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The Reckless Cyclist

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Dispelling the myth

The road behaviour of cyclists and specifically Amsterdam cyclists, is a recurring theme in the public debate. In many of these discussions, the majority of cyclists are deemed to display a strongly anarchic attitude. Although everyone can provide anecdotal evidence to confirm this allegation, there is precious little structural insight into the actual behaviour of Amsterdam's cyclists.

This lack of research is quite surprising, not only because of the pervasiveness of the debate, but also because in many parts of the city, cyclists are by far the majority of road users. How can we design the traffic space for these – very welcome – road users if we don't even know how they actually behave? To remedy this situation, we have charted the behaviour of more than 18,000 cyclists at a selection of junctions, which should give us a clearer picture.

World-wide, including the Netherlands itself, there's a growing interest in the role of the bicycle as a simple solution for a host of complicated mobility problems. Cities vie with each other to formulate ever more ambitious plans, frequently referring to the Netherlands and specifically Amsterdam as the example to emulate. In many ways this is deserved, because through a long-term and consistent traffic and spatial planning policy, Amsterdam has had a continuously high share of cyclists, which is actually still growing exponentially in some parts of the city. All of which does not mean that there are no more major challenges for Amsterdam to contend with.

Road Rogues?

In the debates between foreign planners and Dutch experts it's always striking how many different stories and theories are suggested to explain Amsterdam's suitability for cyclists; is it the culture, the infrastructure, spatial developments or a combination of all of these? If you then start to examine academic research to try and find a better explanation, you'll discover that there is hardly any structural knowledge about cycling. The few studies available in different academic disciplines are in sharp contrast with the large volume of knowledge about motorised road traffic and increasingly also about public transport. It's a lack of knowledge which concerns all aspects of cycling: who are the people who cycle, why do they cycle and where do they cycle? Where is the share of cyclists in road use still growing? Which physical factors are experienced as enjoyable? What determines the route a cyclist chooses to take? How do cyclists communicate with other road users and how do they use the infrastructure?

Although the University of Amsterdam is currently researching all of these questions, for this article we will focus on the last one. Our main reason for this is that the tactical decisions cyclists make play a prominent role in the public debate: are Amsterdam cyclists really such road rogues or is that an exaggeration? Largely based on anecdotal evidence, this debate influences public opinion, thereby creating conditions for cycle policies. A recent example is Dutch journalist and television presenter Jort Kelder, who after a collision with a female cyclist wiped the floor with the protected legal status of cyclists. By doing this, Kelder has indirectly fuelled calls for this vulnerable group to go unprotected by the law. This is why the City of Amsterdam has started a project this year to gain more insight into the actual behaviour of cyclists.

1 In the debates between foreign planners and Dutch experts, many different theories are suggested to explain Amsterdam's suitability for cyclists. If you then start to examine academic research to try and find a clear explanation, you'll discover that there is hardly any structural knowledge about cycling.
Photo: Lenette van der Plas

2 Are Amsterdam cyclists really such anti-social road rogues as sometimes alleged or is that an exaggeration? Commissioned by the Amsterdam City Council, the University of Amsterdam has started a project to gain more insight into the actual behaviour of cyclists.
Photo: Edwin van Eis

3 Museumplein, tourists cycling on footpath.
Photo: Edwin van Eis

4 The tensions and irritations witnessed at junctions are an important source of insight. Ten junctions were selected which seemed to show most clearly the discrepancy between design and behaviour.
Source: University of Amsterdam / Map: Department of Infrastructure, Traffic and Transportation

5 The collected data refutes the general claim that Amsterdam cyclists are a bunch of road rogues on the loose. Percentage of total number of cyclists (18,543) according to their behaviour: conformists, momentumists, recklists.
Source: University of Amsterdam

Design versus behaviour

The way we give shape to our infrastructure determines in large measure the tactical opportunities for cyclists to take. However, cyclists are extremely sawy at finding their own way. If this leads to large-scale undesirable or unpredictable behaviour – e.g. ignoring red lights, cutting corners – the policy reflex is often to correct this behaviour by increasing police controls or by installing physical measures, such as raising the kerb at places where cyclists take a shortcut across a zebra crossing. By means of this research we aim to question this reflex. We think that there might be a lot to learn from cyclists' swarm behaviour and how this interacts with the road design. Due to the exponential growth of the number of bikes, the road design is often not adequate. It looks like some junctions only continue to function by the grace of individual cyclists adopting and sharing new rules of conduct in communication with each other.

In his book *To Save Everything, Click Here*, Evgeny Morozov has given a good summary of the added value this offers by stating that civil disobedience is an important signal to learn from: '[it] has a great signalling value, as it can indicate that the law in question doesn't correspond to common belief or morality'. In short, the tensions and irritations witnessed at junctions are an important source of insight and a possible engine for change.

