Injection Molded Plastics Products Modeling Techniques

Héctor J. Barea
Sr. Product Designer
Tupperware Brands Corp. (www.tupperware.com)
hectorbarea@tupperware.com
407-826-4517

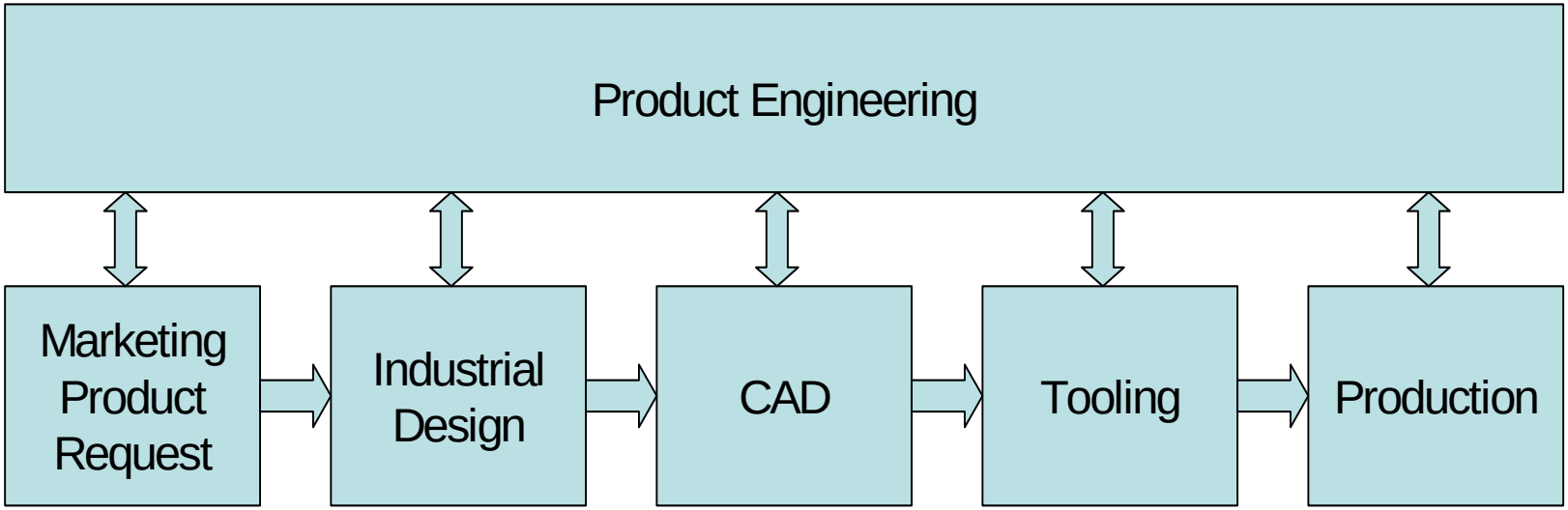
Premium Partners:

Tupperware Brands Corp.

Company Profile

- $1.8 billion multinational company
- Sales in over 100 countries
- 1.9 million sales consultants worldwide
- Tupperware stock is listed on the New York Stock Exchange (NYSE: TUP)
- First Tupperware products were manufactured by Earl Tupper around 1946
- Tupperware started using McAuto (from McDonnell Douglas Automation Company) Unigraphics II V4 in the early eighties
- Tupperware currently use NX3

