



Catalogue of Functional Scenarios

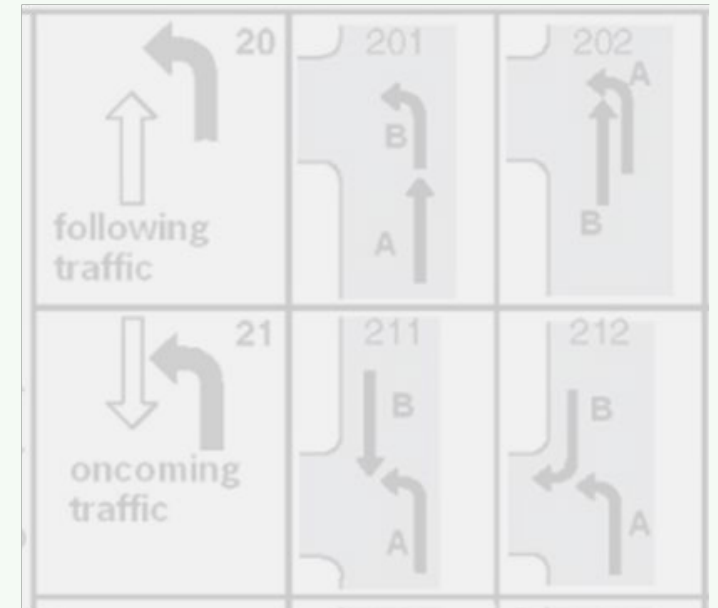
Proposal by Germany (BASt)

Claus Pastor

Functional Scenarios are to be

- comprehensive and generic
- relevant (*in terms of safety -> ADV shall not cause an accident ..; rule compliance*)
- cover all relevant scenarios
- able to be for harmonized (*applicable to various countries*)

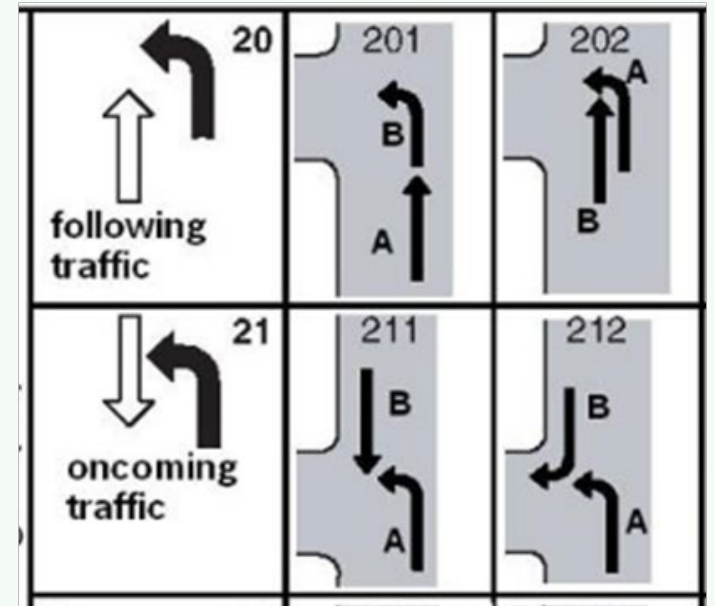
➤ Conflicts are usually solved by traffic rules



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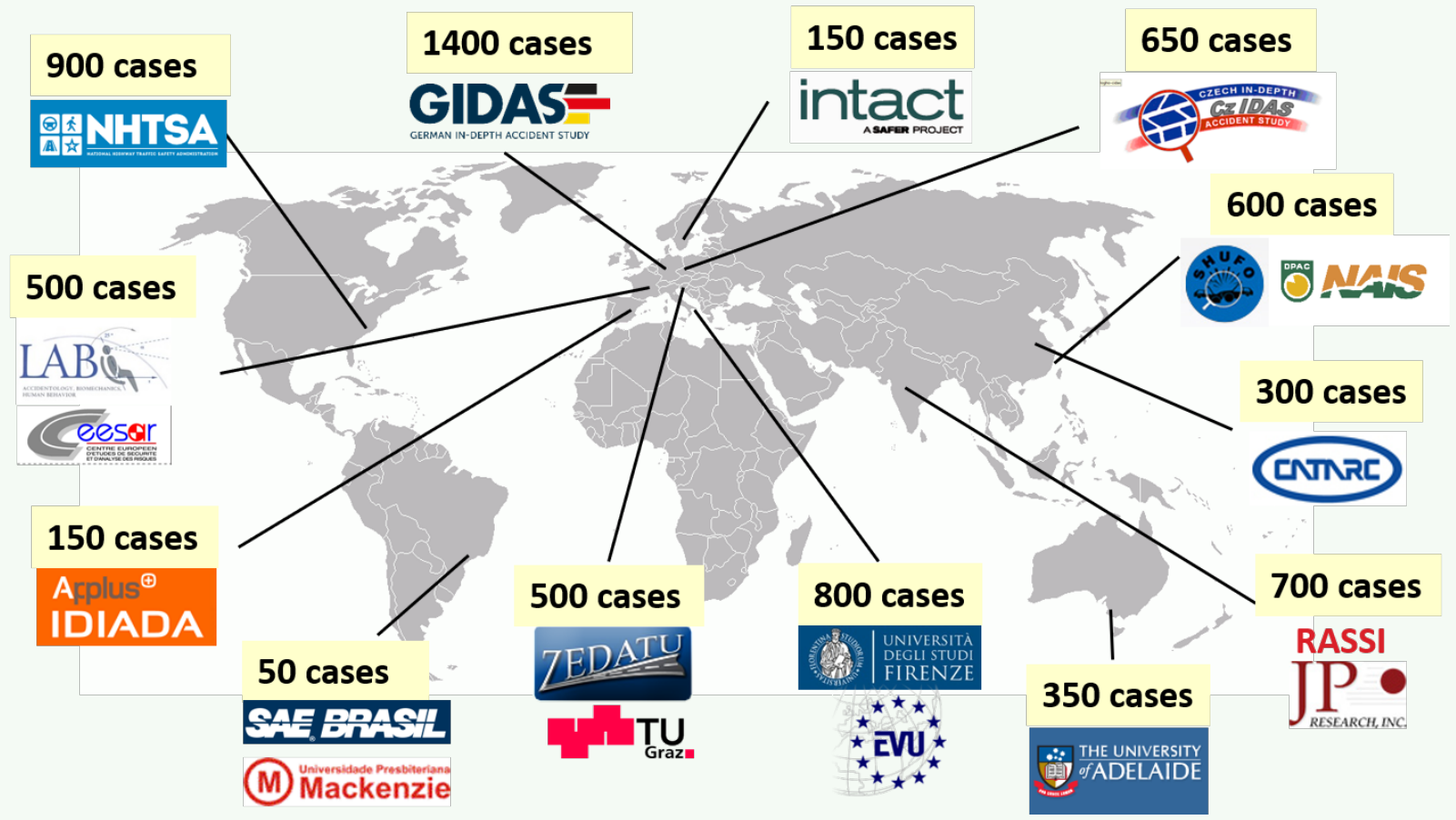
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(Traffic) Conflict Classification Catalogue

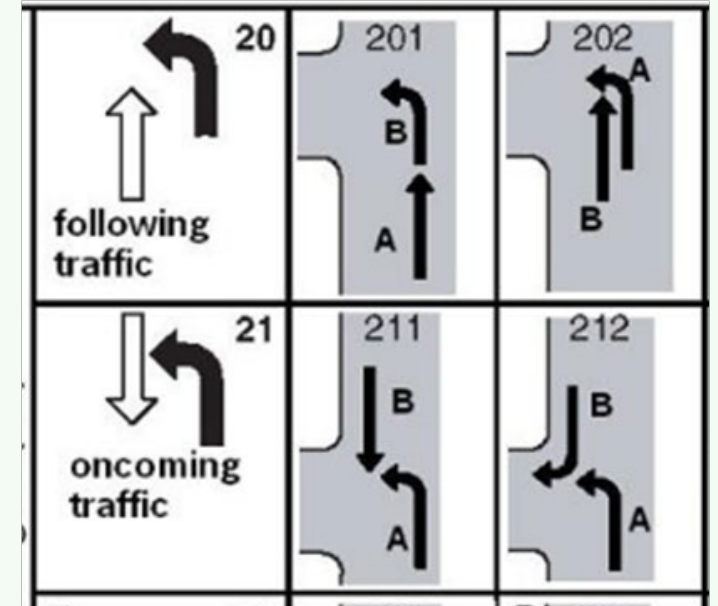
.. is being used worldwide by expert teams to classify scenarios leading to accidents



Germany (BASt) provided a catalogue for..

