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Exploring velotopian urban imaginaries: where Le Corbusier meets Constant?

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ABSTRACT

Cycling is increasingly seen as a solution to a large variety of urban problems, and as such continues to inspire innovations that aim to upscale cycling to unprecedented levels. Taken to the extreme, these ideas promise a future 'Velotopia' in which cycling constitutes a dominant or single mobility mode. Focusing its attention on Dutch cycling innovations and two recently envisaged cycling utopias by Steven Fleming and Cosmin Popan, the present paper offers a critical exploration of current velotopian urban imaginaries. It does so by tracing their ideological ancestry back to two visionary urban designs of the 20th century: the dense city of speed and efficiency of Le Corbusier, and the endless Babylon of Constant where mobility is a means of discovery, play and human interaction. Our analysis shows that both Corbusian and Constantian understandings of mobility are reflected in current velotopian imaginaries, not only in opposition but also in combination with each other. This combination of Corbusian and Constantian velotopian imaginaries, we suggest, has largely become part of mainstream urban discourses instead of providing a radical alternative to them.

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Velotopian imaginaries: the bicycle as world-saver?

The bicycle, famously celebrated by the Dutch countercultural Provo movement for its simplicity as 'something, but almost nothing[1]' (Jordan 2013), is increasingly seen as a transformative agent of urban change. As such, it is often presented as an almost uniquely benevolent transport mode bringing only positive changes for everyone (Cupples and Ridley 2008; John and Buehler 2008). As a recent account puts it, 'the bicycle is the single most important tool in our urban toolbox for improving our cities' (Colville-Andersen 2018, 1). Academics, urbanists and activists emphasize that cycling can contribute not only to public health, urban sustainability and liveability agendas, but also to social connectedness, people's feeling of freedom in their city and a vibrant public life on urban streets (Bruntlett and Bruntlett 2018; Montgomery 2013; Te Brömmelstroet et al. 2017; Walker 2017).

The promises of the bicycle have recently been amplified by the perceived possibilities of smart technology. While the bicycle has remained a mature simple technology for a long time, it is increasingly seen as a vehicle that can be 'smartified' and made part of the wider smart mobility system of the future (Nikolaeva et al. 2019b; European Cyclists Federation n.d.). E-bikes, smart technology and new business models of bike-sharing and bike-leasing services can supposedly provide easier access to cycling for various demographics and needs, while electric cargo bikes are increasingly proposed as a solution to urban logistics (Behrendt 2018; Lenz and Riehle 2013; Schliwa

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et al. 2015). According to a commentator on *Wired* discussing the recent boom in dockless bikesharing, 'bikes plus smartphones' may lead the world 'in a new golden age for cities' (Salmon 2018).

As a result of cycling's growing protagonism in the smart mobility agenda, current discourses on the bicycle as a centrepiece of the future urban mobility system are no longer produced only by cycling activists, or even by advocates of low carbon mobility in general. At present, bikesharing systems are backed by multimillion-dollar investments (Griffith 2017) and large companies originally not interested in cycling: e.g. in 2018 the CEO of Uber announced that the company will increasingly focus on e-bike sharing (Topham 2018). Numerous other smaller companies seeking to connect cycling to the field of smart mobility have also emerged, claiming that they can help rescue cities from congestion and pollution (Nikolaeva et al. 2019b).

What we see at present, thus, is the emergence of a 'cycling will save the world'[2] narrative by a variety of actors. While this narrative by no means dominates the discussion about the future of urban mobility, it appears to be becoming increasingly prominent. The seeming consensus over the benefits of cycling and the corresponding velotopian[3] urban imaginaries which ensue from them, we argue, deserve to be critically examined. Drawing on Sengers (2017) articulation of an urban imaginary as 'a shared understanding of what constitutes a desirable future city' (2764) and Pinder's (2005) definition of the 'utopian' not as the impossible or dismissible, but as that which challenges the status quo, we consider as 'velotopian urban imaginaries' visions of a city which revolve around cycling as a dominant mode of urban transport, and urban visions suggested by technologies and solutions that use the bicycle for urban questions traditionally serviced by other modes, thereby expanding the role of the bicycle in the city.

Our rationale for critically examining contemporary velotopian urban imaginaries is threefold. Firstly, the current diversification of actors involved in the production of velotopian imaginaries entails the diversification of rationales and expectations associated with velotopian futures.[4] Scholars have argued that the bicycle has historically been a 'rolling signifier' taking on multiple meanings that contradict each other, occasionally becoming a tool of opposing goals and ideologies (Hoffmann 2016; Popan 2019). The 'cycling will save the world' narrative, however, obfuscates this diversity. In this paper, we explore the diversity behind this apparent consensus: different velotopian imaginaries may entail different 'politics of mobility' (Cresswell 2010), produce different experiences and ways of moving around the city, normalise particular uses of space, or prioritise the mobility of certain groups over others, eventually leading to radically different urban environments.

Secondly, it is becoming increasingly apparent that the growing protagonism of cycling in the urban landscape does not have universally benign effects, but can also be implicated in the creation or maintenance of inequalities. Thus, new cycling infrastructure has been criticised as a vehicle of gentrification, displacement and reproduction of privilege (Houde, Apparicio, and Séguin 2018; Flanagan, Lachapelle, and El-Geneidy 2016; Lubitow and Miller 2013; Stehlin 2014, 2015; Tucker and Manaugh 2018; Vith and Samuel 2017; Wild et al. 2018). In addition, bikeshares (BSS) proliferating across the world have been criticised for achieving neither environmental nor civic goals (Médard de Chardon 2019; Spinney and Lin 2018)[5]. As a number of scholars have argued, it is not just that businesses that attempt to live off cycling do not live up to their promises, but that they capitalise upon the benevolent image of cycling in order to further capital accumulation and data harvesting (e.g. Spinney and Lin 2018, 2019; Duarte 2016). Duarte's (2016) analysis of bikeshare systems is particularly instructive:

> 'a BSS might be part of a broader technological assemblage that involves extensive gathering of personal data, which can be mapped in real time and matched with other socioeconomic and urban features and marketing strategies that take advantage of the powerful environmentally friendly image associated with bicycles, combined with increasing restrictions or high prices for outdoor media in big cities' (112).