Typical Product Development Process



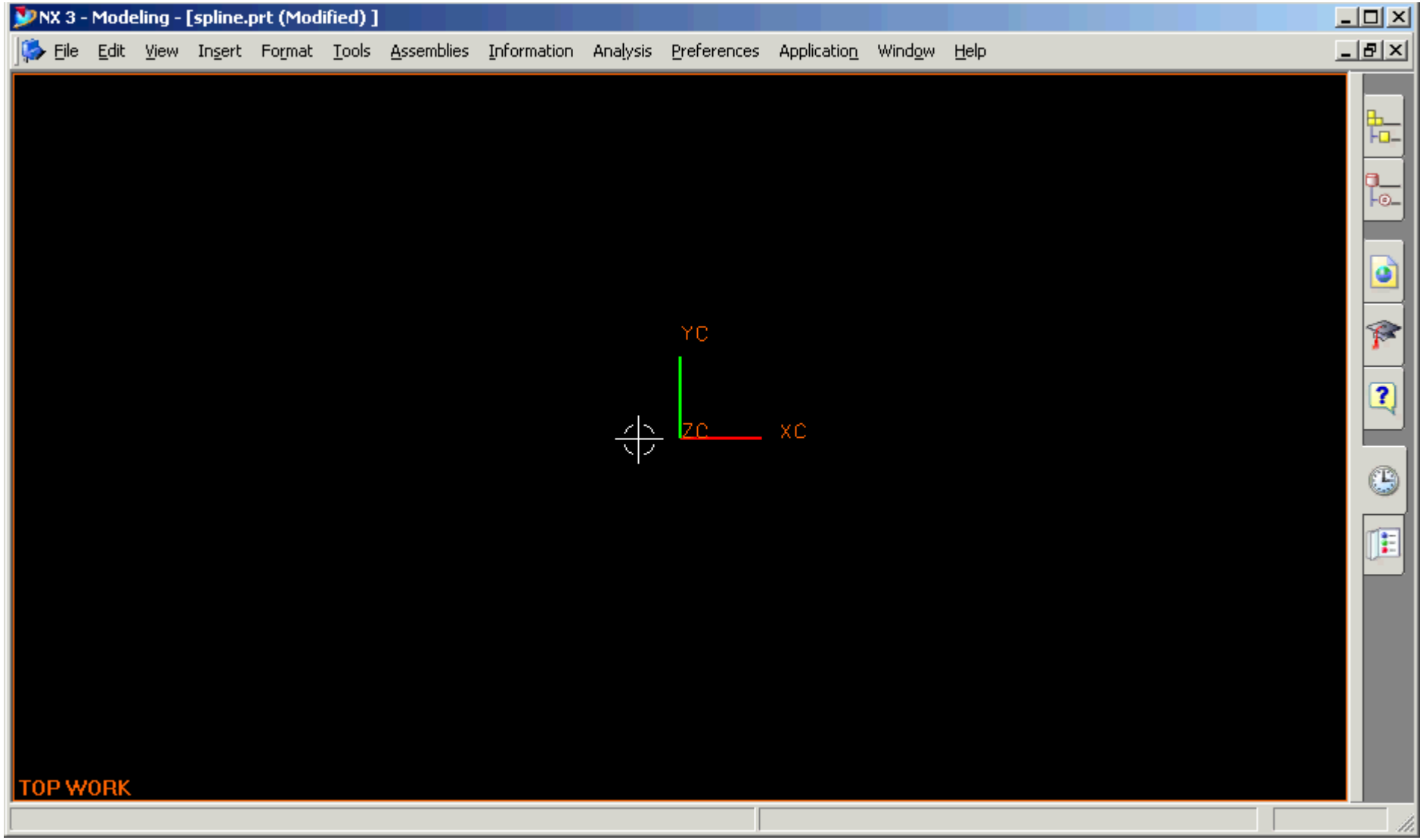
Modeling Considerations

- Material
- Direction of draw
- Minimum draft
- Tooling
- Design intent
- Parting line
- Model a part so it can be manufactured; do not model a part and then try to find out if it can be manufactured

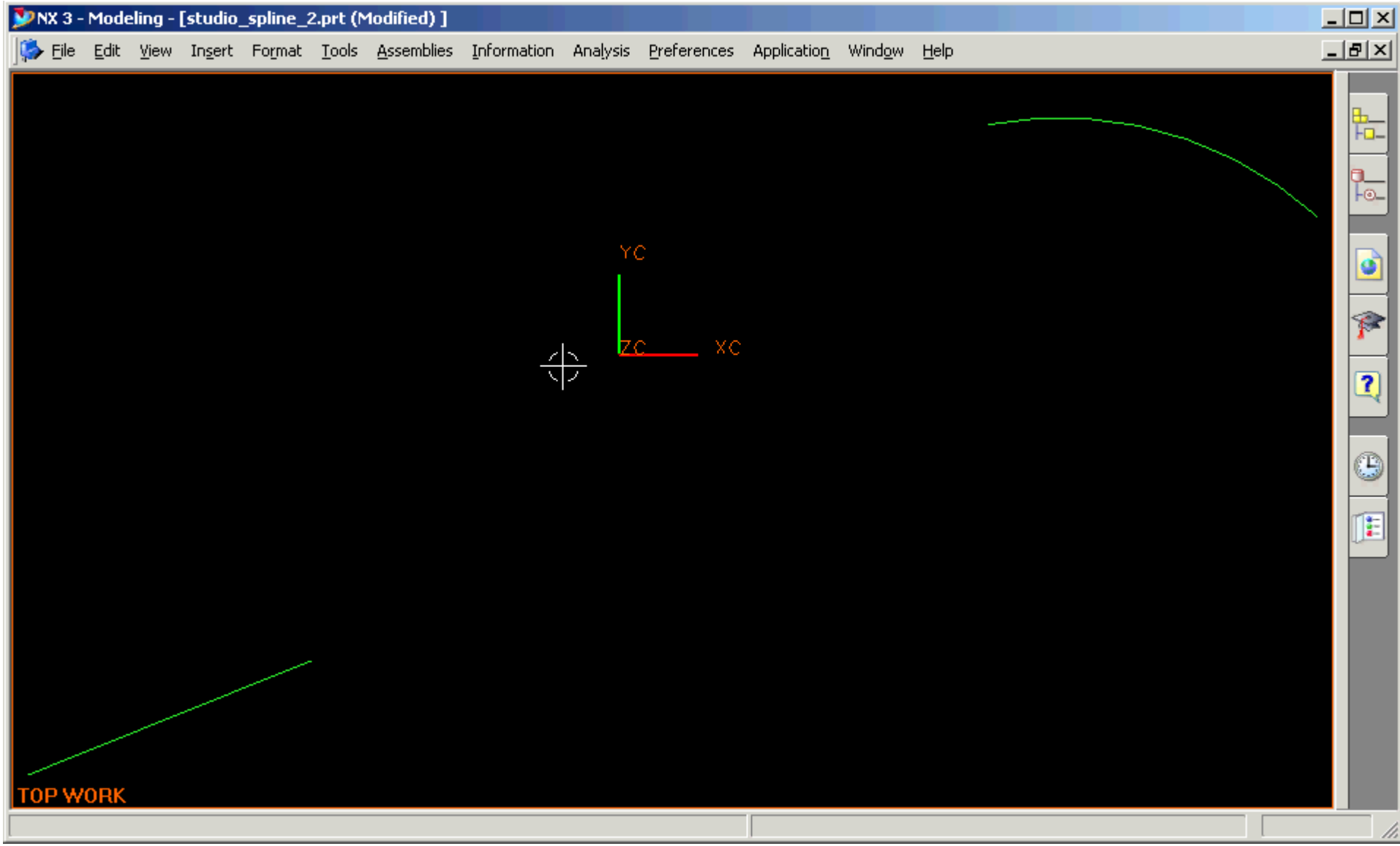
Modeling Good Practices

- Make a plan
- Document your design intent
- Avoid unnecessary parent child relationships
- Make models that can be edited easily
- Consider possible design intent changes