(Traffic) Conflict Classification

- Conflict = (apparently) incompatible goals
- is used for accident scenario classification
- is able to cover > 95% of all scenarios leading to accidents
- can be / is being used worldwide



- has been used and updated for ~50 years
- is based on human conflict theory
- does not cover causation
 - does not contain the reason of an accident and is therefore technology neutral










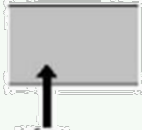


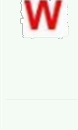

BASt provided a catalogue for..

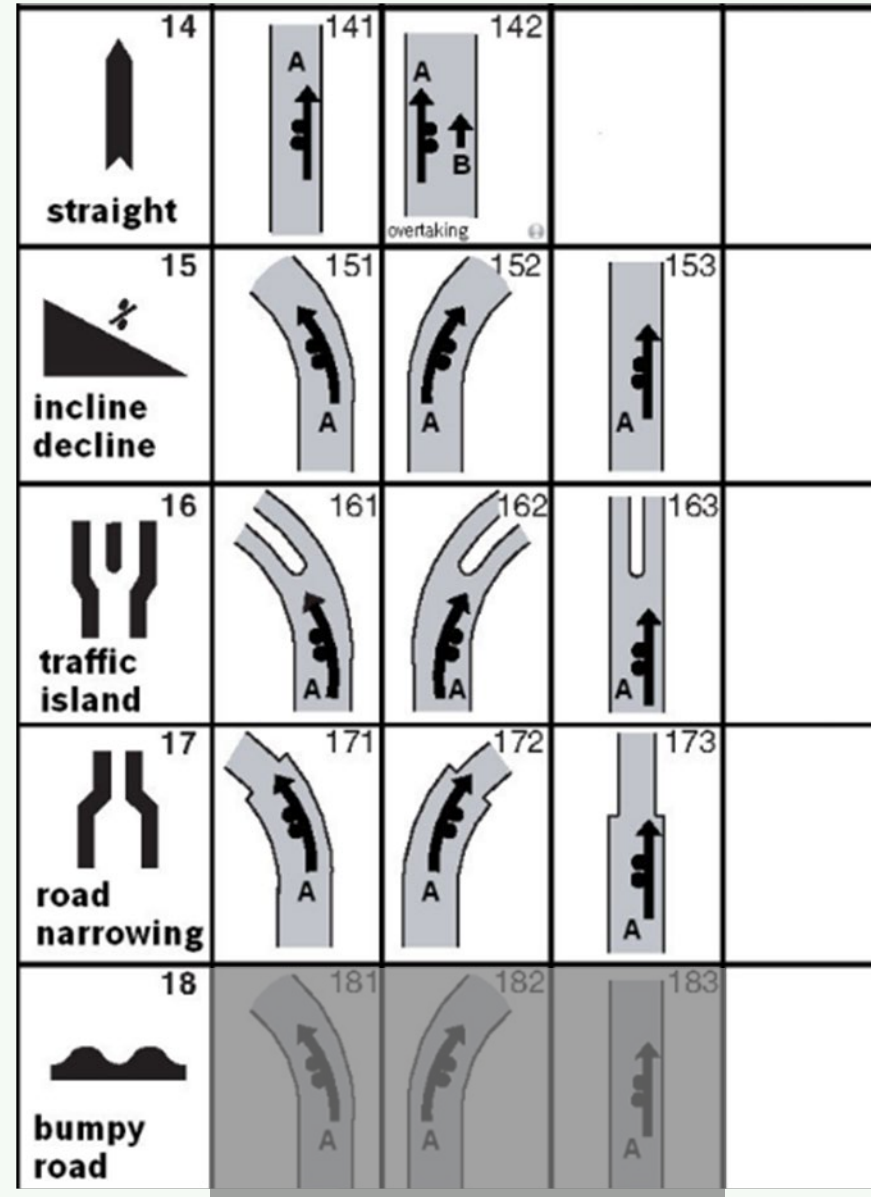
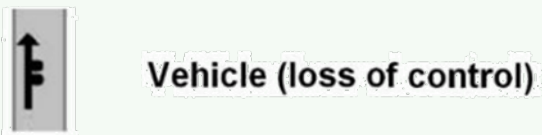
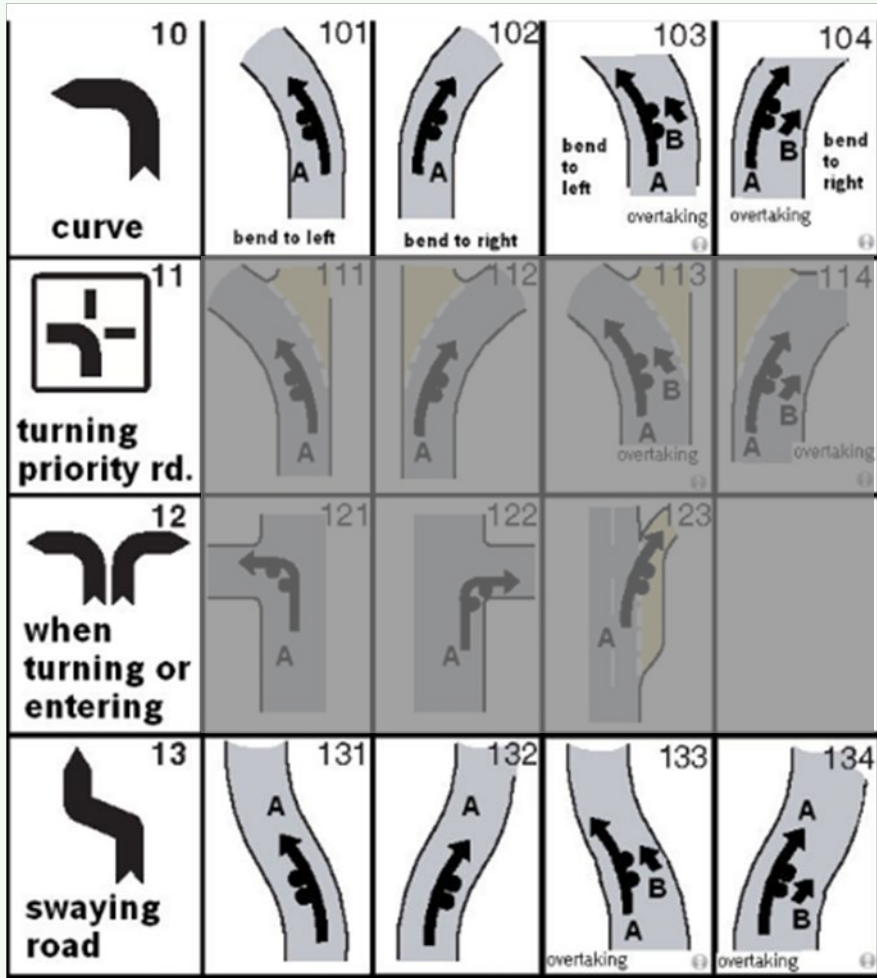
(Traffic) Conflict Classification

