Influence of parallel lines on curve driving



Problem description

Motorway curves with sharp radii pose a significant challenge for drivers, making them some of the most dangerous stretches of motorway. Previous eye-tracking research has shown some evidence that incorporating parallel elements alongside these curves can aid drivers in detecting and navigating them. These elements might include chevron signs, as well as continuous features like guardrails, noise barriers (as shown in the image above), or a line of trees. Additionally, it is hypothesised that higher parallel lines offer greater assistance to drivers in adjusting their driving speed as they approach the curve. This research aims to explore how various types of parallel lines impact the deceleration process when approaching a curve.

Assignment

- Review the application of parallel lines to curves in an international context (literature, design guidelines, legislation), and the Human Factors related to these elements;
- Designing a driving simulator experiment in which different scenarios are developed, in terms of types of parallel lines, different heights of these lines, and curve sharpness;
- Recruiting participants, executing the experiment, and collecting and processing data;
- Analyze the deceleration behavior and possibly looking behavior (using an eye-tracking system);
- Writing a thesis report (and optionally a scientific paper).

Research group

Transport & Planning Thesis supervisors: dr. ir. Haneen Farah Daily supervisors: drs. ing. J. Vos

For further information on this Master topic, please contact: j.vos-1@tudelft.nl