Research design

In collaboration with the City of Amsterdam ten junctions were selected which seemed to show most clearly this discrepancy between design and behaviour and which were practically suited as a focus for our research. Each junction was allocated to a group of three first-year sociology students from the University of Amsterdam. In the spring of 2014, during one hour, the students shot video material, which was then given an extensive quantitative analysis, focusing on the various routes cyclists took to cross the junction (with the use of Copenhagenize Consulting's Desire Lines tool).

In addition, we looked at the correlation between design and behaviour, identifying three categories of cyclists, the same grouping that was used in the Copenhagen research Bicycle Choreography Copenhagenize:

- Conformists: cyclists who stick to all the formal rules and designed routes;
- Momentumists: cyclists who follow their own route and adapt certain formal rules to suit their own ends, without causing any dangerous situations (e.g. turning right through a red sign);
- Recklists: cyclists who recklessly ignore the rules, for instance crossing the road through a red light, and thereby cause conflict with other road users.

Finally, in addition to the research into the actual behaviour of cyclists, the students conducted interviews in the week after the video recordings to gain insight into the experiences and emotions of cyclists at these junctions.

The swarm explored

At all junctions, except at the Elandsgracht, a full quantitative and qualitative analysis has been carried out. Although it was relatively early in the season and most footage was shot just after the busiest peak period, these nine junctions processed a total of more than 18,500 cyclists in one hour. What is immediately striking is the high percentage of conformists. Although the research was carried out during the morning rush hour and predominantly major junctions were researched, this is still a radically different picture from what's often suggested in the public debate, such as a recent article in the Amsterdam daily newspaper *Het Parool* about 'the Amsterdam cycling rogues'. Of the remaining twelve percent the majority are momentumists who negotiate the junctions choosing informal routes – shortcuts – without creating conflicts with other road users. Only 5 percent of cyclists were classified as reckless; they go through red lights and weave between driving cars and trams, causing potential conflicts with other road users. The nine hours of video footage also did not show a single incident of verbal or physical conflict between road users. This data then refutes the claim that Amsterdam cyclists are a bunch of road rogues on the loose. It's important to bear in mind that the cyclists were recorded during morning rush hour at relatively major, busy junctions.

The junction's choreography

In addition to these general insights into the conformist behaviour of the Amsterdam cyclists, it's especially important to gain more insight into the interplay between design, formal rules and the behaviour of cyclists. What happens at each particular junction? On the basis of the video material, the various routes taken by at least two cyclists to negotiate the junction were charted. Figure x shows the results of this research for the junction of Mr. Visserplein with Jodenbreestraat. In the space of 53 minutes, 1,854 cyclists passed by at this junction. Unfortunately, the position of the camera didn't allow for the inclusion in shot of the cycle traffic coming from Jodenbreestraat and turning right. The greatest group of cyclists went straight across the junction (F). On Jodenbreestraat these 782 cyclists joined the 48 (H) and 81 (D) cyclists to form a group totalling 911 cyclists. What's very clear from the footage is that the waiting space for the cyclists coming from Jodenbreestraat cannot properly accommodate busy

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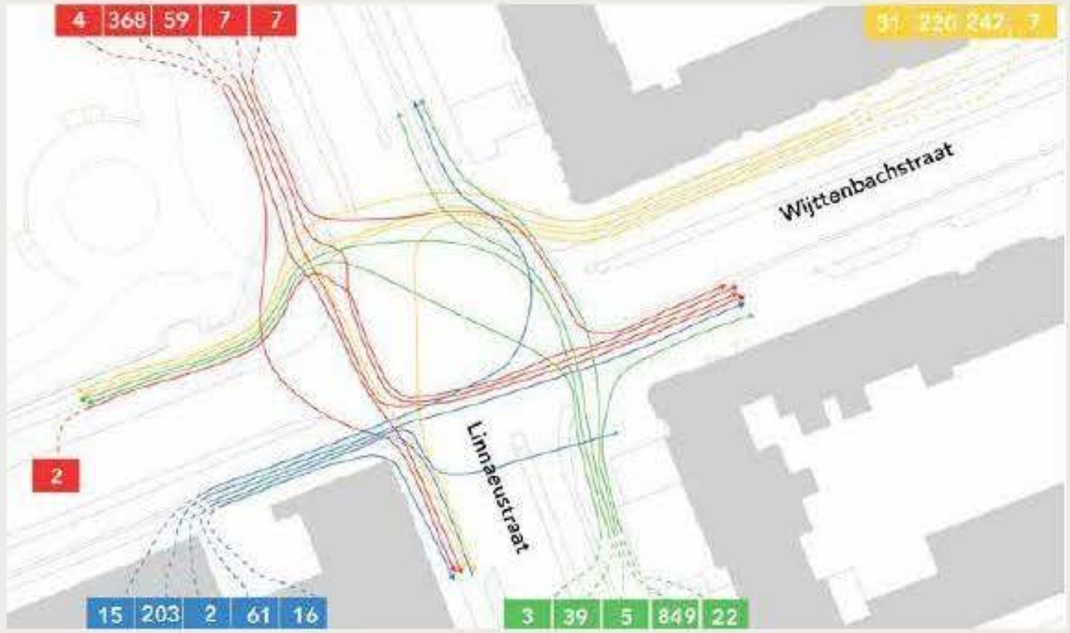
6 Choreography of the junction Wijttenbachstraat – Linnaeusstraat.
Source: University of Amsterdam / Maps: Amsterdamize