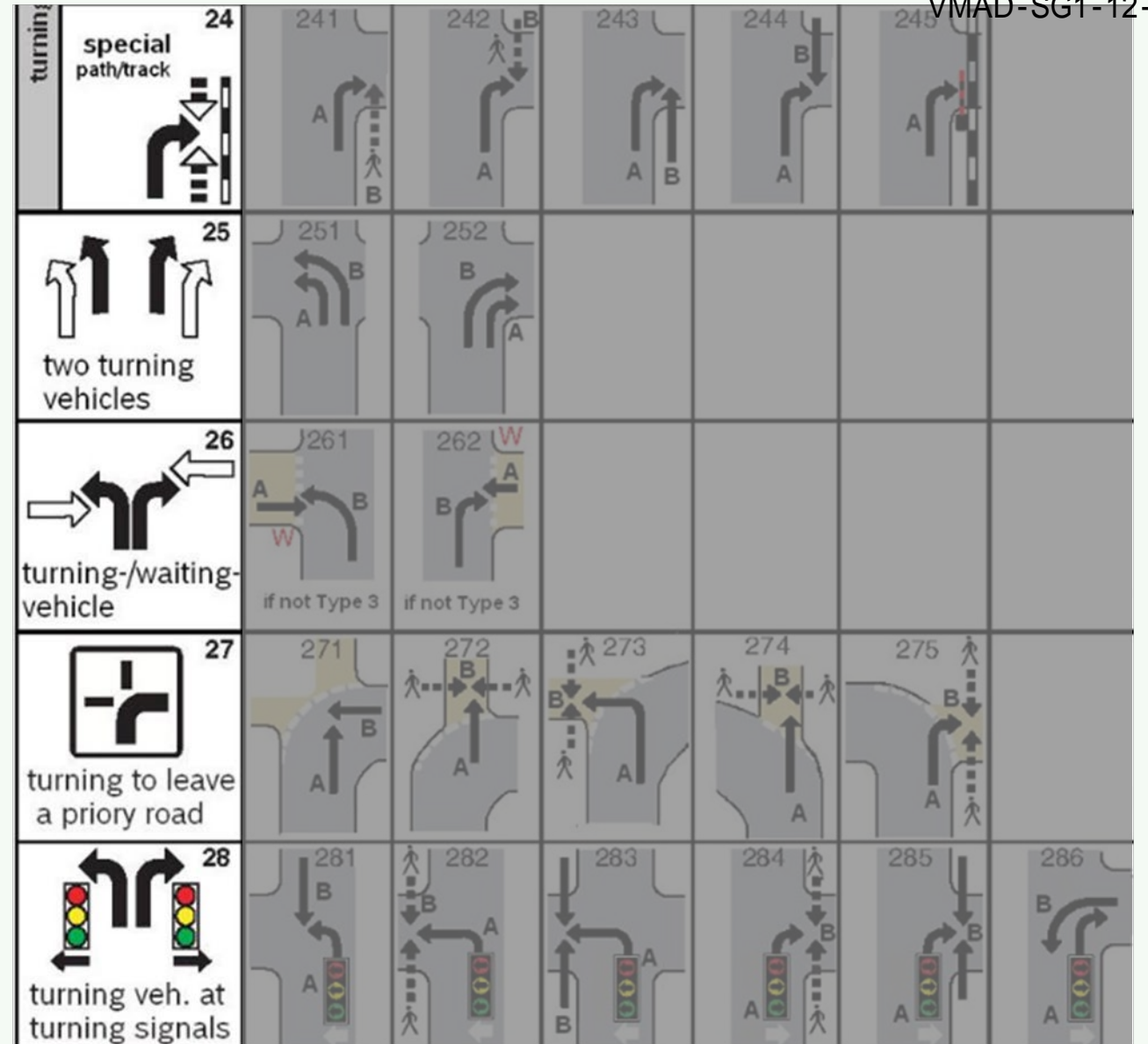
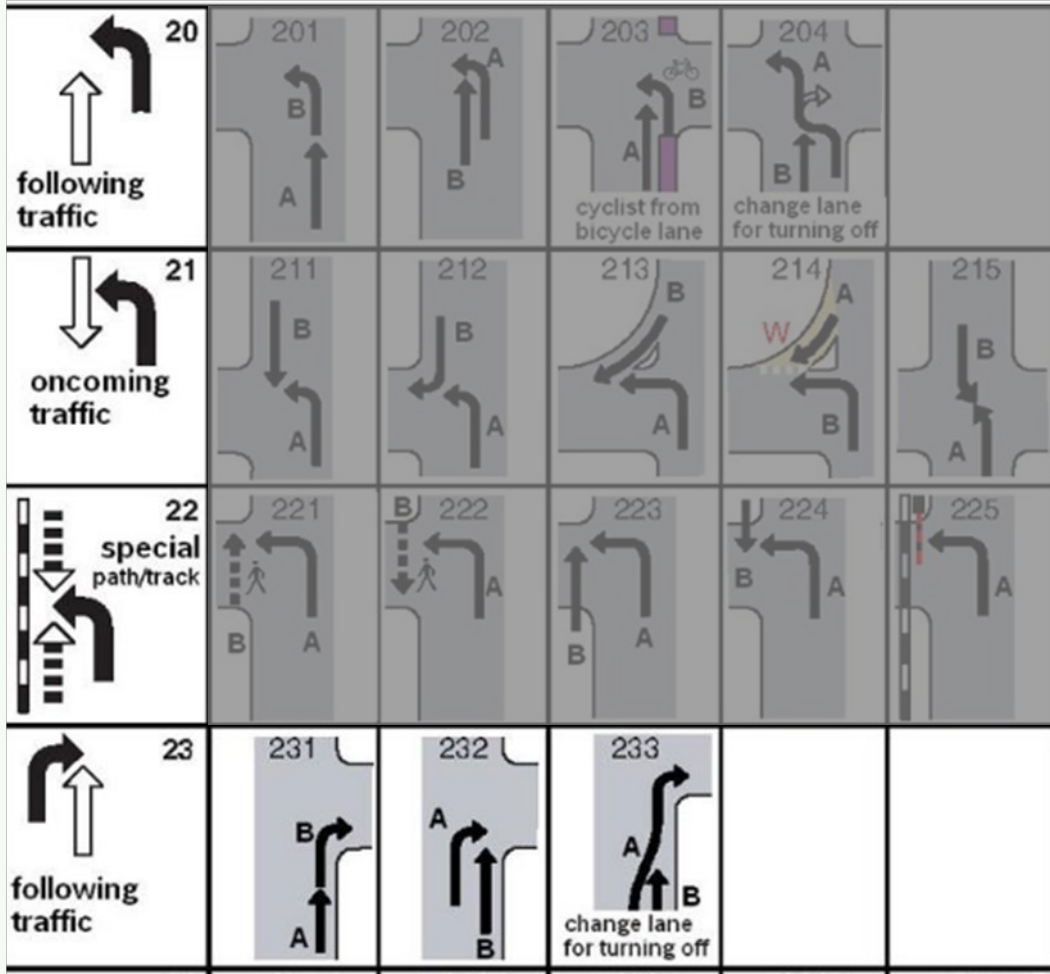
The current catalogue contains 251 conflict situations