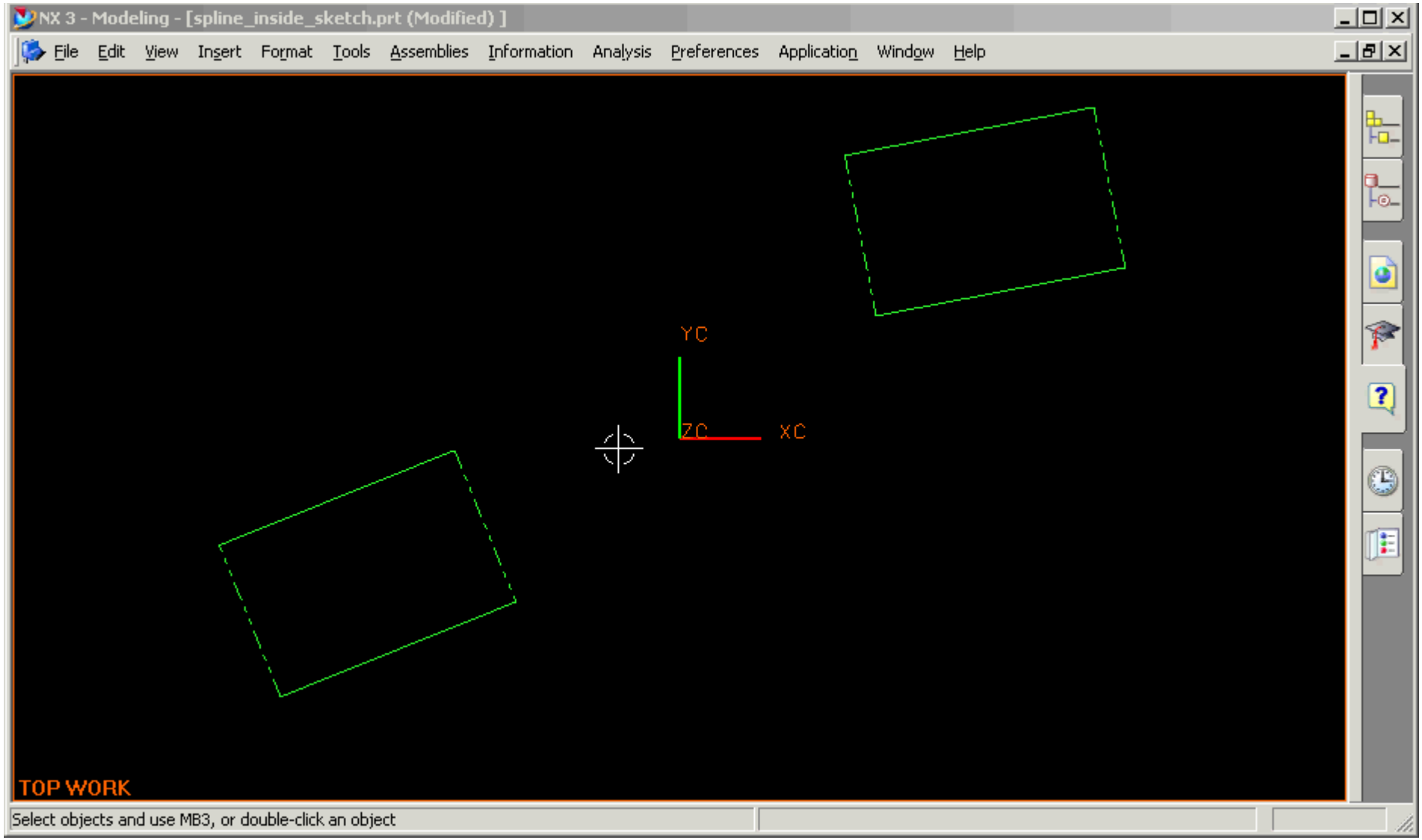
Spline


NX 3 - Modeling - [spline.prt (Modified)]
File Edit View Insert Format Tools Assemblies Information Analysis Preferences Application Window Help
YC
ZC
XC
TOP WORK

