

Some methodological problems concerning building and relating ontologies  
within EDMCouncil Automotive Ontology Project  
with examples

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1. Relation to pre-ontological sources (industry standards): how close should we stick to our sources

a) Simplification (can we simplify definitions of notions taken from a standard):

Original definitions

**2.4.10 aircraft accident:** An aircraft accident is a transport accident that involves an aircraft in-transport.

**2.4.11 watercraft accident:** A watercraft accident is a transport accident if it (1) involves a watercraft in-transport and (2) is not an aircraft accident.

**2.4.12 motor vehicle crash:** A motor vehicle crash is a transport crash that (1) involves a motor vehicle in-transport, (2) is not an aircraft accident or watercraft accident, and (3) does not include any harmful event involving a railway train in-transport prior to involvement of a motor vehicle in-transport.

**2.4.13 railway accident:** A railway accident is a transport accident that (1) involves a railway train in-transport and (2) is not an aircraft accident, watercraft accident, or motor vehicle crash.

Simplification:

**railway accident:** A transport accident that (1) involves a railway train in-transport and (2) is neither an aircraft accident nor watercraft accident.

**motor vehicle crash:** A transport crash that (1) involves a motor vehicle in-transport, (2) is not an aircraft accident, watercraft accident or railway train accident.

b) Melioration (can we improve definitions making them ‘more natural’ from the point of view of general ontology, e.g. changing concept’s label):

**property:** Any physical object other than a person.  
Should we use a better name

disambiguation:

Word *condition* in one of the standards is used in two different meanings:

- an arrangement that must exist before something else can happen, prerequisite
- the particular state that something or someone is in

2. Merging source conceptualizations in ontologies:

Many notions concerning road elements are included in the ANSI D.16-2017 crash standard (ramp, gore, junction, etc.). How to relate them to map ontology in which some of the notions are present and some are not?

3. Common metadata conventions, use e.g.  
fibo:adaptedFrom  
skos:definition

4. Ways of building the auto middle ontology (e.g. post factum extraction of the middle ontology from particular ontologies vs proposing notions from particular ontologies to the middle ontology)