Griftpark is the type of visitor. Where the Museumplein will attract many tourists, the Griftpark is more focused on the local population. This difference will be used to answer one of the sub-questions and to provide an insight into how tourism influences the use of public space and artefacts.

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#### 3.3.1. MUSEUMPLEIN

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Located south of the centre of Amsterdam is the Museumplein, which owes its name to the Rijksmuseum which is located bordering this square. Next to the Rijksmuseum are also the Stedelijk Museum, the Van Gogh Museum and the Concertgebouw located next to the square. Together with many hotels and cafés this location makes the ideal hotspot for tourists, who are also present in large numbers. However, not only tourists use this square, local residents and other residents of Amsterdam can also be found there. The Museumplein thus serves as a large open space in a dense and busy urban area.

Discussions on whether the Museumplein can be called a square are still present today (Karsten & van Diepen, 2009). The lack of clear borders, partly due to the adjacent gardens of surrounding houses, creates a character that generally does not correspond with a square. There are also voices to call it a park and to organize it in this way. In particular, the use of the open field for sports activities, which many locals associate with Museumplein (Karsten & van Diepen, 2009), underlines the recreational use that is related to a park. Nevertheless, the municipality of Amsterdam decided in 2008 to underline the open character of the square. For this, trees and bushes were removed in order



to have a clear view from the Rijksmuseum to the Concertgebouw. Since then, this square is also used for larger activities, such as festivals and sporting events.

Characteristic of the Museumplein are the large "I Amsterdam" sign that can be found in front of the Rijksmuseum. Since 2004, these letters represent the motto of the city, which has been profiled as a marketing campaign. The intention was that these letters would temporarily be located on this spot and then be placed in other places in the city. However, due to the unprecedented success and popularity among tourists, the letters have become a permanent part of the square (Udo, 2015). Every year, tens of thousands of tourists come here to take a picture as a reminder (or proof) of their visit to Amsterdam. Therefore, looking at marketing, it can be considered a very successful campaign. ("I Amsterdam" sign was removed on December 3th, 2018)

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### 3.3.2. GRIFTPARK

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The Griftpark is located to the northeast of the Utrecht city centre. This old dumping area has been in use since 1999 as a city park and serves as a recreation spot for the inhabitants of the city. Because of its location between three busy city districts, the Vogelenbuurt, Tuinwijk and Wittevrouwen, the Griftpark has gained enough accretion from local residents. In the park there is a playground and petting zoo (the Griftsteede), where many parents and children are attracted to and a restaurant that is often used during lunch. The park is special because of the variety of characters. Because of both an open and a closed character, the park offers various possibilities for use. In addition, the skating track and football cage also offer opportunities for recreation for the youth, but students also like to make use of these facilities.

The municipality of Utrecht wants to give the city nature a boost with the Griftpark. Partly by setting up projects for the youth, in collaboration with the petting zoo, the municipality also tries to offer education in the field of green areas and sustainability. The Griftpark is therefore more often used as a test area for these projects. Local artists have also been given the opportunity to use the park as a public exhibition.

The open part of the Griftpark is also used for events such as a funfair and mini-festival. Nevertheless, the number of activities here is limited, due to inconvenience for local residents and the quality of the lawn.

## 4. RESULTS

In this chapter the results of the observation days will be presented. As described in the chapter Methodology, no one specific measurement unit was used, but several small measurements were made based on the previous observations. Both the findings of the observations and the results of the small-scale measurements are included in this chapter. A further analysis on how these observations and artefacts play a role in the whole network of agencies and dependencies will follow in the next chapter.

First, the measurements and observations on the research location scale will be presented. These are the network processes that affect the entire area, and therefore its artefacts. This could include the type of users entering the area, the distribution of this group and the overall atmosphere at the research locations. Next, the results will be presented on a very local scale, sometimes at object level. The same classification, depending on the scale levels, will also be used in chapter 5.

### 4.1. USERS

A factor which on both research locations greatly influences the use of public space is the type of users. Therefore, research has been carried out to map the uses of the research locations throughout the day.

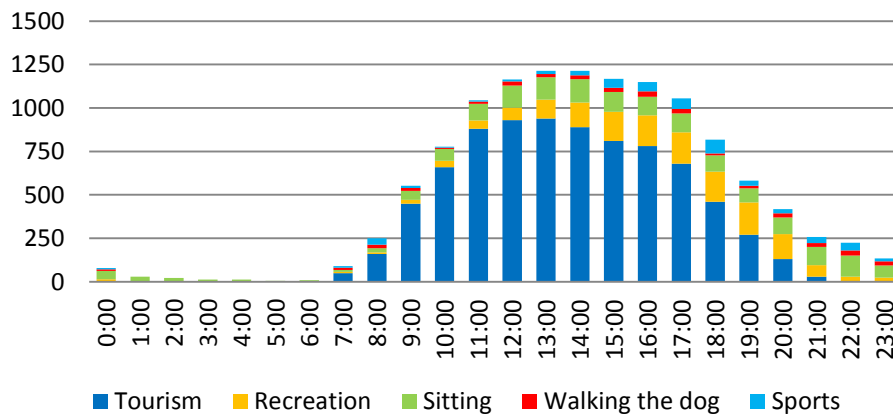
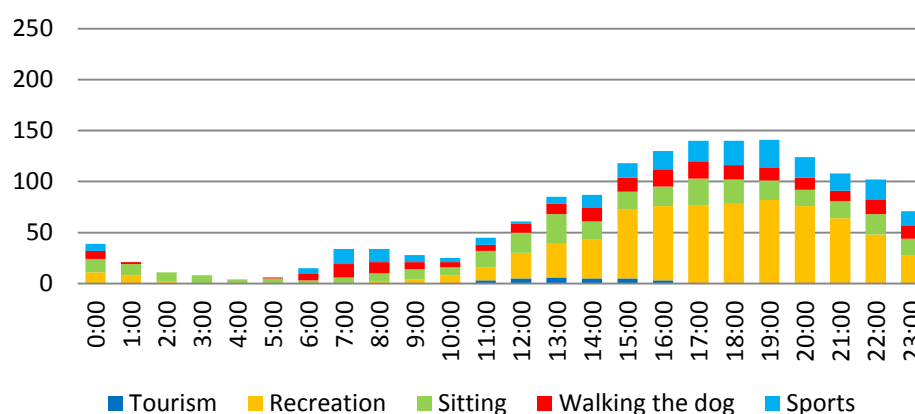


FIGURE 1 – USERS MUSEUMPLEIN



**FIGURE 2** – USERS GRIFTPARK

The 24-hour time lapse in figures 2 and 3 shows that the user composition fluctuates greatly during the day, both on the Museumplein and in the Griftpark. It cannot be said that one particular group of users is dominant compared to the others throughout the whole day. However, at certain times of the day, particular user groups are dominant. It should be noted that all user groups have a certain peak during the day.

**Tourism** is a typical day activity. From the end of the morning until the start of the evening, this user group is strongly represented on the Museumplein. In the Griftpark they are absent (with a few exceptions). Tourists are active during the day, taking photos and go to places of interest, both activities that come into their own in daylight. As soon as this light disappears, with the additional result of dropping temperatures, the number of tourists is steadily decreasing. In the evening hours some can be found at the Museumplein, but not in great numbers.

**Recreation** mainly takes place from mid-afternoon, when the schools finish and many more young people can spend their free time outside. This has resulted in a sharp raise between the 14:00 and 15:00 measurement at both Museumplein and Griftpark. Around dinner another group arises, such as workers and students who finish work later than schoolchildren, which ensures a continuation of the number of recreationists. When the sun goes down and the temperatures begin to drop, the recreational user group also decreases.

**Sitting** in public space is one of the most continuous activities that take place in public space. This user group is represented throughout the whole day. What is particularly striking is that this activity also takes place until late in the evening and does not slowly disappear after sunset like recreation or tourism. In fact, a slight increase can be noticed around sunset. Observations have shown that during these hours young people in particular use the public space, with consequences for the spatial structures and agency of nearby objects. More about this in chapter 4.3.1..

