Technische Universität Braunschweig

Software Product Line Evolution

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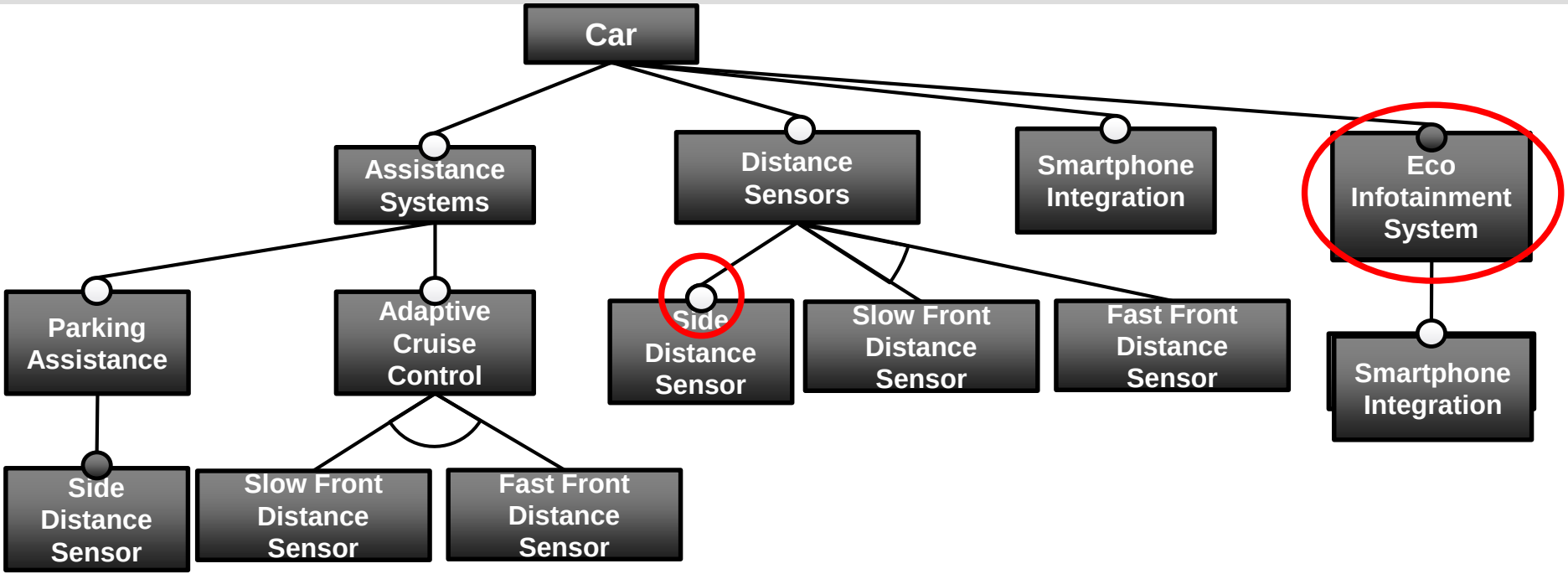
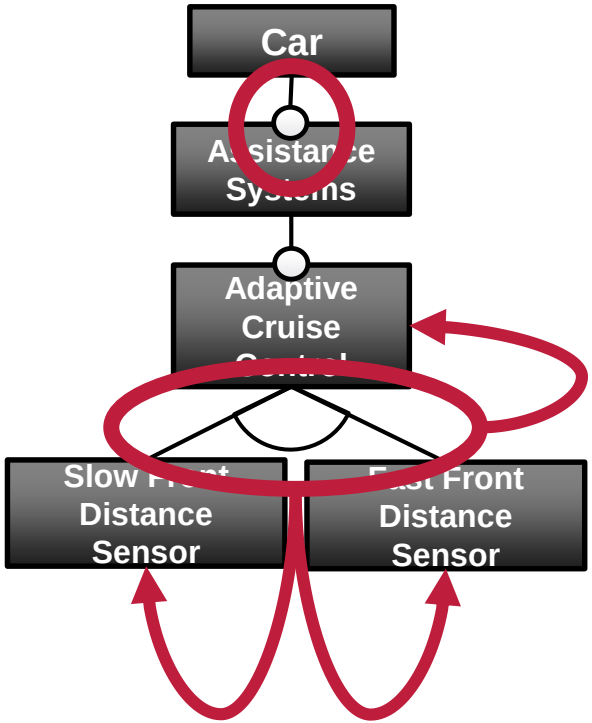
Evolution of Feature Models