Similarly, urban cycling logistics companies have come under fire for producing precarious working conditions under the guise of flexibility and autonomy (Prassl 2018; Shapiro 2018). This again

underscores the potential complexity of outcomes behind the benign promises of cycling, which may play out differently when embedded in real-world politics.

Third, promises of a better future have historically also been made in relation to other transport modes – most prominently air travel and automobility, and with dire consequences. The freedom, autonomy and flexibility that the automobile was supposed to deliver remains a largely unfulfilled promise as drivers keep waiting in traffic jams, while others continue to suffer the isolation, pollution and exclusion produced by car-centric urban development (Sheller and Urry 2000). While one may argue that the cycling lobby does not even have a fraction of the power that 'motordom' (Norton 2011) continues to enjoy, we maintain that emerging articulations of desired urban futures matter because they are performative. The language that is used by designers, consultants, marketers and policy-makers acts not only as a mirror of reality, but also shape the choices that make certain future realities more possible than others (Frank and Forrester 1993). Shared visions are performative not only because they may lead to the mobilisation of resources and actions towards desirable futures (Sengers 2017) but also because they 'filter' the repertoire of possibilities by *not* describing other futures.

As a means of critically exploring current velotopian urban imaginaries, we trace back their intellectual ancestry to the ideas of two visionary urban designers of the 20th century: Le Corbusier and Constant. This exercise is valuable because it highlights how current velotopian ideas do not all share the same aspirations, but rather push us in very different directions. By exploring these directions, the present paper helps us reflect on current velotopian discourses. What kind of visions are being proposed? What is their rationale for putting cycling at the centre of urban mobility? What kind of city is imagined as a 'natural habitat' for cycling utopia, and what are its consequences for urban mobility? What alternatives may exist?

Our analysis of current velotopian urban imaginaries builds on two different accounts: firstly, on an analysis of contemporary cycling-related innovations in the Netherlands; and secondly, on two recent books by Fleming (2017) and Popan (2019), which seek to outline the basis for a future 'cycling utopia' and arguably represent the two most comprehensive velotopian visions proposed in recent years. We chose to focus on the Dutch innovation scene for three reasons. Firstly, the Netherlands (sometimes alongside with Denmark) is frequently considered to *be* cycling utopia (or its closest real-world equivalent) by many cycling advocates around the world, an example to learn from and to follow (Bruntlett and Bruntlett 2018; John and Buehler 2008; Pojani and Stead 2014). Amsterdam and other Dutch cities attract hundreds of study tours each year, while Dutch consultants and policy-makers constitute a large share of presenters at Velocity, an annual event dedicated to dissemination of applied knowledge on cycling. In various ongoing EU projects, Dutch cities participate in the exchange of cycling knowledge[6], often in the role of 'champions' mentoring other aspiring European cities. Secondly, innovative solutions, and in particular ICT and IoT applications, figure prominently on the Dutch national and local policy agenda on cycling. To take one example, the national 'Agenda Bicycle 2017–2020'[7] puts the leadership of the Netherlands in cycling innovation as the first of its eight goals and mentions ICT innovation as one of the means to achieve four of its other goals (Tour de Force n.d.)[8]. The combination of these two factors constitutes the third reason for focusing on the Netherlands: whichever trends and visions of the future become important on the Dutch cycling scene are likely to have an impact on cycling globally given the Netherlands' prominence in cycling expertise worldwide.

We begin by outlining and counterpoising the two urban visions of Le Corbusier and Constant, focusing on the different meanings of mobility they entail. Next, we explore how cycling-related innovations we have identified as 'velotopian' resonate with the visions of Le Corbusier and Constant. Over two years, we have collected 52 examples of cycling innovations – either developed in the Netherlands or applied in the Netherlands – by keeping track of professional publications on cycling policy and infrastructure, social media and attending public events such as debates, cycling community gatherings, cycling innovation competition, etc. Our analysis suggests that some innovations reflect a Corbusian understanding of mobility, while others resonate with the vision of

Constant. Critically, however, we suggest that the predominant urban vision reflected in many innovations appears to combine *both* Corbusian and Constantian ideals. We then move on to consider Steven Fleming's *Velotopia* (2017) and Cosmin Popan's *Bicycle Utopias* (2019[9]). While Fleming's book offers a blueprint for a cycling utopia which is largely organised along Corbusian principles, Popan proposes a slow cycling utopia based on the principles of conviviality and sociality, echoing many of Constant's ideas. In the final discussion, we seek to assemble these various threads together by bringing different velotopian urban imaginaries into conversation. We discuss the alliances and the tensions between them, and call for more attention to the politics of velotopian urban imaginaries.