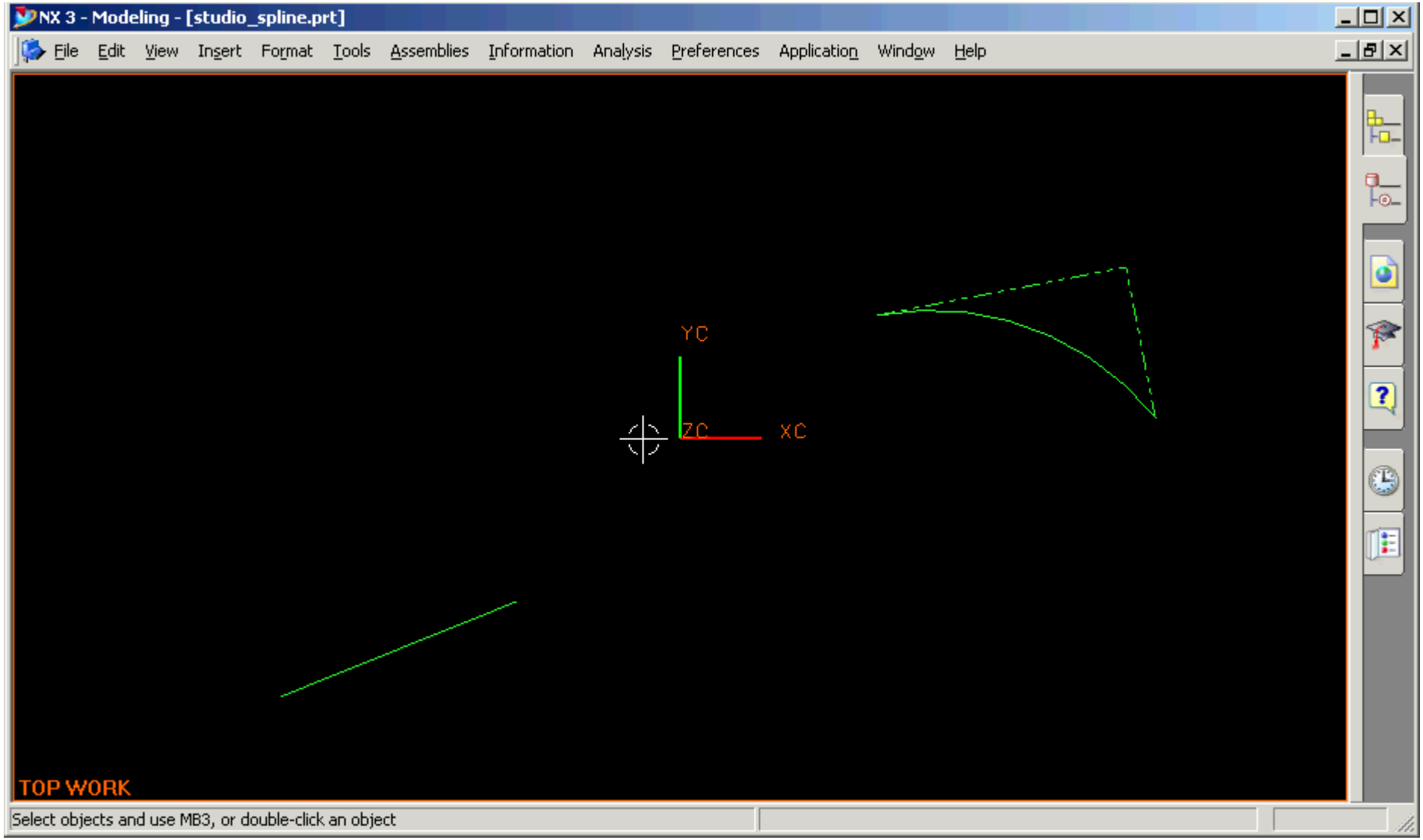
Studio Spline



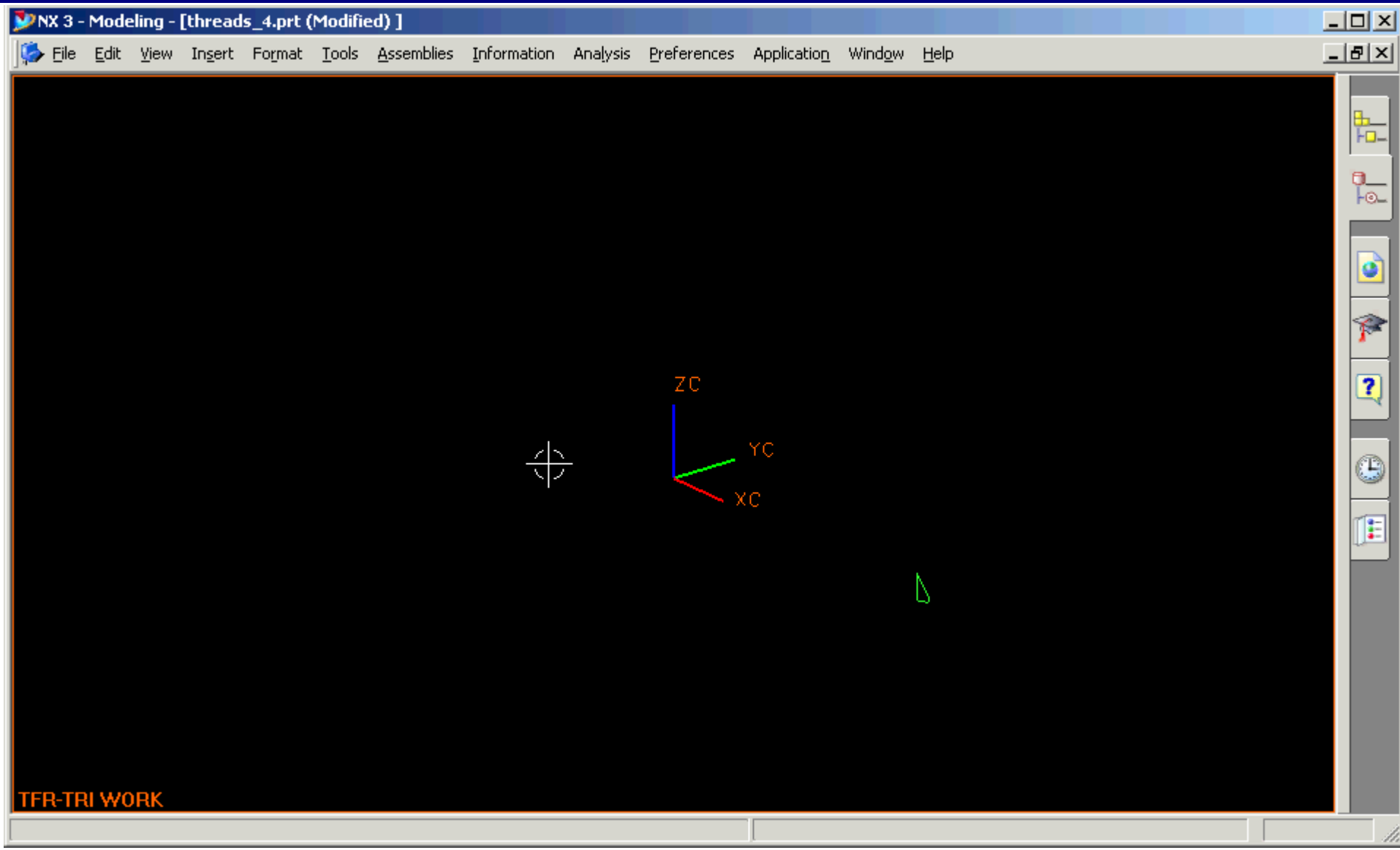
Splines inside a Sketch



