AEB IWG 13 – Industry Input

Why use “perpendicular” also for the pedestrian scenario?

5.2.2.4. (a) With unobstructed **perpendicularly** crossing pedestrians with a lateral speed component of not more than 5 km/h;

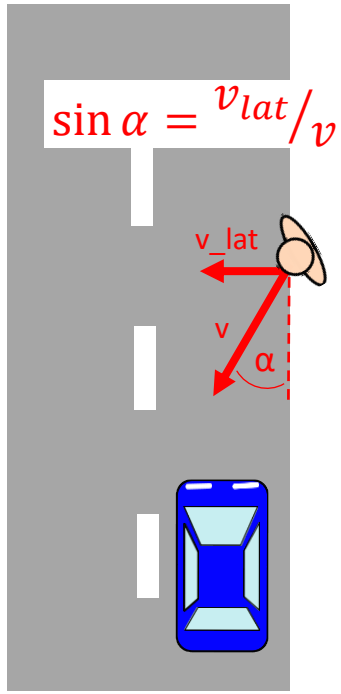
- **Goal:** Create an unambiguous regulation -> use same wording as for Car2Bicycle.
- **Problem:** Because the crossing angle is currently undefined, the performance requirement applies to completely different scenarios

v_lat (<=5 km/h)	v	α
5 km/h	5 km/h	**90°**
5 km/h	5,5 km/h	65,4°
5 km/h	7 km/h	45,6°
2 km/h	5 km/h	23,5 °
2 km/h	7 km/h	**16,6°**

„perpendicular“

„much more likely that the pedestrian will not enter the road“

v_ped_lat <= 5 km/h



AEB IWG 13 – Industry Input

Why highly dynamic driving and turning events should be excluded from the maximum performance requirements?

Proposal: Modify item (h) and add new item (i)

(h) In absence of ~~**extreme**~~ **highly dynamic** driving conditions (e.g. harsh cornering).

(i) In absence of turning events (e.g. at an intersection) affecting the system performance

What creates these challenges?

(a) Influences of dynamic vehicle behaviour on the accuracy of detection

(b) Objects can be outside of the field of view while the vehicle is turning

See illustration of these effects on the following slides

5.2.3.4. Speed reduction by braking demand

In absence of driver's input which would lead to interruption according to paragraph 5.3.2., the AEBS shall be able to achieve an impact speed that is less or equal to the maximum relative impact speed as shown in the following table:

(a) With unobstructed perpendicularly crossing bicycles with constant speeds from 10 to 15 km/h;

(b) In unambiguous situations (e.g. not multiple bicycles);

(c) On flat, horizontal and dry roads;

(d) In maximum mass and mass in running order conditions;

(e) In situations where the anticipated impact point of the crankshaft of the bicycle is displaced by not more than 0.2 m compared to the vehicle longitudinal centre plane;

(f) In ambient illumination conditions of at least 2000 Lux without blinding of the sensors (e.g. direct blinding sunlight).

(g) In absence of weather conditions affecting the dynamic performance of the vehicle (e.g. no storm, not below 0°C) and

