



Glossary and Ontology for Experiments

Sandor Brockhauser, Humboldt University, Berlin

Glossary

- CAR
 - definition: A **car** (or **automobile**) is a wheeled [motor vehicle](#) used for [transportation](#). Most definitions of *cars* say that they run primarily on roads, seat one to eight people, have four [wheels](#), and mainly transport people rather than goods. (*wikipedia*)
Cars must be registered in most countries when used on public roads.

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Cars must be registered in most countries when used on public roads.

- CAR **is a** MOTOR VEHICLE
- CAR **has** WHEELs.
- CAR **has** SEATs.
- CAR **has a** License Plate.
- CAR **has a** MODEL.

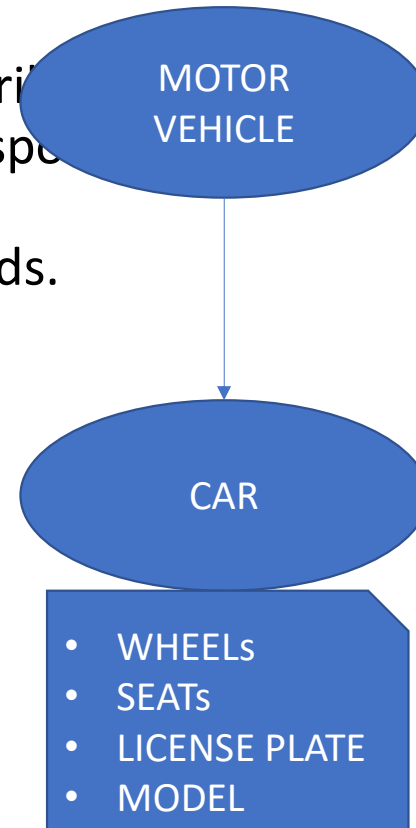
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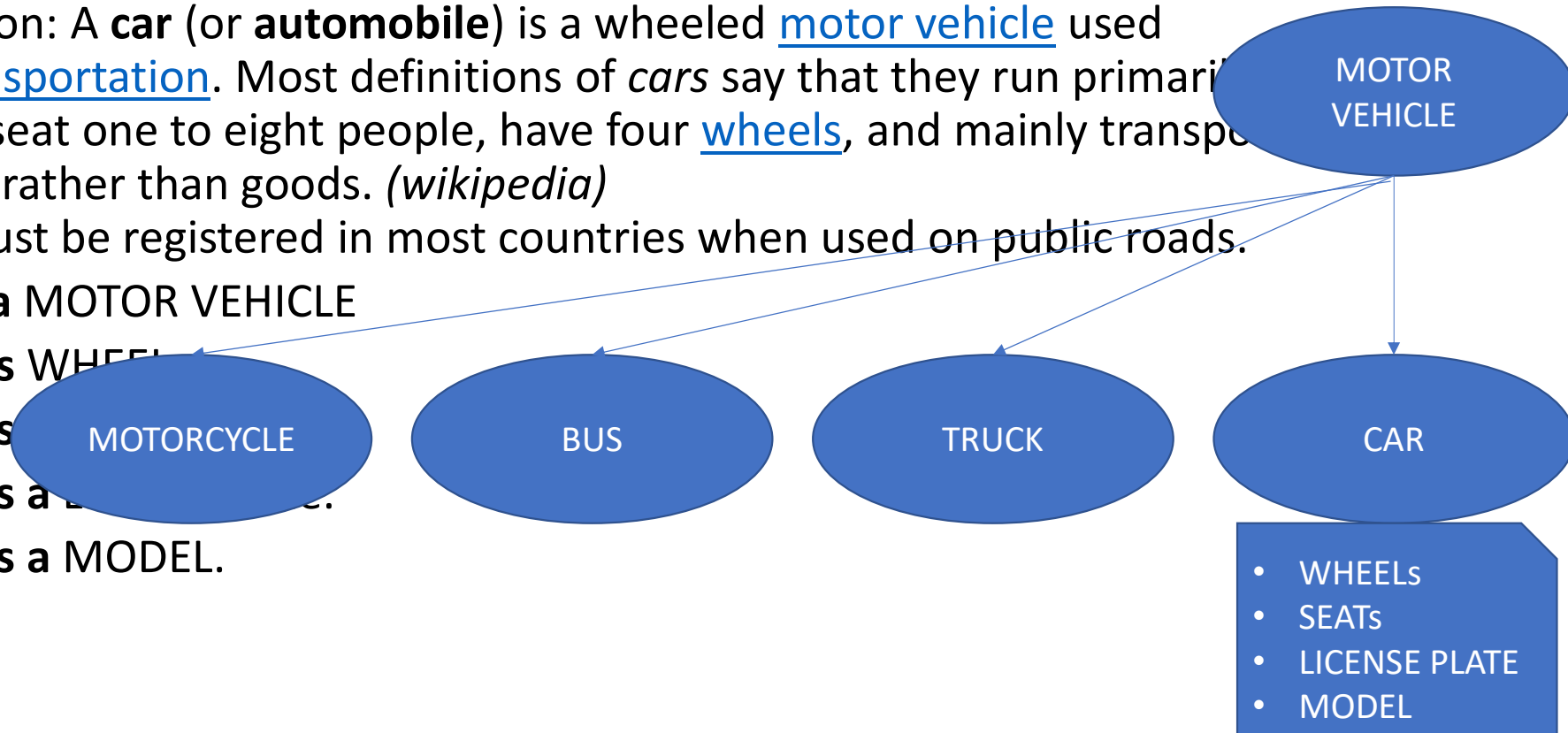
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Glossary

- CAR

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Cars must be registered in most countries when used on public roads.