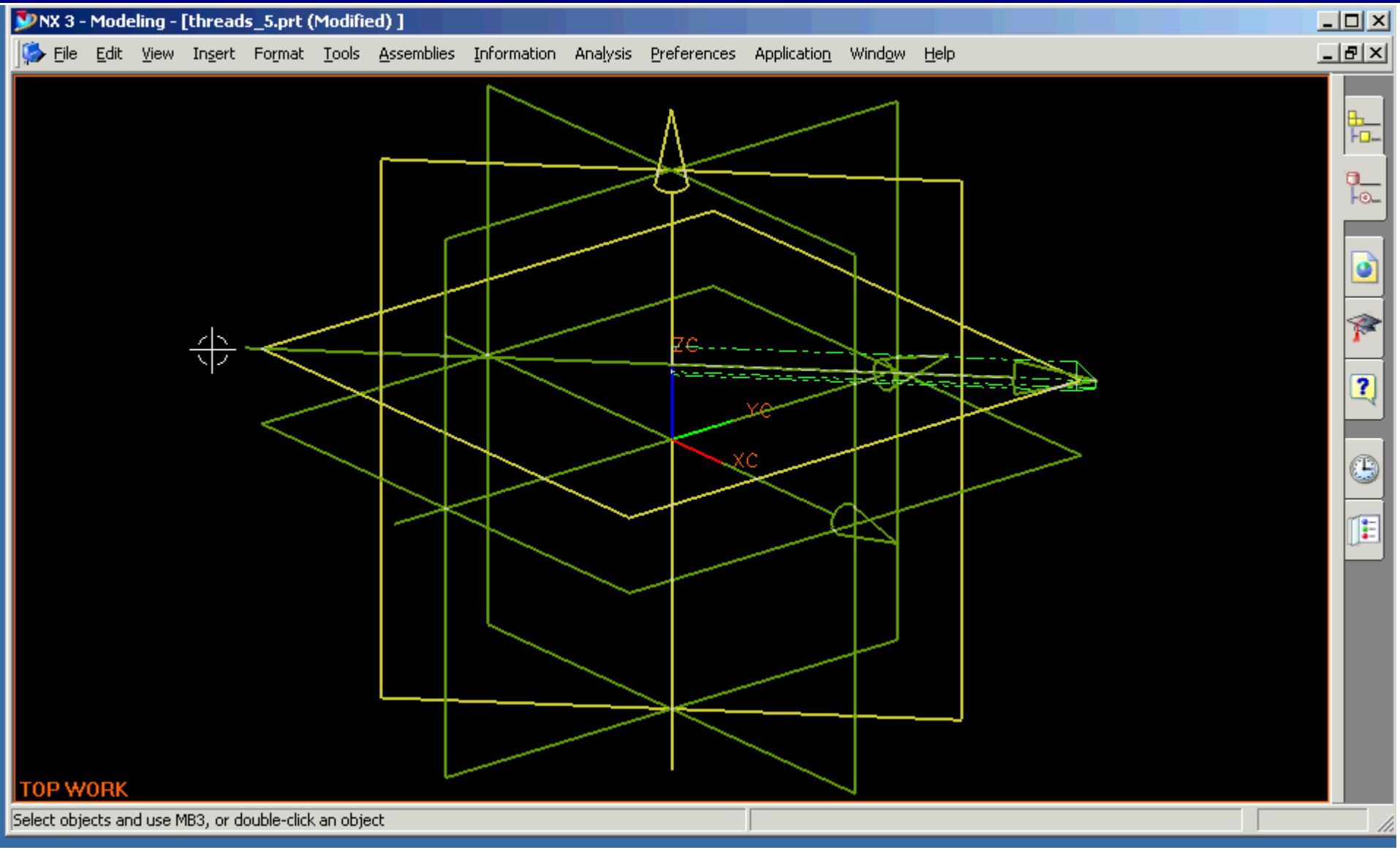
Studio Spline Skeleton Technique



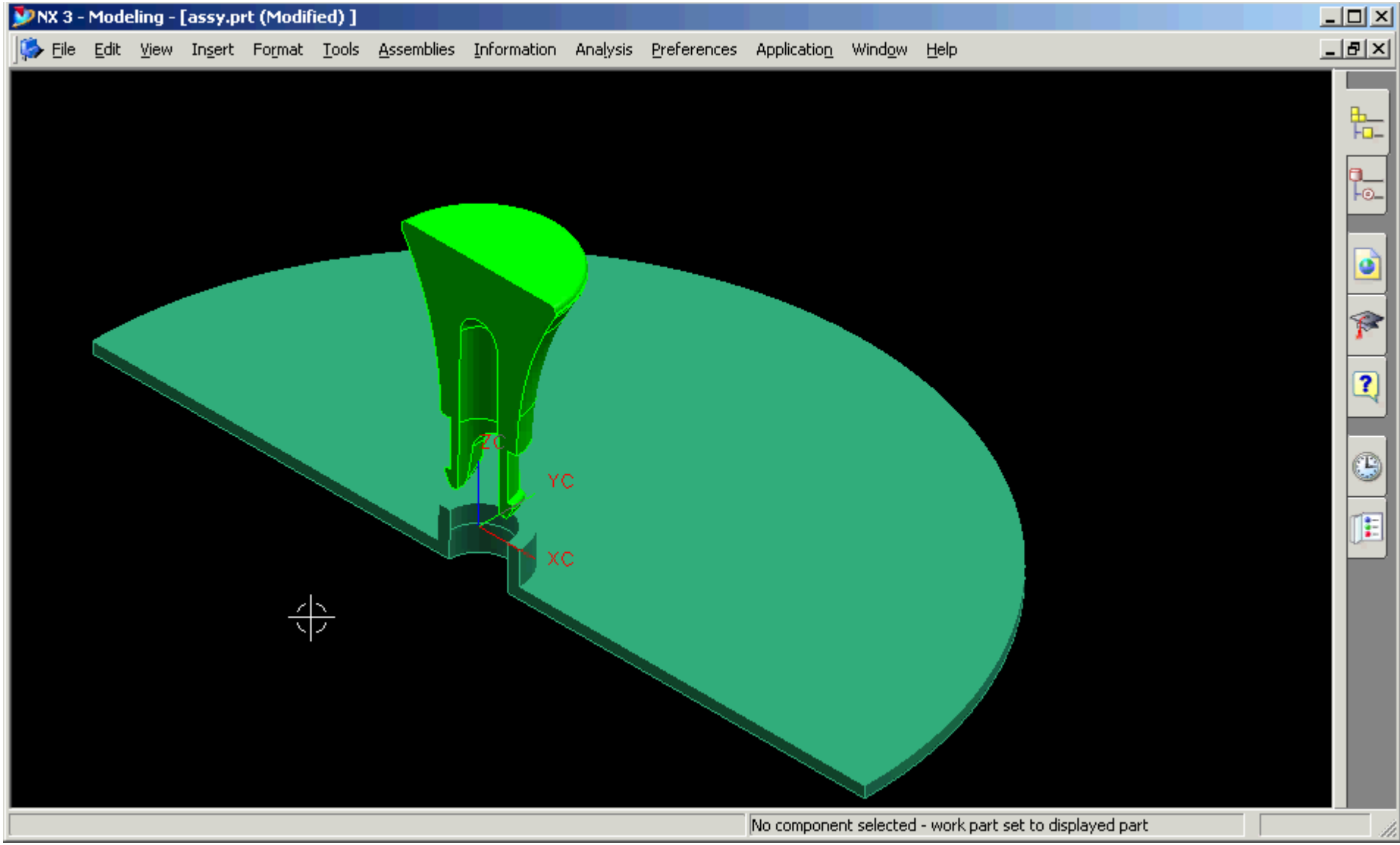
Law Curves by Equation
