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Trade-off Between Jerk and Time Headway as an Indicator of Driving Style

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Driving style

- “habitual way of driving, which is characteristic for a driver or a group of drivers” [1]

[1] Sagberg, F., Selpi, Bianchi Piccinini, G. F., & Engstrom, J. (2015). A review of research on driving styles and road safety. Human factors, 57(7), 1248-1275.

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- longtime interest of traffic psychologists as a component of accident causation
  - psychometric questionnaires

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- longtime interest of traffic psychologists as a component of accident causation
  - psychometric questionnaires
- also for engineers looking to classify drivers for various purposes
  - e.g. machine learning

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Driving style

Typically thought be[1] reflected in things like

- car following: jerky driving, tailgating
- overspeeding and lane changing
- flashing lights, horn honking

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- do these thing appear together?
- if we can agree on how to measure them, we have something replicable
- project roots in microsimulation, so we chose to start with **car following**

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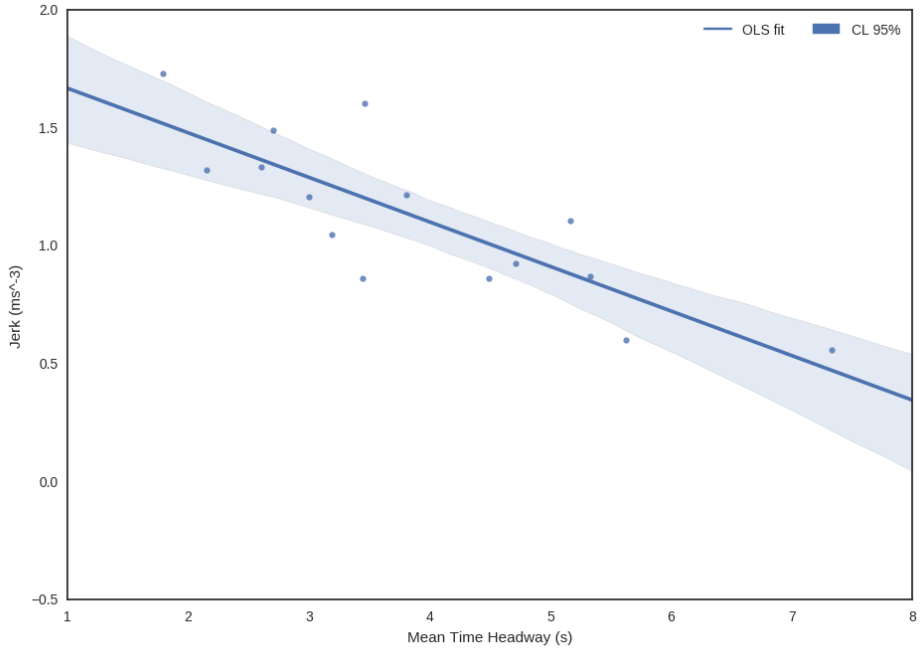
Longitudinal driving experiment

- 15 participants in a driving simulator
- 40 minutes of driving each
- leader speed varies in a predefined way
- no overtaking

Driving intensity

We found that people tend to be situated into a continuum of

- "intense" drivers with short time headways and quick longitudinal movement and
- "calm" drivers with longer headways and more relaxed accelerations



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Better understanding of variation in drivers might entail

- greater predictive power for accident causation
- vehicle automation: limits of comfort and predictability
- traffic simulation: congestion formation, mixed fleets

Thank you!

Read the paper at PLoS ONE:

http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0185856