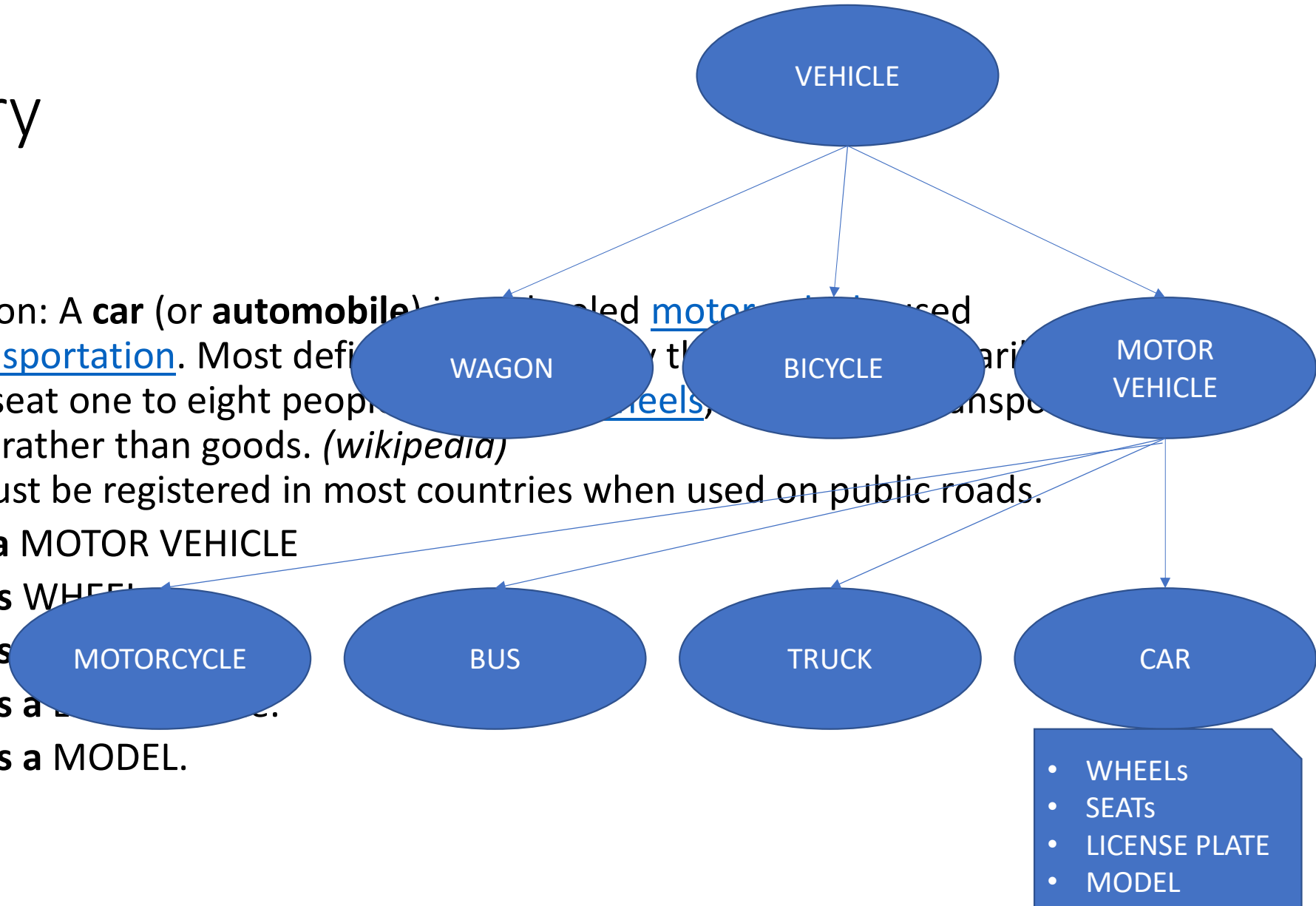
- CAR is a MOTOR VEHICLE

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Glossary in NeXus

- NXvehicle

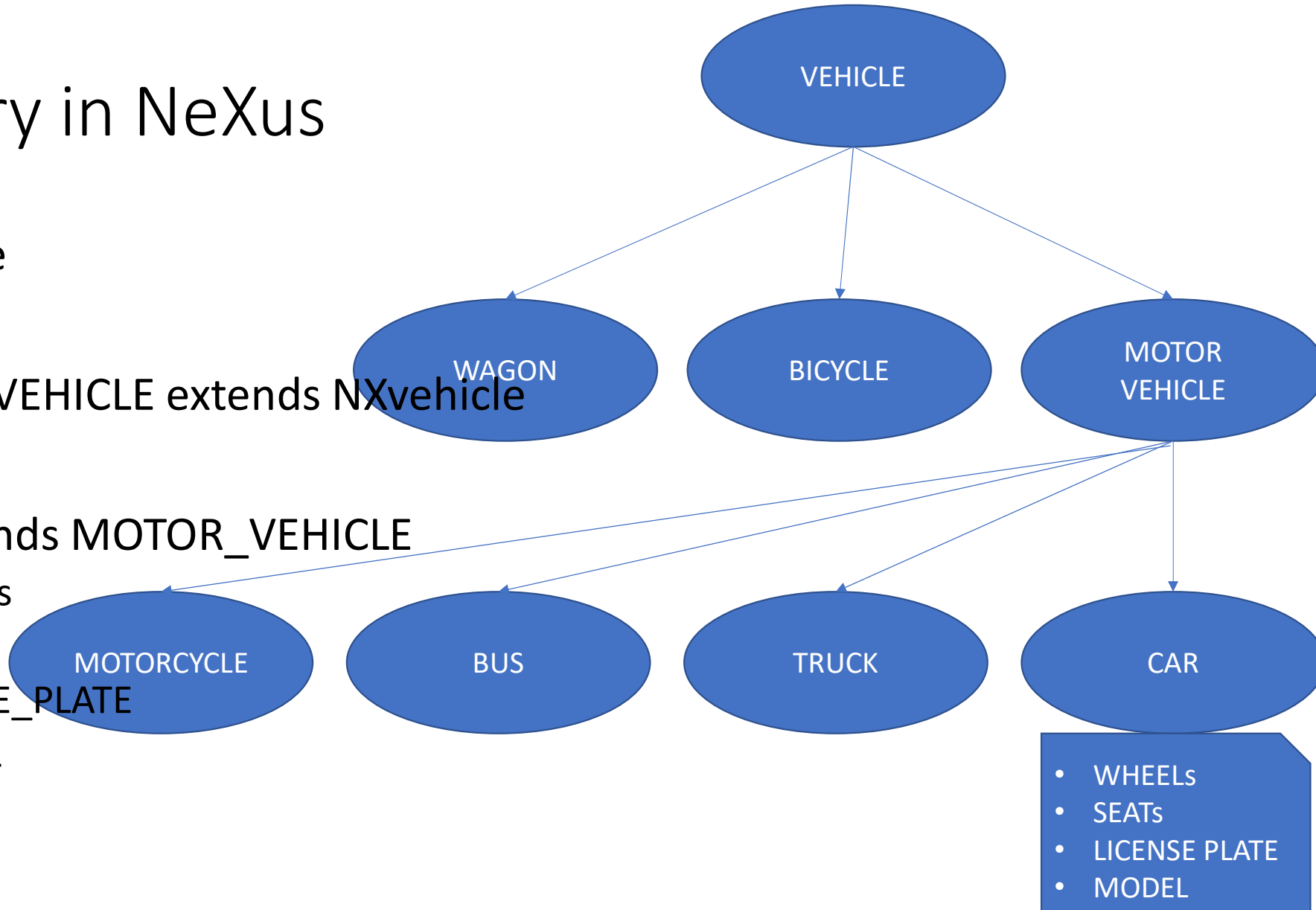
...