Thread Example



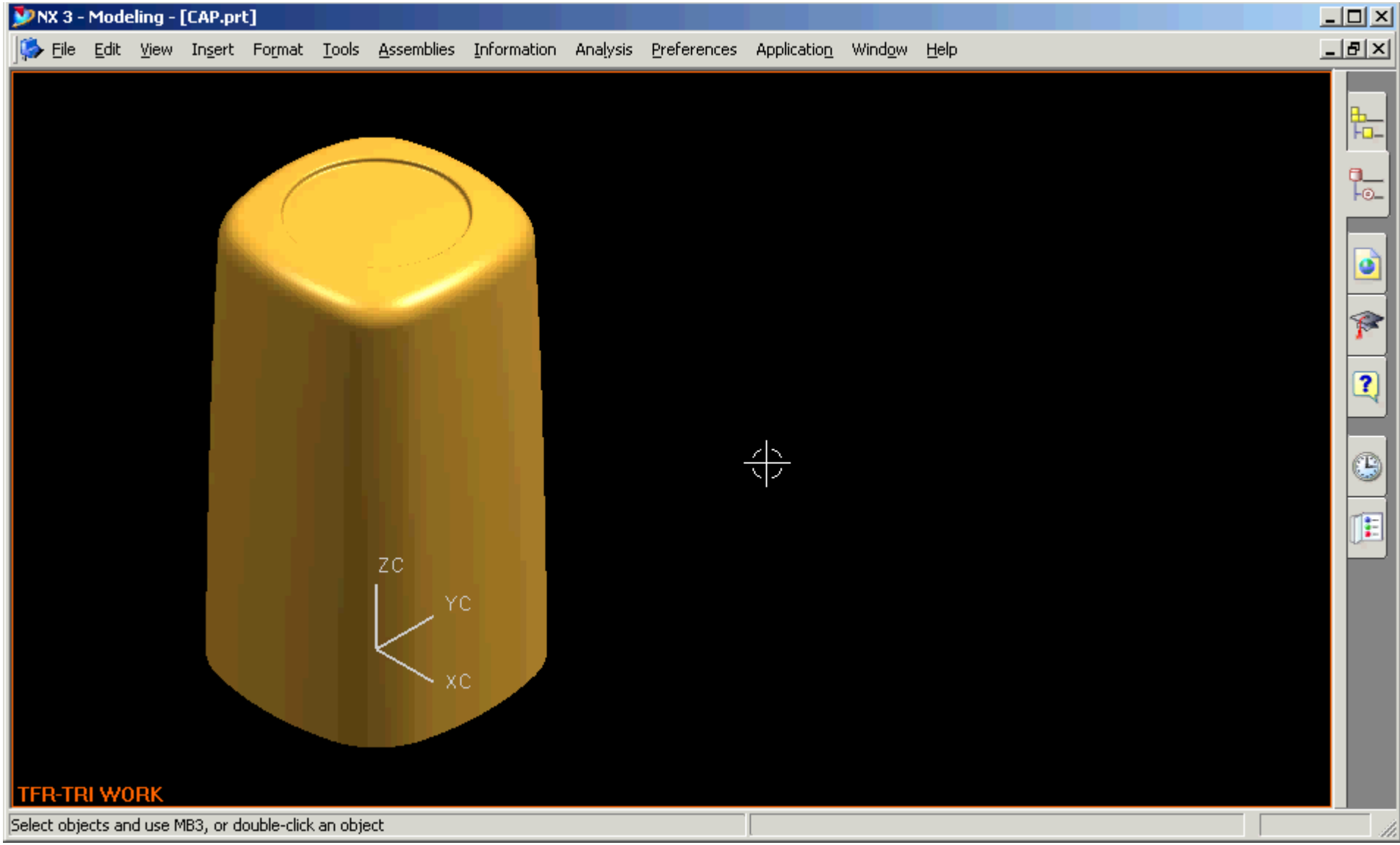
Law Curves by Equation
Thread Example 2



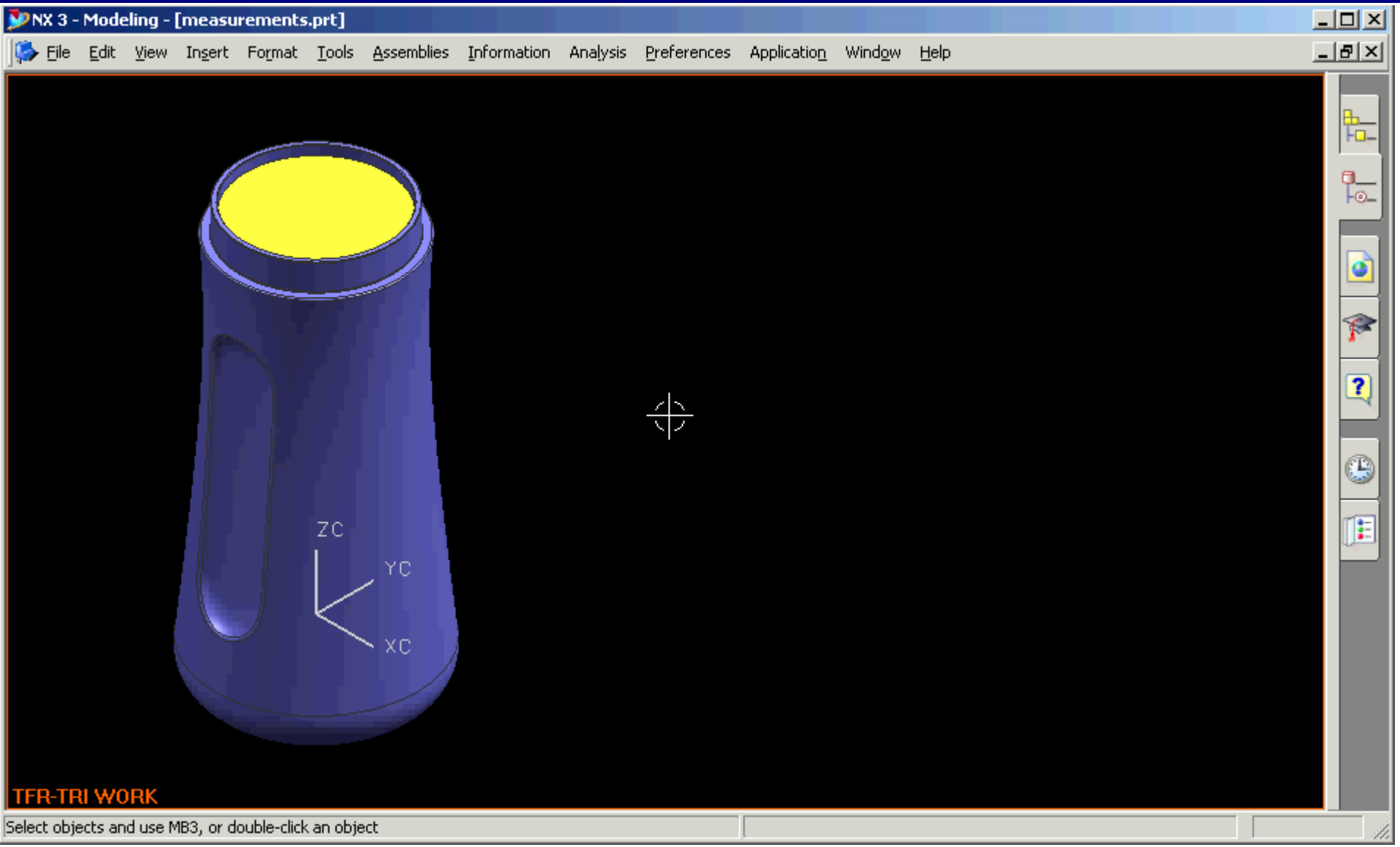
