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16. Abstract Convex rearview mirrors are currently prohibited in the U.S. as original equipment on passenger cars except for the exterior, passenger-side position. One of the primary reasons for this restriction is a concern that convex mirrors may cause drivers to overestimate the distances to following vehicles and therefore make unsafe maneuvers. There is a considerable amount of empirical evidence that convex mirrors do cause overestimation, but the effect is not theoretically well understood. No currently available model successfully predicts the magnitude of the distance overestimation. However, plausible theoretical considerations can be used to generate a previously untested prediction that, even if only qualitatively accurate, would be of practical significance: Eye-to-mirror distance should have a substantial effect on the magnitude of overestimation caused by convex mirrors. Specifically, longer eye-to-mirror distances (as are typical for passenger-side mirrors) should lead to more overestimation than shorter distances (as are typical for driver-side mirrors). This prediction was tested in a field experiment in which flat and convex mirrors were used on a car in both the driver-side and passenger-side exterior rearview mirror positions. Longer eye-to-mirror distance did lead to greater overestimation, although—as in previous studies—in both mirror positions the degree of overestimation was less than predicted by quantitative modeling. These results suggest that, to the extent that overestimation of distances to following vehicles is a concern for the use of convex rearview mirrors, that concern is less strong for the driver-side exterior position (which is relatively near to the driver's eyes) than for passenger-side exterior position (which is relatively far from the driver's eyes).			
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