The Grass Is Always Greener: Rethinking the Contested Nature of Artificial Grass Football Pitches Through Their Social Construction

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Abstract

With growing calls for urban green space in cities to provide healthy and liveable environments, this thesis explores how there can be a contest for space between human use and ecocentric ideologies when green space is at a premium. Focusing on the contested nature of an artificial football pitch in Nørrebro, Copenhagen, the thesis will use qualitative ethnographic methods to break down the all too binary views on the capacity for artificial elements to provide access to outdoor spaces. The main theoretical focus is on the social elements that surround the pitch, and the designs that afford such elements. The framing theory used is Macnaghten and Urry's text Contested Natures, used to demonstrate that social human life is within and a part of nature, and should not be viewed as separate, and that includes artificial spaces. Affordance theory, the social production of space, and social infrastructure are used to back up an analysis of the social elements surrounding the pitch. The findings will demonstrate how certain features of the space, including the material of the artificial grass, afford varying socialities around the space, as well as how it could be integrated better within urban green space.

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1. Introduction

There is currently an intense focus on the way our cities are designed, who they are designed for, and how they can determine our relationship to nature as urban citizens. Especially, though not only, in the West, the current buzzwords for a good city include terms such as ‘green’, ‘sustainable’ and ‘liveable’, terms that sound appealing and impressive when considering a more social and ecologically just urban space. However, these terms require much unpacking. Recent critical urban theory has tackled notions like sustainability and liveability by asking questions such as: liveable for who? Sustainable how? What are the socio-cultural elements at play when incorporating these vague ideas into planning policy? Taking a critical view on urban development agendas and practices is vital in order to tackle the variety of issues that dominate the urban conversation surrounding inequality and climate change. The current focus on the climate crisis, as well as global inequality, has increased the scrutiny on how our cities are designed and who they are designed for. With the global population expected to be 60% urban by 2030 (in Europe it is already 75%)[1], the necessity to properly manage urban space in increasingly dense neighbourhoods is only growing.

A subject that engages with all of the terms outlined above is that of urban green space. In order for a city to be green, sustainable, and liveable, it must provide adequate access to urban green space for all its citizens. The importance of access to urban green space has been studied through many different lenses. The WHO document *Urban Green Spaces: a brief for action* (2017) is intended to demonstrate to urban planners in Europe why green space is important, the variety of types of green spaces, and how to best incorporate them in our cities. The challenge for urban planners in Europe is to create green spaces that are accessible, aesthetic,

[1] https://data.worldbank.org/indicator/SP.URB.TOTL.IN.ZS?locations=EU

provide amenities and infrastructure, and encourage participation in outdoors activities, to name just a few (figure 1.). The diversity of possibilities and benefits to urban green space demonstrate how different the spaces can be. So what really defines something as Urban Green Space?

Figure 1, characteristics and impacts of urban green spaces, from the World Health Organisation's document, Urban Green Spaces: a brief for action, 2017

The WHO states that *'urban green space is defined as all urban land covered by vegetation of any kind. This covers vegetation on private and public grounds, irrespective of size and function, and can also include small water bodies such as ponds, lakes or streams ("blue spaces")'* (WHO, p.2). Bold planning documents must be challenged to nuance how these spaces will be

incorporated, as urban spaces with natural vegetation and greenery are often bound up in issues around accessibility and use, with terminology such as ‘greentrification’ or ‘eco-gentrification’ coming into academic studies recently (Wolch et al., 2014; Rice et al., 2020). COVID-19 further highlighted some of the inequalities that exist around access to green spaces and the health benefits outdoor activity brings, often previously unseen or unspoken of in public discourse. It is therefore important that green spaces in the city must be approached critically. As Jane Jacobs discussed in her seminal 1961 work *The Death and Life of Great American Cities* (1961), in the context of urban parks, ‘*neighborhood open spaces are venerated in an amazingly uncritical fashion*’ (p.90). The vague and simplistic manner in which ‘natural’ green space is called for in planning documents requires scrutiny. In a struggle for space, the qualities that an artificial space can bring for access to the outdoors should not be overlooked, and as natural and social concerns are inextricably linked, a rethinking of the binary opposition between natural and artificial is needed.

An unfortunate reality of living in densely populated cities is that there is not enough room for everything. More often than not, land will be used for one purpose at the expense of another, despite each purpose having important benefits. This is the case in Copenhagen, Denmark, where there is both a well documented lack of football pitches and sports facilities, as well as ‘green breathing holes’ for leisurely engagement with nature. This creates contradictions in documents such as the *Urban green spaces: a brief for action* and *Co-Create Copenhagen: Vision for 2025* when they state the need for both green leisure spaces and access to outdoor activities. The neighbourhood park of Nørrebroparken in Nørrebro, Copenhagen provides a suitable case study as plans to build a second artificial grass football pitch were approved in 2021 by the local citizens representation, before being halted by a complaint to the Environmental and Food Complaints Board. Finally, in August 2022 after a split 3-3 vote, the decision to build a new pitch was scrapped. Discourse from local residents on social media was

typical of our age - deeply polarised and often quite aggressive. The opposition to the pitch claimed that those who wanted it did not care about the environment. Those who wanted the pitch called others ‘fascist’ and anti-democratic by launching a complaint against the original decision. In an attempt to nuance the debate around this space, the research question of this thesis is:

How is an artificial football pitch socially constructed and contested in Nørrebroparken, Copenhagen?

Sub questions for this thesis include:

- *In what ways is the space contested, and by whom?*
- *What is the role of artificial grass in amateur urban football?*
- *What socialities are afforded by the artificial grass pitch?*

The structure of this thesis will be as follows. After a short introduction into the aims of the thesis, I will then move on to give details of the specific case at the centre of the thesis, the football pitch in Nørrebroparken, Copenhagen. Having outlined the case, a literature review of relevant academic writing on urban green space and artificial grass will be presented. The theoretical framework that guides the analysis will be outlined before the methodological tools used to acquire data are discussed. Finally, the analysis will proceed with a conclusion on the results and outcomes that this thesis produces.

Contest - struggle for victory or superiority

Artificial - made or produced by human beings rather than occurring naturally, especially as a copy of something natural.

(dictionary.com, accessed December 2020)

The intention of this thesis is to investigate how an artificial grass pitch can provide a space that affords access to open outdoor spaces closely connected to nature in dense urban environments. The use value of the material for the practice of football allows for the space to be considered as both valuable social infrastructure, whilst also incorporating many elements and benefits of urban green space, as outlined by WHO Europe. Through a close analysis of both the uses and the perceptions that users have of the space in relation to the practice of urban football, I hope to demonstrate that artificial grass should be viewed with more nuance than simply being exclusionary and anti-environmental, as is often the case. Through the analysis, it is hoped that this thesis can provide planners and designers with useful insights as to how these spaces provide urban residents with benefits of both social infrastructure and urban green space, and what design elements allow them to function as such.

When looking at the recreational use of green space in cities, an answer to providing a more durable surface for outdoor activity has been to employ artificial turf in spaces such as playgrounds, parks, and sports facilities. It is especially used in sports practice in urban environments, as artificial turf negates certain limitations of natural grass based on weather conditions and durability. It also provokes anger from some who highlight its lack of biodiversity as well as certain elements of the surface, such as granulated rubber infill, causing harm to the surrounding ecosystems through microplastic distribution. Taking as its case an artificial grass

football pitch in a neighbourhood park in Nørrebro, Copenhagen, this thesis explores how the development of urban football and artificial grass has created increasingly contested spaces in urban parks.

2. The Case

This case study concerns a specific location and design of an artificial football pitch in Nørrebro, Copenhagen. The space is close to where I personally live, which has afforded a certain closeness to the project and a situatedness as author within the area I speak of. I use the park on a near daily basis for strolling and walking, and I will reflect on my situatedness as researcher further in the methods section. Both location and design affect the analysis to follow in that the specific elements regarding the park and pitch impact its use and social construction. The local park of Nørrebroparken is a busy neighbourhood space. Approximately 35,000 square metres, it is flanked on one side by Stefansgade, where local bars, cafés and shops draw regular crowds each day. The cobbled street of Jæggersbrogade runs adjacent, with high-end shops selling natural wines, woollen clothing, and organic fruit and vegetables. The park itself occupies the space of an old railway track, and is part of a long ‘green belt’ cycle path running from north to south.

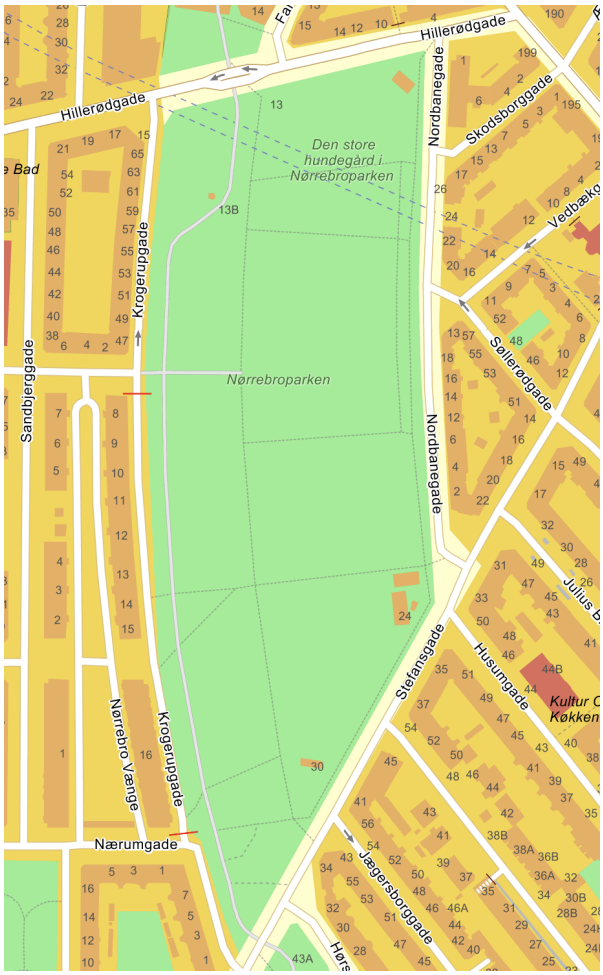

Figure 2, map of the area (Krak (a), n.d.)

Figure 3, aerial map of the area (Krak (b), n.b.)

The core of the park includes a children's playground, a caged artificial grass football pitch, and an open natural lawn grass field, all next door to each other. The playground is a grey space at the south end, made of concrete, sand boxes, and containing swings and other designs for the children to play. There is a one metre high fence around the space, and gates allow access at three points. Sitting just above the playground, the artificial pitch is surrounded by a high fence to prevent the balls from leaving the space when football is being played, with gates to allow access to the space. The artificial grass is green throughout the year, but the grass is artificial. As well as the fence, painted lines and different sized goals define the space clearly as a space

for football. Finally, above the artificial space is a green lawn of close cut turf grass. This is recently laid grass with stone underneath, as it was the site of a metro construction The space is open and unfenced with no physical infrastructure within it. It is encircled by concrete and gravel paths. At the very north of the park there is a fenced off area for dogs and dog walkers. Along the whole of the west side of the park runs a series of smaller grass areas with banks and trees.

Figure 4, Graphic of artificial grass pitch space created by author. The space consists of two 8-a-side pitches parallel to each other, with space in the design around the edge of each pitch but within the confines of the fence. This allows room for spectators, kit, and extra goals for diverse practice elements.