Direct Modeling Move Region Snap Example



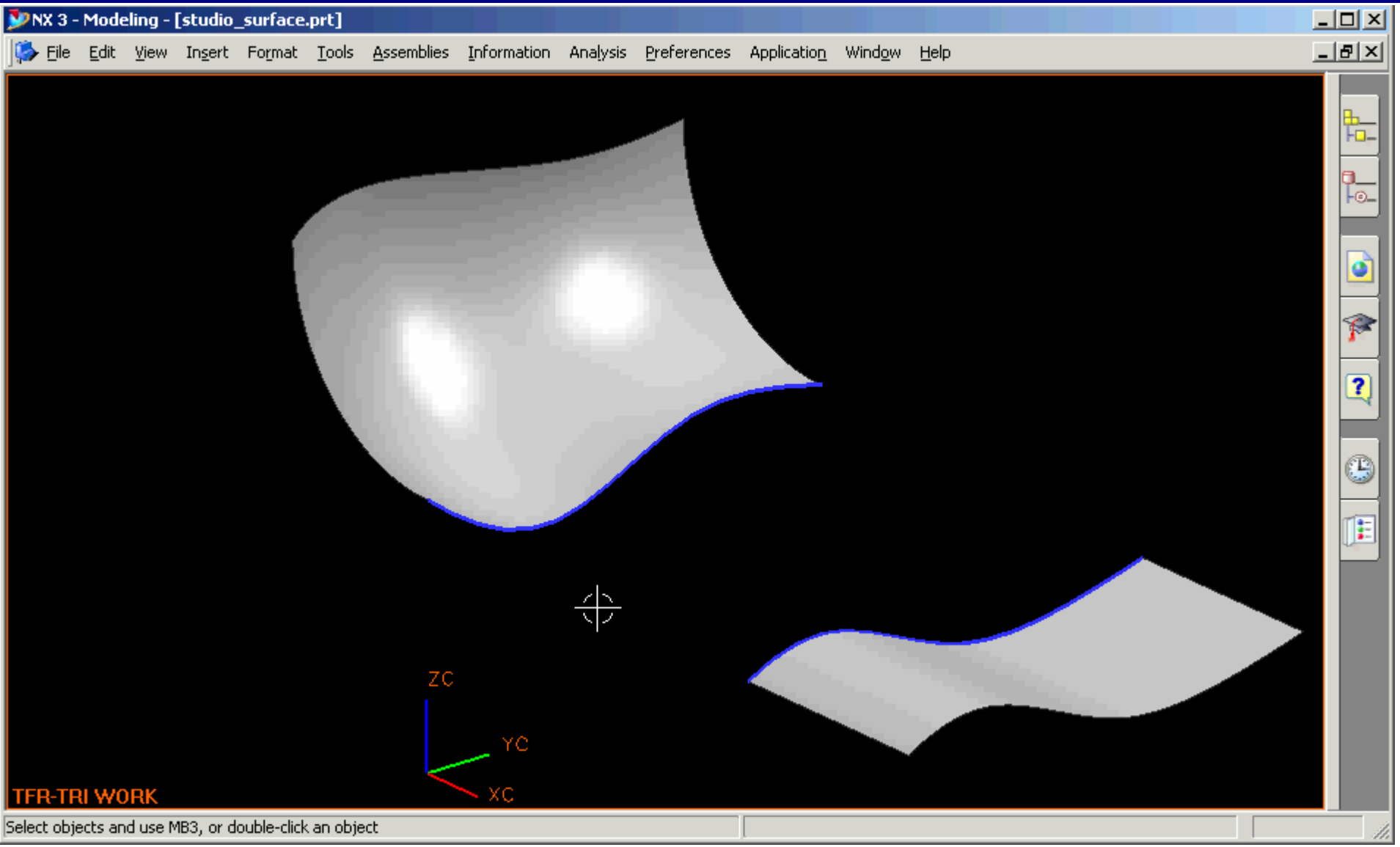
Check for Draft
Slope Analysis and Isocline Curves