- MOTOR_VEHICLE extends NXvehicle

...

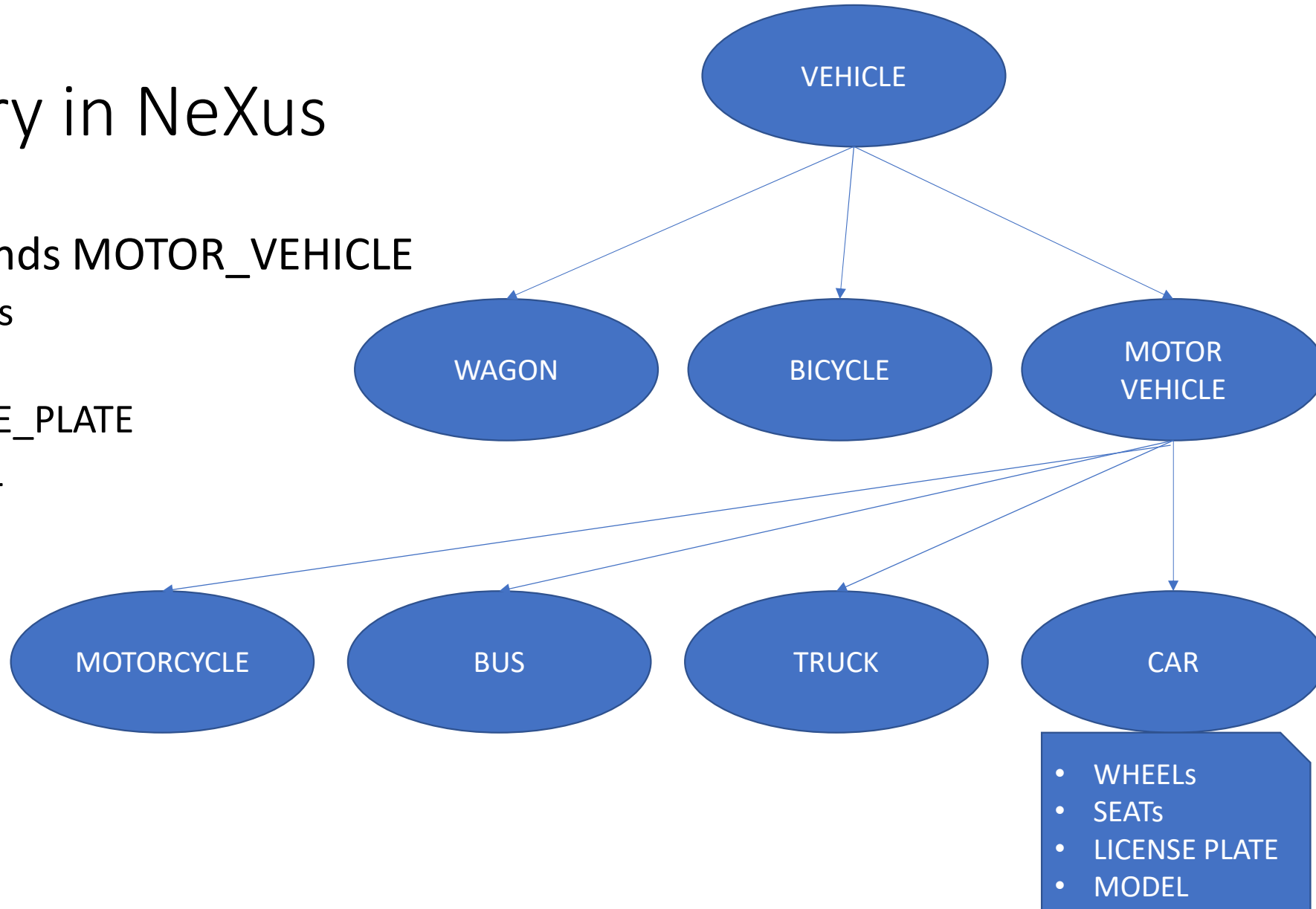
- CAR extends MOTOR_VEHICLE

- WHEELs
- SEATs
- LICENSE_PLATE
- MODEL



Glossary in NeXus

- CAR extends MOTOR_VEHICLE