The two user groups that occur during multiple peaks in a day are **Sports** and the **Walking the Dog**. These are short activities that can be performed on a weekday or weekend. These activities often take place at fixed times, such as before work, after work and before bedtime. That is why there are peaks in the use of the public space of these user groups. Habit and habituation are the driving forces.

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#### 4.1.1. USERS AT NIGHT

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During the day, extensive use is made of the public space, including the two research locations. As can be seen in figures 2 and 3, the amount of activities in the evening hours decreases, but they never hit the 0-point all at the same time. There is always a form of activity present. At times when most people are at home and already in bed, the public space changes character. The atmosphere of the public space has changed as a result of a new kind of culture during the evening and night hours. Examples of this culture can be found both on the Museumplein and in the Griftpark. Surprisingly, the nightly activities at both research locations show very similarities with each other. The same observations have been made and the same patterns have been observed. An example of the two research locations;

There is an area within the Museumplein which is called the donkey's ear (Dutch: Ezelsoor, see Figure 5, number 4), named after the visual comparison on aerial photos with a donkey's ear. This is the sloping piece of lawn on top of the Albert Heijn supermarket and the entrance to the parking lot. This area can be seen as an extension of the lawn, but then crossed by the Museum Promenade. Starting from halfway the afternoon, more and more young people can be found on the donkey's ear. This starts around the midday break of the secondary schools in the neighbourhood. The pupils then come to the supermarket by bike to get their lunch there. If the weather allows it, they like to eat it, sitting on the donkey's ear. This is often accompanied by music and other sounds from loud talking to scooters. This process continues through the day, where it is also used by groups of young people mid-afternoon. However these youngsters, which are around 17 years old, slightly older than the previous group of youth described above, stay longer. This group remains present until the late evening and even until the early night. They are called "Hangjongeren". The composition of the group may change, but the same type of youngsters remain present during these times. They are also responsible for maintaining the aforementioned seated user group until the night.

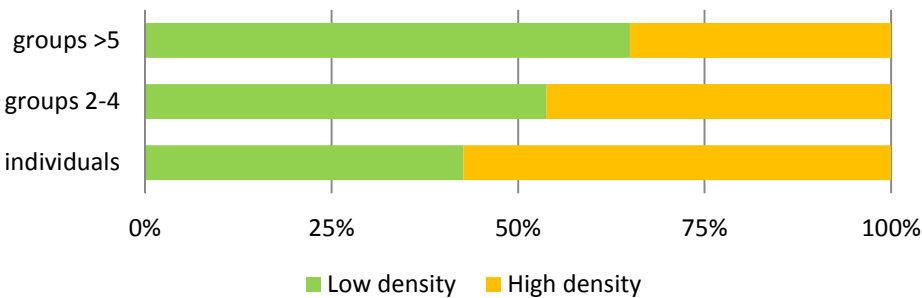
Similar to the Museumplein, the population of youngsters will also increase in the Griftpark from mid-afternoon. Here too, it starts with the schoolchildren who consume the bought lunches with accompanying energy drink during school breaks and after school hours. This group disappears around dinner and the older youngsters (hangjongeren) take over. With the onset of darkness this group even grows. It is striking that they choose the central hill of the park as a hangout, which, like the donkey's ear, is an elevated location. If we take a closer

look at the two locations, there are more similarities to be found. These places are indeed slightly illuminated, but do not stand out in the whole of the square / park. There are also other facilities, such as sitting areas and a trash can. In particular the sitting areas are used a lot, the trash will be avoided as much as possible. Both locations are also clearly visible from the environment and offer an overview themselves.

In addition to the youngsters, other user groups become more active during the night hours. In particular all of those who are considered to be "undesirable" in the public space during the day. These are the homeless, drunks, but also the criminals, dealers and junkies. This night culture then disappears again around 6 o'clock when the first "normal" visitors re-emerge. The first commuters are an omen for a very large group of other visitors. This way the different user groups continue to alternate seamlessly. Everyone has to wait for his turn and at his / her regular time.

#### 4.1.2. USERS: INDIVIDUALS & GROUPS

Both research locations have a somewhat more open section. This section consists of paths and grass and is further characterized by a low density of artefacts. This encourages certain activities that are not possible to perform at other locations. Sports activities, where a larger space is required, take place in this section. If we zoom out we can even say that the parts with a lower density of artefacts lend themselves mainly to group activities. This does not mean that this is the only possible use, individuals can also be found here. Nevertheless, the percentage of groups, with a size of 3 to 4 people, is higher in these parts of the public space (figure 4). The closed sections are more focused on individual use. The artefact density is much higher here, which gives the public space a much closed character. The larger amount of obstacles makes it physically impossible to move freely around the space. The path where people can walk is more formed by the space around it and walking patterns are much more built into the environment.



**FIGURE 3** - USAGE LOW & HIGH DENSITY AREA'S

## 4.2 CHARACTERISTIC SUB-AREA'S

Both research locations contain multiple sub-areas, each with its own character. This character is formed by the amount of artefacts, the type of artefacts and the users. In this section the characteristics of the sub-areas will be displayed for both research locations. In chapter 5 the relations between these areas will be discussed, as well as their function in the network.

### 4.2.1. MUSEUMPLEIN

The first characteristic part, enclosed by the Rijksmuseum and the Honthorststraat (Figure 5, number 1), is characterized by a hard, sometimes paved, subsoil. In the middle of this area is a large fountain / water basin (see chapter 4.3.4.), surrounded by benches and trees. However, the biggest attraction in this area is surely the I Amsterdam sign, where hundreds of tourists come every day to take a picture. On weekdays, when the observations in this study have been executed, people are constantly surrounding or on top of these big letters. It is striking that when taking a closer look at those people, there is little or no local population to discover. This applies not only to the direct surroundings of the I Amsterdam sign, but to this entire area. There are hardly any locals to be found, except for those who cross this part by bike. In short, it is therefore possible to speak of the tourist part of the Museumplein.

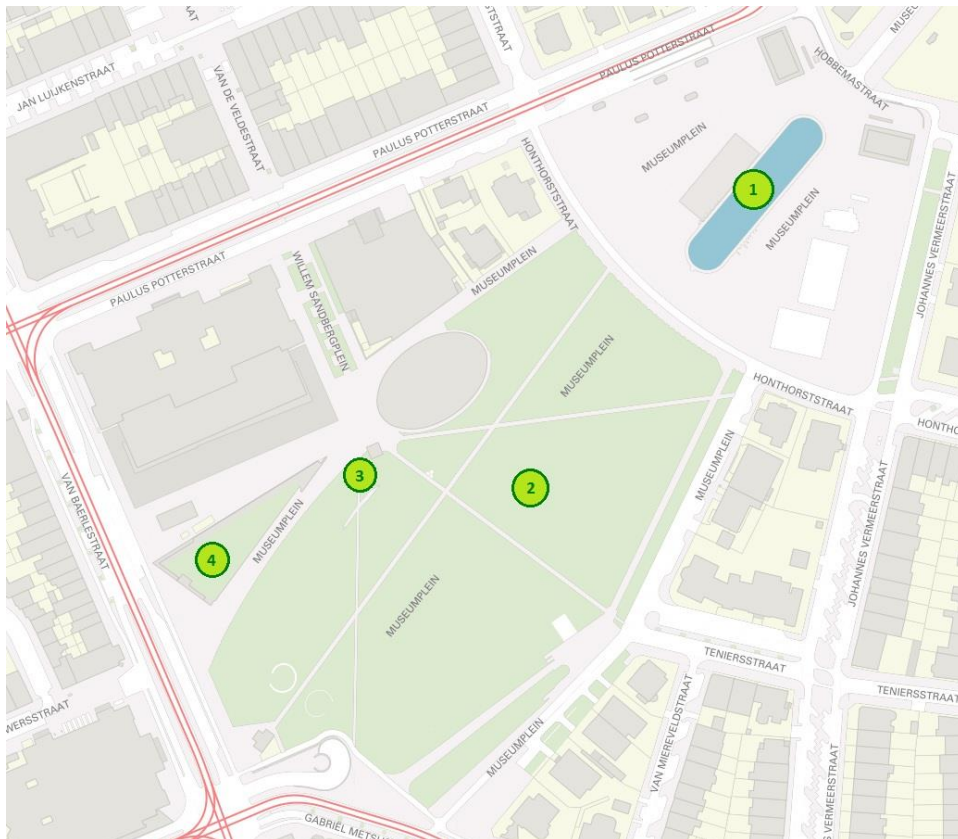
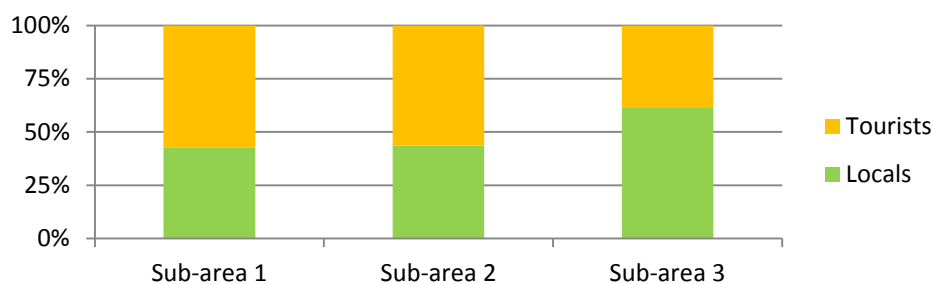