7 Choreography of the junction Mr. Visserplein – Jodenbreestraat.
Source: University of Amsterdam / Maps: Amsterdamize



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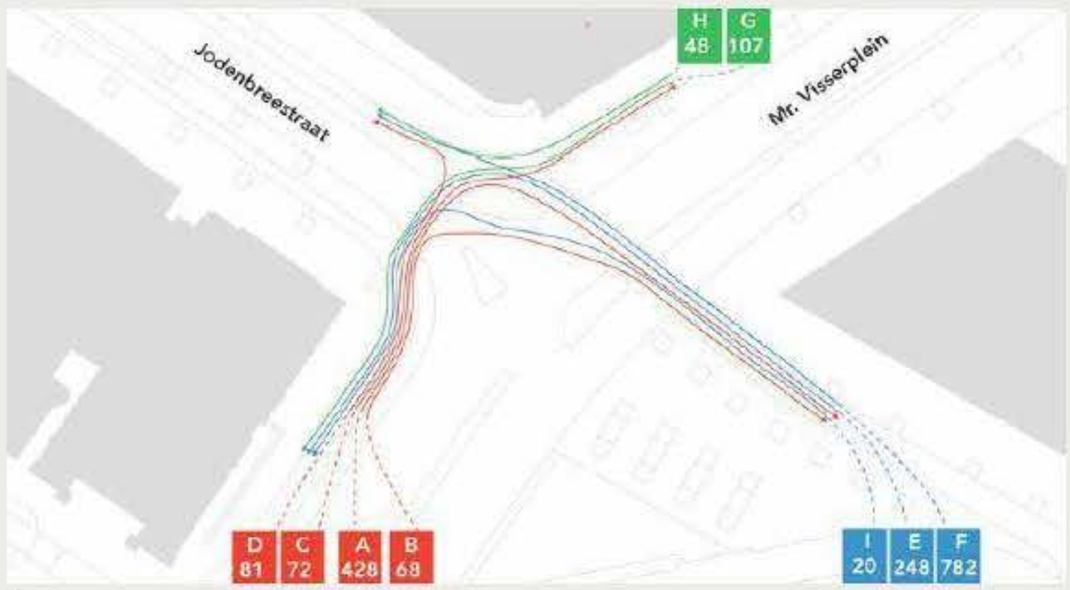

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8 Being by far the largest group of road users at many locations, the bicycle deserves a more central role in our design procedures.
Photo: Edwin van Eis

'What kind of emotions does the junction evoke?'


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periods. That's why a number of cyclists (momentumists) seem to opt for a shortcut (B) instead of the conformist route (A).

This 'cycle choreography' is a form of revealed behaviour, showing the patterns which emerge by combining the individual choices. However, this does not explain how the behaviour forms. Does the cyclist choose the route he wants to take, or does he feel forced to make certain choices? How do cyclists experience the junction, what kind of emotions does the experience evoke? In order to gain insight into those questions, a number of interviews were conducted at each junction. For the junction we're considering here, one of the striking results was that the sometimes chaotic situations were not always experienced as stressful. As one of the cyclists explained: "People often get irritated with each other. I don't feel any stress because of the behaviour of others, although I can see that other people do get stressed."

Designing from behaviour

So what does this mean for junctions? There are a great many factors determining the design of a junction. After all, safety, flow, environmental quality and clarity for all road users have to be guaranteed. It's always a struggle to find a compromise between general guidelines and the local context. The Netherlands has achieved a high level of safety and quality by discussing these considerations in a robust and thoughtful debate, expressed in general guidelines for the design of our roads.

These general guidelines are not easily adaptable to fast and substantial changes in specific situations. Amsterdam seems to be caught right in the middle of such a change, a sudden shift in the traffic's balance. Especially in the city centre the number of cyclists is booming. An added consideration is that because of all the positive effects associated with cycling, it's now part of the political agenda to want to stimulate this growth even further.

Basing design on observations

Being by far the largest group of road users at many locations, the bicycle deserves a more central role in our design procedures. If we can muster the courage to do this, we should base our designs on observations to a far greater extent than we're doing at the moment. Cyclists are flexible and hard to control. It's the interplay between individual rules of conduct which will eventually create the choreography at a junction. There will no longer be one overall choreographer taking charge, rather the individual performers will be in control. In other words, although vulnerable road users must be considered as well, the swarm should literally be given more room to manoeuvre. The lack of space is exactly what seems to be the problem at the moment, creating conflict, stress and dangerous behaviour. By moving the stop line for cars back, creating more green zones for bicycles and designing left and right turns for cyclists which are in a more natural alignment, the junction could become a canvas on which the self-regulating potential of the swarm can be fully realised. ■