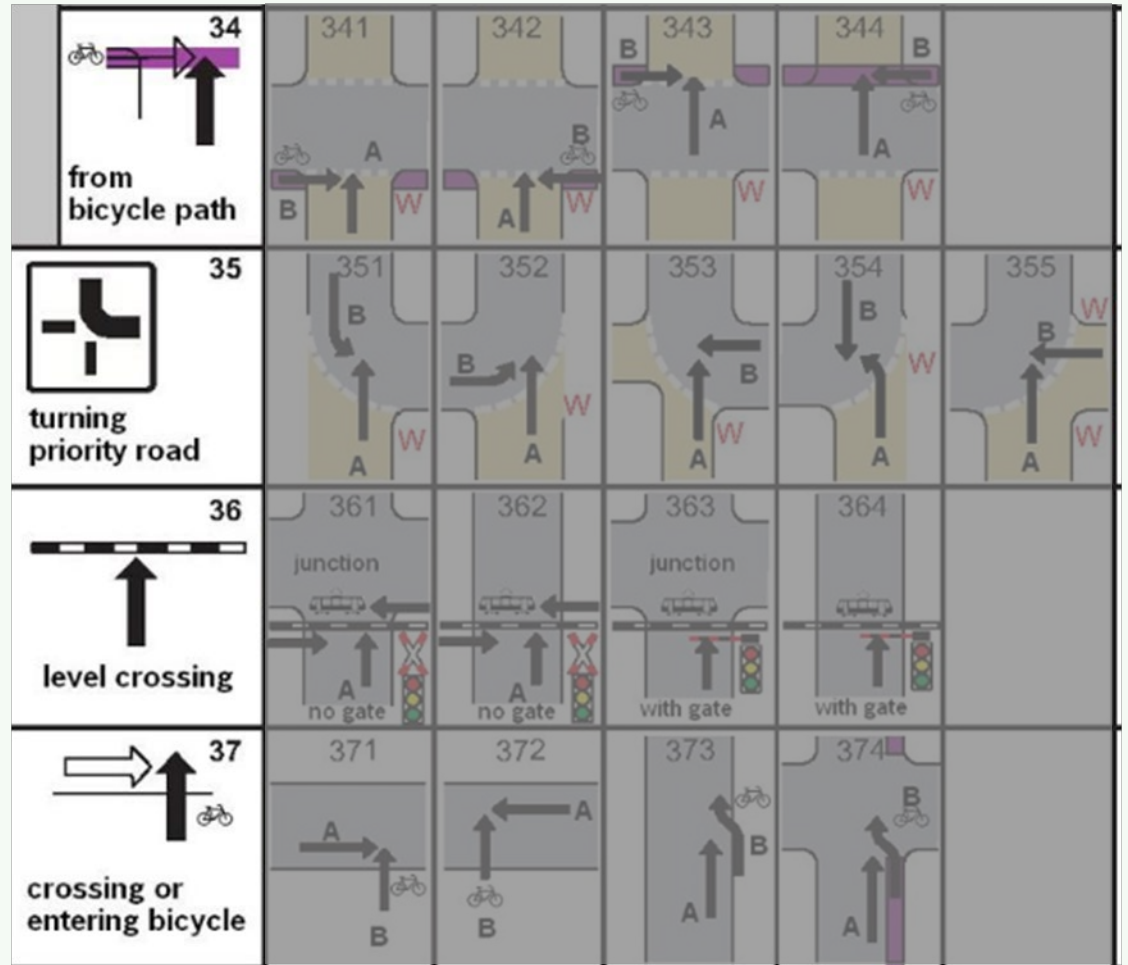
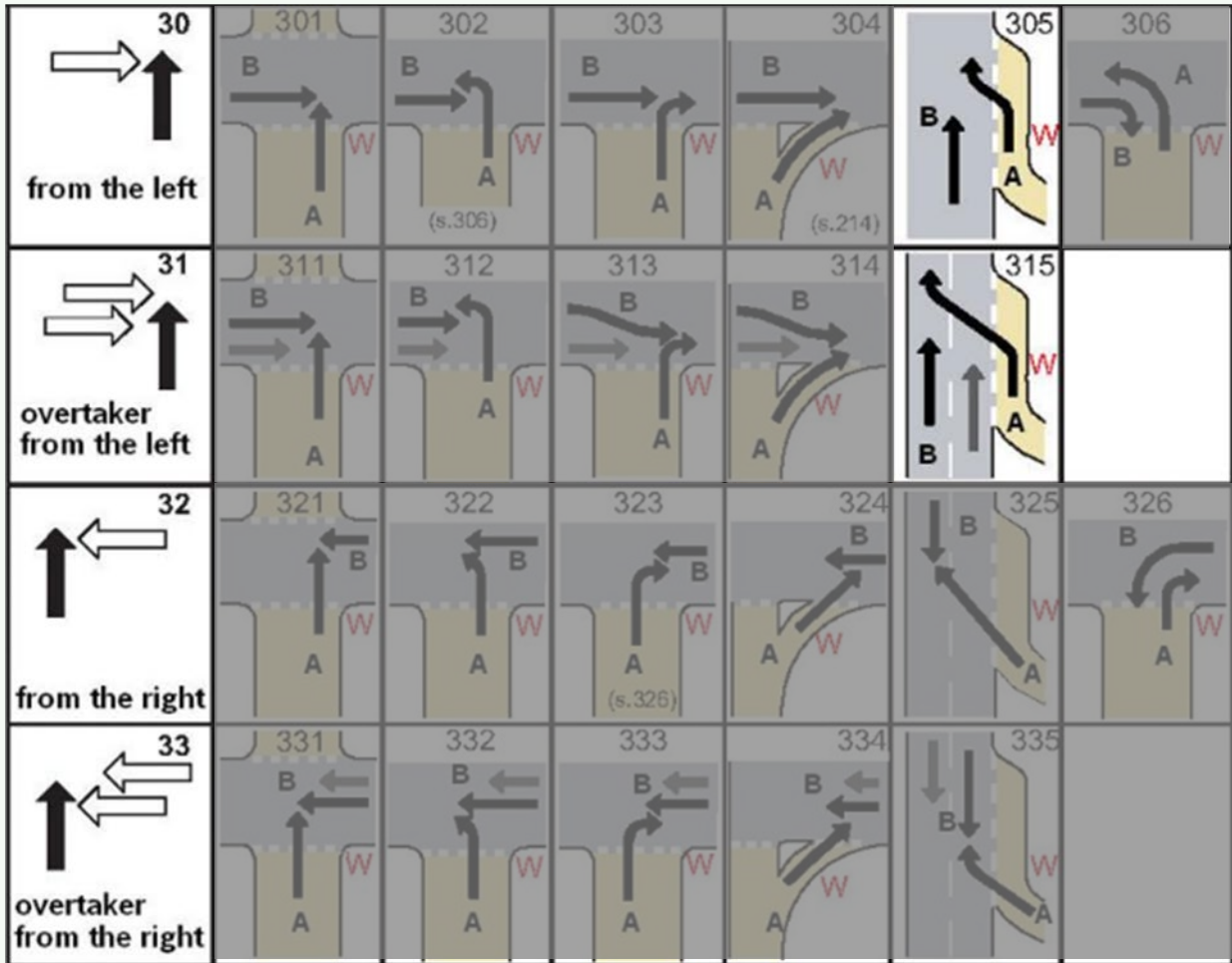
Out of those, around 64 conflict situations are also relevant for typical highway conflicts

Symbols

	Vehicle (driving)		non involved Vehicle (driving)		standing Vehicle (in traffic)		Pedestrian
	Vehicle (loss of control)		non involved Vehicle (parked)		stopping Vehicle (traffic jam)		Bicycle
	Vehicle (parked)		Label of Participant A and B (necessary for mapping of the participants in the database)		Vehicle have to wait / stop		Sight Obstruction