FIGURE 4 - AREA'S MUSEUMPLEIN

The second characteristic part is located between the Honthorststraat and the Concertgebouw (Figure 5, number 2), and is characterized by a large expanse of grass, crossed by a few tile paths. The density of objects in this area is much lower than other places of the Museumplein and the immediate vicinity of the square. This piece, an open area in a densely populated area of the city, is therefore unique and is appreciated as such. In conversations with visitors, this quality of the Museumplein in particular has also emerged. "In the summer you can sit in the sun here and in the winter you can get a breath of fresh air" (interview with local user of the Museumplein). Not only tourists are attracted, but the local population too. In fact, the local population makes more use of this part of the Museumplein than the tourists themselves, who move more towards the various museums and places of interest. Many local visitors use this grass field to sit, lie, picnic or exercise. These different forms of use, all for relaxation, function well together. Because of the wide availability of space, everyone can find their own place without making another form of use impossible. An example of this is footballing children who have enough space, so that they do not shoot the ball towards other users on a regular basis. Even sports forms such as Frisbee, which is a very space-intensive sport, are possible here without difficulty.



**FIGURE 5** - LOCALS & TOURISTS PER SUB-AREA MUSEUMPLEIN

The third characteristic part, which may be more hidden and what people do not directly associate with Museumplein, can be found to the west of the Museumpromenade (Figure 5, number 3). This part, located in front of the Stedelijk Museum and the Van Gogh Museum, has a more closed character, compared with the other two aforementioned parts. Trees, benches and buildings make this part contain more physical obstacles than the surrounding area. Because of this varied range of spatial objects, the largest variety of visitors can also be found here (Figure 6). Both local visitors and tourists can be found in this area. This of course also has a lot to do with the surrounding buildings, which are the destinations of the different target groups. The tourists arrive at the museums and the local visitors at the supermarket. Nevertheless, both types of visitors use the objects that are present in the same way. The benches that are present are owned by locals who want to enjoy the outdoors and tourists who want to eat their lunch here before they go to the next tourist attraction. An explanation for this similarity in behaviour can be found in the properties of the users. If we look at the age of the average visitor of this area, especially that



of the local visitors, then it is predominantly over-40s. The locals present on the lawn, on the other hand, are a lot younger. Since a majority of tourists is of the same age as the older local, the use of the same spatial objects can be explained by age. The use of public sitting areas will be discussed in more detail in chapter 4.3.1..

#### 4.2.2. GRIFTPARK



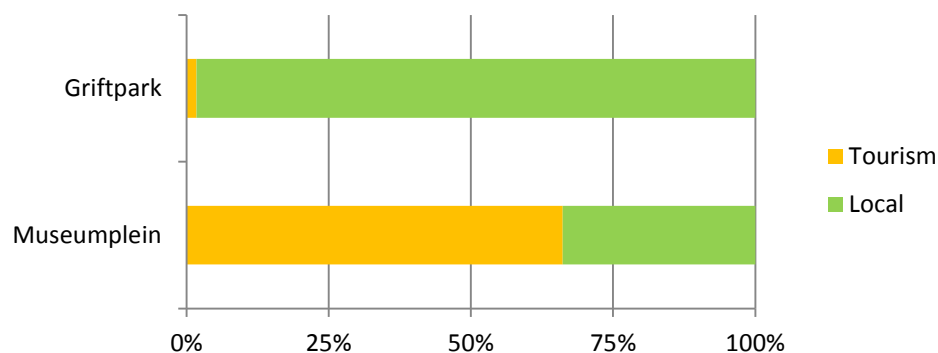
**FIGURE 6** – AREA'S GRIFTPARK

The Griftpark can also be divided into four different zones, each for a different target group. Where on the Museumplein a very subtle distribution takes place of the users, by means of a water basin (chapter 4.3.4.) and changing surface, this is much more prominent in the Griftpark. There are more hard boundaries here.



The most prominent feature is the metal fence that shields the petting zoo from the rest of the park. However, this is a semi-public area, which is only accessible between certain hours. The same applies to the playground that is surrounded by a two-meter-high hedge, so that it is largely hidden from view of the rest of the park. These limits are therefore clearly displayed. A less obvious boundary, but not less effective, is the subtle entrances of the more vegetated part of the park. Where the paths throughout the park are wide and paved, small sandy paths have been used here.

The biggest difference to the Museumplein is the amount of tourists that visit the area (figure 7). Looking at the distance to the city centre and the central station, the Griftpark is even closer, and the difference in facilities is negligible. However, the difference is in the environment. Logically, the more tourist attractions in the area, the more tourists there are. However, interviews have shown that the absence of the large tourist flow in the Griftpark is experienced as very positive by current users. They are not enthusiastic about more users and scenes such as on the Museumplein, which already reflects a subtle bias of people towards tourists and the negative consequences.



**FIGURE 7** - PERCENTAGE TOURISTS & LOCALS PER RESEARCH AREA

Certain forms of use that are more associated with living can be seen more prominently in the Griftpark compared to the Museumplein. These are activities such as running, walking the dog and walking with a pram. All these activities are usually carried out from home or in the immediate vicinity of the residential address. Despite the many local residents, these activities are much less present at the Museumplein. Looking at the immediate surroundings, both locations can still be designated as the most suitable locations in the neighbourhood for these activities.

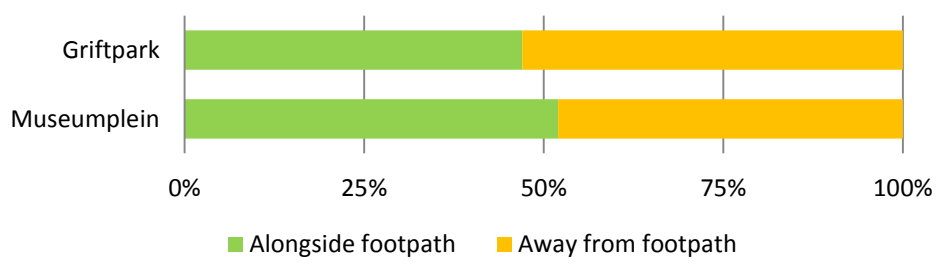
#### 4.3. ARTEFACTS

In this paragraph the measurements and observations of a number of artefacts or groups of artefacts will be displayed. In the first three cases (sections 4.3.1, 4.3.2 and 4.3.3) artefacts that can be found at both research locations will be

discussed. Subsequently, artefacts will be treated separately for both research locations.