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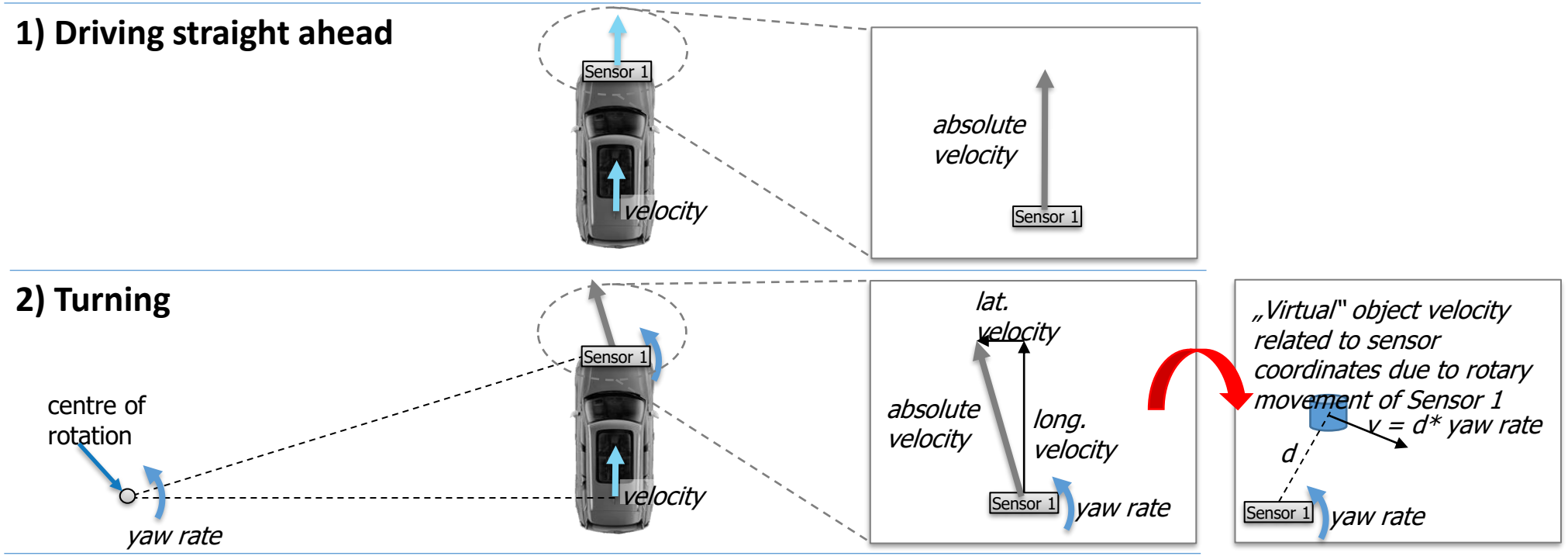
(a) Influences of dynamic vehicle behaviour on the accuracy of detection



- When the vehicle is rotating objects will get a „virtual“ velocity. This effect cannot be fully compensated because the yaw sensors of the vehicle have accuracy limits.
- Therefor while the vehicle is cornering or turning, a stationary object at the side of the road can appear to be moving, posing a risk for false activations.
- In order to avoid false activations under these circumstances, systems adapt their intervention strategies in these scenarios.

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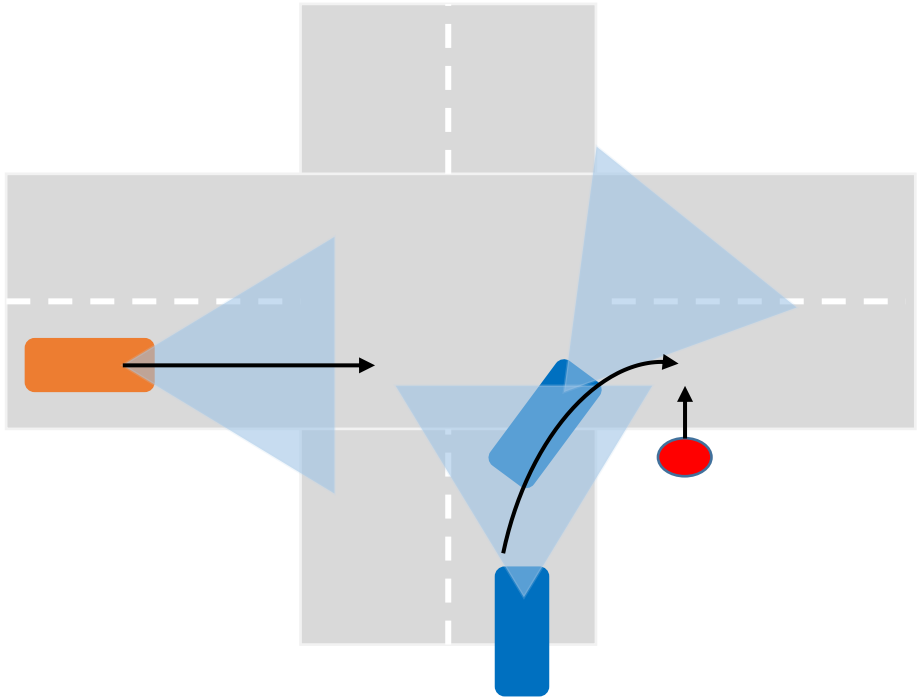
(b) Objects can be outside of the field of view while the vehicle is turning



- The field of view of the sensors is primarily directed to the front of the vehicle in order to detect critical situations coming up ahead.
- When the vehicle is turning, the critical situations develops to the side of the vehicle and therefor outside of the AEB‘s detection area, which prevents the AEB from initiating an emergency braking.