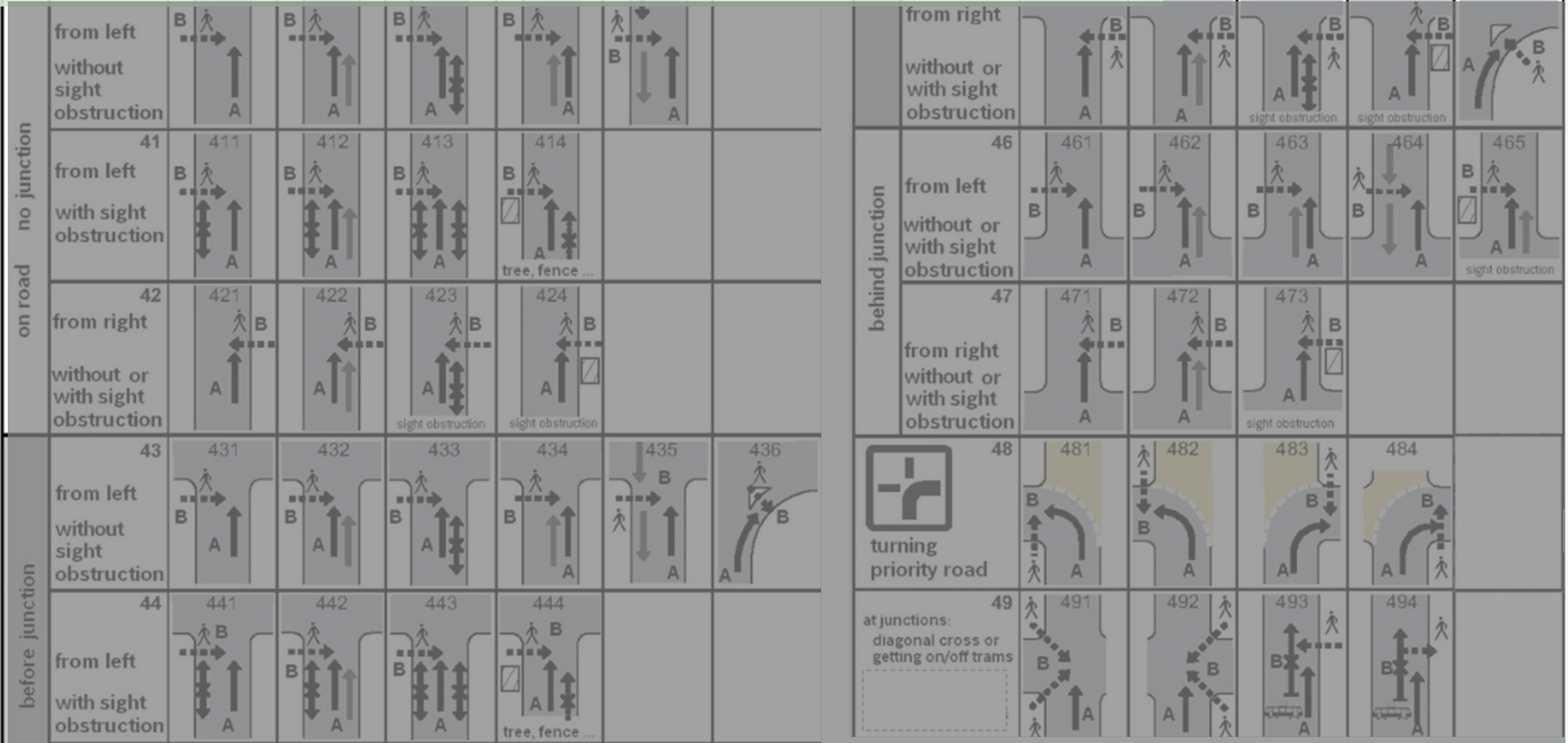


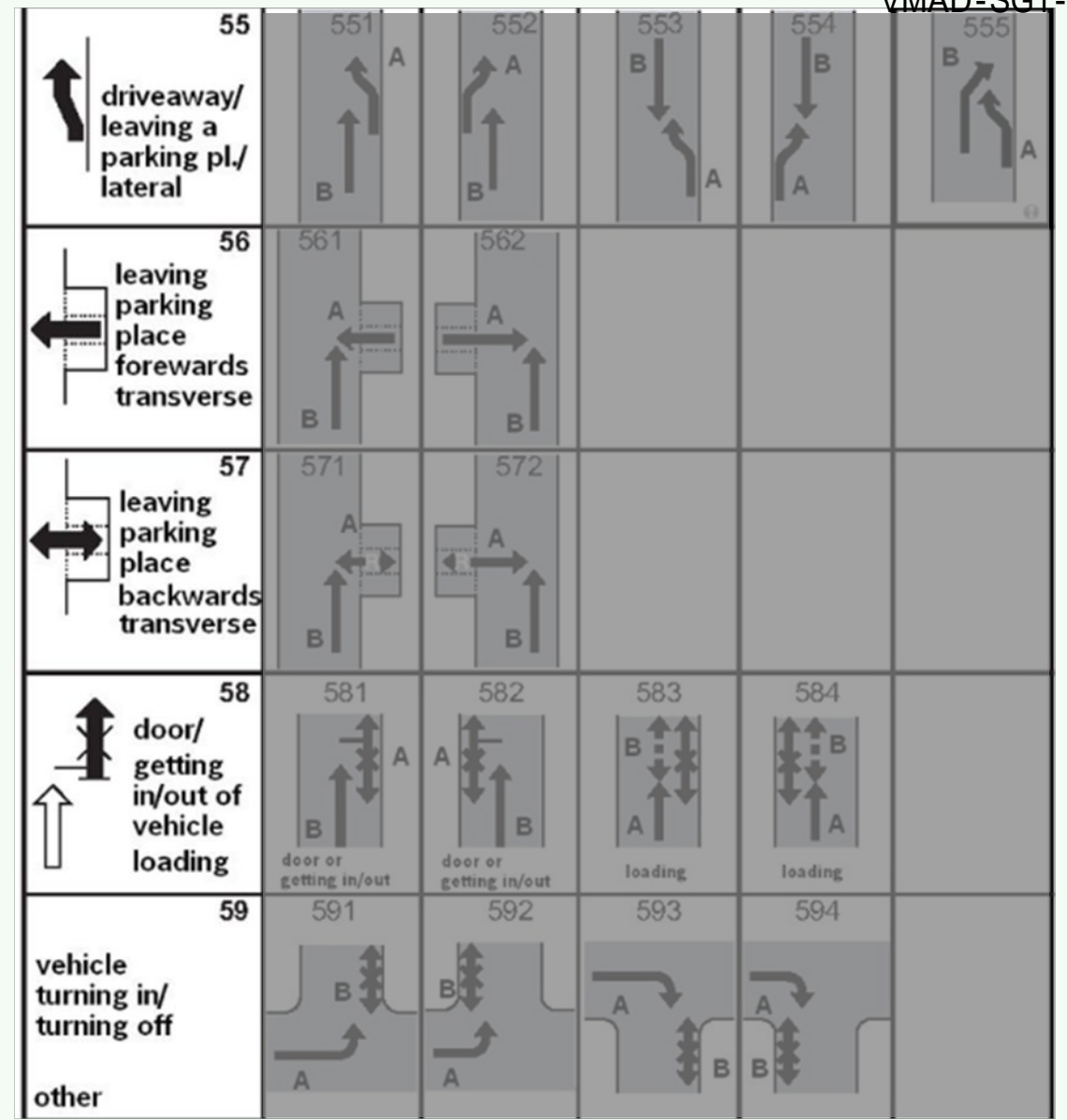
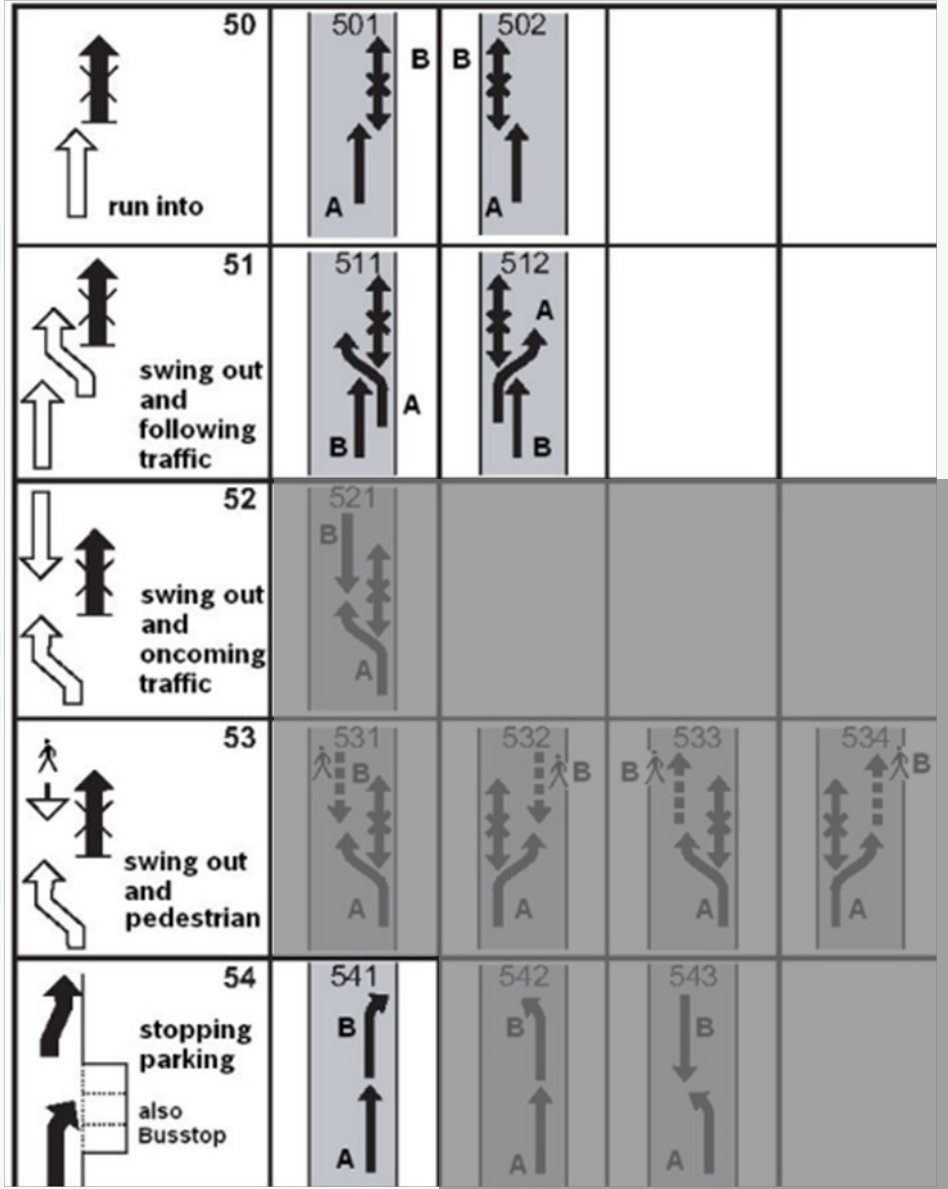