 - WHEELS
 - SEATs
 - LICENSE_PLATE
 - MODEL

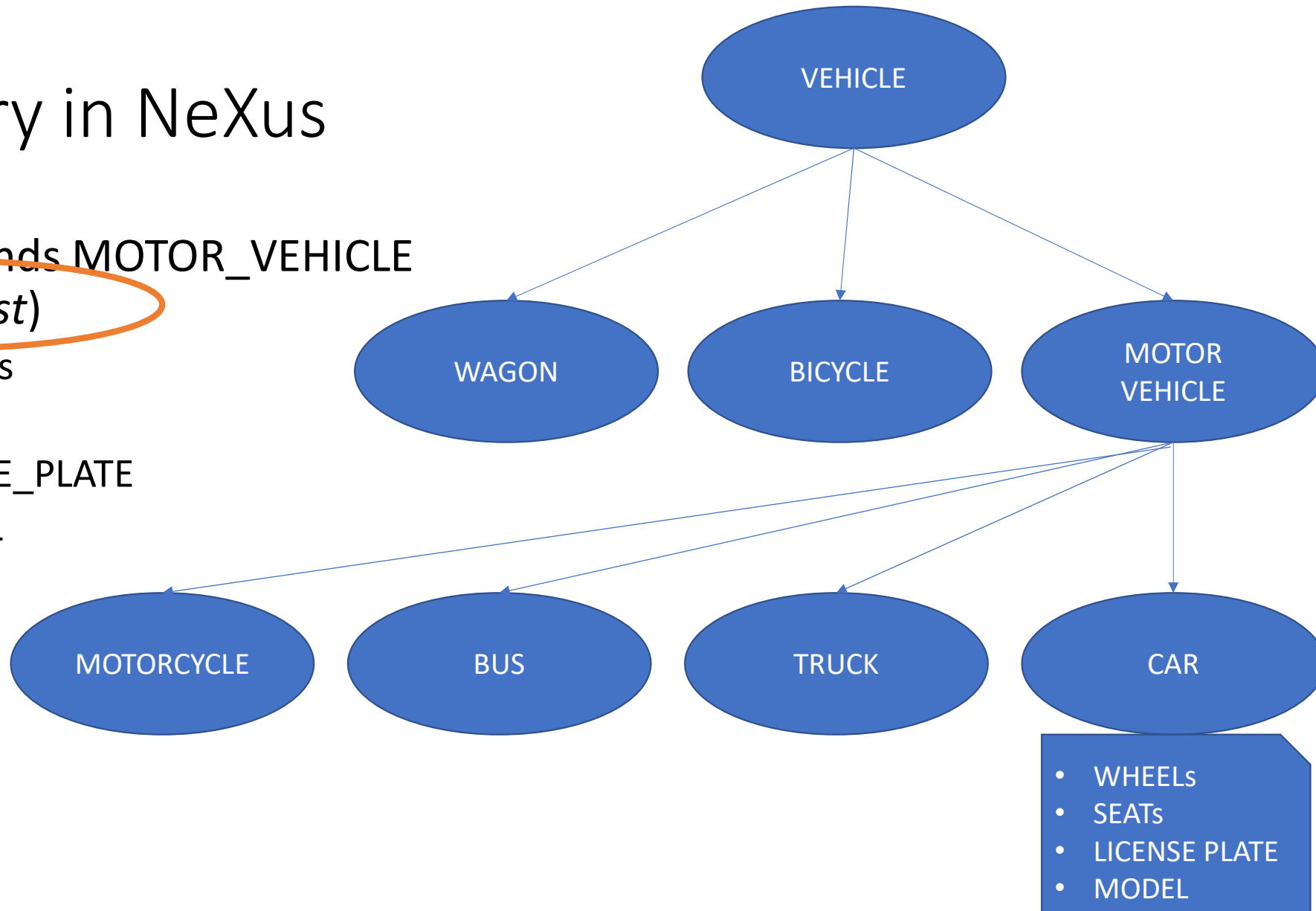


Glossary in NeXus

- CAR extends MOTOR_VEHICLE

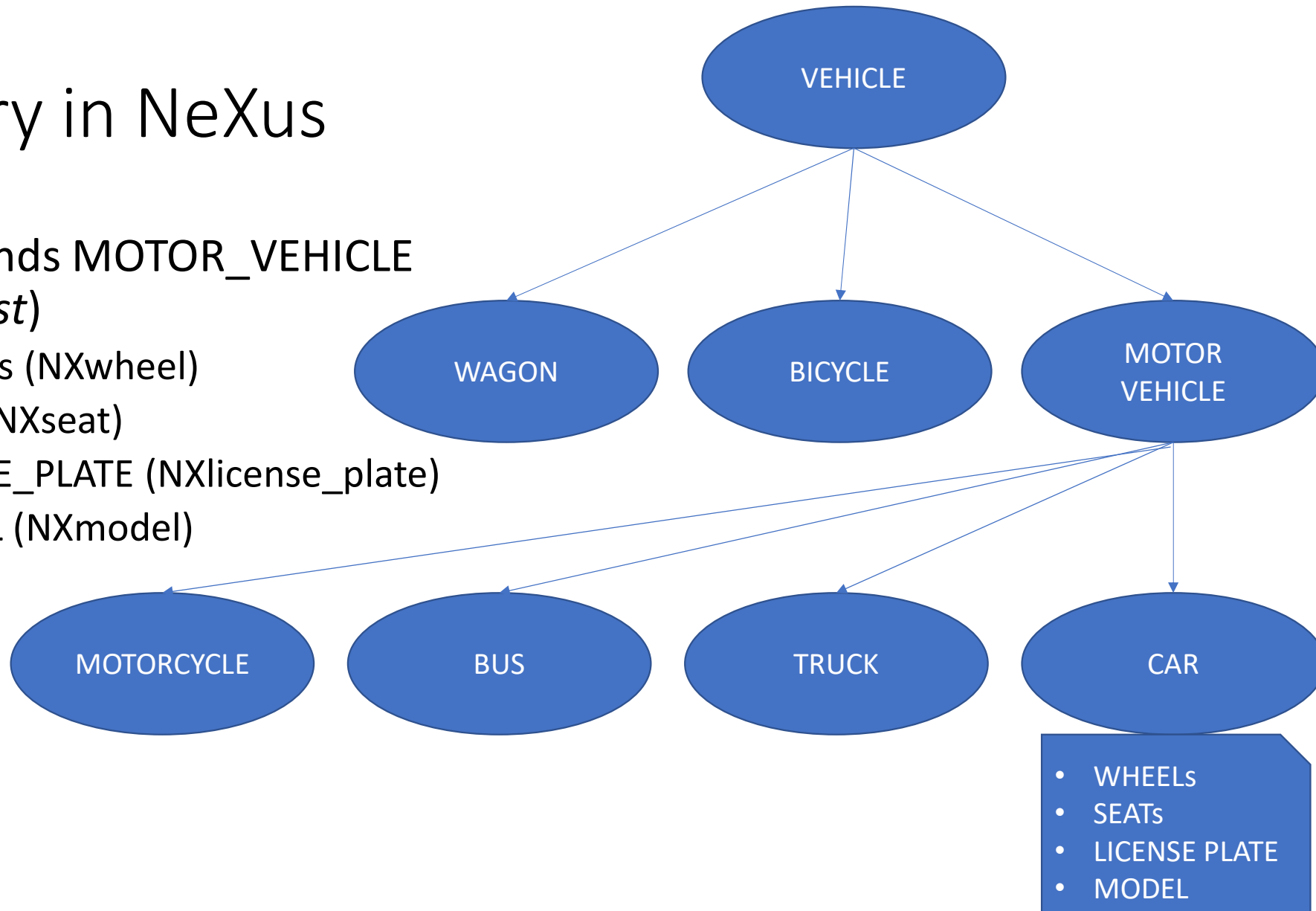
DOC (in *rst*)