The artificial grass space has two pitches parallel to each other for 8-a-side with clearly defined pitch markings. The fence is over five metres high all around, creating an imposing structure for outsiders but one that is suited to the play of ‘proper’ football as you can kick the ball hard and high without losing it out of the space. There are five gates that allow

access at various points, with the main access point being in the south east corner by Stefansgade. The spaces marked in orange figure 4 are important to note for this thesis, as they are different from the design of other artificial grass spaces around the city in that they give room for spectators and other actors within the space while football matches are being played. Furthermore, a variety of goals in different sizes are within the space, allowing for smaller groups or young children to use smaller goals. These can be moved at will. The pitch is run by local football club Nørrebro United, who work with many volunteers, are sponsored by local businesses such as Stefano's Pizzabar on Stefansgade, and have a slogan ‘den lokale og sociale forening på Nørrebro’, or ‘the local and social association of Nørrebro’. The club is Denmark's largest for children (2019) and women and girls (2020, 2021).

Artificial grass provides a playing surface that is much more usable and durable than natural grass, allowing access to outdoor activity for the local population throughout the year. However it is not seen as ‘natural’ and is often viewed as being anti-environmental.This thesis therefore situates itself within academic arguments of greening urban space by questioning what green space actually is, and what role artificial grass can play in providing urban green space.

Furthermore, the topic is shown to be divisive not just in this case, but internationally too. In August 2022, similar plans for a pitch in Orrell Park in Liverpool, UK were denied after 49% were for the pitch, and 49% were against, with the other 2% neither for nor against.[2] This case similarly highlights both the extremely divisive nature of utilising artificial pitches in local parks,

[2] https://www.liverpoolecho.co.uk/news/liverpool-news/controversial-football-pitch-plans-scrapped-24701119

but also points to a dichotomy of what the spaces represent. A sign held by a protester in Liverpool reads, “All the world leaders are meeting at COP26, Glasgow to save this planet from destruction. Why are Sefton Council replacing grass fields with artificial grass (plastic)? disgrace?”. This public discourse, that artificial grass spaces are in direct opposition to environmental spaces, is a false dichotomy. As demonstrated in the later chapter on the history of grass, just as artificial grass has positives and negatives, so too does natural grass. Central to this thesis is the argument that artificial grass plays a role in the same environmental lifeworld as ‘natural’ lawngrass, and should be critiqued as such. This thesis therefore does not set out to argue which is better, turf grass or artificial grass, but rather to break down this binary position and look deeper into some of the contested elements of the space.

The main concern of this thesis is not the environmental impacts of artificial grass football pitches, though they linger in the background when discussing the role of artificial grass in urban green space. There are clear arguments that artificial grass is not good for biodiversity, (Sánchez-Sotomayor, D., et al., 2023) but that too can be said of typical turf grass lawns to be found in urban areas (McKinney, M.L., 2000.) In addition to its lack of biodiversity, the other main concern of the artificial grass pitch studied is the black rubber shards that are deployed in order to make the artificial grass “stand up”. These rubber pieces escape beyond the confines of the pitch as people walk away, dragged out and contained in footwear or clothing. In this way it is an issue that extends beyond the confines of the pitch into the surrounding environment. They are undoubtedly an environmental concern, but it is understood that the new generation of pitches, many of which are used already in the newest pitches in Copenhagen, no longer utilise this rubber infill. So while environmental impacts are noted briefly here, the thesis will proceed to engage with the role that artificial grass plays in providing use and access to outdoor space in urban environments, thereby contesting the role of natural lawn grass in the city.

As the natural grass is poor ecologically, it requires some element of ‘designing’ to improve the environmental benefits of the space. Artificial turf too can be designed for many benefits such as water catchment, reduced runoff, etc. But while the ‘natural’ grass space is currently undergoing maintenance with the application of sand and soil to attempt to provide better conditions for grass to grow, the artificial grass remains utilised through social practices and remains a social space.

Figures 5 and 6, photographs by author

There is a recognition then that these spaces require work and human intervention to facilitate their value in an urban environment. This highlights a challenge to the notion of what is ‘natural’ in urban green space, and the role that human beings still play in manipulating these environments. To follow then is a summary of the academic literature surrounding urban green space and its problematization through a critical lens, followed by literature on artificial grass, which mainly focus around environmental and sports performance concerns, rather than the social.

3. Literature Review

The previous chapter demonstrated that there is a real-world tension over how local parks and urban green spaces are designed, and who they are designed for. This tension is addressed in academic fields as issues surrounding accessibility and inequalities of urban green space are debated. This chapter will therefore begin by reviewing academic literature concerning urban green space, including benefits, inequalities, and accessibility. After this, writing on artificial grass will briefly be reviewed, demonstrating that much research focuses on impacts to playing performance and likelihood of injury, thereby suggesting a gap in academia that this thesis intends to highlight.

a. Urban Green Space

Pearlmutter et al. (2017) discuss issues surrounding access to urban green space as it speaks to many issues of inequality surrounding health and well-being. Alexander and Shareck (2021) found that during COVID lockdowns, disadvantaged children were more likely to suffer from a lack of open space to exercise, while Wolsch et al. (2014) found that the distribution of urban green space, and especially parks, in US and Chinese cities 'disproportionately benefits predominantly White and more affluent communities' and that 'access to green space is therefore increasingly recognized as an environmental justice issue' (p.234). According to a study by Kabisch et al. (2016), Denmark privileges access to green space in urban planning when compared to other countries like those in southern Europe, stressing the need for studies into what makes green spaces like parks successful.

The need for open spaces in cities to provide a reason for people to come together was observed by Jane Jacobs. She said of the uncritical desire for more open space in cities at the time, ‘more open spaces for what? For muggings? For bleak vacuums between buildings? Or for ordinary people to use and enjoy? But people do not use city open space just because it is there.’ (1961, p.90) This view is found to be consistent with the research of Dempsey et al. (2012) as they demonstrate that in high density neighbourhoods in the UK, ‘design, maintenance, and safety for example are all inter-linked. People interact socially in the local neighbourhood if there are legitimate reasons for them to do so, often manifested as services and facilities which can be reached safely and comfortably, by foot where possible.’ (p.136). Similarly, Rasidi, M.H., et al. (2012) found design elements of urban green space, their maintenance and their functionality for practices to be important elements to drawing social interaction between urban residents. Function, maintenance and opportunity for activity are therefore all seen to be important elements to the success of urban green and open spaces, and important elements to consider of what is afforded by an artificial football pitch.

This shows the need for a nuanced approach to who benefits from the urban green spaces in dense neighbourhoods, and their design and function has an important role to play in incorporating who uses the space. There have been numerous studies (Anguelovski and Alier 2014; Wolch et al. 2014; Kabisch and Haase 2014) that show how various leisure activities of a park can lead to the inclusion of different users, thus demonstrating the need to be conscious of the specific local and cultural needs (Kabisch and Hasse, 2014). Wolch et al. (2014) also highlight that parks ‘have reputations reflecting their use, repute, upkeep, and design quality’ (p.236), demonstrating the importance of design and maintenance in the use of parks. Nørrebroparken previously had a reputation for crime and for being unsafe, and the added design of the 2007 development has changed its image. These points suggest that there is no simple, objective version of a good urban green space but rather that it is in line with societal

needs and desires, and that part of the success of urban green space is how they are socially produced through practices that take place within them. Pearlmutter et al. write that:

> *A wide range of benefits (e.g. educational and recreational opportunities, benefits to human health and well-being, creating a sense of place or a local identity, increased social cohesion, pleasant sensory experiences) can be gained from engaging with Green Infrastructure [...]. As Schroeder (2012) puts it, "such experiences serve as significant sources of meaning and happiness in people's lives, and lead to strong emotional attachments to the places where they occur".* (2017, p.157)

Therefore the activities that take place in urban green space are shown to move beyond a personal health benefit and act towards enhancing community cohesion and inclusivity, fostering local identity, and 'pleasant sensory experiences', that vitally provoke 'strong emotional attachments to the places where they occur'. There is, however, a distinct lack of research and impetus into how artificial spaces can aid an engagement with urban green space, and the role that they have in incorporating nature into everyday urban lives. The reason for this is perhaps obvious - that it seems paradoxical to talk about access to urban green space in the same breath as artificial spaces. The two have come to be viewed as antagonistic. However, artificial grass was created as a replica of the natural plant of grass to improve its use for certain human activities such as sports. The colour is still green, and aesthetically the desire is to look natural. Practices performed on it are similar, but different. It therefore represents a liminal green space that is in some ways more real than real, a notion of Baudrillard's that will be explored in subsequent sections. These elements will be explored through the analysis to follow, but the draw of artificial grass and the consistent use that it affords is worthy of research in order to establish its possible role in the production of a successful urban green space.

b. Artificial Grass

Up to now, there has been little, if any, academic consideration of what artificial grass adds to a local community in regards to urban green space. The writings that exist cover both the increasing use of artificial grass as a synthetic substitute in a wide variety of spaces, as well as more sport and recreation specific uses and the impacts it has on e.g. performance. A range of research areas include lack of biodiversity and environmental impact (Olshammar M et al., 2021; Sánchez-Sotomayor et al., 2023), the impacts of the material on performance and injuries in sports (McLaren et al., 2012; Kanaras et al., 2014; Trombley, M. J., 2016) or the maintenance and technical construction of the surface (Fleming et al., 2015).

Robert Francis (2014) highlights the social considerations of artificial lawns and some possible future implications of its use. Citing Miller (2005), he argues that artificial grass may contribute to an 'extinction of experience', (p.154) wherein the increasing estrangement of people from the more natural world, especially in cities, mean that the habitus acquired by an individual within a given generation, particularly through childhood experiences, will be conditioned by an ecologically impoverished environment' (Ibid.). This he links to Baudrillard's concept of the simulacrum, where those using artificial lawns and their increasing normalisation, especially among young urban residents, can lead to 'a further shift towards lower expectations of nonhuman life in domestic space' (Ibid.). Furthermore, Brooks and Francis (2019) explore how the use of the 'synthetic simulacra' of artificial grass can lead to politicised and divisive positions being taken within society. In their article *Artificial Lawn People* (2019) they explore through a 'netnography of animated and polarised online discussion' (p.548) how the domestic use of artificial lawns proves to be controversial and contested, drawing 'emotionally strong opposing

positions' (Ibid., p.555). This thesis seeks to ask if the deployment of artificial grass as a football pitch elicits similarly strong and opposing reactions, and how one's social position may impact attitudes towards the material.

Duda et al. (2021) highlight a health issue specific to artificial football pitches in urban environments - the impact of smog and poor air quality while training on artificial turf. This demonstrates that not only the materiality of the pitch but also its location are important to consider when designing or planning for a pitch. One of the main concerns surrounding the artificial grass itself is the granulated rubber infill, a component full of microplastics which is difficult to contain within the pitch itself. The ramifications of this infill has been researched from the environmental impacts (Gomes et al., 2021), the health perspective of users of the space (Graça et al., 2022), as well as the lack of knowledge that exists of these impacts in the users of the pitches (de Bernardi, C. and Waller, J.H., 2022). This final paper is particularly relevant to this thesis as its purpose 'is to investigate barriers that prevent actors within artificial turf, who are generally positive towards sustainable practices, from acting in accordance with their intentions' (p.1), demonstrating the potential for artificial turf to be a contentious space even within its user group.