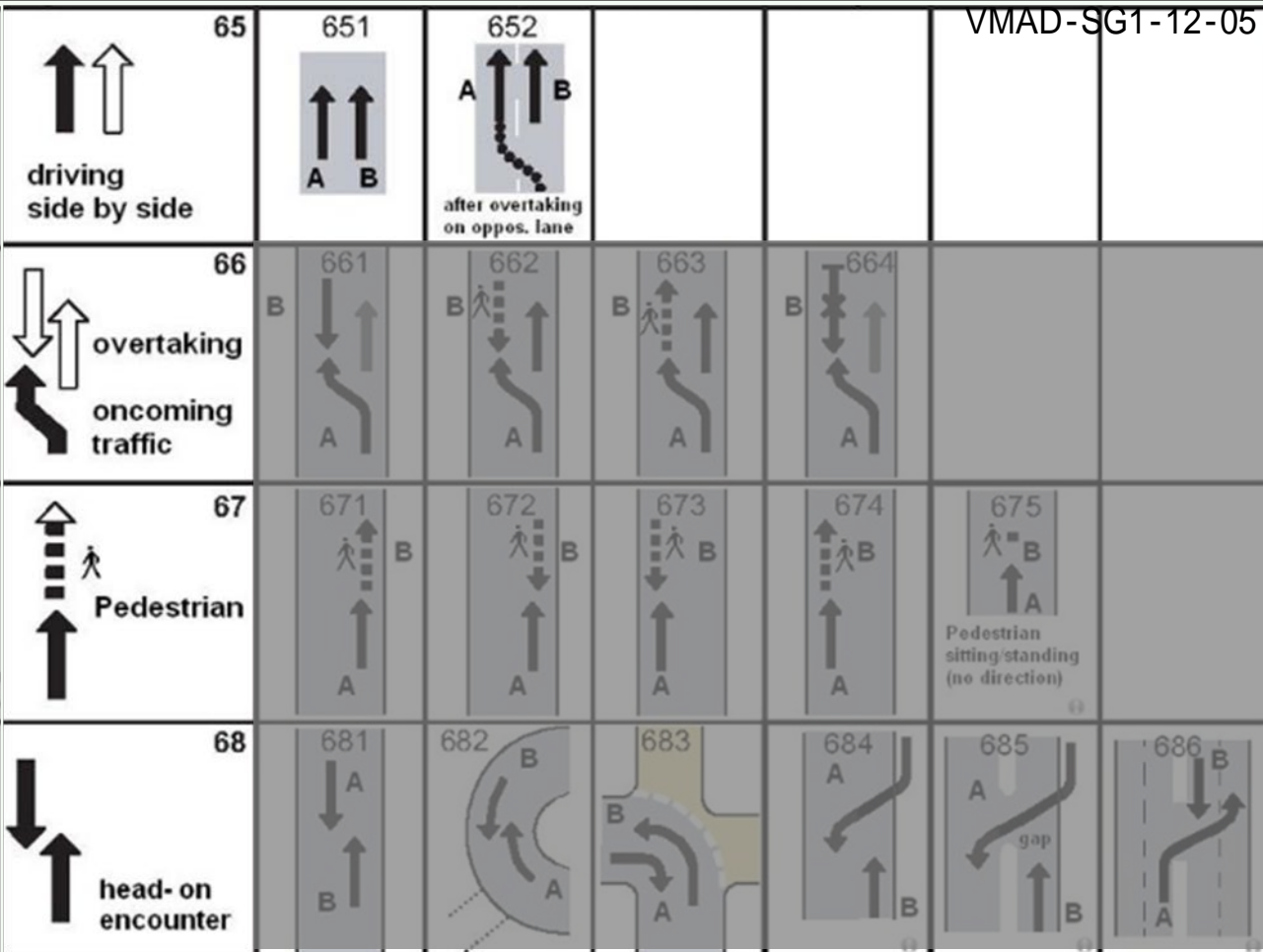
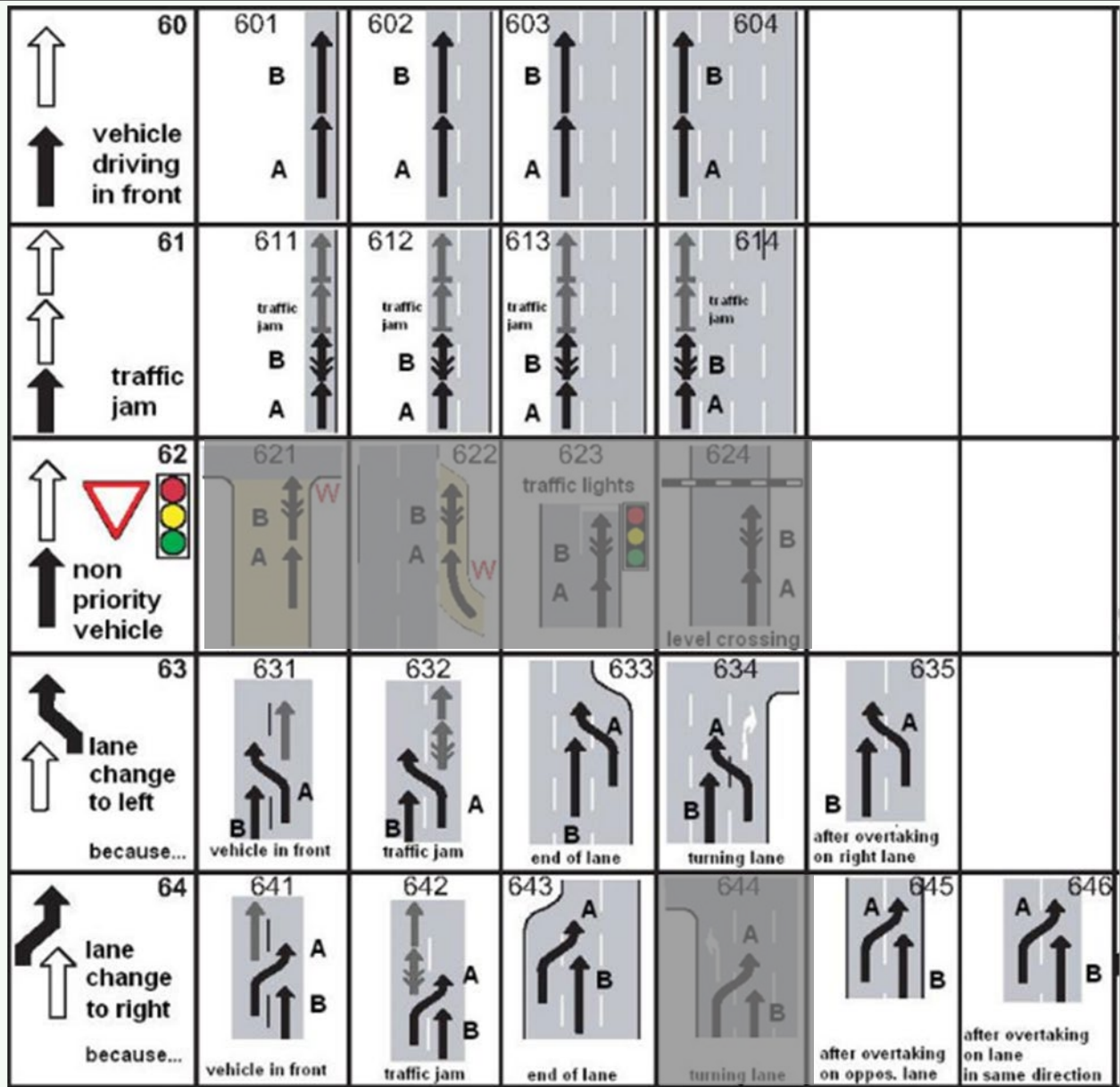
W Vehicle have to wait / stop



Probably not a basic functional scenario for highways; tbd



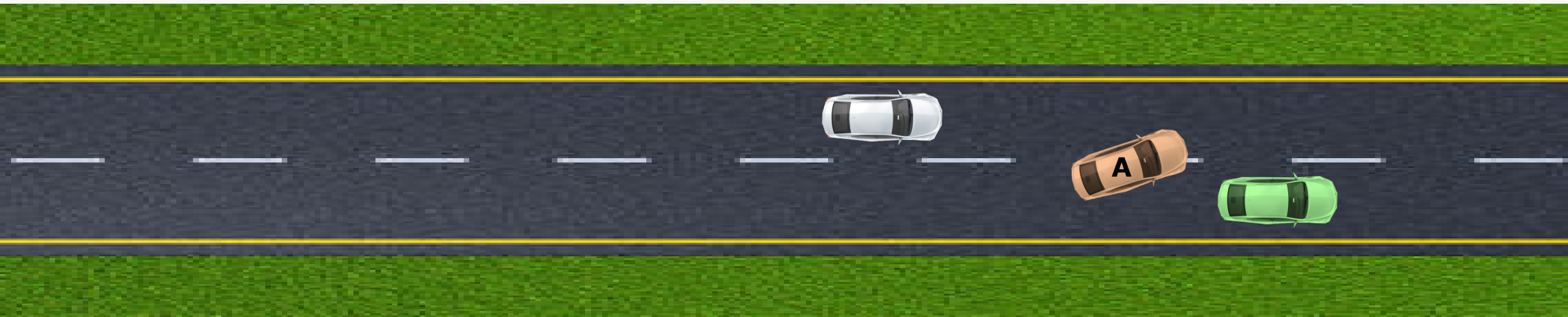
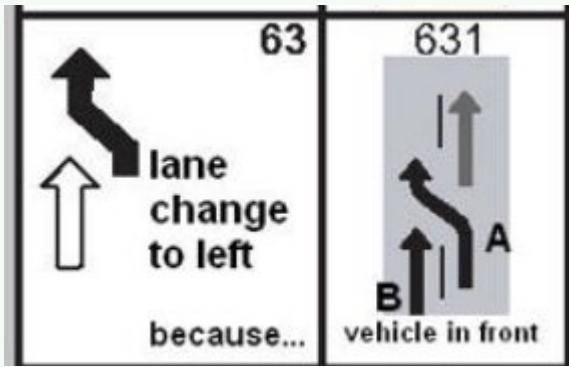