- WHEELS
- SEATs
- LICENSE_PLATE
- MODEL



Glossary in NeXus

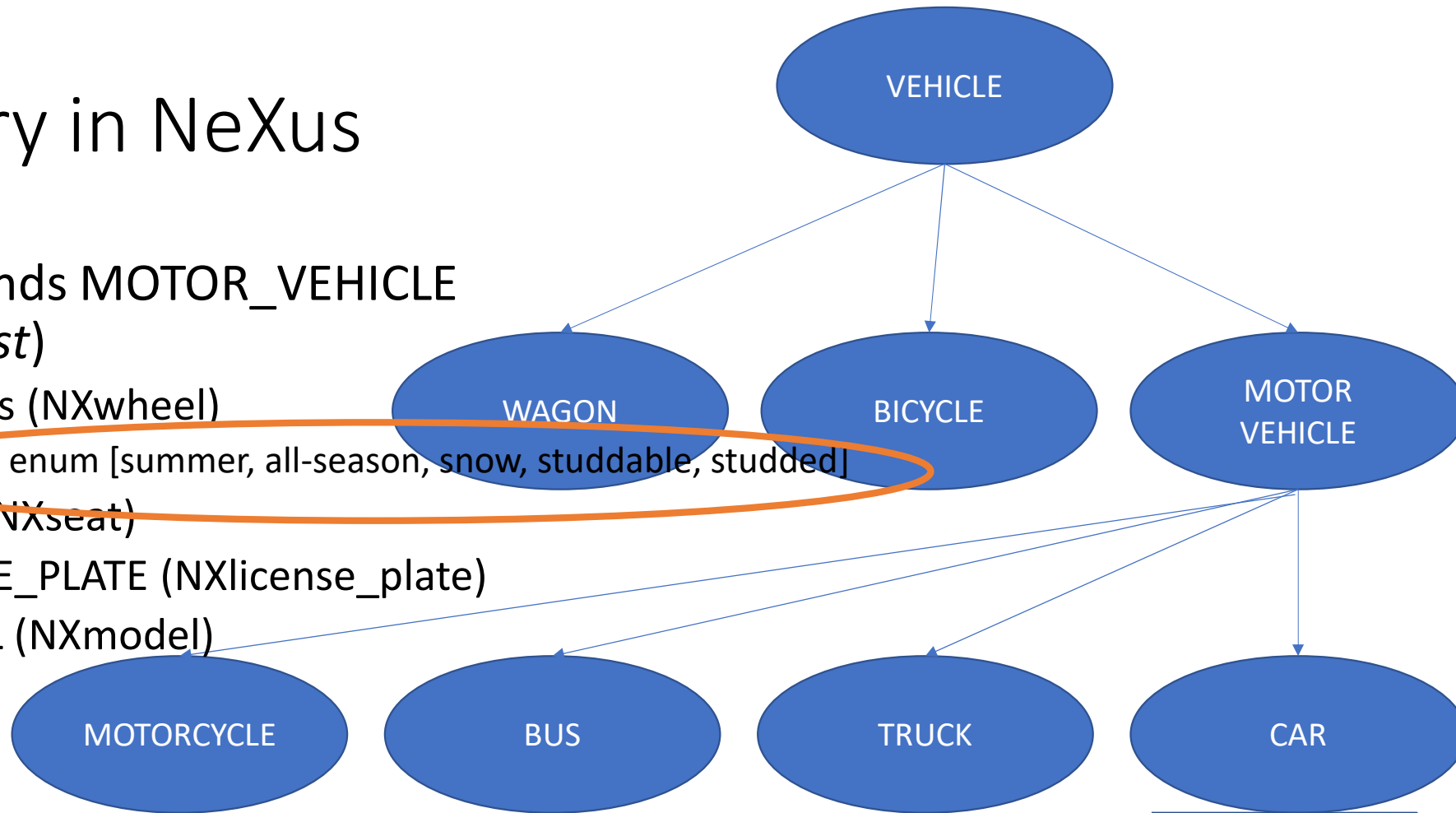
- CAR extends MOTOR_VEHICLE DOC (in *rst*)
 - WHEELs (NXwheel)
 - SEATs (NXseat)
 - LICENSE_PLATE (NXlicense_plate)
 - MODEL (NXmodel)



Glossary in NeXus

- CAR extends MOTOR_VEHICLE
DOC (in *rst*)