The perspectives of users of artificial grass pitches in football has been explored at elite level by Roberts et al. (2014), highlighting the perceptions of the different playing surfaces, between natural grass and football turf (artificial grass), of elite footballers. They state that 'often neglected from surface type comparison studies are players' perceptions of playing surfaces and therefore it is unknown which aspects of the playing surface are important for players' (p.908), aiming to use a qualitative analysis to better understand the issues from an elite player perspective. Zanetti (2009) researched the impact of the playing surface between artificial grass with various infills and natural grass from an amateur level perspective, and found that the

majority of amateur players studied preferred to play on artificial grass than the natural grounds, as local amateur spaces without artificial grass are often poorly maintained.

The literature outlined above highlights a gap in academia in investigating the significance of the artificial grass football pitch from a broader societal perspective, and the impact that it can have on a local space as a piece of social infrastructure and its role within urban green space. There is also little written about the link that the artificial has on the social production of football spaces in an urban environment, as players adjust their reality of urban football to an artificial surface. Using the theoretical frameworks outlined below, this paper aims to contribute knowledge in filling some of these gaps.

4. Theoretical Framework

In order to fill those gaps, the following theories will be employed to investigate the space of the artificial pitch in Nørrebroparken. Macnaghten and Urry's theory of *Contested Natures* will be used as a broad framing of the thesis, the central ontological argument that artificial grass should be viewed and considered as a part of the lifeworld in which we are located, and notions of environment and nature exist within it, not external to it. This will then be complimented by three further theories, affordance theory, the social construction of space, and social infrastructure. These aim to give a well rounded understanding of how the material features of the place as well as the social practices that take part on it afford a space of complex and varying socialities in Nørrebroparken.

a. Contested Natures

The reason for using the theory put forward by Phil Macnaghten and John Urry in their book *Contested Natures* (1999) is to understand that nature is not something fixed, 'out there', or separate from social and cultural life. Rather our understandings of what nature is has always been mediated by social and cultural elements, and that we are therefore within and a part of nature ourselves. Raymond Williams argued that 'the term "nature" is perhaps the most complex and difficult term in the English language; that the idea of nature contains an enormous amount of human history; and that our current understandings of nature derive from an immensely complicated array of ideas' (p.8). What nature is, and what it is for, has therefore always been made up of a variety of socio-cultural factors vying for prominence. In the analysis to follow I will

demonstrate how artificial grass is the latest development of these socio-cultural attitudes towards the environment, using the artificial to incorporate or eliminate elements of nature that have been deemed useful for human practices. Before this analysis I will outline Macnaghten and Urry's theory in *Contested Natures*.

Macnaghten and Urry trace the roots of a separation between man and nature in the west to the Enlightenment, when it was seen as rational man's task to overcome 'natural disadvantages,' while the argument of human domination over nature to manipulate it to their needs became 'so inevitable that any criticism of the argument itself became classified as unwarranted interference in the mastery of nature.' (p.11) It was these philosophical ideals that marked the beginning of a belief that, in line with religious ideas of the time, nature occupied a separate sphere to man and was something to be mastered. However, in recent sociology arguments of nature as something separate to human activity are broadly refuted. Macnaghten and Urry argue for a need to conceive of 'nature as a lifeworld in which the social life takes place' (p.16) and therefore to understand social practices as being within nature, not acting upon it. In this way, and furthered by the use of Affordance Theory outlined below, the artificial is to be considered as a part of nature, only used for the improvement of specific human practices as opposed to, for example, increasing biodiversity. Macnaghten and Urry therefore urge research into environmental concerns that capture more broadly the 'more wide-ranging arguments and dilemmas facing contemporary societies, including issues of progress, social exclusion, individualism, [...] security, crime, health, and so on.' (p.78) These are concerns shared in academic writings on urban green space, and this paper looks to investigate how the Nørrebroparken football pitch engages with some of these issues.

The social and cultural sciences 'can help to illuminate the socially varied ways in which an environment can be seen, interpreted and evaluated' (p.19). This is, in essence, an argument

for the social construction of nature akin to the writings of Henri Lefebvre, as they go on to state that ‘what is viewed and criticised as unnatural or environmentally damaging in one era or one society is not necessarily viewed as such in another. The rows of terraced housing thrown up during nineteenth-century capitalist industrialisation in Britain are now viewed not as an environmental eyesore, but as quaint, traditional and harbouring patterns of human activity well worth preserving.’ (Ibid.) This quotation speaks to the fact that it is not only important to contemplate the biological elements of nature, but that designs and structures that promote or encourage beneficial social practices act within nature, and the value of these various elements can shift and change over time. Indeed, ‘some “man-made” features become “naturalised,” as almost part of nature, and would be very hard to demolish.’ (Ibid.)

The role of social position in our understandings of nature is also explored. The fixed notion of ‘the environment’ is challenged through the ability for humans to contain multiple environmental identities, including ‘the local as well as the global; [...] landscape oriented as well as use-oriented.’ (Ibid., p.28) It can be seen in the contested nature of urban green space, the divisions and varying beliefs about who and what space should be for, aligns with Macnaghten and Urry in their belief in the complexity of forming concerns about the environment that cover both the global and the local, with broad considerations around climate change together with local needs for a space for recreation and exercise. The importance of a link between space and collective activity is noted as spaces that afford social interaction and common social practices ‘may provide important sites of moral renewal in the lifeworlds of human agents, and point to the role of cultural networks in providing the foundations for a more collective response and sense of engagement with the modern environmental problematic.’ (Szersynski et al., 1996; quoted in Macnaghten and Urry, 1999, p.96) Moreover, chapter four on Sensing Nature looks at the ways in which we sense the environment around us at a local level is sometimes by-passed by broader global concerns (p.133).

It is therefore an interesting element of investigating artificial grass as to how this replica of nature provides a local space that interacts with practitioners' embodied memories of football, as well as their socially and culturally ideas of what a football space is to them. Given that ‘memories are often organised around artefacts and particular spaces such as buildings, bits of landscapes,’ (p.166) where does the artificial fit in with practitioners’ understandings of football? The relevance of research into the role of practice is stated by Macnaghten and Urry as ‘since the environment is something understood and experienced through certain social practices, so research will need to reflect or to simulate some at least of the characteristics of those socially embedded practices’ (p.75) How does the embodied practice of football on an artificial pitch change or reinforce a kinaesthetic connection to urban green space? And what social elements make up the practice? It is interesting for this thesis, then, to consider the role artificial grass plays in the development of the practice of football. In order to explore this more fully, it is important to look into what is afforded by the material.

b. Affordance Theory

James Gibson opens his writing *The Theory of Affordances* (1979) by stating ‘The *affordances* of the environment are what it *offers* the animal, what it *provides* or *furnishes*, either for good or ill. [...] It implies the complementarity of the animal and the environment’ (p.56). Through discussing change to the natural environment, Gibson states homosapiens ‘has made more available what benefits him and less pressing what injures him’ (56). It is important for this thesis to consider this statement and ask the question of what exactly is the complementary relationship that exists between animals (in this case humans) and their environment (the football pitch in Nørrebroparken).

Gibson believed that there should be no distinction made between the artificial world and the natural world, as ‘artefacts have to be manufactured from natural substances’ (p.56). Here he essentially claims that the artificial occupies the same environmental world as the natural, it has simply been fashioned by humans in a specific way. Writing in 1979, one wonders what he would make of the huge advancements in digital and artificial technologies today. But the case of artificial grass provides an interesting challenge to this notion when combined with his later assertion that what an object, when looked at, affords is perceived before the specific qualities of the object such as ‘surface, colour and form’ (Ibid., p.58). This is linked to the assertion that ‘the affordance of a certain layout is perceived if the layout is perceived,’ (Ibid., p.57) demonstrating that the perceived affordance of an object is influenced by the setting and surrounding environment. If we look and see turf with lines drawn, a surrounding cage, and goals, we perceive that this material space affords the playing of football. However, in talking of human perception of space, Gibson states that it is not natural to assess all the affordances of an object when viewing it, ‘in fact, it would be impossible to do so’. (Ibid.). Rather we perceive objects by a few of its elements ‘that distinguish it from other things that it is not.’ (Ibid.) It follows that when we *see* a space, what we perceive it to afford based on the topographical layout influences our attitude towards the space, but also leaves gaps of between perceived affordance and total affordance.

Gibson also speaks to the importance of the social and other people in the theory of affordance for their ability to interact with us, that ‘infants learn almost immediately to distinguish them from plants and nonliving things. [...] Behaviour affords behaviour, and the whole subject matter of psychology and of the social sciences can be thought of as an elaboration of this basic fact.’ (Ibid.) The importance of spaces where these interactions with other people can happen drive all types of behaviour, ‘cooperative behaviour, economic behaviour, political behaviour - all

depend on the perceiving of what another person or other persons afford, or sometimes on the misperceiving of it.' (Ibid.) Certain types of surfaces allow certain types of interaction, certain ways of engaging and certain activities. As 'special forms of layout afford shelter and concealment' (Ibid., p.59), there are certain interactions that are afforded at Nørrebroparken, and a very specific interaction between humans, surface, and surroundings. These elements will be explored in the analysis to follow.

c. The Social Construction of Space

This thesis will deploy the ontological understanding of Henri Lefebvre of space as a social construct. Lefebvre's spatial triad theory is a widely recognized framework for understanding the production and experience of space in society. According to Lefebvre in his book *The Production of Space* (1974), the spatial triad is composed of three elements: spatial practice, representations of space, and spaces of representation. Spatial practice refers to the ways in which individuals and groups use and transform space through their everyday activities and social interactions. Representations of space, on the other hand, encompass the symbolic and cultural meanings attributed to space, as well as the discourses and narratives that shape how space is perceived and experienced (Soja, 1989). Lastly, spaces of representation refer to the ways in which power relations and ideologies are inscribed into space, often through dominant representations and discourses (Lefebvre, 1974). By understanding how these three components of the spatial triad are interconnected and constantly changing, Lefebvre's theory provides a valuable tool for analyzing the complex ways in which space is produced and contested in society (Harvey, 2006).

The social production of space has been carried forwards by other academics. Cresswell conceptualises elements of place as materiality, meanings, and practices (2020). A uniquely 'heterogenous conglomeration' or assemblage of interrelated parts, he states that place can be differentiated from the 'abstract realm of space' through lived experiences (Ibid., pp.120-124). Our sense of place is created through this triad of elements, as the three elements interact with one another. It follows then that the practices that we perform within a space significantly alter our perceptions of it and our connections to it, emphasising the social construction of space through practice. This can be seen through Yi-Fu Tuan's work, who writes that '[w]hat begins as undifferentiated space becomes place as we get to know it better and endow it with value' (1977, p.6). Our social position of both how we use a space, but also the meanings it has to us individually through 'knowing' it as a cultural and social space is informed by past experiences and engagements within certain lifeworlds, to return to the terminology used by Macnaghten and Urry. It is useful for this thesis to engage with the lifeworld of the users of the Nørrebroparken pitch to see how the space is socially constructed from their perspective.

