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  - Using StructObject to solve a structural FE-Problem, the first application using FELyX
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  - Read own input-files using the boost::spirit library
- Session 4 / 5
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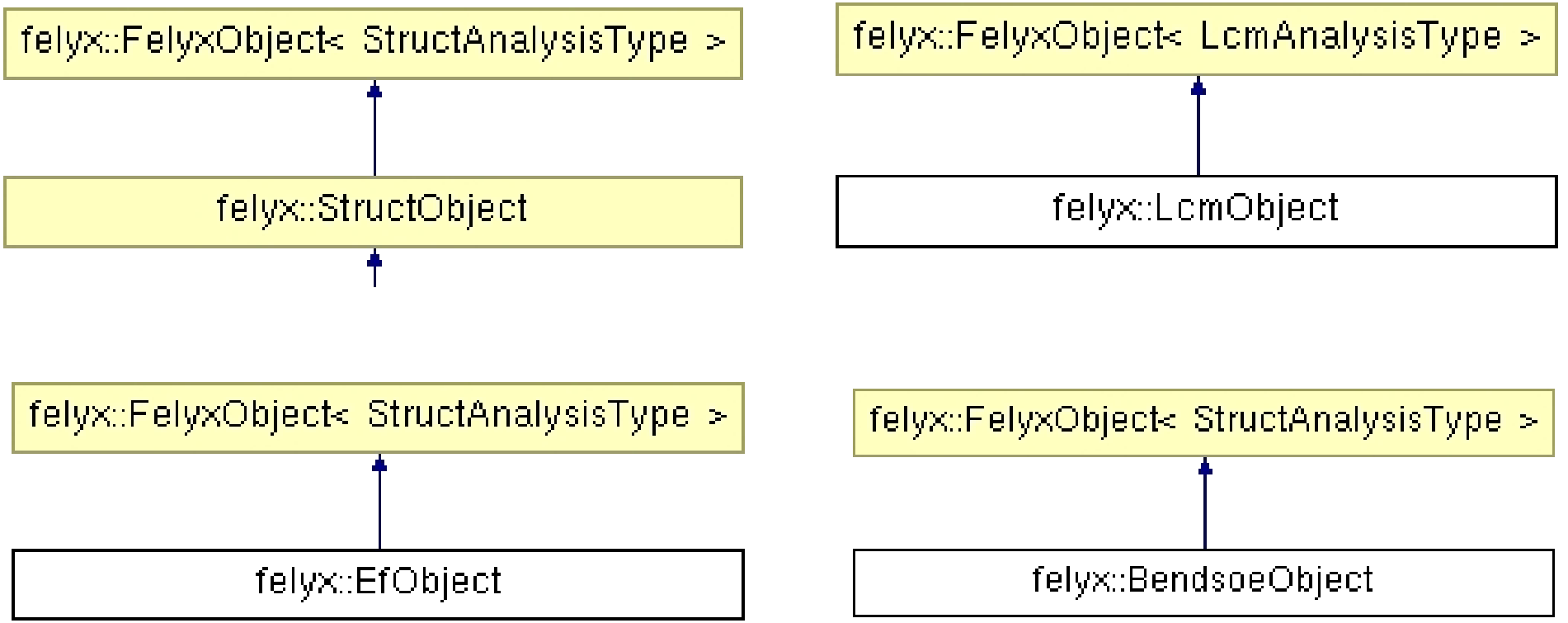
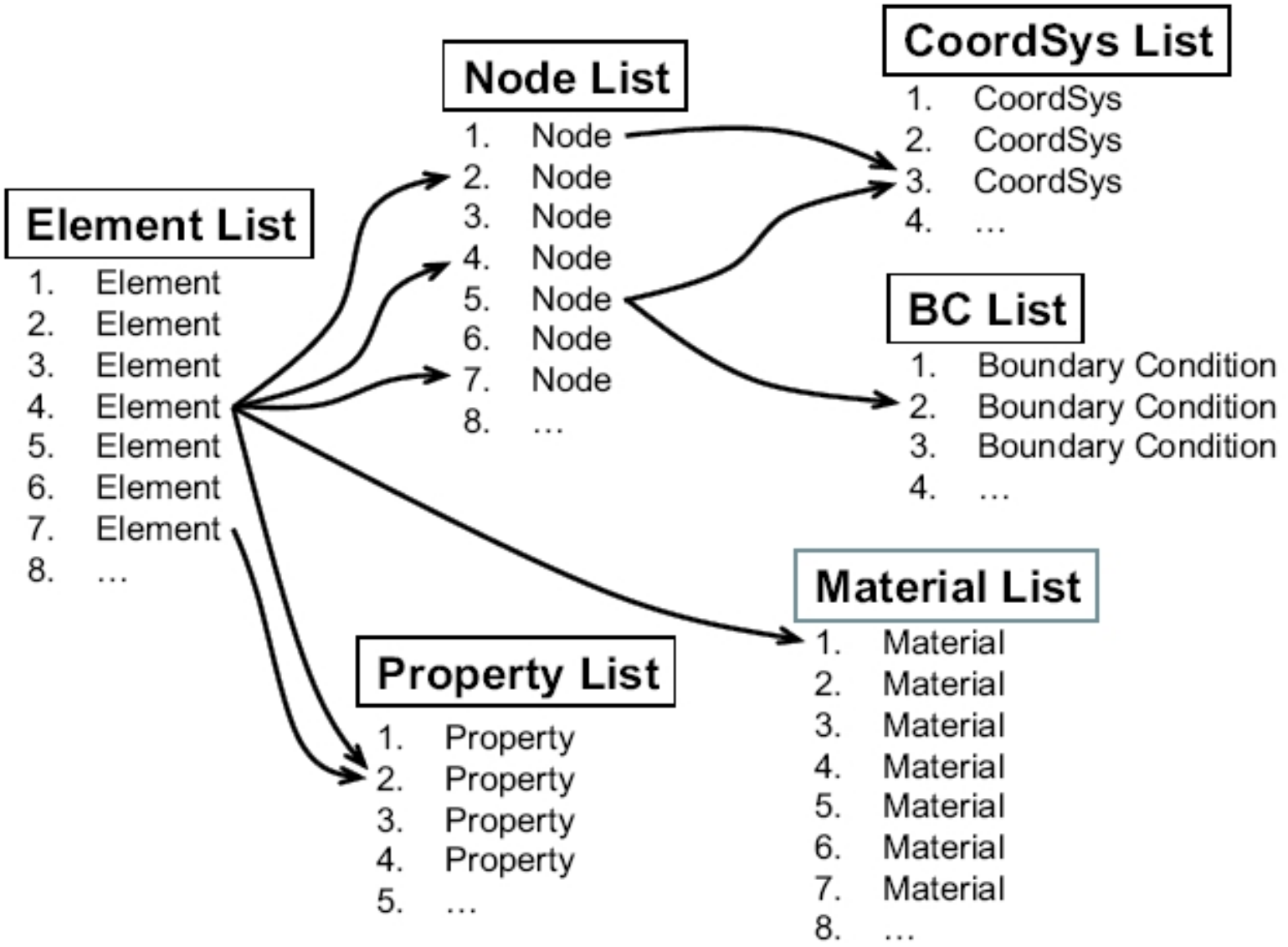
  - Discuss defined problems