### 4.3.1. BENCHES

Research has been done on how public seats, in the form of benches, are being used and how it is affected by pedestrian flows. This has been done because seating is very decisive feature for the character of the public space and is the key for the most common activities (Gehl, 2011). In addition, seating depends heavily on other actors who influence the characteristics of that place. Since the users have a choice between different locations, it is interesting to see which factors all play a role in their choices. What appears from the observations is that people have a preference for quiet, free benches. Since sitting on a bench, chair or edge is a stationary activity, often accompanied by some rest and accompanying activities, a mass of people passing by can be experienced as disturbing. Both the agency of the passers-by and the agency of the footpath are thus taken as a factor and their influence on the agency of the surrounding benches.

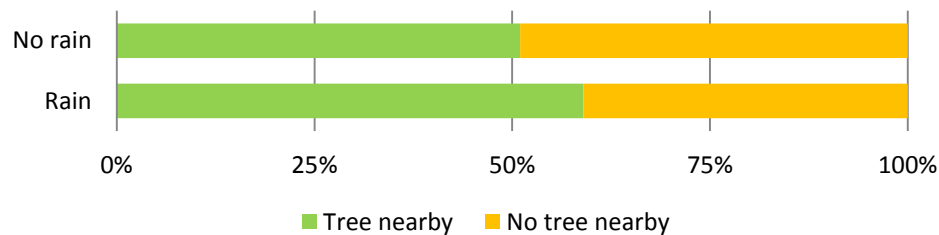


**FIGURE 8** - POPULARITY BENCHES INFLUENCED BY DISTANCE TO FOOTPATH

As can be seen in figure 8, it is not clear that the agency of passers-by or footpath influences the popularity of the adjacent benches. The benches are used in both types of locations, directly on a more crowded walking route or beyond. However, there is some difference in the type of activities that are being done at different locations. People along a walking route are more aware of their environment. They look around more often and keep an eye on passers-by. People who are further away from the pedestrian flows are more likely to look at their phone or read a book or newspaper.

An important external variable that can influence the agency of an object in public space is the weather condition. In rainy weather for instance, when there are fewer people outside, certain benches are preferable to others. The agency of the benches change, mainly because of the objects surrounding it. It is clear that a bench with some form of coverage is more popular in rainy weather conditions, as a bench without. Since there is no clear roof at both locations, there is no possibility to test it. In the observations, however, it turned out that a

difference could be noticed between benches under a tree and benches that stood free.

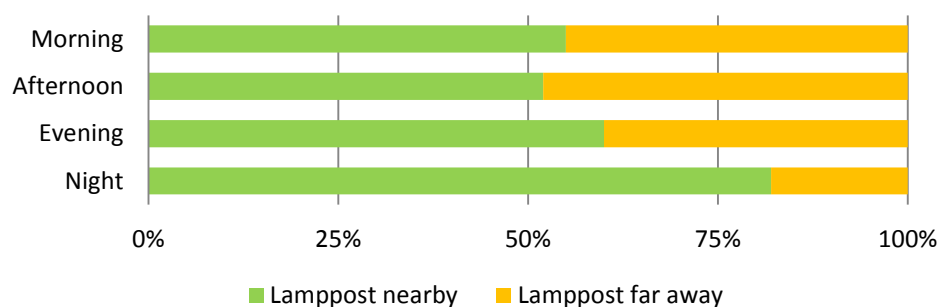


**FIGURE 9** - POPULARITY BENCHES INFLUENCED BY TREE COVERAGE IN RAINY WEATHER

There are four weather conditions in which measurements took place; rainy, very rainy, sunny, very sunny. As expected, the benches under a tree are more popular in rainy weather conditions. However, in the case of prolonged rain (> one hour) the popularity of these benches decreases again, to an equal level with the free-standing benches. This can be explained by the fact that the foliage is saturated with water and can no longer function as a shelter. The free-standing benches are used more in sunny conditions, but here too we see a change in more extreme conditions. On hot days (27+ degrees), people still find the shade under the trees, even though many people choose to lie on the grass, enjoying summer.

#### 4.3.2. LAMPPOSTS

Obviously, the objects that are present in the public space remain during the night, making them usable for the then active users. Of all the objects, the role of the lamppost will change the most. During the day, with enough daylight, these posts have a completely different function. They can be used as a post to put your bike against or to hang up signs. During the evening hours they really come into their own and illuminate the public space. However, they can only do so in a very limited area. To provide the entire Museumplein or Griftpark with lighting, a lot of posts are needed. Instead, it is decided only to provide several parts with light. This creates a separation between enlightened and unlit locations.



**FIGURE 10** - PERCENTAGE OF BENCHES INFLUENCED BY LIGHT SOURCES

When we talk about the agency of objects, or actants in general, we can say that the agency of the lampposts may have changed the most during the day. This also changes the affordance and agency of the surrounding objects, as it is part of a network. So you can imagine that a bench under a lamppost gets a different character, the affordance has changed. But because the affordance of this bench has been changed by the lighting, it also changes the agency of an unlighted bench somewhere else at the research location. A difference arises between the two materialistically equal benches, under the influence of other objects. This can also be seen in Figure 10, where the popularity of benches has been studied under the influence of light sources. It can be seen that benches with lighting are more popular at night than benches in the dark.

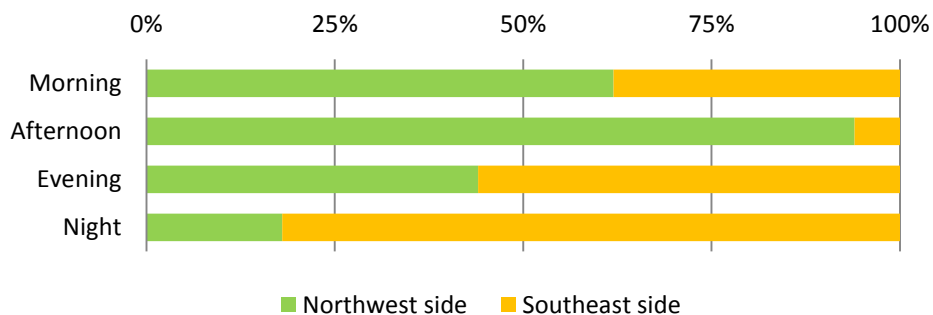
#### 4.3.3. BICYCLE RACKS

A form of stimulating certain behaviour by spatial objects at both research locations is being done and has to do with the means of transport. The bike racks at both the Griftpark and the Museumplein are trying to stimulate people to reach this public space by bicycle. This is generally preferred over using a car as a means of transport.

However, there is an important difference in the positioning of the bicycle racks between the two research locations. At the Griftpark the bike racks are located when entering the park. The bikes can be parked there before entering the park. On the Museumplein there are racks next to specific locations, namely the playground and supermarket. This has to do with the type of visitors that come to certain locations. In the Griftpark mainly local visitors are expected, while on the entire Museumplein tourists are the primary users. The playground and the supermarket are pre-eminently places on the square where mostly locals are located. The location of the bicycle racks indicates here where the locals go. During the evening hours, these locations will still be used, while the tourist locations are already quiet. Thus a separation of user groups occurs here.

#### 4.3.4. MUSEUMPLEIN: FOUNTAIN

The design of the Museumplein takes into account the different users and thus also the different interests. A clear example at this research location can be found between the Rijksmuseum and the Honthorststraat, in the form of a fountain / water basin. Looking at this spatial object does not immediately reveal that it is a separator of people, but through collaboration between this object and other objects, all actants, an interesting pattern is created. During all the observation days it was noticed that north of the water basin there were many more people than there were on the southeast side. This was not just a snapshot, but continued throughout the afternoon (Figure 11). In the late afternoon this difference slightly decreased, and during the evening the difference was present again, but reversed. The fluctuations of the total amount of people to the south-east of the water is also much less spectacular than on the other side. Looking at the number of tourists that are present at different times (Figure 2), there is an interesting link. The peak of the number of tourist activities is equal to the number of people to the northwest of the fountain. The other functions, in particular the sitting function, remain more stable. The fountain makes a distinction between locals and tourists.