Urban utopias and mobility

Visionary urban designs have often revolved around the possibilities that mobility can bring to society, exploring the possibilities of new vehicles, new ways of arranging transportation, or the consequences of mass use of vehicles that are as of yet used by a few (Fishman 1982). Visionary thinkers have made movement serve their goals, 'staging' mobility (Jensen 2013) in ways that reflected their ideas about public good and societal order. This 'politics of mobility' (Cresswell 2010) is evident in Thomas Moore's idea of restricting unauthorized mobility around Utopia, Leonardo da Vinci's proposal to separate the mobility of low and high classes in his ideal city, or in Frank Lloyd Wright's association of individual freedom and autonomy with personal vehicles (Tod and Wheeler 1978). Ideas that are considered to be utopian also challenge contemporary ways of thinking about architecture, urban planning and society; by transgressing the limits of what is seen as feasible or imaginable, they open up possibilities for critique and change (Burden 2000; Pinder 2001, 2005).

While the importance of mobility in shaping urban utopian visions has been recognised by various scholars (e.g. Fishman 1982; Shelton 2011), such accounts tend to focus primarily on urban planning rather than on mobility in itself. As noted by Timms, Tight, and Watling (2014), 'there is no identifiable body of literature on urban transport/mobility utopias to draw on' (85). In their own article, Timms, Tight, and Watling (2014) provide a first step in this direction, distinguishing between three 'archetypal images of transport utopia' (85). Thus, they distinguish between a Corbusian dense city relying on the automobile and public transportation, a Wrightian low-density type of settlement where the car is the dominant mode, and a Howardian vision where a balance of private and public, motorised and non-motorised transport prevails (ibid, 85–86).

In the present paper, we have chosen to explore current velotopian imaginaries, focusing not on the *urban form* they produce, but on the *meaning* of mobility they espouse. We do so by relating them to the ideas of two thinkers: Swiss-French architect Le Corbusier, and the Dutch artist Constant, a prominent figure in the avant-garde movement CoBrA and in the Situationist International movement. The main reason for this choice is that for both visionaries mobility was of key importance in urban life. Their views on what mobility meant for city and society, however, were fundamentally different: Le Corbusier saw mobility as a derived demand, while Constant valued it as a meaningful social activity and enjoyable way of exploring the world.

A city of speed versus a city of play

Le Corbusier (1887–1965) was a 20th century visionary who retained a fascination with movement and speed throughout his career. 'A city made for speed is made for success', he proclaimed in 1924 (Corbusier [1929] 1987, 179). Ever since then, Le Corbusier tried to inscribe mobility in the urban order and to rationalize flows of people, goods and communication. In *A Contemporary City of Three Million Inhabitants* (1924), the Central Station functions like a kind of dynamo machine for the whole transportation network, 'the hub of the wheel' at the very centre of the city ([1929] 1987,-170–171). The multi-layered Station flanked by skyscrapers provides an interchange between all kinds of traffic: railway, metro, motor transport and air transport. Le Corbusier sees the Station and

the rest of the infrastructure related to transportation as *infrastructure only*, spaces with a purely functional justification: 'negative' spaces rather than spaces of work, dwelling or leisure. In his later volume *La Ville Radieuse* (1934) Corbusier ([1934] 1964) asserts: 'Big train stations are an illusion. A station is simply the scene of temporary passage' (303). On the one hand, thus, Le Corbusier attributes one the most important functions of the city to 'circulation': it enables the good coordination of the rest of a city's three functions (living, working and leisure). One the other hand, spaces of circulation are utterly devoid of meaning for him.

Corbusier's disregard for spaces of mobility as anything more than spaces for circulation applied not only to transport infrastructures but to streets as well, which he viewed as 'machines for traffic' (Corbusier [1929] 1987, 123). This attitude was not merely an extension of the emphasis on efficient circulation, but was part of his strong distaste for 'the mingle-mangle of the street, the muddle of bodies and the threat of touching strangers' (Pinder 2005, 73). He found the interaction of different modes of mobility on the streets of European cities to be dangerous, incompatible with a 'healthy' modern city where circulation proceeded along separated channels for traffic. If ordered, mobility could work as oil in a perfectly efficient machine, but unregulated, it entailed danger and chaos (Pinder 2005, 103). Such aversion to wandering is underpinned by a moral argument which was anything but new in modern European societies (Cresswell 2006), but it is in Le Corbusier's negative stance on unregulated mobility that we see a translation of this moral judgement into urban design. The look of many cities across the world, planned from a perspective of a car driver, testifies to the wide adoption of Le Corbusier's ideal of a city made for speed and circulation. Equally, the practice of transport planning often continues to rely on the view of mobility as a disutility (Aldred 2015; Banister 2008; Te Brömmelstroet et al. 2017; Vigar 2013), with massive monetary investments into a few minutes of time saved in commuting time being justifiable – though not uncontested – in public policy across the Global North.

The Dutch artist Constant (1920–2005), by contrast, imagined a city where mobility was the essence of the city, but not because it connected A to B: for him, it was a valuable social and sensory experience in its own right. Closely linked to ideas and practices of the Situationist International (SI), Constant's vision of New Babylon was at the antipodes of the Corbusian city. Originally called *Deriville*, his project builds on situationists' belief in the value of the practice of 'derive' ('drift' in French): unplanned wandering through urban space, a revolutionary strategy meant to disorient the individual, to allow people to break away from the monotony of social life in the era of advanced capitalism (Wigley 1998). New Babylon, imagined by the artist through drawings, models, collages and other media, is an endless city where mobile residents rearrange the environment according to their needs. Inspired by Johan Huizinga's ([1949] 2016) idea of 'homo ludens', Constant imagines a city of play and exploration, in which mobility, wandering and spontaneous encounters are the very fabric of social life rather than an undesirable side effect (Pinder 2005). Furthermore, mobility in New Babylon is an emphatically embodied, sensorial experience: urban living for Constant equals mobile engagement with people and places in a permanently shifting urbanscape. Interestingly, Constant is by no means a luddite: his nomadic society of play is made possible by technological progress and automation (Pinder 2005). Yet instead of putting technological efficiency at the centre of urban life as Le Corbusier, he sees its value in affording for free time, play and flexible, unrestrained living.