The relationship between the physical environment and social interactions is highlighted by Doreen Massey:

> *Changes in physical architecture and in the immaterial architecture of social relations continually intersect with each other. The crisscrossing of social relations, of broad historical shifts and the continually altering spatialities of the daily lives of individuals, make up something of what a place means, of how it is constructed as a place' (2001, p.462).*

In analysing the space of urban football, developments in architecture or design impact the architecture of social relations. Artificial grass is a fact of contemporary urban football and has

thus impacted the daily lives of the individuals that use it, and altered the meaning of place in some ways but not others. The sensorial elements involving materiality are addressed by Massey, as she explains that our understanding of a space is constructed ‘by sound, touch, and smell - by senses other than vision alone’ (Massey, 2001, p.463). This demonstrates the complimentary use of the social construction of space with affordance theory, as while perceptions are useful in understanding some contested elements of the football pitch, its social construction through practice and the use of senses highlights both different perspectives and further elements in which it is contested, namely by practitioners themselves.

d. Social Infrastructure

The final theoretical element to be incorporated is that of social infrastructure. The notion of social infrastructure is useful to understand how a space can provide long-lasting social benefits through its design, and tackle issues such as accessibility and inclusion in public life. Eric Klinenberg writes in his book on the subject, *Palaces for the People: How social infrastructure can help fight inequality, polarization, and the decline of civic life*, that design can play an important role in changing the function of social infrastructure. He states that

> *today, a growing number of architects and engineers are designing hard infrastructure, such as seawalls and bridges, so that it also functions as social infrastructure by incorporating parks, walking trails, and community centers. These projects, which already exist in places like Istanbul, Singapore, Rotterdam, and New Orleans, provide*

> *multiple benefits, from protecting against storm surges to promoting participation in public life.* (p.17)

I believe that it can be useful to conceptualise spaces such as the Nørrebroparken artificial pitch as incorporating important elements of hard infrastructure and social infrastructure, as functional spaces that are needed to support the social demands of dense urban neighbourhoods which then allow for other spaces to support different environmental concerns. Klinenberg notes how a strong social infrastructure can help incorporate people into new environments:

> *I've observed all kinds of collective life made possible by strong social infrastructures in foreign settings. For several years my family and I spent part of the winter living and working in Buenos Aires, and some of our most rewarding encounters with local residents happened around a soccer field [...] where my son became a regular.* (Ibid., p.20)

Though perhaps an obvious statement, spaces such as football pitches afford not just the act of football to be played, they also draw together different and varying forms of sociality that come with it, from engaging the players and spectators, to providing a common talking point between strangers. Through the ethnographic methods outlined below, I hope to gain a better specific understanding of the role that the material design of the artificial grass pitch has in providing social infrastructure, one that is closely connected to urban green space.

Layton & Latham, in studying the dispute of space between users of Finsbury Park in London, propose a sixfold typology of social infrastructure 'to explore the different registers of sociality afforded by social infrastructure: co-presence, sociability and friendship, care and kinship, kinaesthetic practices, and civic engagement' (Layton & Latham, 2022, p.755). These are some

of the elements that will be important when investigating the different socialities of the astroturf pitch on Nørrebroparken, making any necessary adjustments to my specific case. The kinaesthetic practice of football will be investigated in line with football players on the pitch, and ties in with how the artificial grass affords practices that are similar to those found on natural grass spaces, thus producing a specific sense of place.

5. Methodology

Before beginning my analysis I will outline the methods that I deployed in order to collect data and gain understanding for the research topic outlined above. I will outline the various methods of data collection, why they specifically were useful for this thesis, and how I personally went about using them during research. As this thesis is interested in the specifics of the local pitch at Nørrebroparken, a qualitative and ethnographic approach was taken to conduct research in order to understand the social elements involved in the case. Due to several planning documents and Facebook posts used within this thesis are in Danish, not the native language of the author, all of the texts have been translated from Danish to British English using Google Translate, unless stated otherwise.

a. Desk Research

As I am a local resident of the space in question, my initiation into the topic came from a walk around the space with a friend who mentioned to me the plans to build a second artificial pitch. Our discussion concluded with the difficulty of the issue, as the natural grass space fit in with a more abstract sense of environmental concerns, whilst the other had such clear use value for many local residents. The question of whether the artificial space was ‘green space’ was equally unclear. Therefore initial research for this project was undertaken as desk research through the analysis of planning documents to gain an understanding of how urban green space is assessed and planned for, both broadly on an international scope from the WHO, and locally in Copenhagen and Nørrebro specific planning documents such as *Co-Create Copenhagen:*

Vision for 2025 and *Bydelsplan for Nørrebro* (District Plan for Nørrebro). This research highlighted the diverse ways in which urban green spaces are expected to solve foreseen problems in dense urban environments, but found a lack of discussion around the contestation of open natural green space (referred to as 'green breathing holes' in *Co-Create Copenhagen*) and functional spaces for outdoor activities. This led to a central aim of this thesis - to take a critical look at the role of artificial grass in the design and use of green spaces in line with localised issues urban planners are trying to solve.

Another form of desk research used is through an analysis of online discussion surrounding the space on Facebook. These helped to inform about the differing points of view on what this local green space should be. This netnographic approach is similar to that used by Brooks and Francis in their article *Artificial Lawn People* (2019) as I also aimed to explore a 'netnography of animated and polarised online discussion' (p.548), but in this case to investigate the use of artificial grass in public space rather than domestic use. It was found to elicit in a similar way 'emotionally strong opposing positions' (Ibid., 555). This involved viewing posts (a post written by a Facebook user or account, often accompanied by an image) and comments (comments by users on a post, or in response to another comment) on the pages found through searching for accounts of relevant stakeholders such as Nørrebro Lokaludvalg (Nørrebro Local Committee), Danmarks Naturfredningsforening København (Denmark's Nature Conservation Association, Copenhagen) and Nørrebro United. My use of Facebook aligns to D. Franz et al. (2019) understanding of '*passive analysis* on Facebook involves the study of information patterns observed on Facebook or the interactions between users in existing Facebook groups' (p.2). Posts, comments, and visual material provided online is used in analysis to understand how the space is differently constructed in the imaginaries of various social actors.

Finally, the analysis section on the history of grass incorporated desk research through the use of google scholar, searching for academic texts on the history of grass, the social production of grass, and finally on the development and use of artificial grass. These academic texts are used along with the theory outlined above to address the role that grass has played as a spatial representation of social and cultural attitudes towards nature, leading to today and the simulation of nature through artificial grass. This section of analysis concludes with a look specifically at Copenhagen and Nørrebroparken which, together with the netnographic approach outlined above, forms the basis of where the contested nature of artificial grass sits today in Copenhagen.

b. Participant observation

To complement the broader discourse discovered through desk research, participant observation will inform an analysis of how the artificial grass space has been used throughout the thesis process. Site visits were carried out regularly on weekdays and weekends between September 2022 and February 2023, where an initial plan to provide quantitative data on the different volume of use between the natural grass space and artificial space clearly became needless. The higher volume of users within the artificial grass space was clear during this period, and so a qualitative investigation of the artificial space began. This includes notes on developing use throughout the changing seasons as we go into winter, and gaining insight into both the social and practice-based life that is afforded by the artificial grass space. Data collection is carried out through written fieldnotes, voice notes, photographs and audio recordings. Photographs taken by the author are used in this thesis in both a descriptive capacity, to help the reader observe the different uses of the space studied depending on time of day and time of year, and how the weather can affect either the natural or the artificial grass.

Photographs are also used ‘as part of the text, its argument and evidence’ and therefore contribute to the analysis through illustration (Rose, 2008, p.158).

An alertness to the sensorial elements that surround the pitch was also important, in line with Pink’s (2012) notion that a sensorial engagement is vital to an ethnographic understanding of the embodied experiences of place. As research was performed within and around the artificial pitch, an element of Watson’s (1999) ‘being there’ was incorporated. As researcher but also an active member of the crowd, it was shown that the sounds, touch, and collisions happening through the football and within the crowd were important to note and remember within the analysis. These methods provide a ‘thick description’ (Campbell, and Lassiter., p.66) of the space to allow an analysis of what sort of a space the artificial grass creates, not just physically but socially too. Elements analysed include sociality, use, and connectedness to the surrounding area of urban life, useful in assessing the socio-cultural factors at play in the social construction of the space.

c. Interviews

Throughout participant observation I spoke to spectators of football matches, standing within the fence in space provided surrounding the pitches. Through these interactions I was engaging in what Dewalt and Dewalt (2011) define as informal interviews, in the sense that I was ‘observing informants as they go about their daily activities and are interacting and conversing in culturally patterned ways,’ and during the conversation I would ask ‘occasional questions to focus the topic or to clarify points.’ These interviews were carried out to understand why people were in the space, and what they thought the role of the artificial was in the provision of urban green

space within the park. I made written notes, recorded voice notes, and later typed these up into fieldnotes (Dewalt, K. & Dewalt, B., 2011, p 138). Different users of the space are interviewed using informal interviews: viewers and spectators watching football within the space; those strolling outside the pitch; and users taking part in other activities in the space. The main goal of these interviews was to understand the variety of reasons as to why certain people were present in the space, and whether their use of the space altered their view on urban green space. An informal approach helped to incorporate the diverse users, and helped gather data while informants were largely engaged in another activity, such as watching a football match.

Finally, six in-depth, semi-structured interviews were undertaken, with five football players who use the artificial pitch and one member of Nørrebro United, Aske Tybirk Kvist. The interview is Aske gave specific knowledge on the role of the pitch within Nørrebro United, and the connectedness the club has through various other spaces in the city. One player (Lars) was known to the researcher previously but encountered coincidentally at the pitch, as I was observing one Wednesday morning he came to play. Four other players (Gustav, Alex, Frederik, and Arturo) agreed to take part in in-depth interviews who were approached while playing within the space. Interviews incorporated ‘a list of questions and prompts in order to increase the likelihood that all topics will be covered in each interview in more or less the same way’ (Dewalt and Dewalt.,139) and were conducted in a café overlooking the pitch. Further digital data was also gathered from the whatsapp group of the football players, demonstrating a link to the space that extends beyond the confines of the pitch and into the social imaginaries of its users.The goal was to understand the participants’ personal relationship with the practice of playing football, both now in Nørrebroparken and in the past; to determine whether they view the pitch as urban green space; and to understand their embodied experience of playing on artificial grass.

The object of these interviews and their use in analysis is to bridge the gap of inquiry between social construction of the space and the embodied practices that take place within it. As Gore et al. (2012) describe 'the object of inquiry is not experience as it is conceived, but the experience close to that which is actually occurring in, through and during an activity; and the fundamental question may be summed up as: What drives the actor to act as he or she does at the very moment of acting?'(Gore, G. et al. 2012. p.129). Gaining insights into the participants' views on the artificial pitch and understanding their past experiences of playing surfaces will hopefully provide for an analysis of the role the artificial grass plays in both the affordance of the practice of football, as well as how it is socially constructed as a site of contemporary urban football. Through a combination of participant observation and interviews with practitioners on the artificial pitch I aimed to achieve a greater understanding of the place through the practices that go on there. Indeed, with relation to the material nature of the artificial grass and its aims to simulate the playing surface of natural grass, it was important to investigate how 'meaning is conceived as embodied and cannot be detached from the practices as they are realised in particular situations' (Ibid.).

d. Situatedness

> *From an epistemological perspective, data are not understood as "gathered" as much as they are produced; which is to say, our questions, our presence, our assumptions, our views of the situation provide never-ending filters for the questions we ask, what we observe, and what we conclude. (Sunderland and Denny, 2007, p.51)*

As a local resident of the area, it is important to stress that I visit the park in question nearly every day. However I do not use the artificial space in the terms of practising football. I was

aware of Nørrebro United before the beginning of this research due to frequenting the park as a walking visitor, and engaged with the space as a spectator usually from outside the fence, but sometimes within. During the darker winter months, the flood lights around the pitch and activity within it have been focal points for evening walks as the rest of the park is largely unlit. An active knowledge of football with a previous history in playing the sport also contributes to certain understandings and ways of communicating with respondents within interviews. My situatedness therefore places me within the field of study and impacts language used in data production.