**FIGURE 11** - DISTRIBUTION AROUND FOUNTAIN PER PART OF THE DAY

Even if we look at the objects in the vicinity, we see a separation between the touristic use and the local use of this part of the square in the design of the Museumplein. To the northwest, where there are more tourists, there are several stalls where people can buy food, drinks, postcards and tourist trinkets. Terraces, chairs and benches strengthen this place as a place for consumption. It shows that tourism is a real economic activity, which the city of Amsterdam naturally wants to benefit from. These economic activities cannot be found to the southeast of the water, except for the Cobra Café, but they have the entrance towards the I Amsterdam sign. The objects to be found to the south-east of the water basin are mainly aimed at the local population, in the form of a playground and a skateboard park. In addition, bicycle racks can also be found next to those facilities, the only place on the entire Museumplein, which indicates the preferred mode of transport to get to this part of the square.

Objects are not the only units which direct people towards the economic activities to the north-west, subsurface have the same tendencies. If you want to go from the I Amsterdam sign to the concert hall, there is only one tiled path to be found. This path runs from the I Amsterdam sign, past the stalls and terraces towards the Van Gogh and Stedelijk Museum. Of course, these are the most popular destinations for tourists, but this subtle way of steering does reflect the intentions of the design. There is no path towards the objects on the southeast side, in fact; the passage between the fountain and the Cobra Café is narrower than on the other side. So it was very clear during the design of the Museumplein to steer, and actually separate, from the flows of people.

#### 4.3.5. GRIFTPARK: ENTRANCE

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One of the accesses (see photo) is an example of a limitation of a user group. People with moving objects, such as bicycles or prams, cannot easily reach this part. This part of the park promotes individual use, where the rest of the park is very suitable for group use. The narrow sandy paths, dense vegetation and limited accesses together reinforce individual use, which is reflected in the type of users. In particular, many people who walk the dog or people who go for a walk can be found in this part of the park. The result is therefore that this is a quiet part of the park, something the designer had in mind.

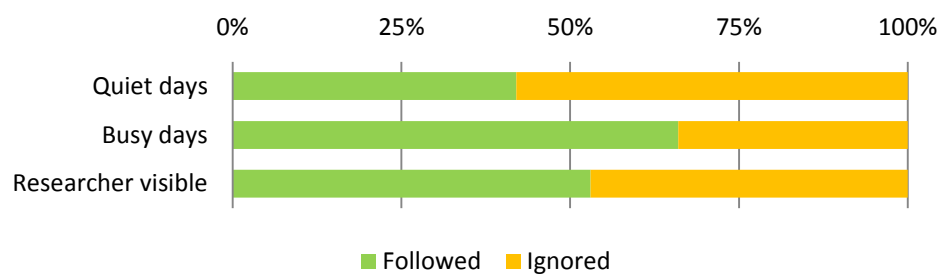


**FIGURE 12** – ONE ACCESS  
POINT GRIFTPARK

#### 4.3.6. GRIFTPARK: BICYCLE TRAFFIC SIGN(S)

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At the entrances of the Griftpark, it is made visible that cyclists are not allowed in the park. There are racks to place bikes and to encourage people to continue on foot. However, there are no bicycle fences or poles that make it impossible to enter the park by bike. Since the paths are also wide enough for pedestrians and cyclists together, these prohibition signs are ignored on a very regular basis (Figure 13). Thus there is a conflict between different actants. However, on the busier days, with more people using the park, the ban is followed. The social consequences that occur as a result of ignoring a ban are an important factor in the assessment of situations.



**FIGURE 13** - REACTION TO PROHIBITION SIGN

Also shown in Figure 13 is the number of cases where the ban was ignored while the observer was prominently visible as a researcher at one of the entrances, including clipboard and safety jacket. Since this was also a case where possible social consequences could be of influence, it was interesting to investigate. As can be seen, as soon as there are possible negative social consequences, although not caused by bystanders or someone in an authority function, changes in behaviour occur.



## 5. DISCUSSION & ANALYSIS

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In this chapter we will elaborate on the measured and observed results, presented in the previous chapter. We will look at how these can be explained and connected with the theory discussed in Chapter 2. Since the theories are mainly placed in a constructivist framework, the emphasis of this analysis will be on how the various objects, people and areas are part of a network, which role affordance and agency play and how this all determines and influences human behaviour.

In chapter 5.1. the logic that people seek in the spatial organization will be discussed. This will show us that users of public space are searching to create order and logic in the chaos of artefacts. They want to understand the environment in which they are.

In chapter 5.2. we will discuss that in order to create certain logic in public, people group artefacts together. In this process affordances and agency play a central role, which will ultimately influence human behaviour and perception of space. The question here is whether a single object has agency or whether the place in the network determines the influence potential of an artefact.

In chapter 5.3. the effects of grouping artefacts on social- and territorial behaviour will be presented. Since humans are social beings and a public space is considered a meeting place, it is no surprise that groups are formed and certain spaces are being claimed.

Finally, in chapter 5.4. we will look at how one major user groups, namely tourists, see logic in public space and how they use the different grouped artefacts. They use space in another way than locals do and they have different experiences in a certain space. A comparison will be made with the tourist gaze and which role affordances and agency play have.

### 5.1. LOGIC IN SPACE

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Public space can be used by everyone. It is one of the characteristics of public space, the accessibility for every citizen or visitor. Public space cannot exist without social interaction, it would only be a materialistic space then. It is precisely this interaction and relationship between the social and the physical that plays a central role within this research.

We can call it a form of communication between the physical environment, consisting of artefacts, buildings and surfaces, and the social environment, the users of space (Gehl, 2011). If there is communication, in whatever form, a certain logic must be present. People have to understand the message which is communicated. In the communication between artefacts and users, this is no difference. People search for a logical story in the environment in which they find

themselves (Gehl, 2011), a narrative with which they can identify themselves in a certain way. A story that people understand will also be understood as such. It will lead to a certain type of (desired) behaviour. If users cannot make a logical story, it will lead to conflicting forms of behaviour among them. This can happen when the physical space is designed in such a way that conflicts with peoples ideas of how a public space should look like. What exactly a clear logic is, is different for each person, so there are always conflicting kinds of behaviour. Artefacts can thus be interpreted differently by different users. Looking at the research results, we can see how people look for logic in public space. There are two particular examples in which we can see how the interpretation and sense-making of visitors has led to conflicting behaviours.

In the first example, there is a difference in behaviour between two user groups. These are influenced by the pedestrian path on the Museumplein, which has been discussed in paragraph 4.3.4.. It contributes to the strengthening of a separation between two user groups, the tourists and the locals. It conducts people, as it were, towards the north side of the fountain. The tourists, generally less familiar with the area, only follow this willingly to travel to other (tourist) destinations. The path is an indicator of what the main route is, and therefore logical. A road or path is always an indicator for destinations, other people, signage and orientation points, all are necessary for navigation on an unknown site (Harrison & Dourish, 1996). If you are familiar with a place, you will sometimes take a shortcut, but people in a unknown territory won't. To local users, this path is no indicator of destinations, since they don't want to visit tourist locations and therefore it makes less sense.

The second example can be seen in paragraph 4.3.6., following or ignoring a prohibition sign. When there is a ban on something, but the space around it gives a different signal, the ban will be questioned by the user (Leeds-Hurwitz, 2012). The user makes his/her own decision and takes the surrounding artefacts in account, such as possible social or physical barriers. The physical space therefore affects a person's choice to follow a prohibition or ignore it. On the busier days, with more people using the park, the ban is followed (Figure 13). Partly because then one sees the usefulness of the prohibition, one sees the logic in the design of the space and prohibition sign. One can also imagine ignoring the prohibition will cause negative social consequences, such as people shouting at you (Koskela, 2000).