While the Corbusian view of a city as a machine for circulation is still echoed by technocratic practices which see mobility as a matter of efficiency, time savings and cost benefit analyses, such a view has also been openly criticised for decades by scholars, activists and urban designers. Meanwhile, the ideas of Constant and the SI have seemingly enjoyed a revival and re-appropriation. On the one hand, situationist ideas continue to inspire activists and artists performing temporary creative appropriations of urban space (Pinder 2005; Swyngedouw 2002). Already in the 1960s, Constant was an important figure for Dutch counter-cultural movements – including Provo, which directly engaged with the subject of urban mobility by putting out white public bicycles on the streets of Amsterdam in what became known as the world's first bikeshare. On the other hand, according to Swyngedouw (2002), the legacy of SI has been appropriated selectively in a way that

'reinforces exactly what the Situationists actively criticized and tried to undermine' (153). As Pinder (2005) comments, some aspects of situationist ideas and New Babylon are not unfamiliar to us:

> 'Situationist demands to revolutionise urban structures, their attacks on urban planning, and their opposition to temporal and spatial fixity through continual urban change certainly take on different connotations at a time when cities have been overturned and remade through processes of commodification; when planning has been undermined by neo-liberal advocacy of free markets; when capital itself requires high geographic mobility for "flexible" and temporary workers; and when commercial logic dictates that office buildings favour neutral structures and a "skin architecture" to allow easy reconfiguration of internal spaces accommodate the needs of "flexible" firms.' (255)

In the last decade, with the advent of the smart city concept and the increased involvement of tech companies in producing urban imaginaries, the promises of situationists and Constant's New Babylon even seem to resonate with what Morozov (2017) has labelled 'Google Urbanism' – developing cities in such a way that there are no fixed uses of buildings, only flexible spaces and assets governed by algorithms.

The appropriation of Contantian and SI ideals and their seamless incorporation into an ideological context that they would have resented echoes or perhaps even forms part of the outcomes of another 'battle' of urban ideals – that between Robert Moses and Jane Jacobs in New York in the 1950s and 1960s. The Jacobsian ideal of a mixed-use convivial city of spontaneous encounters has arguably 'won' over the Moses's grand vision of the city created for (car) flow, directly inspired by Le Corbusier. Nevertheless, the Jacobsian vision has been subject to much 'misappropriation and 'sentimentalization', e.g. by the New Urbanism movement or Richard Florida in his 'creative cities' script (Lyes 2014). The latter has contributed to fetishizing some of the elements of Jacobs' legacy, 'locating', according to Peck (2007), 'streetlife and authenticity … within the circuits of (accelerating) interurban competition.'[10]

Dutch cycling innovations: towards Corbusian, Constantian and hybrid urban imaginaries

In what follows, we explore how velotopian imaginaries in contemporary discourses on cycling innovation resonate with the meanings of mobility represented by the ideas of Le Corbusier and Constant. We then discuss how these two apparently antithetical understandings of mobility appear to become combined with each other in a specific vision of the urban future which is implicit in many innovations, and which is increasingly echoed in current mainstream discourses on smart urbanism and the future of mobility.

Corbusian velomobilities: efficiency, speed and order

The idea of efficiency features prominently in the Dutch cycling innovation discourse, both as a rationale for cycling and as a justification for innovation. In the Dutch context, innovators develop this idea within an already existing cycling regime, yet one that can presumably be even more efficient. Various types of innovations that promise upgrades to transport infrastructure which improve cycling flow fall under this category: from smart traffic lights that prioritise cyclists to interactive infrastructures that help the cyclist to catch a green wave: e.g. Volg Groen (Follow Green), Flo, Evergreen, Bikenow, Groenvoorspeller (Green Predictor), FLIP, Warmtesensor (Warmth Sensor), Schwung (Dash).[11] For instance, the Evergreen innovation – LED lamps on the road surface providing signals to cyclists – is described as a way to eliminate inefficient waiting time for cyclists, bringing it on par with the rest of traffic circulation.

> 'The circulation of bicycle traffic does receive attention in this regard, but in practice the bicycle is usually of secondary importance at an intersection controlled by traffic lights. Because of this cyclists often have to wait (unnecessarily). By giving cyclists information about the desired speed to get the green light far in advance before the intersection, waiting is kept to a minimum and routes with good traffic flow can be created.'[12]

This emphasis on efficiency and speed as the evident desired qualities of velomobility is echoed in cycling infrastructure projects such as elevated or separated cycling highways (see e.g. "Snelle Fietsroutes" n.d.).[13] Such projects often also include a 'smart' component, e.g. a mobile application supporting the cyclists following a cycling highway (BicycleBuddy, Go-Light Avenue).