Session 2:
Handling different physical disciplines in FELyX

- Implemented as derived FELyX objects
- Parameterized by a AnalysisType class

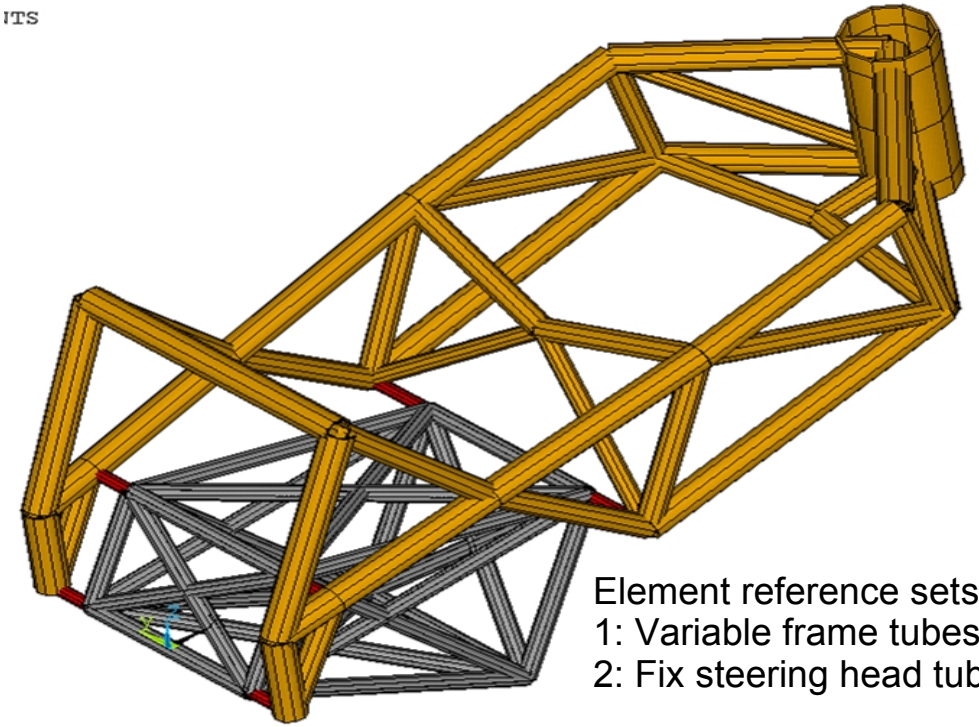


Session 2:
Organization Finite Element entities in FELyX



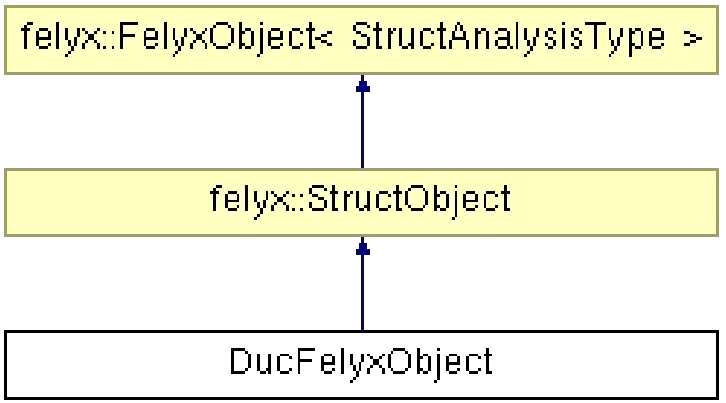
Session 2:
Implementation of a derived StructObject for the analysis of a ducati frame

- Tasks:
  - Implement a custom FELyX object to analyze the ducati frame
  - Eval mass of frame
  - Vary tube dimensions of frame (PropertySets 0-14)
  - Evaluate maximum stress in frame for a braking loadcase
  - Evaluate torsion stiffness of frame

