

Daytime running lights: costs or benefits?

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Abstract

The present study deals with the possibility that road users in the vicinity of a vehicle with daytime running lights (DRL) would suffer from a decreased conspicuity because of the presence of that vehicle. In an experiment the primary effects of DRL on the conspicuity of other road users were investigated, with particular attention to other factors that might moderate the magnitude of any DRL-effect (type of background, type of other road user, level of expectation with regard to DRL, etc.). Subjects viewed colour slides depicting natural daylight scenes of traffic intersections, and were instructed to determine as fast as possible whether other road users were present or not (present-absent search task). Their reaction times were the main dependent variable.

The results showed that when the car had its headlights on, the subjects reacted faster than when the headlights were off. None of the interactions with DRL as a factor showed a negative effect of DRL. Based on the results of the present experiment it is concluded that no evidence was found that the conspicuity of road users in the vicinity of a DRL-vehicle suffered from a car having its daytime running lights on.

Introduction

The present study investigates certain possible adverse effects of daytime running lights (DRL), originating from perceptual or cognitive mechanisms. In order to understand why there could be negative effects, one first has to explore the current understanding of the mechanisms behind DRL. First the theoretical reasons why DRL could have a positive effect on traffic safety are discussed. Given these mechanisms the possible adverse effects of DRL are derived.

Possible mechanisms of DRL

It is assumed that DRL has a general positive effect on what is called vehicle conspicuity (e.g., Helmers, 1988). This latter term is supposed to define the effects of DRL on perception per se. In order to relate effects on perception to driving