Another prominent theme in innovation discourse is what might be labelled as 'ordering cycling'. The supposed need to eliminate inefficiencies is articulated here primarily in relation to parking: overcrowded parking racks, 'orphan bikes' taking up space in the city, bicycles obstructing walking, and even the inefficiency of human labour (parking guards). Proposed solutions to these grievances include mobile applications and smart infrastructures that show cyclists how many free parking spaces are available (e.g. P-Route, FietsPlek, Cloud Fietsenstalling), and bikesharing solutions that supposedly tackle the issue of bike oversupply (e.g. Mobilock, BikeShare050). In the rhetoric around bicycle highways and new parking concepts, the bicycle is increasingly treated as an automobile, as the cyclist is provided with tools formerly only available to car drivers and is encouraged to help solving the side-effects of a cycling regime.[14]

More generally, efficiency is often presented as the very reason why cycling should be supported. Across different types of innovations, cycling is often praised by innovators for its ultimate efficiency – a cheap, environment-friendly way of moving around the city as efficiently as possible in the context of contemporary congested cities:

> 'You would therefore think that the bicycle is a more practical means of transport than a car. No traffic jams, it is healthy for your body and it is also cheap.' (GoLight Avenue, cycling superhighway concept)

> 'Most short commuting distances (5–15 km) are now made with fuel cars, while the electric bike is an excellent alternative. Up to 8x cheaper, 72 x more efficient and infinitely healthier.' (Burn Fat not Fuel, mobile application encouraging cycling)

This theme highlights that velotopian urban imaginaries can be Corbusian through and through, with smart technology finally 'elevating' cycling to what an automobile has failed to deliver: non-stop traffic flow, speed and order.

New Babylon on the bike: interaction, discovery and play

Nonetheless, there are also innovations motivated by the qualities of velomobility itself – the possibilities of exploring the city, the joys of riding a bike, the value of mobile encounters. Thus, the Dutch application Ring-Ring® which encourages people to cycle more celebrates the 'freedom' and the intensity of interaction with the environment provided by cycling:

> 'Cycling makes you happy, gives you freedom and sometimes you simply experience the best moments en route to work, family or activity'. (Ring-Ring®)

The innovation The Social Light offers cyclists the possibility to interact with each other using messages projected by a laser:

> 'To improve communication during this busy period you can use The Social Light. This is a rear light on which you can display texts. For example, "Sorry!" if you accidentally bump into someone. Or can you say to everyone you overtake, "Good Morning!" To improve the atmosphere in the morning! Hopefully this will make cycling on the cycle path together a bit more social.' (For similar ideas, see Smart Jacket and Light Up your Mood) (The Social Light)

Outside of the world of 'smart' innovation, we have found ideas that are even closer to the spirit of New Babylon, such as the YellowBackie project which encourages visitors of Amsterdam hop on a bike of a 'friendly stranger' and explore the city together, or the Detour project, proposed by a group of Rotterdammers during a Cyclehack hackathon, which involves placing stickers across the city that would inspire people to take new routes and see the city from a new perspective. The enjoyment and freedom of velomobility are brought to the fore in a variety of

texts on innovation – from bike shares and smart locks to smart infrastructures. However, as we will see in the next section, the idea of play and enjoyment of mobility is more often than not coupled with references to efficiency in the form of time saving, optimised route; in this way, Constantian and Corbusian views on mobility are packaged into an urban imaginary that accommodates both.

The city of instant access and satisfaction: where Le Corbusier meets Constant

The apparently antithetical meanings of mobility in the utopias of Le Corbusier and Constant are combined in a large group of cycling innovations which revolve around the idea of flexibility and instant access to products, people and experiences. Many of these innovations are based on the contemporary app-based gig economy, and build on the practices of bike messengers (Kidder 2009): they see the bicycle primarily as a fast and cost-effective means of delivering goods and services. In these innovations, chores and unpleasantries are outsourced to a new class of mobile service workers – from Foodora 'riders' to mobile teams of bike repair workers (Fietsenwacht, FietsNed) or even 'bike hunters' who can find and retrieve a stolen bike for you (Van Moof subscription).

As suggested by UberEats's slogan 'Appetite? Click. Enjoy!', these innovations conjure up an image of instant satisfaction and access to whatever you may need: bicycle 'riders' deliver your food, while mobile workers come to fix your bike or can even bring a lease bike to your door (Swapfiets). Some of these innovations create a stark dichotomy between the consumer and the 'rider's experience: the ease of ordering stands in opposition to the monotonous physical labour that has to be performed for that satisfaction to happen. Nevertheless, the associations that velomobility can evoke make it possible to reframe that labour as a source of fun, discovery and health. Foodora appeals in the following way to the potential 'riders': 'Deliver food on the bicycle, stay fit and discover your city while making money' (as does TringTring). Bike deliveries evoke an image of an urbanite for whom the city is a territory of discovery, a street-wise mobile subject belonging to the city space: 'In a city we feel at home' (Foodora, see also TringTring). Juxtaposed with the criticisms of bike delivery services raised by 'riders' themselves and scholars of gig economy (Tassinari and Maccarrone 2017; Prassl 2018), this celebration of freedom of new nomadic figures seems problematic. These figures become necessary in an on-demand city of services where some people do not have time to walk or bike as they are 'always busy' (TringTring) and thus expect services and products to be delivered to them: the speed and physical exertion of some are the pre-condition for others' idleness – that is the politics of mobility (Cresswell 2010) in the city of instant satisfaction.

Cycling helps making mobility not just 'efficient' (quick and cheap) in most basic sense of the term, but also in other ways that fit in a contemporary neoliberal city. Mobile applications promoting cycling, such as SMART and Burn Fat not Fuel offer to make cycling 'even nicer' through 'challenges' and 'rewards', while at the same time underscoring the efficiency of this mode choice. Burn Fat not Fuel emphasizes the benefits for the employer:

> 'The employer gets a lot of benefits, such as healthier employees with lower absenteeism, better accessibility of the company location, lower CO2 emissions, a better company image and savings on parking costs.'