6. The Contested History of Grass

a) Natural lawn grass

Before beginning an analysis of the specific space in Nørrebroparken, it is important to first analyse how through recent human history nature has been constructed by prevailing social and cultural practices, specifically focusing on the history of grass. They are spaces that change in meaning and function based on various social elements, and are not fixed as being objectively natural or separate from human life, but rather have always been a part of it. In order to do so I will look at how the grass lawn has developed in urban settings, and how it has been a symbol of various social and cultural phenomena such as prestige and wealth throughout its history (Ignatieva, M, et al., 2017). Using Macnaghten and Urry's theoretical framework of *Contested Natures,* I will analyse how through social and cultural practices elements grass has developed over time. I will then move on to the invention of artificial grass, its original use for sports spaces, but now also seen in a wide variety of spaces including schools, playgrounds, hospitality spaces, and even replacing the grass lawn in private homes. Thus it is hoped that this chapter will demonstrate the historical position that artificial grass currently occupies in providing spaces suited to social and practical needs of urban societies.

Macnaghten and Urry argue that the industrial revolution saw an important separation of nature and human activity, in both a spatial sense as well as in social understanding:

> *Instead of efforts to reinvoke a morality and ethics within nature by thinking through new ways to rework nature into the social, nature sustained "her" separation by departing from the predominant human sphere to the margins of modern industrial society. Nature was increasingly taken to exist on those margins, away from the centre of industrial society.*
> (p.13)

They argued that the emergence of institutions such as the National Trust (established in 1895, UK) and national parks demonstrates how at this time nature was spatially removed from the centre of industrialising cities to become 'managed wilderness' on the outskirts, demonstrating that 'the division between nature and society increasingly came to take a spatial form.' (Ibid., p.14) Nature, then, moved to the outskirts of industrialising cities and what was left in urban areas was viewed by some as, by definition, artificial (Ibid., p.39). Originally, urban green spaces in England were either Royal Gardens, or urban commons rather than distinctly designed spaces. Early parks too were often obtained by the city for leisure purposes (Sadeghian, M.M. and Vardanyan, Z., 2015., p.122), until the dawn of landscape architecture, pleasure and botanical gardens in the 18th Century (Ibid.). These spaces required European grasses that focused on aesthetic features rather than something that could be described as 'wilderness' or wild, leading to correlations between neatness and class or quality. In both public parks and private lawns, the European grass used was easily cut compared to native grasses in America (Joyce, S., 1998. p.A378). Green spaces in urban environments, and the grasses used within them, came to symbolise class, social status, and aesthetic values of the time. Paul Robbins

notes that in the USA, private lawn upkeep became such an important social and cultural phenomenon that he termed these people ‘Lawn People’.

By the late 19th Century, the aesthetic of a well kept front lawn had spread from the images of fashionable gardens of England to the personal houses of the United States of America (Virginia Scott Jenkins, *The Lawn: The History of an American Obsession,* 1994). This is a clear example of the role of grass in what Macnaghten and Urry explain as ‘specific social practices [...] which produce, reproduce and transform different natures and different values. It is through such practices that people respond, cognitively, aesthetically and hermeneutically, to what have been constructed as the signs and characteristics of nature.’ (p.12) The Poaceae family of plant, commonly known as grasses, is made up of roughly 7,500 species but only 50 of those ‘are cultivated for turf. And all 50 are naturalised’ in America, meaning that they are non-native to the environment (Joyce, S., 1998. p.A378). This leads us to wonder about grass, along with Macnaghten and Urry:

Is there any “real” nature left? [...] A major task for the social sciences will be to decipher the social implications of what has always been the case, namely, a nature elaborately entangled and fundamentally bound up with social practices and their characteristic modes of cultural representation. (p.30)

Figure 7, image from Royal Grass website, accessed January 2023

b) Artificial grass

With relation to the materiality of urban parks, what surfaces they are made up of, with artificial or natural grass, it is crucial to critically examine the social implications. In assessing the materiality of grass in parks we should keep in mind a position held by Donna Haraway, that 'the dichotomies between mind and body, animal and human, organism and machine, public and private, nature and culture, men and women, primitive and civilised are all in question ideologically' (1991, p.163). It is therefore important to highlight that artificial grass that affords use value to social practices is constantly being contested through various notions of nature. It is not to say whether natural or artificial grass spaces are better than one another, as they are both constructed as different social and cultural entities. Rather they are both bound up in social lifeworlds encompassed within nature. In the chapters below I explore further the contested nature of the artificial grass football pitch in Nørrebroparken to unpack the often simplified and binary arguments that surround their place in local parks. Artificial grass is the result of the process of social and cultural history, and deserves to be interrogated not as simply in binary opposition to natural turfgrass, but as taking up space in contemporary society as a useful but contested material in urban parks.

Artificial turf 'was originally developed in the 1960s for recreational purposes, as a reliable and easy to manage alternative to grass playing fields' (Roberts, 2018, p.152). However, recent technological developments have seen the increased use of artificial turf in a variety of spaces, such as playgrounds, private gardens, and event spaces such as bar terraces. This has especially been the case since the third generation (3G) design, as 'the technology is designed specifically to appeal to the cultural norms associated with lawns' (Ibid., p.153) and increasingly mimics the aesthetic qualities of natural grass to a high level. This image from the Royal Grass

website demonstrates their new technology of creating ‘sun-kissed’ artificial grass, with the slogan “not perfect, and that’s even better”. This represents the desire from manufacturers to eliminate stigma that comes with the with the aesthetic plasticity of grass, and plays into the notion of the hyperreal as an artificially produce ‘sun-kissed’ element gives the pretence of a biological process where none has happened. The drying out of grass from heat or lack of moisture, causing it to go brown, is technologically achieved. Companies sell artificial grass using terminology that resembles a description of biological processes,[3] moving beyond a simply functional use and into the aesthetic simulation of these qualities.

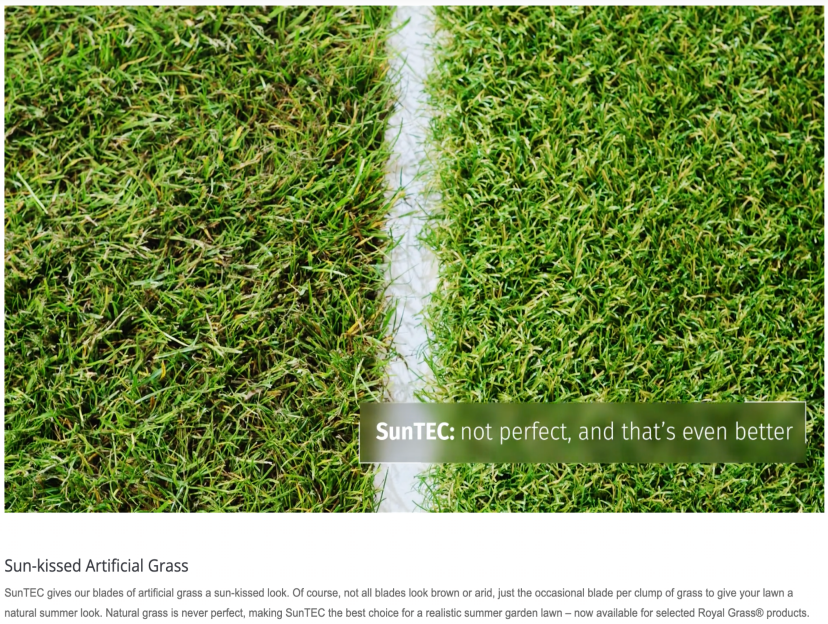

Figure 8, image from Royal Grass website, accessed January 2023)

[3] An interesting etymological point on ‘astroturfing’ demonstrates its inherent understanding as fake:
‘*Astroturfing is the practice of masking the sponsors of a message or organization (e.g., political, advertising, religious or public relations) to make it appear as though it originates from and is supported by grassroots participants. It is a practice intended to give the statements or organizations credibility by withholding information about the source's financial connection. The term astroturfing is derived from AstroTurf, a brand of synthetic carpeting designed to resemble natural grass, as a play on the word "grassroots". The implication behind the use of the term is that instead of a "true" or "natural" grassroots effort behind the activity in question, there is a "fake" or "artificial" appearance of support.*’ (https://en.wikipedia.org/wiki/Astroturfing, accessed December 2022)

However artificifial grass now makes up a large reality of football practice, both in the case study of this thesis and more broadly, even now being used by professional teams such as FC Nordsjælland in the Danish Superliga, as well as Sparta Rotterdam (The Netherlands), Kilmarnock (Scotland), Young Boys (Switzerland), and Bodo Glimt (Norway). The whole of the 2015 Women's World Cup was played on Artificial grass. This is quickly becoming a reality in both amateur and professional football. A company called UniSport supply FC Nordsjælland with their pitch, and they say that they have good environmental history and make the infill that is specifically suited to use in the Nordics - eCork:

> *SALTEX has a long history of environmental thinking in the industry. In 2012, the turf backing was changed to a more environmentally friendly one. In 2013, we started the development of a new infill suitable for the Nordic climate – eCork. In 2012, we also introduced the drainage system PP23D that reduces environmental loads both during installation and in use. And there is more to come…*
>
> *(https://www.unisport.com/artificial-grass-football, accessed January 20*

Figure 9, Right to Dream Park, the stadium of FC Nordsjælland, from https://www.unisport.com/cases/artificial-turf-right-dream-park-denmark, accessed January 2023

This demonstrates that there is money behind artificial grass, and that the technology will keep developing in line with societal needs. It is therefore important to inquire about what exactly artificial grass can achieve when deployed in a local football environment rather than a professional stadium. The environmental concerns are something at least addressed here by UniSport, with football infamously poor on issues of environmental harm. If artificial grass spaces can be designed in line with elements that reduce the impact of climate change in the future such as cloudburst management, it is worth looking at what they bring now in an amateur urban setting by unpacking their contested nature.

There are good examples of the current contestation of lawn grass to be found in Copenhagen. The environmental concerns that prevail around the football pitch in Nørrebroparken are rooted in larger concerns about the environment. Despite the high use-value of the artificial grass for local residents, and the lack of environmental benefits of the natural grass, one element concerns opponents of the artificial is that it is at odds with broader desires to improve ecological connection in their local park. This can be taken as an example of the development of environmental concerns at a broad societal level, as 'people are exhorted to identify their environmental concerns at this global level in ways which transcend their more local, embedded and culturally specific experiences, and to respond to these global concerns through individual local action' (Urry & Macnaghten, p.218). While a lack of football pitches in Copenhagen is a widely accepted issue, addressing this at a local level through artificial pitches becomes contested through the broader landscape of environmental concern, where human non-human relationships are viewed as increasingly important.

At a local, practical level however, the desire for a closer relationship to nature by incorporating e.g. longer grass or wildflowers into open spaces, as suggested by Frederik and Arturo for the grass lawn in Nørrebroparken, often comes into conflict with the human use-value of the space. While Frederik says that 'my idea would be to plant a bunch of trees and let the kids run wild. Trees that are good for climbing. And wildflowers' he also notes that 'it's probably not practical.' Indeed, Nørrebro Local Committee recently argued against planned developments to Hans Tavsens Park, less than 1km from Nørrebroparken, that would have 'turned into wild nature with tall grass, hills and valleys instead of lawn' and asked 'could you not consider a smaller project where we can keep the lawn which is used frequently and where the areas around the schools and playgrounds are updated.' (*Nørrebro Local Committee Facebook, March 2023*). The positive assessment that the lawn is frequently used stands in contrast to the stigma seen in discourse around the artificial grass. This suggests that discussion around the human use of

space is impacted by the materiality of the grass and that urban parks are now expected to be seen as ‘natural’ spaces while also, sometimes paradoxically, supporting use by many people.