In both these examples it is noticeable that people search for logic in space, as Gehl (2011) noted before. In the first example they follow a path because that path leads them to destinations where they want to go. Supported by the physical surroundings, the signage and flow of people, they follow the "logic" route via the pathway. In the second example we see exactly the same kind of behaviour. People look around them to see whether the ban is useful they follow the ban if it makes sense to them, if there is logic behind it. When there is no logic because there are no people, the ban is ignored.

When creating a logic story of all surrounding artefacts, affordances and agency come into play. All objects offer the user different possibilities of interaction. Since there are so many objects in public space, people have to find a way to make sense out of all those affordances. Some prioritization is necessary to cope with all the stimuli people receive. They do this by grouping artefacts together, a process where agency plays a key role. This will be elaborated on in chapter 5.2.

## 5.2. GROUPING ARTEFACTS

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As mentioned in chapter 5.1. people search for a logic story in public space. What emerges in both aforementioned examples is that not only the artefact itself is of influence of behaviour, but also the surroundings. The artefact is placed in the context of the whole. The user takes into account the environment, as it were, and sees the artefacts in relation to other actants, he searches for a certain logic.

A user compares an object with the environment and adjusts his behaviour accordingly, a process of sense-making. This process can also be seen in how people choose a seat in the public space. It is not that the character of the bench fully determines whether someone sits down in a certain place. The surroundings of the bench, the other actants, are taken into consideration when considering which seating to use. In paragraph 4.3.1. it can be seen that the distance to a nearby footpath has an effect on the behaviour of the users. "People who are further away from the pedestrian flows are more likely to look at their phone or read a newspaper." The influences from a nearby tree or light source (paragraph 4.3.2) also play a role in determining a single seating position, all surrounding actants. Therefore we can conclude that not a single artefact and its affordances determine human behaviour, but the combination of artefacts and affordances. This is also in line with the Actor Network Theory, in which an artefact (or actant) is part of a network of actants and dependencies. It is influenced by all surrounding actants. In the case of human actors a certain behaviour is thus stimulated.

If artefacts are seen in relation to other actants, the politics of artefacts are also relational. It is dependent on its surroundings, both materialistic and social. This is in line with the social constructivist position of Latour (1996), whereby the artefacts are placed in the (social) network of actors, and against the position of Winner (1980). Similar to Winner, Latour states that artefacts contain politics. However, Winner is talking about the politics of a single object and the intentions of the design and the designer. "In contrast to Winner, Latour assumes a high degree of contingency: the power of things depends on how they are (as Latour says) 'syntagmatically' networked with other things, in competition with paradigmatic counter-programmes of differently coupled actants" (Joerges, 1999 p5.).

Going back to the Museumplein, we find an example in which this social constructivist theory of Latour is confirmed. The fountain near the Rijksmuseum

functions as a dividing line between two user groups (see section 4.3.4.). On the one side we find the tourists and on the other side the local residents. Winner will state that this water basin itself functions as a separator. It contains a political charge, whereby the user groups are separated. It has been put there as a barrier to protect one (or both) of the groups. However, from the point of view of Latour we can better explain the behaviour that has been demonstrated. The environment in which the artefact is placed plays a major role in dividing the people. The footpath, the available museums, the kiosks and terraces, they all play a role, they are all syntagmatically networked with other things.

#### 5.2.1. AFFORDANCE & AGENCY

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ANT enables the user to group objects, something that is not possible in other social theories (Latour, 2005). The user does not see artefacts as separate parts in a network, but as a group of objects that he has defined himself. This is also a kind of network, but then on a lower scale level. A bundled affordance will result from that mini network. For example, a user will not see every loose tree as a separate object, but bundles a bunch of trees together. Those trees act like a group and will have a single affordance, it offers the user action possibilities. This is a way to deal with the overload of information and to create order in the otherwise endless relativistic regression (Collins & Yearly, 1992).

Bundling actants together into groups is also a form of creating order when observing the environment. Actants with similar affordances, characteristics and/or behaviours can sometimes be seen as one entity (Potter & Wetherell, 1987). This is most noticeable on the Museumplein where the groups of tourists, often with the same goal and behaviour on the square, are bundled into a single unit. Even artefacts closely connected to this user group, like souvenir shops and the I Amsterdam sign, can be bundled in the same unit. These groups, consisting of both human and non-human actants, are not stable and can thus be formed and dissolved at any time, depending on the observer. Bundling actants together is a subjective process, depending on the preferences of the user. This is also noticeable at the Museumplein, where a group of tourists can be formed during the day. All artefacts they use are associated with this group. However, once tourists are no longer present, the association of objects with this user group also expires. This indicates that every time we have to look at how groups are formed and how the actants play a role in this (Dankert, 2011).

Gibson (1966) states that affordances are independent of someone's ability to recognise or even use it, an object's materiality is constant. A varying factor is whether and how people understand this affordance, how they use it for their own purposes. Affordance is therefore relational and depends on how the space is seen by the user (Gibson, 2014), which is the fluctuating factor. Thus we can conclude that the amount of influence an artefact has on a user is also fluctuating. We can reframe this as agency, the extend of influence an artefact's affordance has on the user (Figure 14). This is also in line with social

constructivist thinking, in which agency is dependent on the environment of the user and the artefact.



**FIGURE 14** - RELATION BETWEEN AFFORDANCE AND AGENCY

If agency is reframed as the susceptibility of affordance on a user, we can conclude as well that artefacts do not have agency themselves. This goes against the idea of ANT, which states that both human and non-human actors have agency. Furthermore it states that the agency an actant has within the network can vary in relation to different actants. However, the results from this research contradict this view. We state that the affordance of an artefact is stable. The social representation social constructivists give an object are all inside a users mind. Depending on his preferences and user goals he can make (social) connections between actants. Whether an object's affordance is susceptible, is all-in the eye of the beholder.

We describe agency as the extend affordance influences someone's perception of the artefact. This does not limit itself to artefacts, but it is also applicable to all actants. Even groups of actants, created by the user himself. We can conclude that actants do not have agency themselves, but experience other actant's influence as agency. How agency is used in creating borders and territorial claims will be explained in chapter 5.3..

### 5.3. TERRITORIAL CLAIMS

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Making groups of artefacts is also a process in which boundaries are constructed (Latour, 2005). These boundaries can be based both on physical characteristics of a space and on social structures that can be found within a certain area. These limits are maintained in a certain way, but are also contested. We have already mentioned the fountain, as a dividing line between tourists and local visitors. In addition, there are other forms of borders to be found at both research locations. These forms and the effects of setting limits will be discussed in this section.

Creating boundaries is a result of grouping objects. An assessment is made with what is and what is not bundled in a particular group. This way all traffic signs and lights at a crossroads can be grouped. However, when someone places a pole with balloons there, it does not match the environment, it does not belong to the group previously made. While all objects can be seen on/around the intersection, it is not seen as a coherent bundle. A consideration has been made, a process of sense-making took place. As a result of creating borders, there is the possibility of territorial claims. People and groups who appropriate a certain

piece of public space and maintain this in a certain way. These territorial claims form an important part of "reading" and understanding public space, the search for logic (Kärrholm, 2007).

Some forms of territorial claims can be clearly understood. A parking space, smoking area or terrace are demarked parts of the public space intended for a certain type of use. It is spatially represented by a line or barrier. Other claims are less visually represented and are based more on social norms and values. Choosing a place on the train is one such an example. It is not easily accepted if you go and sit next to someone in an almost empty train section, while there are other seats available. Entering someone's personal space is a social norm that is violated here. Such examples can also be found at the research locations.

### 5.3.1. GROUPS

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At both research locations it was clear that the higher located area was mostly used by youngsters (paragraph 4.1.1.). Especially in the evenings they position themselves at these locations. Karsten & van Diepen (2009) have already observed this phenomenon in their research and described this process as 'seeing and being seen'. Young people choose a platform where they have an overview of a crowd, where the crowd can observe them too. The Ezelsoor and Griftheuvel are used as a stage by the youth, as it were, to claim a place within the space for itself.