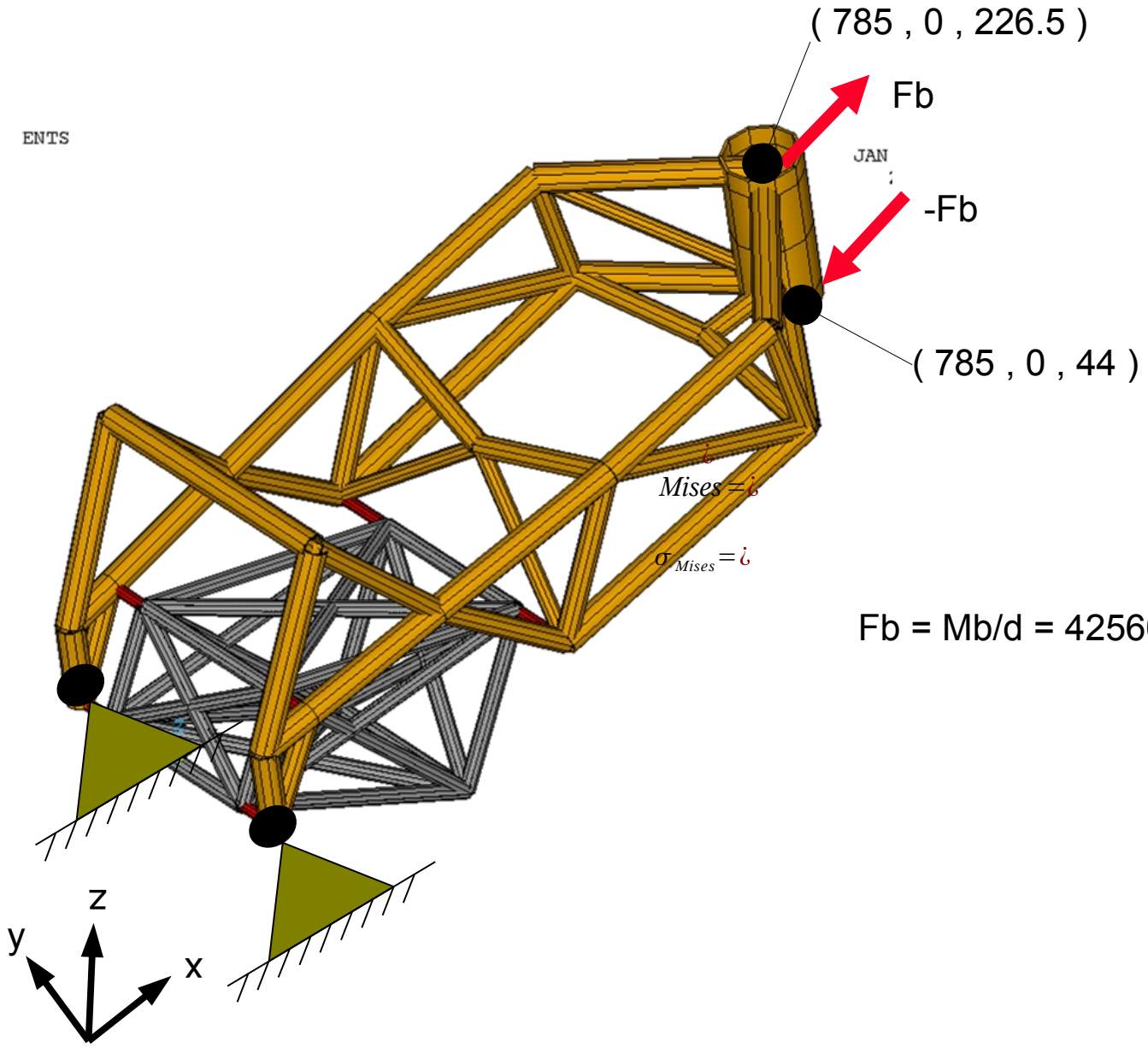


Element reference sets:
1: Variable frame tubes
2: Fix steering head tubes

Key values of original frame:
Weight = 7.4 kg
Torsion stiffness = 1310 Nm / degree
Max. stress for braking = 450 N/mm2