Commentary from Spinney (2016) is fitting here; he argues that the recent rise of cycling in London can be understood as a form of neoliberal governance which seeks to shape individuals into entrepreneurs of the self. In this way, cycling becomes a 'solution' to the problems of urban transport, public health, and ecological sustainability, shifting responsibility in these domains to the self. Smartified cycling thus turns into an ideal type of mobility in the urban imaginary where labour is marketed as fun, where speed and efficiency have to be green, where consumption becomes guilt-free. Green, healthy and above all cost-efficient vehicles are the hardware of our times – times in which round-the-clock flexibility, instant access to places, people and services are expected by the mobile urbanite. Thanks to cycling, the Corbusian dream of efficiency is spiced up by the promise of adventure, freedom, pleasure and flexibility.

Toward what kind of cycling utopia?

In the present section, we move our focus from cycling innovations to two recently envisaged cycling utopias: Fleming's *Velotopia* (2017) and Popan's *Cycling Utopia* (2019). These two visions, we argue, are interesting because they represent contrasting cycling utopias which echo the opposing meanings of mobility espoused by Le Corbusier and Constant. By offering us a glimpse of two potential divergent velotopian endpoints, they help us reflect on the kind of city which different types of cycling innovations are driving us towards. Moreover, Fleming and Constant's accounts arguably constitute the most recent and comprehensive visions of a city organized along velotopian principles. Although the utopian imaginary of a cycling-based city can arguably be traced back to the cycling boom of the 1890s (Friss 2015), the fact is that accounts of fully-fledged cycling utopias appear to be few and far between. In Fleming's case more attention is paid to urban design and architectural principles, while in the case of Popan's vision the meaning and practice of mobility receive more attention than physical design.

Fleming's velotopia (2017)

Fleming's Velotopia is an imaginary circular city of 6 million people in which the vast majority of trips are carried out by bicycle. With the exception of walking for short distances and a small number of automated vehicles for deliveries, emergency services and transport for the disabled, cycling is the de facto transport mode for moving around the city. This makes it possible to eliminate traffic lights and even conventional streets: buildings are set on pillars which allow to cycle underneath them, and houses and offices and have built-in ramps which make it virtually possible to cycle from one's bed to one's desk. Similarly, 'cycle-through' supermarkets are standard practice.

On the one hand, Velotopia is a city where speed, efficiency and order predominate. Fleming's intellectual indebtedness to Le Corbusier and other modernist urban utopias is explicitly acknowledged. By creating a city completely attuned to cyclists' needs, Velotopia can become the 'fastest' and 'most connected' city in the world. Following Mies van der Rohe's 'less is more', Velotopia is an elegant, orderly and minimalist city, without any street clutter or traffic segregation. The problem of disorderly bicycle parking is also dealt with in Velotopia, albeit in an unconventional manner (i.e., by having designated parking space within each apartment).

On the other hand, and echoing Constant's situationist understanding of mobility as playful exploration, Velotopia also sees movement as a form as play and interaction. Cycling in is not meant to be only a utilitarian tool, but a fun and enjoyable activity: 'moving in this city is fun. People make more discretionary trips. Half of the time they're moving through the city for no reason other than to be out' (132). Playful architectural forms, undulating ground planes and infrastructure which engages the senses of cyclists are part of the city: 'In Velotopia there are smooth tracks that attract skaters, dirt tracks with berms and jumps designed for mountain bike riders and more paving treatments than you could fit in a catalogue' (132).

The overarching promise of flexibility and instant access present in various cycling innovations is replicated in Velotopia, which promises an individualistic mobile lifestyle based on freedom, speed and convenience. In this sense, Velotopia appears to share some of the same premises as contemporary innovations. However, in Velotopia the pursuit of velomobility is treated not only as a matter of individual self-interest, but also of public necessity. As a cost-effective sustainable transport mode, mass cycling is seen as imperative in the light of global environmental crisis and growing motorisation in developing countries. In many ways, this this view of cycling parallels Spinney's (2016) view of cycling as a mobility 'fix' for contemporary cities. Following Fleming, individual self-interest and the public good can be made compatible by making cycling attractive enough that it will appeal to our 'selfish-worst selves' (38) so we can be 'sustainably selfish'. People should not be forced into cycling, but rather be gently 'nudged' into it by making it as convenient as possible.

Popan's bicycle utopias (2019)

Cosmin Popan's *Bicycle Utopias* (2019) is more than a vision of future where bicycles are the main mode of transportation. It acknowledges that bicycle utopias are plural, as the bicycle has meant different and often opposing things to different groups of people across history. Popan diagnoses a tendency of present-day policy-makers, innovators and cyclist organisations to steer towards the utopia of fast cycling in which cycling is approached from the utilitarian perspective as a fast and efficient replacement for driving. Such a utopia, according to Popan (2019), perpetuates the same meanings of mobility that are responsible for the current lock-in in the automobile system, as it does not question the ideology of growth, individualism and productivism that has led car-centred societies to gridlock and the world to the brink of ecological catastrophe. As an alternative, he proposes a utopia of slow cycling that is 'embedded in constellations of social practices which oppose the current unsustainable levels of production and consumption' (89). His vision, underpinned by a sociological critique of current society, is a normative one, as he maintains that 'a bicycle system must not accelerate mobilities and societies but, on the contrary, aim at slowing them down' (173), creating space for sociable and convivial mobilities that stimulate the senses and offer possibilities for exploration and for connection with other people and the environment. Quite explicitly affirming the connection between the societal order and the forms of mobility it affords and encourages, Popan advocates not only slower cycling but *slower lives* freed from imperatives of productivism, speed, growth and utilitarianism. This vision is explicitly an anti-Corbusian one; while it does not go as far as to proclaim nomadism and play as the cornerstones of the ideal society, it strongly resonates with the ideals of Constant's New Babylon, and is radical in its call for degrowth and accepting 'sufficiency'[15] as the norm in the contemporary (predominantly) neoliberal political landscape.