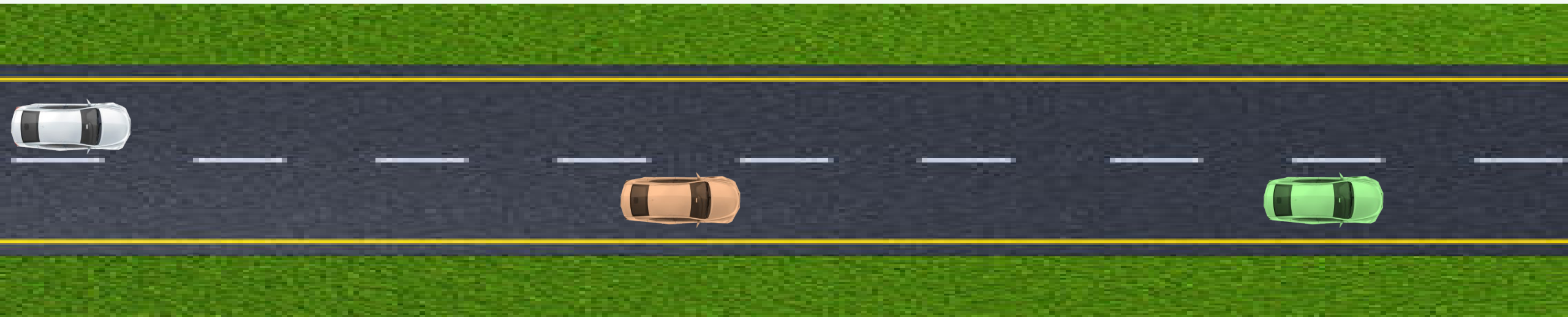
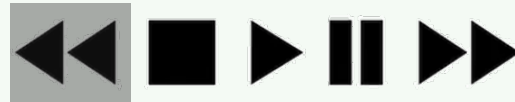
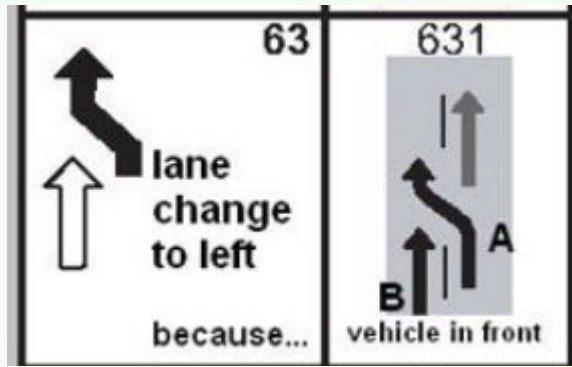


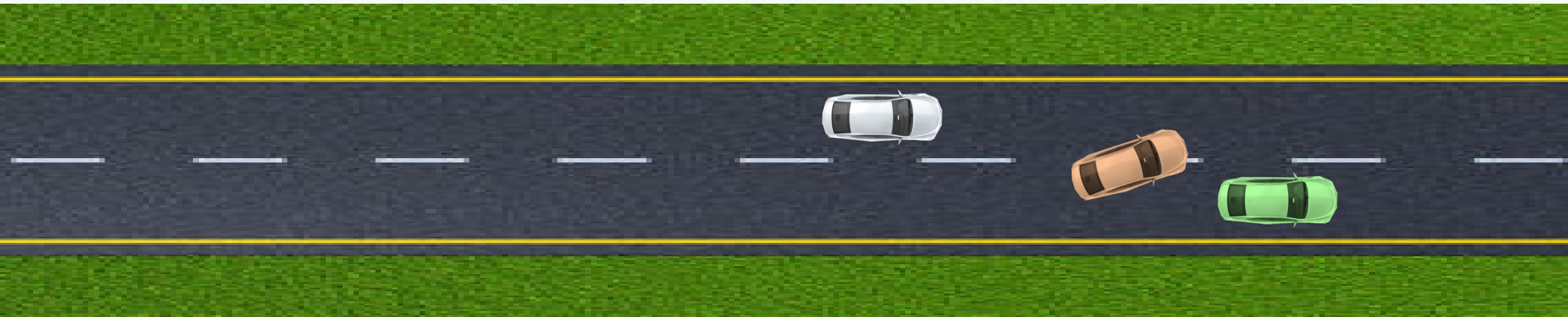
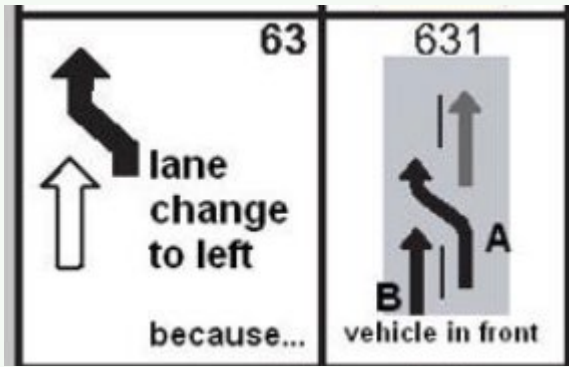


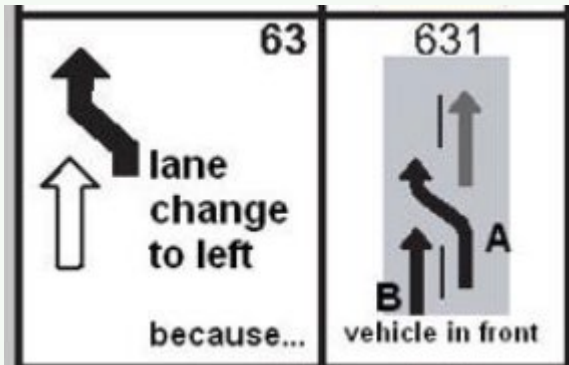
 parking vehicle	701 	702 	703 at car park			
 backing up	711 	712 	713 	714 	715 	716 rolling without driver
 u-turn	721 	722 	723 	724 	725 	726
 not fixed object	731 load	732 other				

 broken down vehicle	741 accident	742 break down			
 animal	751 wild animal	752 unattended domestic anim.	753 attended domestic anim.		
 sudden physical disability	761 falling asleep	762 dizzy spell	763 other (no alcohol)		
 sudden vehicle damage	771 tyre	772 windshield	773 brakes	774 steering	775 other damage