Parking Assistance → Side Distance Sensor
Adaptive Cruise Control → Distance Sensors

Evolution of Feature Model
Evolvable Elements

- Features
- Groups
- Types of Features / Groups
- Feature ↔ Group relations
- Constraints
- Feature Attributes



Temporal Elements

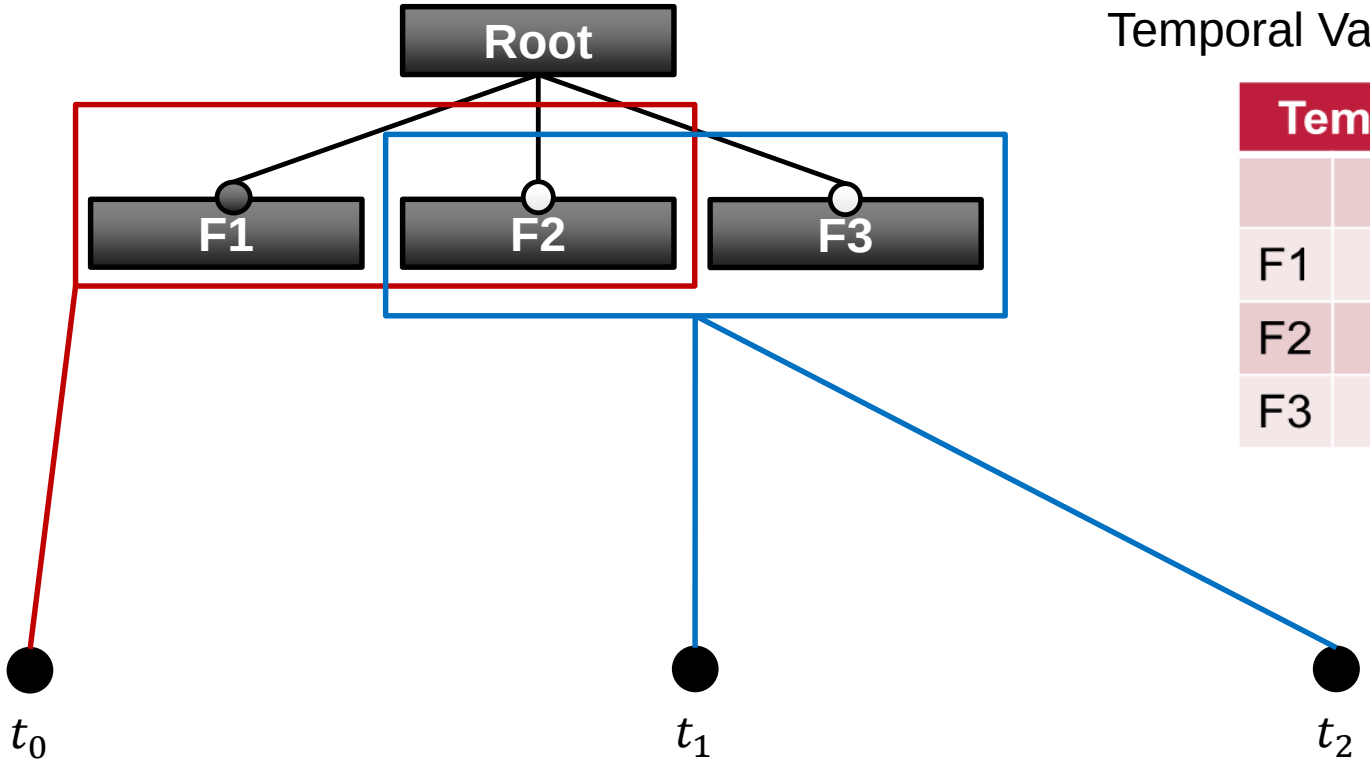
- To seamless integrate evolution in feature models: make evolution a first-class entity

