MOBIL – A Realistic Lane Change Strategy for Microscopic Traffic Modelling

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An adequate description of multi-lane traffic and lane changes is a key ingredient for a realistic modeling of traffic dynamics on freeways. With MOBIL ("Minimizing Overvall Braking Induced by Lane-Changes"), we propose a general strategy for lane changes that is based on the acceleration function of the used longitudinal model. To cope with situations with forced lane changes, e.g. at on-ramps or at lane closings, one has to model the occuring complex cooperative human behaviour. We model this longitudinal-transversal coupling in terms of physical repulsive next-neigbour interactions on neigbouring lanes. The resulting lane change behaviour is demonstrated for typical situations such as lane closings and merging at on-ramps.