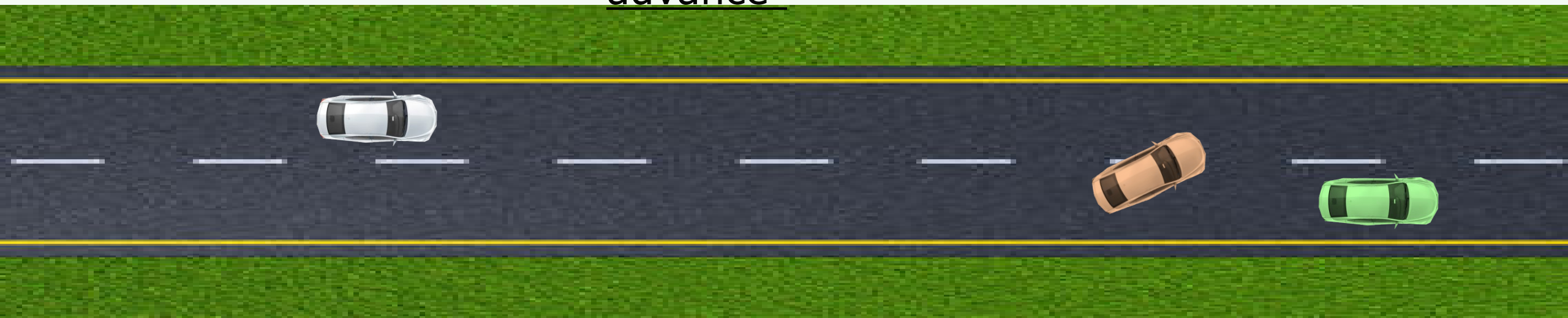


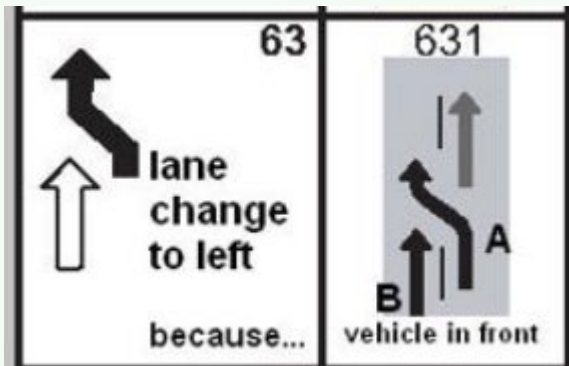




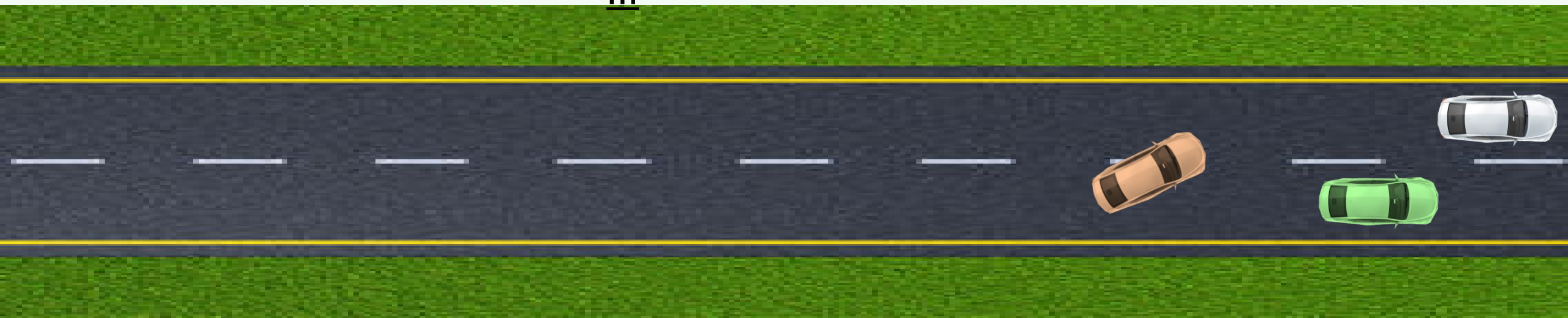


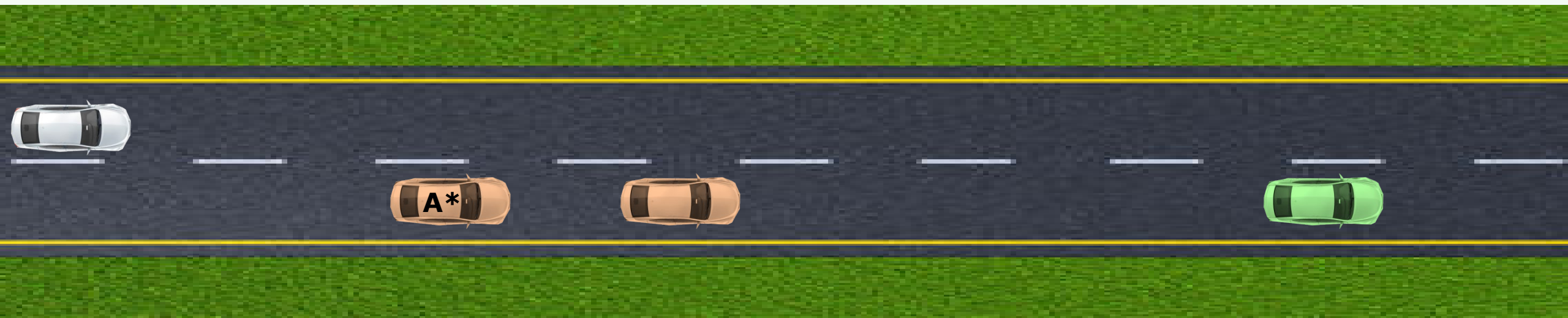
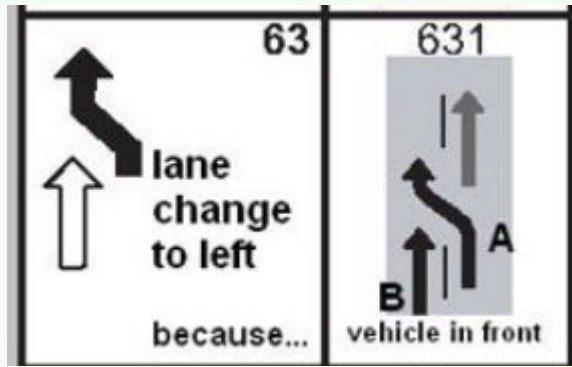
- a) Put the situation back to $t - [x]$ seconds, using driver models & playback
- b) Typical human behaviour will recover the conflict
- c) Put smart AV can avoid criticality „in advance“

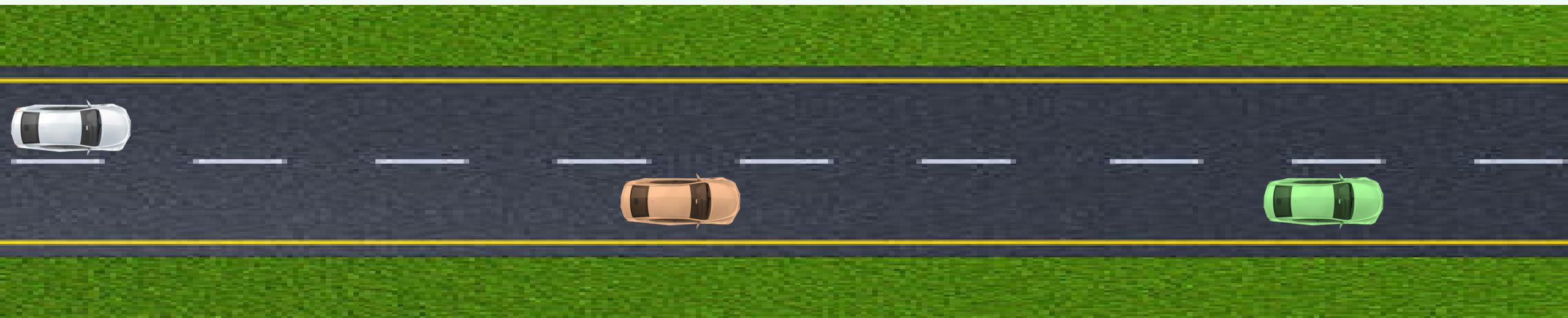
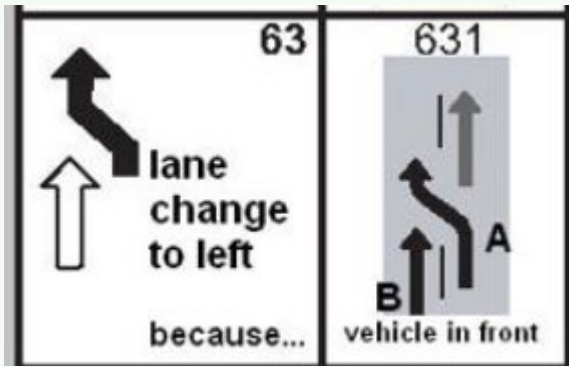


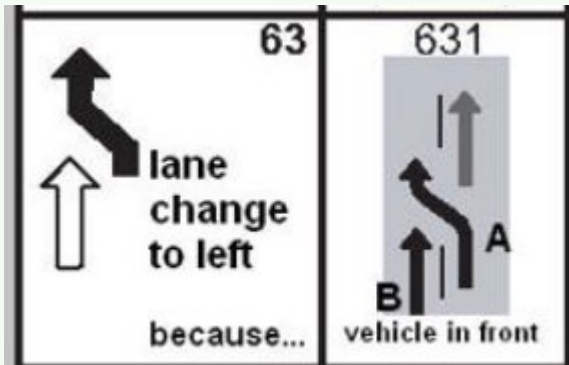


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- a) Put the situation back to $t - [x]$ seconds, using driver models and playback
- AV can be vehicle A or vehicle B
- „test for rule compliance could be done in either positions“*