- WHEELs (NXwheel)
 - TIRE enum [summer, all-season, snow, studdable, studded]
- SEATs (NXseat)
- LICENSE_PLATE (NXlicense_plate)
- MODEL (NXmodel)

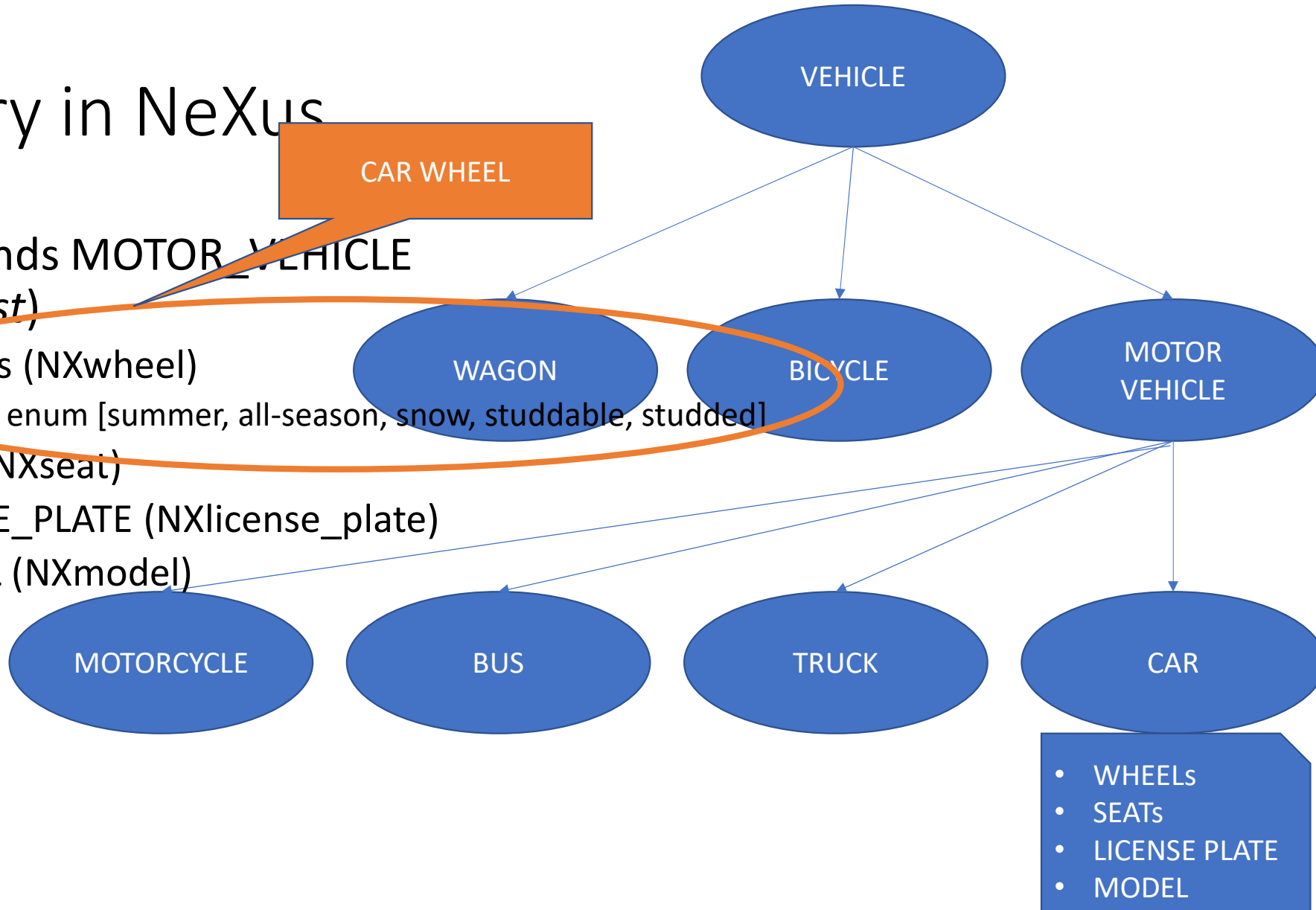


- WHEELs
- SEATs
- LICENSE PLATE
- MODEL

Glossary in NeXus

- CAR extends MOTOR_VEHICLE
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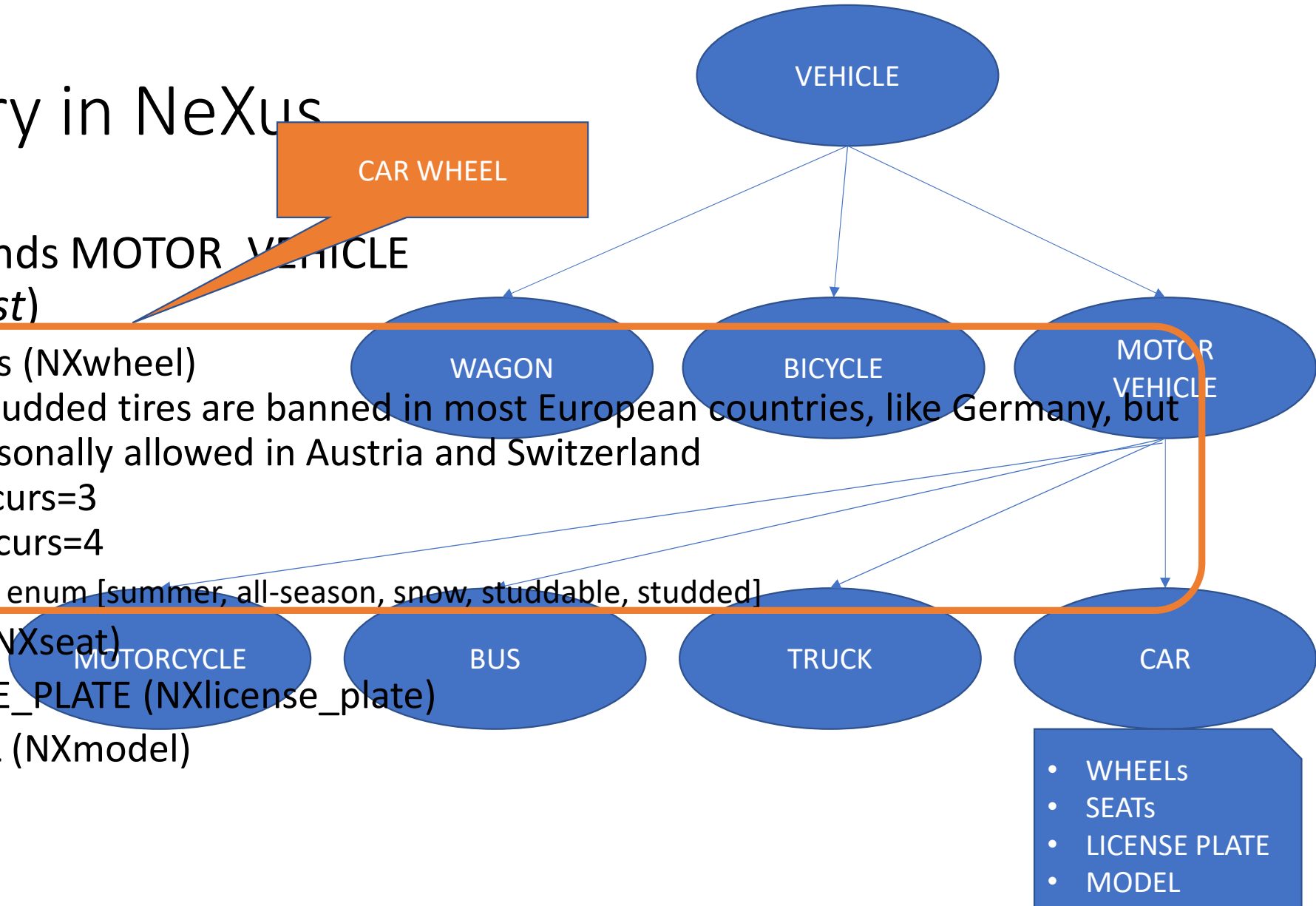


Glossary in NeXus

- CAR extends MOTOR_VEHICLE
DOC (in *rst*)