Figure 10, Illustration for the future of Hans Tavsens Park. Notice the human activity is only on the short cut lawn, signifying a future contest for space between human activity and flora in urban parks, (Nørrebro Local Committee Facebook, March 2023)

The example given above shows that while improving biodiversity and ‘wild’ nature in parks is desired, it comes into conflict with social practices. Data collected from online discourse and through interviews for this thesis reinforce what Urry & Macnaghten state as ‘a shift from traditional or technocratic paradigms to more ecocentric or environmental paradigms’ (p.230). While there is a clear societal shift towards ecocentrism, the pressure on urban green space by large populations means any space ceded to increased biodiversity may lead to a fall in traditional human practices within these spaces. Similar concerns about reincorporating a wild element into cities were expressed by Michael Pollen back in 1998 in his comments about the ‘wilderness ethic’:

> *About any particular piece of land, the wilderness ethic says: leave it alone. Do nothing. Nature knows best. But this ethic says nothing about all those places we cannot help but alter, all those places that cannot simply be "given back to nature," which today are most places. It is too late in the day to follow Thoreau back into the woods. There are too many of us and not nearly enough woods.'* (Macnaghten and Urry, p.276)

Thus the contested nature of artificial grass is made clear. Should we provide a space that is artificial, yet plays an important role in contemporary urban football, affording its continued practice and the continuity of the social elements that come with it. Or should we attempt to re-incorporate wild elements into our parks? This example from Copenhagen demonstrates that while it appears widely agreed that more wild elements are positive environmentally, when this comes in opposition with human activity there is a reluctance to incorporate it. The players interviewed in this thesis view artificial grass as a good material for their practice, but also share the environmental concerns of those completely opposed to the pitch. With this in mind, it is important to problematize the clear cut dichotomies of the role that artificial recreational spaces have in urban parks and unpack the various ways in which they are contested. I will therefore turn to an analysis of the specific case of the football pitch in Nørrebroparken, beginning with the social elements afforded by its materiality.

7. Nørrebroparken Football Pitch

Having established the role of artificial grass within a broader history of grass and the way it is contested through the social, the analysis to follow focuses specifically on the pitch at Nørrebroparken. First I will unpack the contested claim that it is a closed and exclusionary space, arguing that while the design of the space with a fence around it means it is literally closed off and that the perceived affordance is only football, it also draws in varying levels of social life that take place on the pitch, within the space enclosed by the fence, as well as encompassing passing life around the fence. Secondly, I will focus on football players themselves to investigate how the artificial surface and design of the space is contested by footballers themselves through practice. Finally, following on from the analysis of the pitch providing a simulation of natural grass for the practice of football, I will demonstrate that although this surface has come to occupy for some the ‘real’ surface of urban football, this does not change their view of it as a non-green space. Therefore the use of the artificial, as it is now, is demonstrated to produce a sight of personal conflict for players who at once see it as a necessary space to practise, but also a space that conflicts with their wider ecological concerns.

a) A Space of Varying Socialities

I will begin then with an investigation of the varying socialities that occur based around the artificial football pitch in Nørrebroparken. While the role of the grass lawn and the increasing use of artificial grass in private homes can be viewed on an individual household level, its use and durability in public parks means that the material takes on a different socio-cultural role. One of the main criticisms against the football pitch is that it is exclusionary. In a Facebook post by Dansk Naturfredningsforening, they state that 'the pitch itself will not invite you to stay, sunbathe, play and other physical activity, as it will naturally give priority to ball playing users. In this way, artificial grass is very exclusionary.' (Dansk Naturfredningsforening, January 2021) The idea that the football pitch is for football players is echoed in the comments on this post. In a climate like Denmark, however, even if a grass space is open to everyone, that doesn't mean it is used.

Figures 11 & 12, Shot-reverse shot: despite the functional design and fenced off space, the artificial grass attracts more users in unfavourable weather conditions; photographs by author

What is not stated in the discussion however is how sports facilities can act as not only spaces for exercise and the practice of sports, ball playing activities, but also social spaces and community hubs. The artificial therefore anchors a continued social life through its practical use. An analysis of the social life afforded by the design and location of the pitch can be split into three spatially distinguished groups: those playing football *on the pitch* (within the white lines on the artificial grass); those watching and participating in the practice as spectators on the artificial grass, within the cage but on the space around the football pitches; and those watching or simply taking in the social life around the pitch in an active or passive way from outside the pitch, mainly on the concrete paths around the fence. What's more, beyond the physical elements of the space there are also shown to be social connections made that extend beyond the space itself, incorporating whatsapp groups and institutions like Nørrebro United. Lefebvre's assertion that space is created through social interactions is present in a variety of ways. In the criticism of the closed or exclusive nature of the artificial pitch, these varied social elements are rarely mentioned, instead it is a space 'just for footballers'. To follow I will analyse the ways that the design and materiality of the pitch afford these particular socialities to exist, and endure through months where weather usually dictates a lack of outdoor social activity.

1) On the Pitch

For those playing football, the space to play football plays an important social role. Lars and Arturo both agree that the artificial grass gives the practice of football a reliability, where they don't have to worry about the condition of the pitch. Lars meets every wednesday morning:

I play football on the pitch every Wednesday at 9:30 until 11. And, uh, it's not within like an organization, we just maybe 30 guys who have a text thread and then we just sign up before that day. And then we also play on a New Year's Eve during, like during the morning. That's a tradition as well. [...] Most of my teammates live in Nørrebro.

Figure 13, Screenshot of group text, titled 'Football in Nørrebro Parken'. Image is of Lars' group of players at the pitch, and the text reads 'Love playing with you boys. It is a cool group to be a part of.' Image provided by Lars

Playing with local residents, for Lars and his group the space acts as an anchor for an extended group of 30 people via text message. The space anchors the group through activity but produces the pitch as a site of social encounter, and the message above is an example of what Lars describes as ‘a lot of love’ between a group of 30 men who don’t know each other particularly well. They also have no club affiliation and simply organise themselves. Lars became involved with the group through a colleague, but says that

> *I wouldn’t call them my friends. I just started this summer, so I don’t know them that well yet. But sometimes we have a beer, like on New Year's Day, we had a beer afterwards and sometimes we go and have a coffee, but, uh, no, I wouldn't necessarily meet them outside of football.*

These instances demonstrate important elements of social infrastructure as outlined by Layton and Latham such as co-presence, sociability and friendship, and kinaesthetic practices. Furthermore, the space allows the players more time to get to know each other through the winter. Lars started in the summer of 2022 with that group, but had been playing with them for 6 months at the time of our interview, something that he thinks would be difficult with natural grass:

> *We play year round. I think that would be difficult on natural grass. Like for instance, January or February the pitches get kind of like muddy if there's a whole lot of people using that pitch. Yeah. So I think it would look quite sad if you look at the park, next to the pitch. Yeah. It already looks very sad.*

The artificial grass allows year round practice, which consequently affords a sense of community that revolves around the practice of football. The practice of football therefore negotiates between the space as a physical construction conceived as a football pitch, and a lived space that is ‘essentially qualitative, fluid and dynamic’, that ‘is alive: it speaks’ (Lefebvre, 1974, p.42) and a demonstration of how ‘the experience of space through which people’s social exchanges, memories, images and daily routines transform it and give it meaning’ (Low and Lawrence-Zúñiga (2003) p.38). While the muddy grass after rain looks ‘very sad,’ the pitch has brought a tradition of a New Year's Day game and a beer. Akse also highlights the importance of the ‘ritual’ of putting on boots for young children. In relation to Lefebvre’s spatial triad, the interaction of spatial practice and representational space lead to the creation of the artificial pitch as a space imbued with meaning for local residents rather than simply a space of representation demonstrating the local political significance of e.g. Nørrebro United. A similar argument can be made in line with spectators on the pitch, although it is afforded through different design elements.

2) Inside the Fence

This perception of the space opens up one of the paradoxes of the artificial turf pitch, further highlighted by a conversation on the pitch with Magnus, who was in the park on a weekend to watch his girlfriend play for Nørrebro United. He said that he wouldn’t normally be using the park unless it’s in the summer, that this is ‘just a football pitch’ and that he wouldn’t come to relax on the artificial turf:

Magnus: *You don't get the same feeling as sitting there in the grass. There's just something different about it, especially in the summer.*

Tommy: *So you wouldn't come and sit on here?*

Magnus: *No, definitely not. Not if there is grass out there, I wouldn't sit on the astro.*

This exchange seems to confirm the sentiment of the quotation from Dansk Naturfredningsforening, in that the artificial turf is not a place that invites people to sit and relax, and that the natural grass is a more natural place to do so. This is 'just a football pitch'. However the fact that the conversation with Magnus is taking place challenges the concept that it is just ball *playing* users that the space affords priority to. What has drawn Magnus out to the space, on a mild November afternoon, is to *watch* his girlfriend play for Nørrebro United. He says he does not play football himself, and he seems pretty detached from the game - he doesn't know the score when I ask him. Yet he is incorporated into the practices taking place in the space in the role of a spectator, the infrastructure therefore incorporating what Layton and Latham term as 'co-presence' (2022, p.763). There are other spectators too. Some have brought their own camping chairs to sit in, there are families watching. Men who have just finished their own game return to the pitch with a beer in hand to watch the women. Meanwhile the grass patch stands empty.

This demonstrates a challenge to the idea that a space that has fewer design elements, that is more 'loose', provides a better public space. Quentin Stevens argues in *Public Space as Lived* (2014) that 'the 'looseness' of a public space, or the ways its design and management render it available and suitable for a variety of unanticipated appropriations and uses, is perhaps one of

the best indicators of its quality' (p.278). However in the context of a neighbourhood urban park in late autumn, the affordance of the artificial pitch as a space defined for practising football brings various socialities together. This falls in line with Latham and Layton when they state 'in many cases, what counts as social infrastructure has other primary functions other than to promote sociality' (Latham & Layton, 2019, p.3). The primary function of the pitch, determined by its materiality, is for the playing of football. However this activity, rather than being exclusionary and for players only, draws together different socialities in an outdoor urban space. The artificial nature of the space affords this through its primary function, yet it provides access to fresh air and the vegetation of the surrounding area to a broad group of people.

Magnus's perception of the space, what he visually conceives that it's affordance is, is also as a place to play football. Gibson states that 'the affordance of a certain layout is perceived if the layout is perceived' (Gibson, 1979, in. *People, Place and Space Reader,* p.57). This highlights an important issue of the artificial space - its *perception* as a closed and exclusionary space. As demonstrated above, the space affords the coming together of different socialities. However non-users of the space, and even those within the space like Magnus, still perceive the space to be for ball players. Gibson's Theory of Affordance was first and foremost a theory of perception, '*what we perceive when we look at objects are their affordances*' (Ibid., p.58). The closed off 'cage' of the football pitch, and the lack of perceived infrastructure for other activities, means that the perception of what the space affords is only football. This means that the space falls into a more Normanian understanding of *perceived affordances* through its design, which 'primarily focused on the visible properties that could communicate an object's canonical use' (Chong & Proctor, 2019, p.121). Unlike some new artificial grass pitches, specifically smaller-scale ones, there is space for spectators around the side of the pitch. This is in line with traditional forms of local football practices on natural grass in parks. The increased sociality that this extra space

affords is not necessarily perceived from the outside, but highlights an important factor in the space providing social infrastructure in the local park.