The subculture on these places is very secluded from others. Outsiders are hardly accepted, in fact, if you do not meet the characteristics of the group (Hobbs et al., 2000). Territorial claims are part of this and are also applied. The hangouts are appropriated from a certain time to a certain subculture. I also experienced this during one of the measuring days. I had taken a position on the central hill of the Griftpark, where there is plenty of room for several small groups. However, I was alone and did not behave in accordance with the subculture. After five minutes the youngsters noticed me and was informed about my motive why I was there. After a short conversation it soon became clear that these young people are sitting there almost every day and therefore know some regular visitors. They made the comparison of themselves to a local café or bar where adults meet each other. "That is a meeting place for them and this is ours."

A comparable situation also took place in Amsterdam, but at that location the group concerned was already present when I sat down at a distance of 10 meters. The territorial claim was immediately noticeable as I was addressed to within a minute by asking me what I was doing there. When fifteen minutes later a group of young people arrived that also took place on the donkey's ear, no questions were asked. It can be said that the enforcement of these claims is maintained very strictly. Looking at how this user group claims space, it is noticeable that they do so in a very efficient way. During each measurement day there has not been a single time when someone from outside the subculture has

entered this territory. The demarcation is mainly done by means of sound. Where during daytime vision is the most important sense of orientation, the role of sound in the evening hours increases (Brower, 1980). Sound is produced by scooters, music and the young people themselves. The music in particular is an important means of delineating the area for themselves. This makes others aware of the fact that they are there. The music is also audible from a greater distance than during the day, where much more noise can arise due to other ambient sounds. As birds singing in a tree, these young people delineate their territory with sound.

Marking territories like these youngsters do, effects the affordance of surrounding artefacts as well as the outsiders' experienced agency. The youngsters mark their territory by using sound. They present themselves as a group as it were, also to be seen by other users as such. They force people not belonging to their subculture to group them all together, including the nearby actants, both human and non-human. All their affordances are being bundled together into one group affordance, which is susceptible to other users depending on their goals and preferences. Members of the same subculture are also influenced by this affordance, but because they want to belong to the same group, their agency differs from outsiders. This way the youngsters can keep outsiders away and given the reaction of the group when an outsider (me) was entering "their territory", this is their goal.

In order to reach this goal, the youngsters use music as a way to expand their territory even further than necessary. They do not only want to include the artefacts they use into their group, but the surrounding artefacts as well. The music is still audible at greater distance, it influences the surrounding artefacts. The materiality of an artefact can still offer several action possibilities, but because of the social network, people can still be limited in using these artefacts to their benefit. The perception of affordance is therefore not only dependent on the materiality, but on the position in the social network as well. This is again in line with a social constructivist standpoint.

Another form of territorial claim by groups can be seen at the Museumplein. You can see a clear separation between the tourists and the locals, each of whom uses different parts of the square. Looking at how actants, including the people themselves, influence each other, it can be concluded that the presence of tourist attractions has a decisive influence on the character of the location. The more touristy the location, the less local people can be seen there. Since we have already concluded that certain objects are placed with the aim of promoting tourism, we can also conclude that the objects stimulate a certain territorial claim.



### 5.3.2. PERSONAL SPACE

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Where groups play an important role in territorial claims, as we have discussed above, people themselves also have a form of territorial claim. People need a certain amount of personal space. A space in which they feel safe and in which they have their own personal preferences (Lofland, 2017). In public spaces they create their own niches in which they define their own personal space (Gehl, 2011). Joining someone's personal space is a choice that makes people unconsciously, in which a number of factors play a role. The most important factor is corresponding personal interests and characteristics (Gehl, 2011). People prefer to sit next to someone in accordance with the same social class, subculture or activity. This is an example where separation of people takes place automatically, only on a very local scale.

Individuals can claim a certain space as well. It has to do with personal space, as mentioned above. However, people can alternate the size of their own personal space, according to their own preference. Looking at the research locations, this process is visible too. On the benches they can create their own niche, their own world. The bench is, as it were, appropriated to that person; others may group these actants together. Sometimes people choose not to sit in the middle of the bench, but clearly on the edge. The social rules that then apply are only half the bench belongs to the niche of that person, not the whole bench belongs to the group. The other side of the bench is freely accessible. This behaviour is in line with the aforementioned article concerning niches (Gehl, 2011). These niches are also visible when investigating the popularity of benches in relation to the footpath nearby (paragraph 4.3.1.). Along a route you keep track of potential "intruders", you are aware of the people who pass by. The constant movement close to your own location ensures alertness. In a quieter place you do not have this urge to "fight or escape".

### 5.4. TOURIST GAZE

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We have discussed how people search for logic in public space and how they group artefacts together in that process. After that we talked about how grouping artefacts, perhaps also all actants, can also lead to territorial claims. One user group that we already have mentioned a number of times has a lot of influence on all these processes, the visitors/tourists. They also look at a public space, but experience this in a very different way than the other users. Their relation with affordance and agency is a little different from local users, which we will discuss in this chapter.

Like all other users, tourists are also looking for certain logic in space. They also group actants together in order to cope with the overload of information they receive. However, the process of grouping artefacts together is somewhat different to the other, more local, users. This is because the purpose of being in a particular public space differs between the groups. Locals often use public

space for their daily pursuits, be it for doing groceries or for recreational purposes. They know the environment in which they are located and experience certain routines in their behaviour. Tourists however are less familiar with the surroundings and are more open to receive information and impressions from the environment. They are much more susceptible to the affordances of actants surrounding them.

This phenomenon shows strong comparisons with what John Urry (2011) describes as the “Tourist Gaze”. He states that the so-called “Tourist Gaze” influences how people experience places. According to Urry, tourists look for visual experiences which are in contrast to their daily routines, regarding both time and culture. This is why castles, churches and city centres are so popular. Tourists want to experience different parts of the world, not the same situation in which they live themselves (Olsen, 2002). Because of the internet, people have a better understanding of what is going on in the world and what they expect to see when they arrive at a particular place. For example, in Rio de Janeiro people expect to see the samba and in Amsterdam windmills, hookers and tulips. A certain form of characterization takes place, almost caricaturising the location of the travel destination. This is why the big red double-decker buses in London still run, although they no longer function as city buses, they are considered to be major tourist attractions.

This interest in exotic cultures and places is the major driving force on how tourists group artefacts together and how they experience affordance. They want to gain as much experiences in a limited amount of time, they want to get a complete picture of the local culture. On one side it makes them open to receive environmental impressions, but on the other side they limit themselves. Experiences they regard as “normal” compared to their own daily lives do not receive that much attention. It does not contribute to the premade view they had of the destination. This way they group places of interest together, places that can be characterised as tourist destinations. At the Museumplein this is the case around the I Amsterdam sign, the Rijksmuseum and the other two museums nearby. This is what John Urry (2011) described as the “Tourist Gaze”, which we can reformulate as people’s susceptibility to the affordance of tourist destinations. In other terms, the tourist gaze is a tourist’s agency. By using this lens, things that may be common or even uninteresting for locals, can become interesting for other (foreign) users, resulting in conflicting behaviours and possible territorial claims.

The tourists who make use of public space can usually be found at the same locations, among others on the Museumplein. The I Amsterdam sign is a huge tourist hotspot, as can be seen in paragraph 4.2.1.. This can be explained by the tourist gaze as well, visitors are interested in the same types of locations in public space. They all group the same actants together and consequently they visit the same places. As a result, certain places are flooded by tourists, which has consequences for the experience of public space. The question that can be asked is whether a location can still be characterized as authentic. Bus loads of

tourists visit a church without praying, new buildings are constructed in old style and monuments are reproduced. Is an artefact still a real artefact or does it serve as a tourist attraction?

