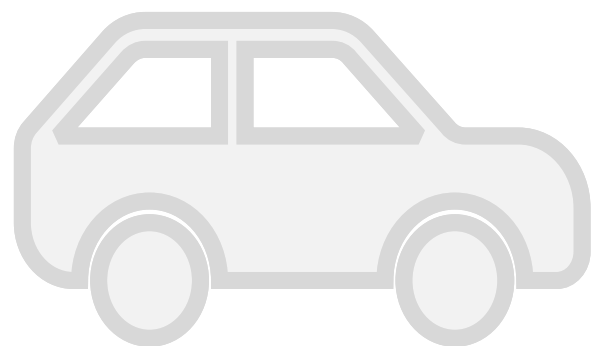


## Specification Generation

*Semantic Description*  $\rightarrow \psi = \{\varphi_1, \varphi_2, \dots, \varphi_n\}$

## Longitudinal Vehicle Dynamics



*Dynamic Parameters*

*Collision Judgement*

Open-loop  
Dynamics

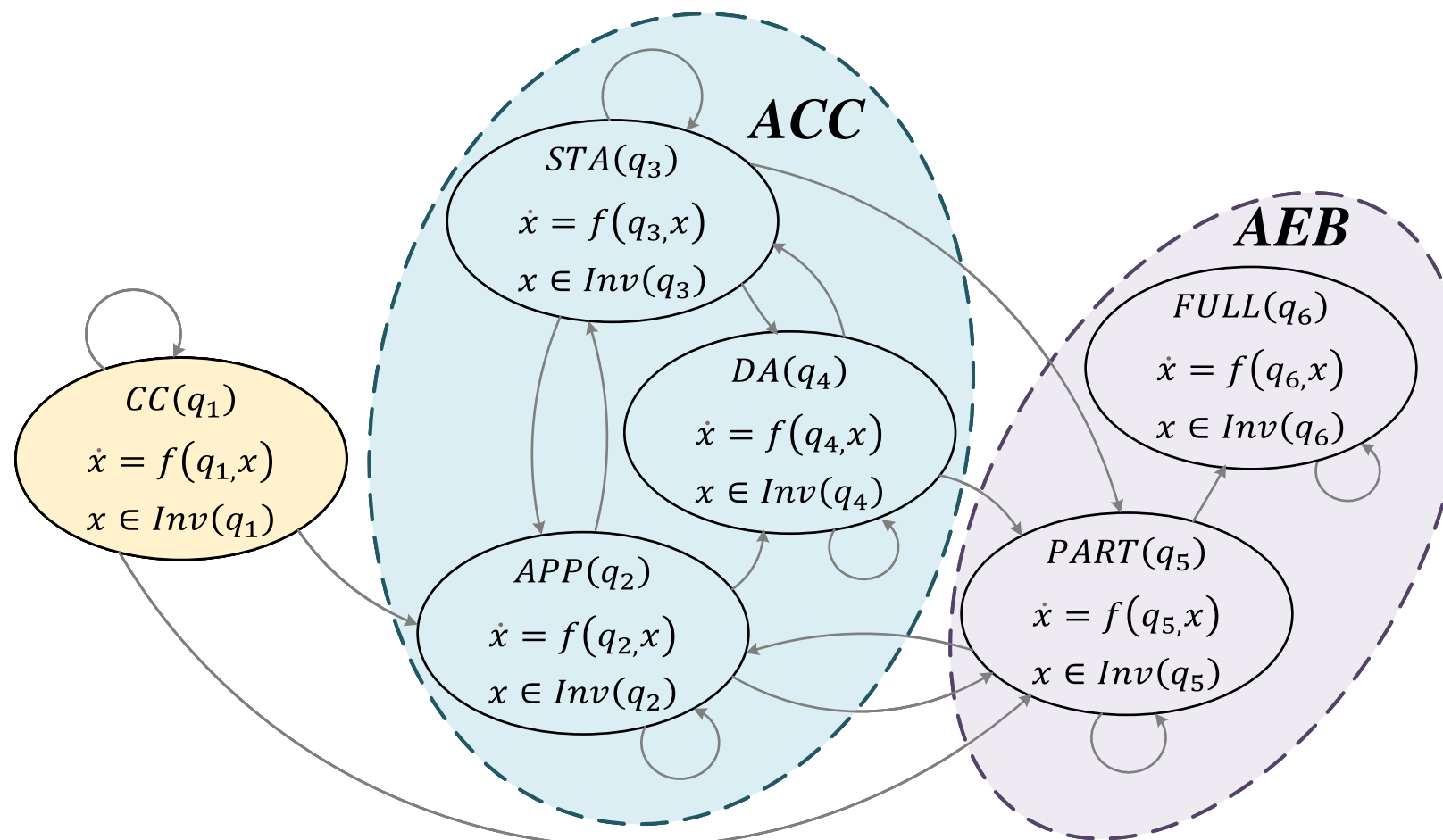
**CarSim  
Simulator**  
Validation

## ADAS Applications

<b>ACC</b>	$\rightarrow$	Cruising in Traffic Flows
<b>AEB</b>	$\rightarrow$	Emergency Braking
<b>FCW</b>	$\rightarrow$	Acoustic/Light Warning

Control  
Strategies

## Hybrid Automata for Closed-loop ADAS



Safety Constraints & Boundaries

## Reachability

Comparison

**Verification  
Report**

### Reachable Sets

Distance

Velocity