Figure 14, Spectators in Nørrebroparken, with space afforded to them to be a part of the match. Photograph by author

Figure 15, a smaller pitch in Skydebanehaven, Copenhagen, without space for spectators within the pitch. Photograph by author

This design element of the pitch, the extra room on the sidelines for spectators, is something that distinguishes the larger pitches from the smaller. While one may seem less obtrusive, the added space for the viewer *within* the fenced perimeter actually increases the inclusive elements of the design. While there are seating options incorporated around the smaller pitches, being outside the pitch decreases the element of participation, and the space becomes more heavily about the actual football players. The larger pitch enables socialities beyond primal function. Even within the spectators there are different socialities, depending on what kind of a game is being played. Matches with older players generally draw their friends, especially if the weather is ok. Beers are drunk after the game as people linger on the pitch. Matches with smaller children bring together parents. Nørrebro United brings together a diverse group of parents that talk together during their role of spectator, an experience similar to what Erik Klinenberg shares in *Palaces for the People* (2018),

> *I've observed all kinds of collective life made possible by strong social infrastructures in foreign settings. For several years my family and I spent part of the winter living and working in Buenos Aires, and some of our most rewarding encounters with local residents happened around a soccer field [...] where my son became a regular* (p.20)

The extra space for parents on the artificial turf affords registers of social life such as co-presence, sociability and friendship, and care and kinship. Especially outside of summer, the infrastructure of the football pitch affords social engagement from spectators while incorporating access to outdoor space.

3) Outside the Fence

The activity of the pitch also encourages a third user group to linger in the park, in a space which is otherwise dominated by people on the move. Onlookers and passers-by *outside* the cage perimeter can also be seen to be incorporated into the social life of the pitch. Aided by the floodlights incorporated into the infrastructure, as the seasons change and the space becomes endowed with life and vitality as the natural light fades.

Figure 16, onlookers sit and talk while taking in a game of football as night draws in. Photograph by author, December 2022

Many of the smaller artificial pitches in the area have vegetation growing on the sides of the fencing, with glimmers of the pitch visible at certain points. This has been suggested to me as a design possibility for the larger playing area, incorporating more green vegetation for the inherent artificiality of the space. This could have positive effects, and it certainly increases the understanding of the space as an urban green space. However, it would surely reduce a third

stage of participation in the space, that of onlookers and passers by *outside* of the cage perimeter.

The inclusion of a space specifically for football, that draws in many people from around the neighbourhood, may too place an interesting question as to what the scale of the park is. The practice of football attracts visitors on a scale that is perhaps not compatible with the beliefs of a local park, and the use by institutions such as Nørrebro United highlight the struggle for access to the open space. There is a fundamental clash in Denmark between the desired uses of urban parks, as it is found that many desire peace and quiet, and closeness to nature, but also that, as of 1997 almost one third of the population between the ages of 16-74 are a member of a sports association, and one of the biggest restraints for them to using urban parks is lack of enough activities (Holm, S., p.57). Considering that children tend to play sports outside of the school, these associations are vitally important in Denmark. There simply has to be space for them to play, and in dense neighbourhoods like Nørrebro the material qualities of artificial grass can play a vital role in providing access to activity. The material quality should therefore not be dismissed simply as something closed or environmentally damaging, but understood more through its value to provide access to open space recreational activities for many. That this seemingly comes at the cost of an environmental space should be considered by designers of football pitches, but signifies a larger societal position of feeling a disconnect with nature. The desire to reconnect should not focus on closing spaces that increase access to outdoor sports.

b) A Changing Practice, a New Reality

Since when can you suddenly only play football on plastic?

(Facebook user, September 2021)

This section of analysis looks at the role that the artificial surface plays in the practice of playing football. Seeing the ways in which it affects the game, what amateur players think of it, and how it compares to playing on other surfaces is important to get a grasp of how the practice has changed based on this materiality. I will demonstrate how the artificial has come to be considered as 'real' football for the players instead of the natural grass, which provides a more casual type of practice. This is due predominantly to the consistency of the playing surface, but also links to cultural ideals of playing on a surface similar to football that they watch on TV. It is also contested within the practice as something at once more professional, more competitive, more reliable, but also not fitting in line with players' ecological concerns.

1) Constituting a "good game"

The consistency of the surface and its firmness that allows for high intensity of use, has impacted what practitioners want from their football practice. Although the plastic surface is known to be painful to slide and fall on, Arturo stated that 'anything, any, like semi-serious playing, like with teams and goals and things was on astro' but that he would be happy to have a 'kickabout' with few people on grass. Talking about grass football pitches that are on Fælledparken, a larger park in Copenhagen a 10 minute bike ride away from Nørrebroparken, Arturo noted,

> *There's those grassy pitches in Fælledparken, and they're fine, but around the goal, especially from the amount of running around and scuffing, it's quite uneven. And if you want to play a match… I'm quite competitive. And even if it's like a five aside, casual game on a weekend, I'm quite competitive. And it's frustrating when the condition of what you're playing on is affecting the game.*

This attitude seems to back the findings found by Burillo et al. (2014) that what matters most to amateur players is the evenness of the playing surface and its quality of conservation. The low maintenance artificial grass therefore improves the space as compared to a natural grass field which changes and deteriorates at a more rapid rate when played upon. It is surely a benefit to the practice of football, as well as the social elements surrounding it described previously, to have a surface that can be relied upon with little maintenance cost for close to 15 years. Perhaps a more important question for designers of artificial grass is solving the ecological problems surrounding both its construction as well as the end of its life cycle, when wear and tear mean it is no longer usable. Football players, while having some reservations about the firmness and burns from sliding on the grass, certainly appreciate the consistency of the material for their practice.

The affordance of artificial grass, the stability of its form and its consistency, has changed the expectation for a competitive game of amateur football. Arturo demonstrates here that in the practice of football, his desire for a good competitive game is more compatible with the artificial environment than the natural space of the grass. Grass pitches in the city are of course not what you see in the Premier League on TV. They are uneven and not maintained and preserved for one elite team to use once a week. Therefore, in order to avoid the frustration Arturo mentions, artificial grass affords the most consistent playing surface for players looking to replicate a

competitive match. It is in this sense ‘real’ football. When asked if playing on the artificial pitch feels like ‘real’ football, Arturo answers,

> *definitely, yeah. Much more so again because of the condition and how flat it is and how much grip you can get compared to grass and the goals. The goalposts, the fact there's no restrictions to how hard you can hit compared to an open space where there's the risk of hitting someone or a kid or a baby.*

He repeats the importance of the flat surface, but also brings in the significance of the fences around the pitch. This is a particularly divisive design element from various social positions within the local community, and with Arturo too. He thinks that pitches without such high fences feel ‘more open,’ a main concern raised by those against the pitch who claim it is a closed space. The impossibility of natural grass to provide a suitable space for playing football in Nørrebroparken is noted by the participants in this project. It would ‘just turn into one big mud puddle’ if the natural grass space was used by the same numbers of footballers, among other users. The design of the artificial grass aims to avoid this wear and tear, but it is something that is noted as a downside by Lars, who says he doesn’t like it so much because the surface doesn’t receive your body in the same way:

> Lars: *it feels a bit like playing on concrete sometimes.*
>
> Tommy: *Okay, in what way?* Any particular time It feels like playing on concrete?
>
> Lars: *Uh, if you kind of, if you kind of hit your foot or if you, if you want to make a tackle and your heel kind of hits the mm-hmm, hits the ground first. Yeah. Kind of hurts.*
>
> Tommy: *Ok. Like there’s no give?*

Lars: *I suppose. No, you, you don't, you can't make a mark, really.*

The daily lives of so many urban footballers cannot be upheld by the natural grass. Artificial grass is the development of the taskscape in urban environments of natural grass to withstand urban requirements of use. The role of the artificial grass is to withstand repeated use throughout different seasons. In the practice of football in an urban environment, where many want to play the sport but don't have much space to do so, artificiality becomes a vital part of the design to avoid the natural grass perishing with the practice. In this sense, it could be said that artificial grass pitches such as Nørrebroparken avoid the obsolescence of grass pitches that quickly become unusable. It is useful here to quote Gregson, Metcalfe, and Crewe on maintenance of designed objects:

> *Physical materiality matters to the performance of practices. Most obviously, as Graham and Thrift (2007) point out, consumer objects break down. They age; they stop working as well as they once might have done. Physical failure and deterioration have implications for actualizing practice, disrupting and intervening in habitualized ways of doing particular activities. Such eventualities require object repair or replacement/substitution to ensure that capacities are reproduced and that particular practices might continue to be actualized appropriately.* (Gregson N, Metcalfe A, Crewe L., 2009, p.250)

The artificial surface prevents, to a greater extent, the disruption of the practice, it doesn't turn into a 'mud puddle'. However, this solidity to the surface also has its downsides, as Lars points out that 'you can't make a mark' in the surface, and he compares this to playing on concrete. The consistency of the form therefore enables the practice, but also changes it. Maintenance isn't required as frequently on artificial grass pitches as natural grass, where chemicals used to

treat the grass and machinery can be both time and energy consuming. The flipside of this is that the playing surface does not respond so much to the body of the players, potentially causing pain or injury. The artificial pitch is designed to sustain use, a desire to *not* make the taskscape visible. Rather, in avoiding deterioration and supporting sustained use, the artificial impedes being marked in the same way as a natural grass pitch.

The troubling implications of this is that it can be viewed as an example of what Francis termed ‘a further shift towards lower expectations of nonhuman life in domestic space’ (Francis, 2018, p.154) With the exception of Fred, who played on concrete as a child and relished the opportunity to play on artificial grass, the other players all grew up playing on natural grass. Alex even states ‘I don’t think astro was invented then’ (he is 31 and artificial grass was invented in 1964). There is a shift in the practice of football where artificial is expected, and this affects the kinaesthetic understanding of place to be an artificial one within the practice of football. The practice of playing football on artificial grass provides a simulated experience of playing on grass, and just as ‘Bachelard presents a notion of memory as irreducibly embodied’ (Macnaghten and Urry, p.165), the embodied practice of football on artificial grass produces a connection to past experiences of playing on natural grass. Lars says

> *I think it, yeah, to some extent it, I don't think about it. It's, let's, let's put it that way. Yeah. So I maybe like subconsciously I just, uh, think I'm playing on grass. I only think about it if I get like hurt or if I scratch my knee or like 'argh this fucking artificial grass, for fuck sake'. Yeah. Now I will have a burn mark for the next two weeks. Yeah.*

They sometimes slide tackle, but quickly realise the artificial nature of the surface. This action is in line with Lars stating that he sometimes forgets that he is not playing on natural grass, but

when he slide tackles or falls he is reminded and thinks ‘argh, this fucking artificial grass’. It gives burn marks. The kinaesthetic understanding of place, and the performance of the practice are impacted by the plastic material.

