



## Traffic rule violations by and against cyclists: justifications, cross-modal perceptions, and situational factors

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### Introduction

Almost all cyclists regularly commit traffic rule violations (e.g. riding on the sidewalk or running red lights; Kolrep-Rometsch et al., 2013). At the same time, cyclists are also affected by rule violations of drivers and pedestrians. Safety-critical situations and conflicts are the results, contributing to backlash and impairing the acceptance of cyclists by other road user groups. Cyclists are frequently assumed to commit rule violations out of ignorance or recklessness. Consequently, the research on this topic has been primarily concerned with individual and demographic factors determining cyclists' traffic violations (e.g. Feenstra et al., 2010; Johnson et al., 2013). A younger age, male gender, and risk affinity have been associated with a tendency toward more rule violations. However, typical rule violations by cyclists are not necessarily the result of missing rule knowledge, but a deliberate decision (Alrutz, 2009).

We argue that many rule violations can be understood as the result of a more or less rational evaluation of a given traffic situation that cyclists perceive as dangerous, ambiguous, or unreasonable. The rule-breaking behaviour in this situation thus represents an individually justified reaction to situational factors. As of yet, there is limited research concerned with why cyclists commit rule violations and how other road user groups evaluate these violations.

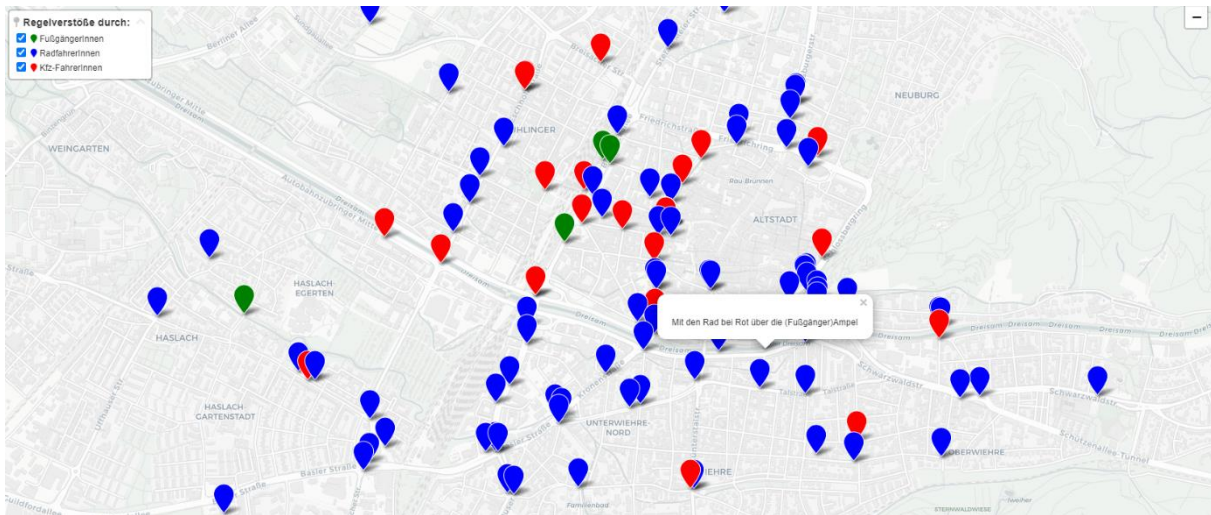
To explore this perspective, our aims were, first, to collect a broad spectrum of traffic rule violations committed by cyclists (but also by pedestrians and drivers). To avoid confounds by asking for specific types of rule violations, we aimed for a voluntary and open contribution format. However, it was uncertain whether cyclists would freely admit to commit rule violations. Our second goal was to gain a preliminary insight into justifications for rule violations committed by oneself and assumed reasons for rule violations observed in others.