Discussion: repoliticising velotopian imaginaries

The contrast we have identified between Corbusian and Constantian velotopian urban imaginaries shows that the apparent consensus on cycling's desirability among velotopian thinkers and cycling innovators often masks a fundamental tension as to what cycling should be and what kind of city it should be part of. Should cycling be efficient or should it be fun, fast or slow, solitary or social? Do we think cycling should be encouraged because it is convivial, or because it helps us solve traffic congestion? Will velotopian cities simply translate the imperatives of car-centric cities or overturn them? Is cycling but a tool to optimise the use of supposedly scarce space and scarce time, or can it provide a means, as Popan suggests, to rethink the meaning of mobility in society and move away from the efficiency imperative (cf. Nikolaeva et al. 2019a)?

Nevertheless, certain velotopian imaginaries – as evident in certain cycling innovations and in Fleming's *Velotopia* – appear to simultaneously appeal to both the Corbusian and Constantian logic: they want to have their cake *and* eat it too, so to speak. Given the antithetical understandings of mobility espoused by Le Corbusier and Constant, this begs the question of whether both logics can be truly combined. If taken seriously, Constant's emphasis on play seems irreconcilable with Le Corbusier's emphasis on efficiency. At the same time, we also think it would be simplistic to treat imaginaries of 'fast' and 'slow' cycling as an irreconcilable dichotomy. While to a certain degree fast and slow cycling may be mutually exclusive, in reality it may be possible to plan for either fast or slow cycling on a place-specific basis. In the Netherlands, for instance, cycling planning strategies are becoming increasingly differentiated between city centres and their surrounding periphery. In the former, there is increasing talk of the need to slow down cyclists to avoid them becoming 'the new car' (Goossens 2017) while in the latter new intra-urban fast 'cycling highways' are being built (CROW 2014; Liu et al. 2019), though not without contestation or resistance, as for some fast cycling does not belong in their neighbourhood (van Gool 2019). Rather than thinking of velotopian imaginaries as 'one size fits all', we should recognise that different imaginaries are likely to play out differently

depending on geographic, institutional and sociocultural contexts (see Macmillan and Woodcock 2017; Pojani et al. 2017).

Moving beyond urban design questions into the realm of underlying ideologies of velotopian imaginaries, it would seem that many of the considered imaginaries do not strongly contest, but are compatible or even an intrinsic part of current mainstream urban discourses. On the one hand, the prominence of a Corbusian imaginary of cycling as the ultimate tool of urban efficiency – evident in many cycling innovations and, to a certain extent, in Fleming's Velotopia – fits in rather well with current neoliberal and smart city discourses on urban competitiveness (Hollands 2008; March 2018). This echoes a line of thought recently advanced by Spinney (2016), who has suggested that in the modern neoliberal city, cycling is arguably no longer a form of dissidence, but rather a cost-effective mobility 'fix' which fits in broader mechanisms of neoliberal governance and capital accumulation. On the other hand, the way in which Constant's vision of mobility as a form of interaction and play is reflected in many of the velotopian imaginaries espoused by cycling innovations arguably constitutes a bastardised form of the original, echoing Swyngedouw's (2002) and Pinder's (2005) critiques of the appropriation of SI legacy, as well as the appropriation of elements from 'early cybernetic utopias' by Google Urbanism (Morozov 2017). Rather than embracing a transgressive idea of cycling as a tool of playfulness and spontaneity, in these visions cycling is reduced to a vehicle for hedonistic consumption, exercise, or simply a marker of the 'creative city'.

While the idea of cycling as playfulness may have been partially co-opted by neoliberal discourses, it is important to remember that it can also constitute an important form of protest against the existing order. Indeed, this vision of cycling as a joyful form of disruption can be traced back to the Provo movement in the Netherlands, and continues to exist under a variety of forms. As noted by Williams (2018), critical mass rides constitute 'ecstatic ritual' in which 'rebellious play' and 'carnivality' play a central role; Terry and Todd (2013) discuss the monthly San José 'Bike Party' in similar terms. Such an image of cycling appears to be most closely aligned with Popan's 'slow utopia', which connects with a degrowth agenda and stands out as a radical alternative to dominant velotopian imaginaries. Precisely the fact that it stands out so clearly from the rest, we suggest, is in itself strong evidence of the extent to which most velotopian thinking has been depoliticised (cf. Furness 2007) and integrated into dominant urban discourses. Popan (2019) points out that a utilitarian view of cycling, supported by smart innovations, may be celebrating cycling not just for its intrinsic qualities or for its possibility of offering a slower, more convivial life, but because it allows to approach the unfulfilled automobility dream (also see also Nikolaeva et al. 2019b, on 'automobilization' of cycling). To some extent, Fleming's (2017) account also provides a form of velotopian thinking which marks a significant departure from current mainstream urban visions – most notably in its almost entire rejection of intra-urban motorised transport. Nevertheless, Fleming's vision does not pay much attention to politics, and ultimately seems fairly compatible with current discourses on urban liveability, sustainability and competitiveness.