2) Social and cultural representations of football

The artificial has replaced the natural grass in the “reality” of urban football, to many extents, but the images that it generates and the mental construction of the space for the practice is still there. Everyone thinks it must be green. Unlike sports such as basketball, the historical association of football with grass pitches means that replicating the natural colour is important. Frederik and Gustav both state that playing on the artificial turf and its vibrant green colour reminds them of what they see on TV, as its consistency is also as close as they have come to playing on such a ‘pristine’ pitch. Frederik grew up not playing on grass but on concrete pitches, and so the step up for him to artificial grass was especially significant, stating that it made him feel like he was now “in the big leagues”. And although Arturo grew up playing on natural grass fields in London, he states that since playing on artificial pitches in urban environments, these have come occupy the space of “real” football for him due to the quality of their surface.

Fred also feels that the artificial pitch affords him the closest sense of playing in similar conditions to the Premier League that he watched with his Dad on TV as a boy. Although artificial, the flat surface allows amateur players to play with a similar consistency, not hindered by localised issues with natural playing surfaces such as those mentioned in Fælledparken by Arturo.

c) The Artificial and Urban Green Space

Finally this section of analysis looks at how the space of the artificial grass is viewed in terms of providing urban green space. Largely, although the space is within a park that is considered urban green space, the artificial and enclosed nature of the pitch is not seen as being a part of this. There is some importance placed on the fact that the space is the colour green, and it does encourage users to utilise the natural grass space before or after practice. To some it represents a liminal space that gives a reason to be in the park and engaging with the surrounding area.

1) Not “green green”

The space is regarded on the edge of green space, incorporated into it but through its artificiality it is not ‘green green,’ as two women exercising told me, distinguishing the artificial grass space with the natural grass space through this language. Frederik similarly doesn’t identify the space to be urban green space, which he defines as ‘anything living, anything that grows’. He does however say that the location of the pitch in Nørrebro brings you into contact with the surrounding green space, that it is more about the before and after playing of football that you are surrounded by it. When the intention of practitioners is to play football, the location of the pitch itself does not come across to be so important. As Alex says, ‘we’re there to play football,’ not to appreciate the surroundings. This is backed up by Arturo, who says that ‘whether it's a pitch within a building block or a park, it still just feels like you and the pitch and not much outside it.’ But a byproduct of the location here in the park is that when you come and go, you are surrounded by the vegetation of recognised urban green space.


Figures 17 & 18, demonstrating the artificial grass as often more green than the natural, an element of Baudrillard's theory of the simulacrum as 'more real than real'. Photographs by author.

Arturo says he would go to sit on the grass in the summer, and Alex comments on the local amenities close by that means you can buy a beer and relax after the game in the park. This was seen to happen in the winter months as well, with players often staying after a game to hang out together and with spectators. While the location is not regarded as important for the practice, the space being incorporated into a local park makes the before/after practices more closely related to use of urban green space. Players walk through the park coming to or from a match, or linger in the area afterwards to drink beer or get coffee. In this sense the use-value of the pitch can be viewed as a draw to the green infrastructure of Nørrebroparken more generally,

> *in my head, I think that urban green space and recreation space are a little bit there's some overlap, but they're also kind of different in my mind. So an urban green space, I see that as being somewhere where you can maybe like a park, trees, maybe a little pond, sort of somewhere where you can go and recharge a little bit. And that's not to say that you can't necessarily go for a run in these parks. For example, I went for a run in Frederiksberg Have this morning. Whereas recreational space, I see that as being like a*

basketball court or like a skate park or a football pitch or I can't think of any other sports now, but that sort of thing, where it's sort of purpose built to accommodate' - Frederik

This is an important distinction between the use of the spaces at Nørrebroparken. Returning to what Szerszynski says, that 'nature may be seen as having sacred properties [...] as a recreational space to be roamed across' (Macnaghten and Urry, 1999, p.22), Frederik's idea of urban green space providing somewhere to 'go and recharge a little bit' reflects a wider narrative or contemporary understanding that green space must provide some sort of reconnection with urban flora, that no matter if it has been heavily intervened with by humans, the living organism brings an important connection that artificial grass cannot. My interview with Frederik demonstrated this:

Frederik: *Definitely in the summer, you take off your shoes and you walk on the grass. Amazing feeling. Doing that on the artificial turf, you've just got little black pellets on your sweaty feet all of a sudden. There's no physical feeling of, like aaaahhhh, shoes off, connected to the earth. You're just like, oh, that's a bit annoying that I've now got pellets everywhere.*

Tommy: *So even in the knowledge that the natural grass is basically like stones and rock underneath, you still have that. Where do you think that comes from, that connection to the earth?*

Frederik: *I don't know. That's a good question. I think the feeling of having physical skin to earth contact with something that is essentially a plant, even if it's foundation underneath, it is still a living breathing organism.*

This exchange demonstrates the specific importance of a bodily connection to nature that shows ‘the environment was conceived in terms of what was available to the senses’ (Ibid., p.227). However, in the period studied for this research, the practice of walking on the grass, let alone taking your shoes off, was absent in any meaningful way compared to the footfall on the artificial grass. Very few people ‘roamed across’ the grass, instead sticking to the concrete paths around it. In this way the idea of nature is shown to be bound up with practices that are more abstractly considered compared to the role of organised football.

2) A liminal urban field?

Considering the inequality of access and use of green space, it is vital to consider whether the role of artificial grass can be incorporated to provide a *reason* to be there. Through situating the pitch in a park, although it is not vital to the act of football, it is seen to feel less “urban” than a cage surrounded by concrete. There is a dual emphasis here at play, that concrete caged pitches are urban and that the pitch in the park is less so because it is surrounded by trees etc., a reminder of connection to the elusive ‘urban green space’ and ‘nature’ that are expressed as vital. Pearlmutter et al. demonstrate that,

> *Given the high population density in many urban areas and the concentration of inequalities, and their combined impact on human health and well-being, the uneven accessibility of urban Green Infrastructure has become recognized as an environmental justice issue.* (Wolch et al. 2014). (p.156)

Figure 19, demonstrating the design and aesthetic differences of the two spaces. The fence plays a large part in the feeling of the space being closed off. A note for designers. Photograph by author.

Again, I don't really want to exclude it and say that it's not a green space, but at least in the setting it is over there, it's kind of in this overlap between what I would consider like, a purpose built green space, and it's obviously more green than, like, a concrete basketball court, for example. [...] I think that the fences around it kind of set it aside from the rest of the surroundings, which is good and bad, because you're not chasing after your ball all the time. But it also does sort of… it is a physical barrier between people just wandering and from the sides, you've got to go around, you've got to go into the gate. There is sort of, like, maybe not so substantial, but there is some separation and some distinguishing force that's provided by the fence. So you could get rid of the fence, but then you're chasing your balls all around.' - Frederik

I think the build of the Astro pitch makes a difference because there's some Astro pitches which don't have as high fences and are more open, like they don't have a fence all the way around or the fence is a bit lower and there's an open gap in it and in that case it feels less so. But I think also how it's built and how it's fenced plays a difference to how you feel about how I feel about my relationship to it just walking past it or cycling around it. - Arturo

These quotations highlight the role that design has in shaping the relationship between the space of representation, an imposing design that implements the use of the space as separate and for footballing purposes, and the social life that happens both within and around it. In constructing such a functional space for football with high fences, clearly distinguished from the natural surroundings, the space fails to encourage users to engage with it in a more playful way, and incorporate the space into their use of urban green space in the surrounding park. Embodying a more natural design that encourages social practices in urban green space to engage with the artificial space may lead to an easing of the problematic opposition of the two spaces shown in this thesis, and may lead to a development in artificial spaces being considered in a representation of space more in line with the ecological concerns expressed in the wider community, therefore reducing the contested elements of the space.

8. Conclusion

It is hoped that this thesis has achieved its goal in setting out and investigating how artificial grass is contested, and in the context of Nørrebroparken, Copenhagen, how conversations about these spaces may be nuanced through an ethnographic study of the space. By looking at the social elements incorporated both within and without Nørrebroparken football pitch, it is highlighted that artificial grass can provide desired elements of current urban planning documents, such as access to outdoor space and incorporation of nature, although in a secondary way. Certainly it is hoped that this thesis has demonstrated the high volume of users throughout the year, together with the social life that they bring, means that artificial grass space should be considered in a more balanced manner for what it provides in dense urban neighbourhoods.

Artificial grass is simply the latest development of the manipulation of the environment by humans in order to fulfil their needs. It is a material created by humans, incorporating social and philosophical elements in new and interesting ways for the study of the urban environment. The current selling point of being easy to manage and requiring few valuable resources such as water, as well as the improvement in the technology and ‘realism’ of such artificial materials, may lead to a future where distinguishing between ‘natural’ grass and artificial grass is not as easy as it is currently. Instead of the dark, grey and cold visions of dystopic urban futures such as that depicted in *Blade Runner*, cityscapes may be increasingly green, vibrant, and artificial.

The main findings of its use in the context of Nørrebroparken were:

1) that, in various ways, the pitch encourages socialities that go beyond football players. Through the additional space around the pitches, spectators can come together to watch their friends or family play. The location within the park also puts a local focus on the space as those strolling past can passively engage with the activities and social life within the pitch.

2) Artificial grass has a place in the reality of urban football. The consistency of the surface, combined with its lack of need for repair and maintenance compared to natural grass, mean that to the players interviewed in this thesis, competitive football at a local amateur level is best suited to the artificial surface. Through the winter, the evergreen colour of the pitch also impacts the 'real' feeling it gives the players, namely they can relate it to football that they see on TV.

3) Finally, the design, materiality and location of the space did not change its perception to be urban green space through practice. No participants responded that the space was in fact urban green space to them. However, it was shown that the pitch provides a space that draws people to the park, and the 'natural' park was shown to be used in and around football practices. The main design element that made the artificial space feel closed and separate from the rest of the park was the high fence.

Important design elements to consider from this thesis when thinking of the social elements surrounding the construction of an artificial football pitch are therefore: 1) the fence, its size and height, and the possibility that it may impose on the surrounding landscape. Making the artificial area feel closed off increases the binary nature of debate around the space; and 2) space within

the fence to allow for spectators and other social life to form within the space. This is akin to a more traditional element of watching football in a local park. The pitches without space tend to be more practice focused than incorporating the differing socialities demonstrated here.

It must also be noted that having a space that provides for organisations such as Nørrebro United to function throughout the year can form deep roots and provide lasting social benefits within a community. At the time of submitting this paper, there were 200 boys and girls from Nørrebro United in Costa Brava, Spain, playing a football tournament. On a Friday morning, children and parents of varying ages and ethnicities all met by the pitch, the hub of their practice, getting ready to leave by bus with the busy excitement that such an adventure brings. At the same time, a group of friends not associated with the club played their regular Friday morning game of 5 a-side out in the crisp March air. Without the artificial surface of the pitch, Nørrebro United would not be able to provide such a fantastic opportunity for the same number of children in the neighbourhood. With the originally planned second pitch in the location, they could have provided for more.

Figure 20, Nørrebro United in Costa Brava, Nørrebro United Facebook, April 2023

It is of course a balancing act of local priorities amid important ecocentric concerns, but institutions such as this and the social benefits they bring should not be so easily dismissed in the name of 'more green space'. While there are concerning elements of artificial pitches, it is hoped that this thesis has demonstrated that the specific materiality and design of the football pitch in Nørrebroparken draws in a variety of socialities, contributing to a lively local park. While the artificial nature of the surface means it is not considered as green space by users, it affords their practices in ways that natural grass does not. This is especially true of football players, where the reality of contemporary urban football for many is using this type of surface. It is hoped that future discussions around contested spaces such as this may then draw on this research to nuance the conversation when thinking about design, location, and balancing needs.

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