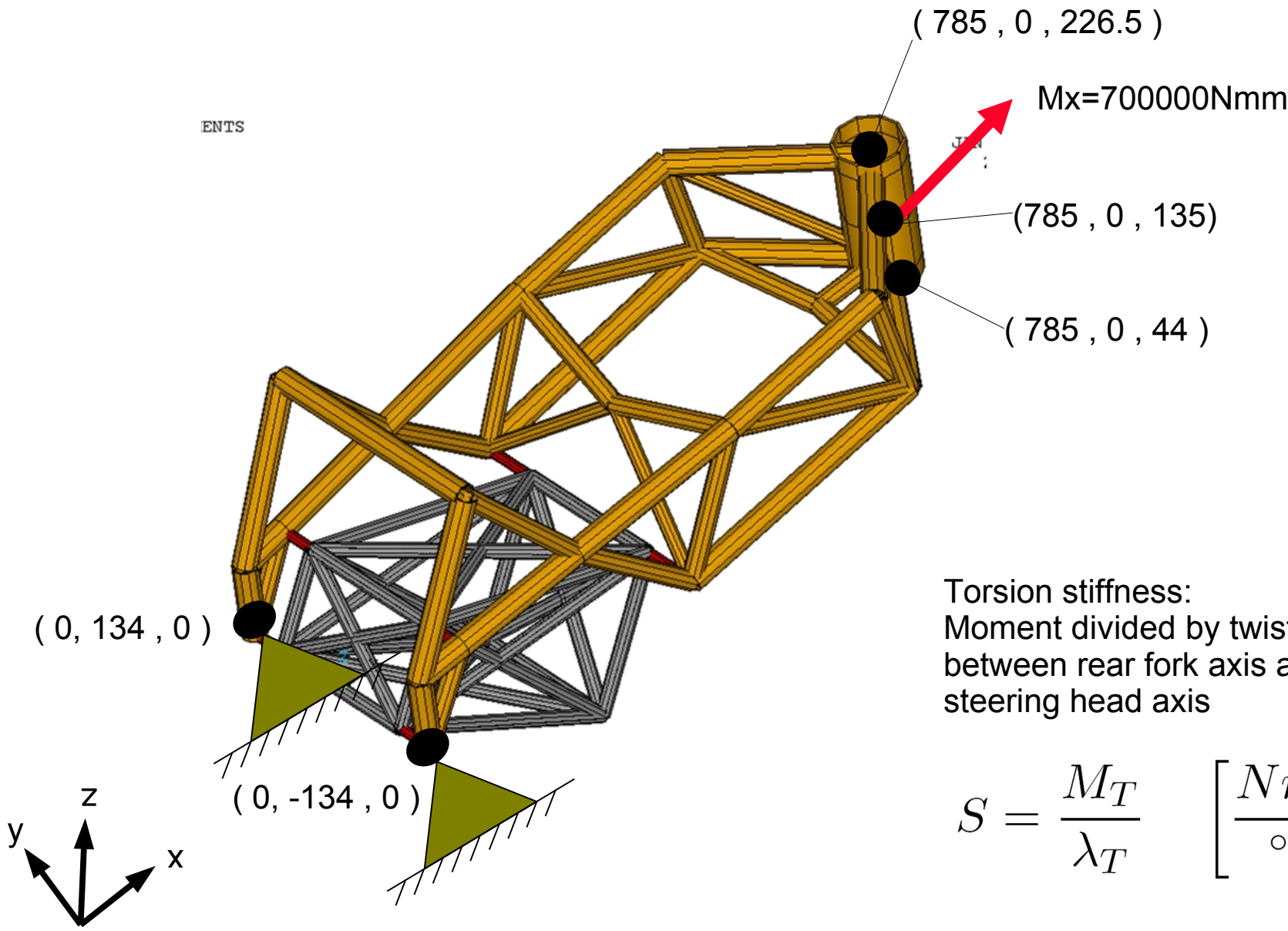


Session 2:
Definition of braking loadcase



Fb = Mb/d = 4256000 Nmm / 182.5 mm

Session 2:
Definition of torsion loadcase / stiffness



Torsion stiffness:
Moment divided by twist angle between rear fork axis and steering head axis

$$S = \frac{M_T}{\lambda_T} \qquad \left[\frac{Nm}{\circ}\right]$$