- WHEELs (NXwheel)
DOC: studded tires are banned in most European countries, like Germany, but are seasonally allowed in Austria and Switzerland
MinOccurs=3
MaxOccurs=4
 - TIRE enum [summer, all-season, snow, studdable, studded]

- SEATs (NXseat)
- LICENSE_PLATE (NXlicense_plate)
- MODEL (NXmodel)



Glossary in NeXus

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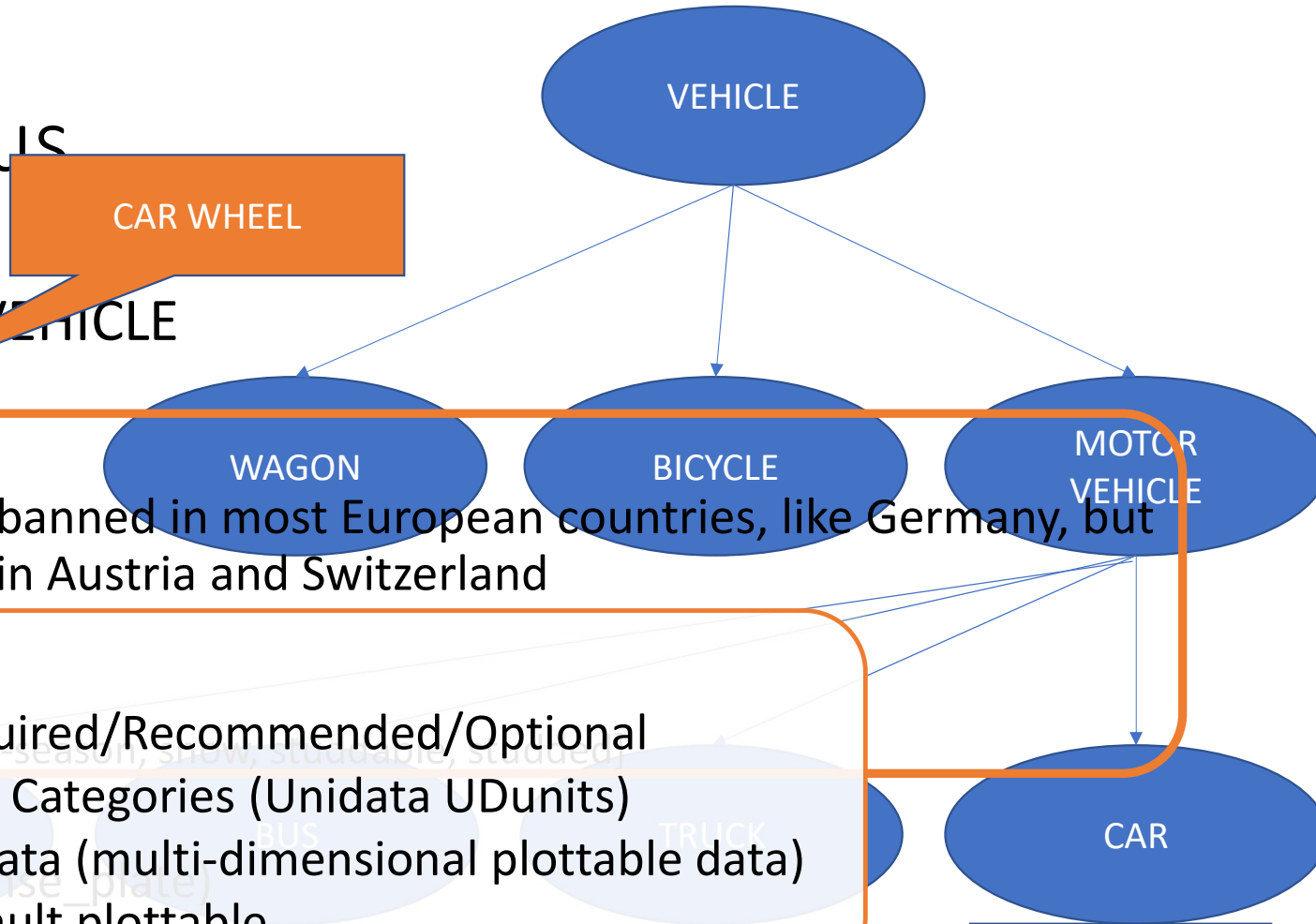
MinOccurs=3
MaxOccurs=4