In places where many tourists are present, local visitors are absent. The presence of one user group almost excludes the other's presence. It is an unconscious territorial claim, in which all actants are related to tourist activity. Coherent with the question regarding the authenticity of artefacts, tourists create a space where authenticity is gone. It is a self-destructing mechanism, in which the search for authenticity takes away precisely that authenticity. The question that remains is what the local government wants to do with this. Do they want to restore the authenticity in the streets of their cities at the expense of tourism, or do they accept that parts of the public space are seen as less public? A which many cities have to face in the next few years.

## 6. CONCLUSION

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In this report we have researched how objects in public space affect our thoughts, experiences and behaviour. This influence is an interplay between the affordance of an object as well as its agency. Several studies have shown that affordance and agency are related to each other (Withagen et al, 2017, Gibson, 1979), but there is no unequivocal relationship to be found in these studies. That is why this research aimed to describe how affordances affect human behaviour and which role agency plays in this process.

People search for a certain logic in space. They want to understand the environment in which they are located in order to determine which objects they can use to achieve their goals. In that search for logic, actants are grouped together by the user. This is done to process the otherwise overload of information. Since someone's goal for being in public space is different per person, people find different forms of logic. Thus they group different actors together, which can be seen in the different forms of behaviour between user groups.

Affordances play an important role in determining the groups. Affordances are independent of someone's ability to recognize or even use it; an object's materiality is constant. However, the perception of affordance is relational, depending on someone's preferences and goals. We call this perception agency, to what extent an affordance influences an individual. This allows us to conclude that an object does not have an agency of its own, the material is constant. This goes against the Actor Network Theory by Bruno Latour (1996), which states that an object itself has agency. Agency is something that belongs to a person, related to social constructions and is separate from the materiality of an object.



**FIGURE 15** - RELATION BETWEEN AFFORDANCE AND AGENCY

When actants are grouped together, the affordances are also grouped. There arises a single group affordance, a bundle of all affordances of actors within that group. This group can consist of two actors as well as hundreds. When the affordance of a single actant influences the perception of another actant, these can be seen as a group by the user. The group affordance is then a combination of the two single actors.

Grouping objects also creates a form of territory behaviour. People can deliberately profile themselves as a group, so as to be seen as a group by other users of public space. In addition, non-human actors can be grouped together

with human actors. Users can attribute those artefacts to a specific user group. As a result, some artefacts in public space have a political and social meaning, they are seen as someone's property. Claiming a space through territorial behaviour is the propagation of a group affordance. People belonging to the group are attracted by this affordance, others are excluded.

Tourists are prominent users of public space and can also interpret this space differently from local users. They belong to a large user group that use the public space with a very similar purpose. As a result, their behaviour is very similar. Through social media and global information services tourists create a certain expectation when travelling to their destination. The Tourist Gaze (Urry, 2011) is the selective way how tourists use the public objects driven by their expectations. It can be seen as the agency of tourists, the susceptibility to tourist artefacts.

It can thus be concluded that objects in themselves are just material and cannot be included in what Latour calls "the social". People place the objects themselves in a social structure, where everyone applies different standards, depending on his/her own preferences. No fixed place in a social-spatial network can be assigned to an artefact. As a result, behavioural change cannot be achieved by only placing objects, research is necessary into the objectives and preferences of the user group to be influenced. Within spatial planning, attention must be paid to this issue to achieve an effective design of public space. This also includes the assignment to reflect on the urban public space in relation to the increasing flow of tourists. Is a public space still really public or should a preference for a specific user group be opted within the design? This is up to the future planners to answer.

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## APPENDIX A – RESEARCH DAY'S

| Date | Day | Weather | Museumplein (Time) | Griftpark (Time) |
|------|-----|---------|--------------------|------------------|
| 8-5  | ma  | dry     | 12,00-18,00        |                  |
| 9-5  | di  | dry     |                    | 12,00-18,00      |
| 11-5 | do  | dry     | 6,00-12,00         |                  |
| 12-5 | vr  | rain    |                    | 6,00-12,00       |
| 17-5 | wo  | dry     | 00,00-6,00         |                  |
| 18-5 | do  | rain    |                    | 00,00-6,00       |
| 22-5 | ma  | dry     |                    | 18,00-0,00       |
| 23-5 | di  | dry     | 18,00-0,00         |                  |
| 25-5 | do  | dry     | 12,00-18,00        |                  |
| 26-5 | vr  | dry     |                    | 12,00-18,00      |
| 29-5 | ma  | rain    | 18,00-0,00         |                  |
| 30-5 | di  | dry     |                    | 18,00-0,00       |
| 1-6  | do  | dry     | 0,00-6,00          |                  |
| 2-6  | vr  | dry     |                    | 0,00-6,00        |
| 5-6  | ma  | dry     |                    | 6,00-12,00       |
| 6-6  | di  | rain    | 6,00-12,00         |                  |

| Date | Day | Weather | Museumplein (Time) | Griftpark (Time) |                  |
|------|-----|---------|--------------------|------------------|------------------|
| 13-6 | di  | dry     | 12,00-18,00        |                  | Group size       |
| 14-6 | wo  | rain    |                    | 12,00-18,00      | Benches          |
| 15-6 | do  | dry     |                    | 12,00-18,00      | Group size       |
| 19-6 | ma  | dry     | 0,00-6,00          |                  | Fountain         |
| 22-6 | do  | dry     | 18,00-0,00         |                  | Fountain         |
| 27-6 | di  | dry     | 6,00-18,00         |                  | Fountain         |
| 29-6 | do  | rain    | 12,00-00,00        |                  | Benches          |
| 4-7  | di  | dry     |                    | 18,00-6,00       | Benches          |
| 6-7  | do  | dry     | 18,00-6,00         |                  | Benches          |
| 11-7 | ma  | dry     |                    | 12,00-18,00      | Benches          |
| 12-7 | di  | dry     |                    | 12,00-18,00      | Prohibition sign |
| 13-7 | wo  | dry     |                    | 6,00-12,00       | Benches          |

## APPENDIX B – CONDUCTED STREET SURVEY'S

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### **Museumplein:**

(Male, 56, local)

"I like taking walks here during my work breaks. I can get my lunch at the Albert Heijn and eat it on these benches."

"In the winter it can get pretty cold here, because of the open area. There is no coverage against the wind."

"I come here every day, I like to watch people."

(Male, 32, visitor)

"I like this square, it has a large space to sit and enjoy the sun."

"I like to see the other people who are sitting here. Most of them are locals I think."

"I wanted to go to the I Amsterdam sign. I wanted to make a picture for home, but there are too many people around it for me to climb on top of it."

(Female, 67, local)

"I take a walk here sometimes, but less often now my dog has died."

"I like the open field, you have the feeling to be out of the city center for a while."

"I don't like the part in front of the Rijksmuseum, there are too many tourists there. It is a tourist area."

(Group of 5 girls, 21-23, locals)

"We sit here sometimes in the summer. You can relax here, take a break from your study."

"It is a place where you have some space for yourself. Not in a bar where everybody is standing really close to each other."

"It's fun to look at some tourists. Sometimes we guess from which country they are. But sometimes they are annoying, especially when you are on your bike. They are often walking on the cycling path, especially under the museum."

(Group of 8 boys, 15-19, locals)

"We always hang here. This is our spot."

"Sometimes we fight with other groups, but that is because they want to be here as well, but we don't like them."

"We don't think we annoy anybody, we are just talking here. Sometimes people say we have to go somewhere else, but this is public space."

(Couple, 27 and 31, visitors)

"I like Amsterdam, there is much to see."

"This square is very nice and tidy. The same as the Rijksmuseum"

"It makes sense all tourists want to go here, they all want to make a picture of the museum and the I Amsterdam sign."

**Griftpark:**

(Male, 24, local)

"A lot of students go here to relax in the summer. It can get very crowded, but is it very nice when that happens."

"Sometimes I run here, but only when it is less crowded."

"I have never seen tourists visiting the Griftpark before."

(Group of 5 boys, 14-17, locals)

"We often hang here, this is where we meet."

"Older people go to the bar, but this is where we go. We got light and seats, everything we need."

"From this spot we can see everybody who is coming here."