Finally, we would like to briefly reflect on the implications of our focus on the Netherlands and on the role of this country in shaping velotopian thinking. Dutch cycling practices provide inspiration for both Fleming and Popan's accounts, and yet this does not mean that the Netherlands *is* a cycling utopia: Fleming, for instance, is quite critical of many aspects of the situation of cycling in the Netherlands, pointing out that the country risks losing its achievements if it does not take a more radical approach and puts the bicycle central in urban design. The image of cycling in the Netherlands is arguably in flux in various respects; lately, the Dutch government, has shown considerable interest in driverless vehicles and new mobility concepts such as Mobility as a Service (e.g. Ministerie van Infrastructuur en Milieu 2016). Two Dutch government officials recently shared their concerns about the future of the bicycle in a conference paper with a telling title: 'Biking the Smart city, a Dream Image or the End of the Bicycle: Will a driverless vehicle stop before the bicycle or will the bicycle stop before the car? ' (Lindeman and Arntzen 2016). As the answers to this question are still taking shape – in the Netherlands and elsewhere – it is likely that the direction that such

developments take in the Netherlands will influence events in other countries. We therefore suggest that this is an important direction for future research.

Conclusions

This paper offers a critical examination of contemporary velotopian urban imaginaries: visions of cities that give cycling a central space and celebrate it as a tool of desirable transformations. Our contribution is in pointing out that despite the seeming consensus within the contemporary velotopian discourse on the benefits of cycling, different velotopias attempt to 'save' very different worlds.

We have examined the contemporary landscape of cycling innovation in the Netherlands and the two recent comprehensive velotopian visions by Fleming (2017) and Popan (2019) in order to explore the underlying assumptions and ideologies behind the tendency to see cycling as a solution to a range of urban problems. In this analysis we have drawn on the legacy of two visionary thinkers – Le Corbusier and Constant – who imagined the role of mobility in a city completely differently, offering two different poles onto which we map contemporary velotopian discourse. This exercise allows us to illustrate that these two archetypes of thinking about city and mobility are still clearly distinguishable in relation to cycling. On the one hand, a number of cycling innovators – and, to a large extent, Fleming's *Velotopia* (2017), put forward a velotopia of efficiency – the dream of unrestrained movement that automobility failed to deliver, but put on two wheels. On the other, Popan's (2019) velotopia and a number of cycling innovations resurrect the Constantian ideal of mobility as play, a convivial activity in a city freed from productivism and haste.

Furthermore, we have identified a discourse that blends the Corbusian and Constantian ideals, seemingly offering the best of two worlds: time savings and excitement, productivity and fun. In alignment with a number of scholars (e.g. Spinney 2016; Duarte 2016), we suggest that cycling may have become enrolled into discourses that correspond to a neoliberal urban agenda with a tinge of greenwashing and a mobility politics in which the physical labour of delivering products and services is obscured by the imagery of fitness and adventure.

As new mobility concepts, visions and technologies capture the imagination of policy-makers and general public, the place and content of velotopian imaginaries within broader urban mobility discourses is likely to continue to evolve. Will the bicycle eventually come to be seen as a complementary add-on in the driverless car system, or as its challenger? If the latter, will this challenge be on the grounds of efficiency, speed and convenience, or on the grounds of a possibility of a life without hurry? Depending on the trajectory that is ultimately taken, cycling may even lose its place on the streets entirely as it once did in many cities around the world. The groundwork for these possible futures is laid now, as various stakeholders mobilise resources around different urban imaginaries. Further research on whether and in what ways current visions around hyperloops, autonomous vehicles, smart mobility and mobility-as-a-service in various geographical contexts include cycling, we suggest, might help us gain additional insight into some of the questions we have explored in the present paper: in what ways might we expect cycling to shape (if not save) future cities?

Notes

1. In Dutch: *De fiets is iets, maar bijna niets* (attributed to Robert Jasper Grootveld).
2. The Guardian's correspondent Peter Walker has literally titled his book *Bike Nation: How Cycling Can Save the World* (see Walker 2017). In talking about the 'cycling will save the world' narrative, we allude not only to his specific book but to a multitude of publications, academic and otherwise, that advance a comparable argument.
3. Derived from the title of the book by Steven Fleming (2017) *Velotopia*.
4. The diversity of 'scripts' (Akrich 1992) in the texts on ICT and Internet of Things cycling innovations and the changes that they envision in the bicycle system, in its governance, in cycling experiences and identities is a subject of detailed analysis in Nikolaeva et al. (2019b).

5. Although see Nixon and Schwanen (2019) discussing possibilities for more inclusive schemes.
6. See e.g. such projects as BITS https://northsearegion.eu/bits/about/; HANDSHAKE http://www.isinnova.org/handshake-creating-cycling-friendly-cities/; CYCLEWALK https://www.interregeurope.eu/cyclewalk/.
7. 'Agenda Fiets 2017–2020' in Dutch.
8. In the Netherlands, cycling policy is the responsibility of local authorities, supported by the national government. 'Tour de Force' is an alliance of national and local authorities, knowledge organisations and societal partners seeking to drive the national cycling agenda.
9. The book's full title is *Bicycle Utopias: Imagining Fast and Slow Cycling Futures*.
10. Jacobs' legacy remains a contested subject. While some argue her ideas are being misused, others are more critical, suggesting that she laid 'groundwork' for Richard Florida's work (Tochterman 2012).
11. The websites of the mentioned Dutch innovations can be found in the Appendix to Nikolaeva et al. (2019b) as part of a larger dataset.
12. Hereinafter translations of the excerpts from Dutch are made by the authors.
13. For a detailed discussion of competing visions of cycling highways see Liu et al. (2019).
14. This point is further developed in Nikolaeva et al. (2019b).
15. Drawing on Gorz (2010).

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