- TIRE enum [summer, al_season, snow, studded]

- SEATs (NXseat)
- LICENSE_PLATE (NXlicense_plate)
- MODEL (NXmodel)

Also:

- Required/Recommended/Optional
- Unit Categories (Unidata UDunits)
- NXdata (multi-dimensional plottable data)
- Default plottable



- WHEELs
- SEATs
- LICENSE PLATE
- MODEL

Glossary in NeXus - NXarpes

ENTRY: (required) [NXentry](#)

- **title:** (required) [NX_CHAR](#)

- **start_time:** (required) [NX_DATE_TIME](#)

- **definition:** (required) [NX_CHAR](#)
Official NeXus NXDL schema to which this file conforms.
Obligatory value: **NXarpes**

- **INSTRUMENT:** (required) [NXinstrument](#)

- **SOURCE:** (required) [NXsource](#)

- **type:** (required) [NX_CHAR](#)

- **name:** (required) [NX_CHAR](#)

- **probe:** (required) [NX_CHAR](#)
Obligatory value: **x-ray**

- **monochromator:** (required) [NXmonochromator](#)

- **energy:** (required) [NX_NUMBER](#) {units=[NX_ENERGY](#)}

- **analyser:** (required) [NXdetector](#)

- **SAMPLE:** (required) [NXsample](#)

- **name:** (required) [NX_CHAR](#)
Descriptive name of sample

- **temperature:** (required) [NX_NUMBER](#) {units=[NX_TEMPERATURE](#)}

- **DATA:** (required) [NXdata](#)

NXarpes

Nxarpes INSTRUMENT

Nxarpes SAMPLE

Nxarpes DATA

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 - **temperature:** (required) [NX_NUMBER](#) {units=[NX_TEMPERATURE](#)}
- **DATA:** (required) [NXdata](#)

Nxarpes INSTRUMENT
ANALYSER

- **analyser:** (required) [NXdetector](#)
 - **data:** (required) [NX_NUMBER](#)
 - **lens_mode:** (required) [NX_CHAR](#)
setting for the electron analyser lens
 - **acquisition_mode:** (required) [NX_CHAR](#)
Any of these values: **swept** | **fixed**
 - **entrance_slit_shape:** (required) [NX_CHAR](#)
Any of these values: **curved** | **straight**
 - **entrance_slit_setting:** (required) [NX_NUMBER](#) {units=[NX_ANY](#)}
dial setting of the entrance slit
 - **entrance_slit_size:** (required) [NX_CHAR](#) {units=[NX_LENGTH](#)}
size of the entrance slit
 - **pass_energy:** (required) [NX_CHAR](#) {units=[NX_ENERGY](#)}
energy of the electrons on the mean path of the analyser
 - **time_per_channel:** (required) [NX_CHAR](#) {units=[NX_TIME](#)}
todo: define more clearly
 - **angles:** (required) [NX_NUMBER](#) {units=[NX_ANGLE](#)}
Angular axis of the analyser data which dimension the axis applies to is defined using the normal NXdata methods.
 - **energies:** (required) [NX_NUMBER](#) {units=[NX_ENERGY](#)}
Energy axis of the analyser data which dimension the axis applies to is defined using the normal NXdata methods.
 - **sensor_size[2]:** (required) [NX_INT](#)
number of raw active elements in each dimension
 - **region_origin[2]:** (required) [NX_INT](#)
origin of rectangular region selected for readout
 - **region_size[2]:** (required) [NX_INT](#)
size of rectangular region selected for readout

Ontology relationships in NeXus - NXarpes

ENTRY: (required) [NXentry](#)

- **title:** (required) [NX_CHAR](#)

- **start_time:** (required) [NX_DATE_TIME](#)

- **definition:** (required) [NX_CHAR](#)

Official NeXus NXDL schema to which this file conforms.
Obligatory value: **NXarpes**

- **INSTRUMENT:** (required) [NXinstrument](#)

- **SOURCE:** (required) [NXsource](#)

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- **name:** (required) [NX_CHAR](#)

- **probe:** (required) [NX_CHAR](#)
Obligatory value: **x-ray**

- **monochromator:** (required) [NXmonochromator](#)

- **energy:** (required) [NX_NUMBER](#) {units=[NX_ENERGY](#)}

- **analyser:** (required) [NXdetector](#)

- **SAMPLE:** (required) [NXsample](#)

- **name:** (required) [NX_CHAR](#)
Descriptive name of sample

- **temperature:** (required) [NX_NUMBER](#) {units=[NX_TEMPERATURE](#)}

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setting for the electron analyser lens

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Any of these values: **curved** | **straight**

- **entrance_slit_setting:** (required) [NX_NUMBER](#) {units=[NX_ANY](#)}
dial setting of the entrance slit

Nxarpes INSTRUMENT
ANALYSER

... IS A ...

NXdetector_module IS A NXobject (extends=)
NXentry/NXinstrument IS A NXinstrument (type=)

but also

NXdet/det_mod/fast_pixel IS A NXdet_mod/fast_pixel

defined using the normal NXdata methods.

... HAS A / HAS SEVERAL ... (min/maxOccurs=)

NXdet/det_mod HAS A NXdet/det_mod/fast_pixel

size of rectangular region selected for readout

... MAY CONTAIN ... (optional=)

NXdet_mod MAY CONTAIN NXdet_mod/fast_pixel