

# Modelling interaction behaviour in driving

---

*Maura Houtenbos<sup>1,2</sup>, Marjan Hagenzieker<sup>1</sup>, Peter Wieringa<sup>2</sup>, and Andrew Hale<sup>2</sup>*  
*<sup>1</sup>SWOV Institute for Road Safety Research*  
*<sup>2</sup>Delft University of Technology*  
*The Netherlands*

## Abstract

Most research on traffic behaviour has focused on the individual road user. This is illustrated by the fact that most models of driving behaviour have been developed taking the perspective of one individual road user. When studying interaction situations, this proposes several problems as these situations always involve more than one road user. Another complicating aspect is the fact that most interactions involve time constraints. Thus, road users' expectations of the interaction situation must play a role in the interaction process. This study aims to achieve a more detailed understanding of interaction behaviour in traffic and to develop a model, which describes the interaction process but includes more than one road user. Aspects of the interaction situation road users use to form their expectations will also be investigated.

Eventually, when a model has been developed which adequately describes the interaction process, it will be used to assess the strengths and weaknesses of road users in this process. Subsequently, the impact of (potential) Advanced Driver Assistance Systems (ADAS) on the interaction process will be assessed.

## Introduction

### *BAMADAS*

This study is a PhD project which is one of six subprojects of the BAMADAS research program. BAMADAS stands for Behavioural Analysis and Modelling for the Design and Implementation of Advanced Driver Assistance Systems and has a number of goals. The goal most relevant to this particular PhD-project is to improve knowledge about driver behaviour in interaction with Advanced Driver Assistance Systems (ADAS). Other goals concern the transfer of knowledge on infrastructure design and traffic management and the improvement of knowledge regarding system certification and liability regulation.

### *Background of the problem*

A lot of research has been performed on the topic of traffic behaviour. Most of this research has focused on the individual road user, while road users rarely encounter