➢ ***Temporal Elements***

- Each *Temporal Element* has a ***Temporal Validity***

➢*Temporal Validities* define the timespan in which an element is valid

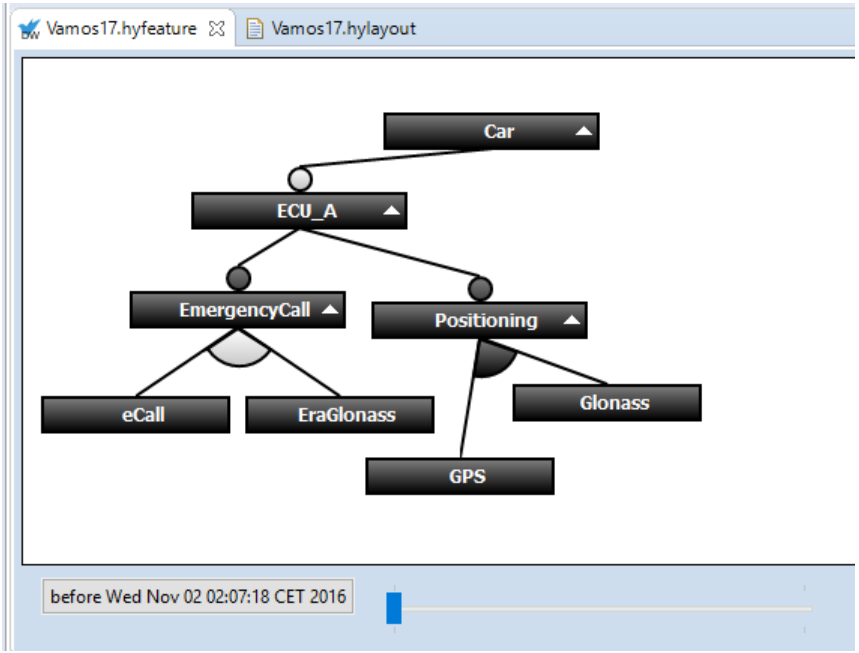
Temporal Elements

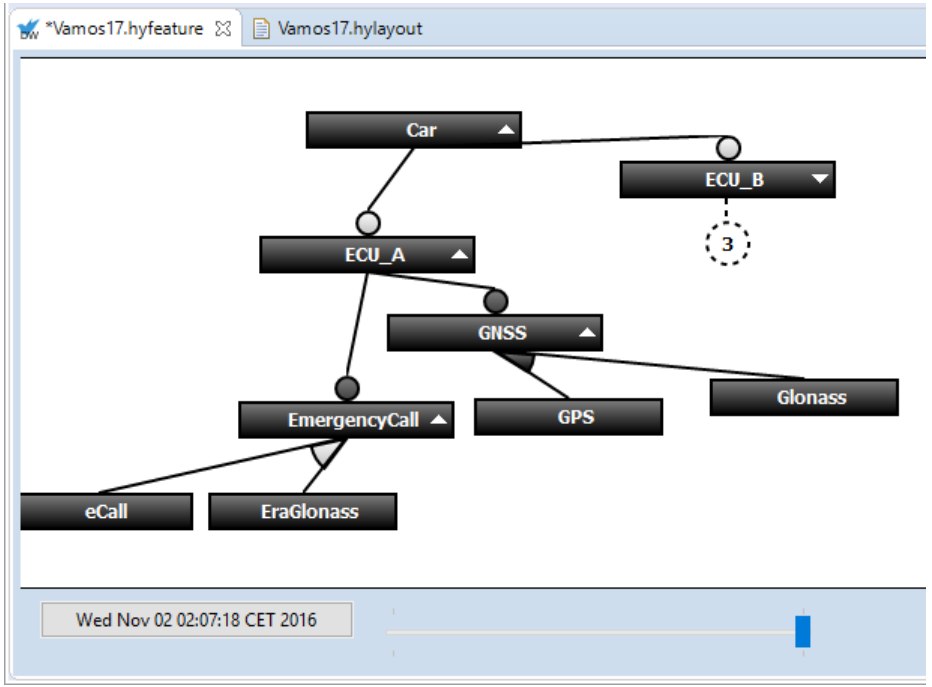


Temporal Validity $\vartheta = [\vartheta_{since};\vartheta_{until})$

Temporal Validities		
	ϑ_{since}	ϑ_{until}
F1	t_0	t_1
F2	t_0	∞
F3	t_1	∞

Temporal Feature Models in DarwinSPL





Temporal Constraints in DarwinSPL

Vamos17.hyconstraints | Vamos17.hycontextinformation | Vamc

```
1  EraGlonass -> Glonass
2  Nav -> GNSS [2016/11/03 - eternity]
3  EmergencyCallUI -> EmergencyCall [2016/11/03 - eternity]
```

Evolution Demo

DarwinSPL

https://github.com/HyVar/DarwinSPL

Task

- Create the DeltaTalk feature model using DarwinSPL
  - (there is also an importer)

- Do the following using a new evolution step!

- Create two features „StrongEcryption“ and „SimpleEncryption“ in an alternative group under „Encryption“

- „StrongEncryption“ should provide the „old“ 1337 encryption
- „SimpleEncryption“ should reverse the text
- → Remap and create respective deltas