### Research methodology

We launched a crowdsourcing project in Freiburg, Germany, in summer 2023. Cyclists (and other road users) were invited to report how and where they committed, observed, or suffered from traffic rule violations on an interactive online map (see Figure 1). Additionally, they provided assumptions about the assumed motives underlying the described rule violation. In four weeks, we collected about 160 contributions. An overview of their demographics and transportation preferences is presented in Table 1.



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**Figure 1.** Map excerpt illustrating the crowdsourcing project. Blue pins indicate rule violations by cyclists, green pins violations by pedestrians, and red pins violations by drivers. The pop-up bubble shows an exemplary comment (translation; “Running the red (pedestrian) light with the bike.”).

**Table 1.** Demographics and transportation mode usage frequencies.

Variable						
Gender	35% female; 39% male; 3 % other/diverse; 27% missing					
Age	<24y: 16%; 25-34y: 22%; 35-44y: 10%; 45-54y: 9%; 55-64y: 19%; >64y: 9%; missing: 22%					
<b>Frequency</b>	never	< 1/month	monthly	weekly	daily	missing
Cycling	0%	1%	4%	13%	59%	23%
Driving	9%	24%	30%	9%	4%	25%
Walking	0%	1%	7%	17%	46%	28%

## Results

Concerning our first aim, we conclude that cyclists are indeed willing to admit and report traffic rule violations they commit (see Table 2). In contrast, drivers primarily reported rule violations they were affected by.

**Table 2.** Role of participant in reported rule violation, depending on used transportation mode. (Missing percentages result from missing responses.)

	Reported rule violation was...		
	...was committed by myself	...was observed by myself	...occurred to me
<b>Rule violation committed by:</b>			
Cyclist	69 of 121 (56%)	13 of 121 (11%)	15 of 121 (12%)
Driver	1 of 36 (3%)	4 of 36 (11%)	22 of 36 (61%)
Pedestrian	1 of 5 (20%)	0 of 5 (0%)	2 of 5 (40%)

Table 3 shows which road user groups’ violations affect which other road user groups. (Please note that this table does not differentiate between the role of the reporting participant as shown in Table 2). Rule violations by cyclists affect all other road user groups equally, including other cyclists. Interestingly, a substantial proportion of their rule violations is supposed to affect no



other road users at all. In contrast, rule violations by drivers (and pedestrians) overwhelmingly affected cyclists.

**Table 3.** Road user group affected by rule violation, depending on used transportation mode.

	<b>Rule violation affects (multiple responses possible):</b>			
	Cyclists	Drivers	Pedestrians	Nobody
<b>Rule violation committed by:</b>				
Cyclist	44 of 121 (36%)	24 of 121 (20%)	45 of 121 (37%)	49 of 121 (30%)
Driver	35 of 36 (97%)	6 of 36 (17%)	7 of 36 (19%)	0 of 36 (0%)
Pedestrian	5 of 5 (100%)	2 of 5 (40%)	2 of 5 (40%)	0 of 5 (0%)

The most frequent violations of cyclists were running red lights, cycling on the sidewalk, and cycling in the opposite direction. In line with previous research (Alrutz, 2009), most violations occur consciously and not because of errors or missing rule knowledge. A noteworthy proportion of the violations was reported as justified by situational factors or safety concerns. Many violations are committed due to comfort issues (e.g. saving energy or avoiding detours). Cyclists who reported to commit violations also frequently justified their behaviour by claiming that they endangered neither themselves nor others. This justification was far less frequent in reports from people who observed or suffered from such rule violations.

## Discussion and conclusions

Our findings so far point toward urban structures primarily aligned toward the necessities of car traffic, while neglecting the needs and requirements of cyclists. Therefore, neither education about nor enforcement of the existing legislation alone seem sufficient to substantially reduce rule violations of cyclists and the resulting conflicts with other road user groups in general. We argue that a more differentiating perspective is necessary, which accounts for situational factors leading cyclists to consider a traffic rule violation as the single-most, sensitive option to travel safely and smoothly. In turn, cyclists may not be aware how some frequently committed traffic rule violations they consider harmless and safe feel unreasonable and reckless for other road user groups.

## References

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