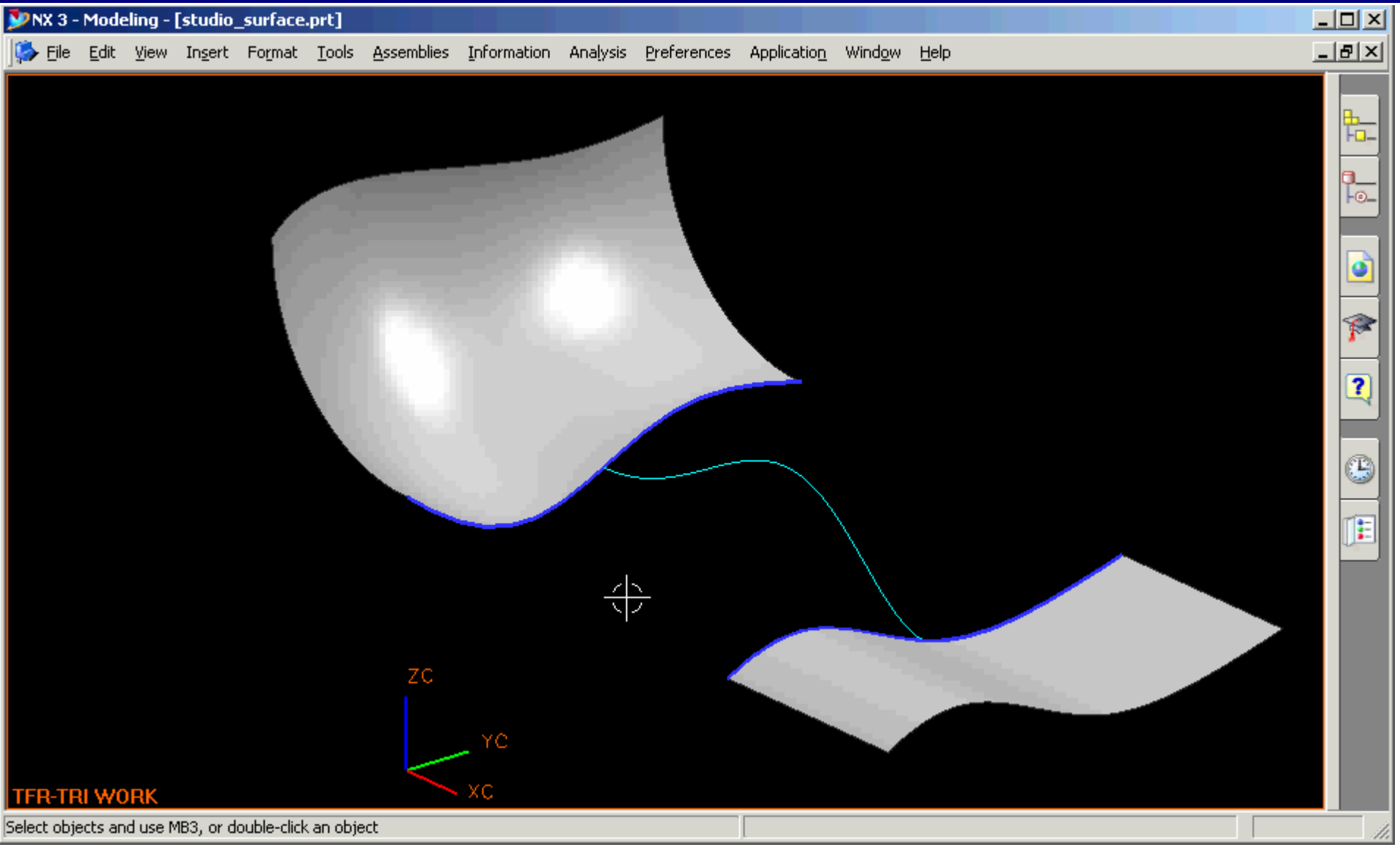
Measurements
Shot Size and Capacity Example



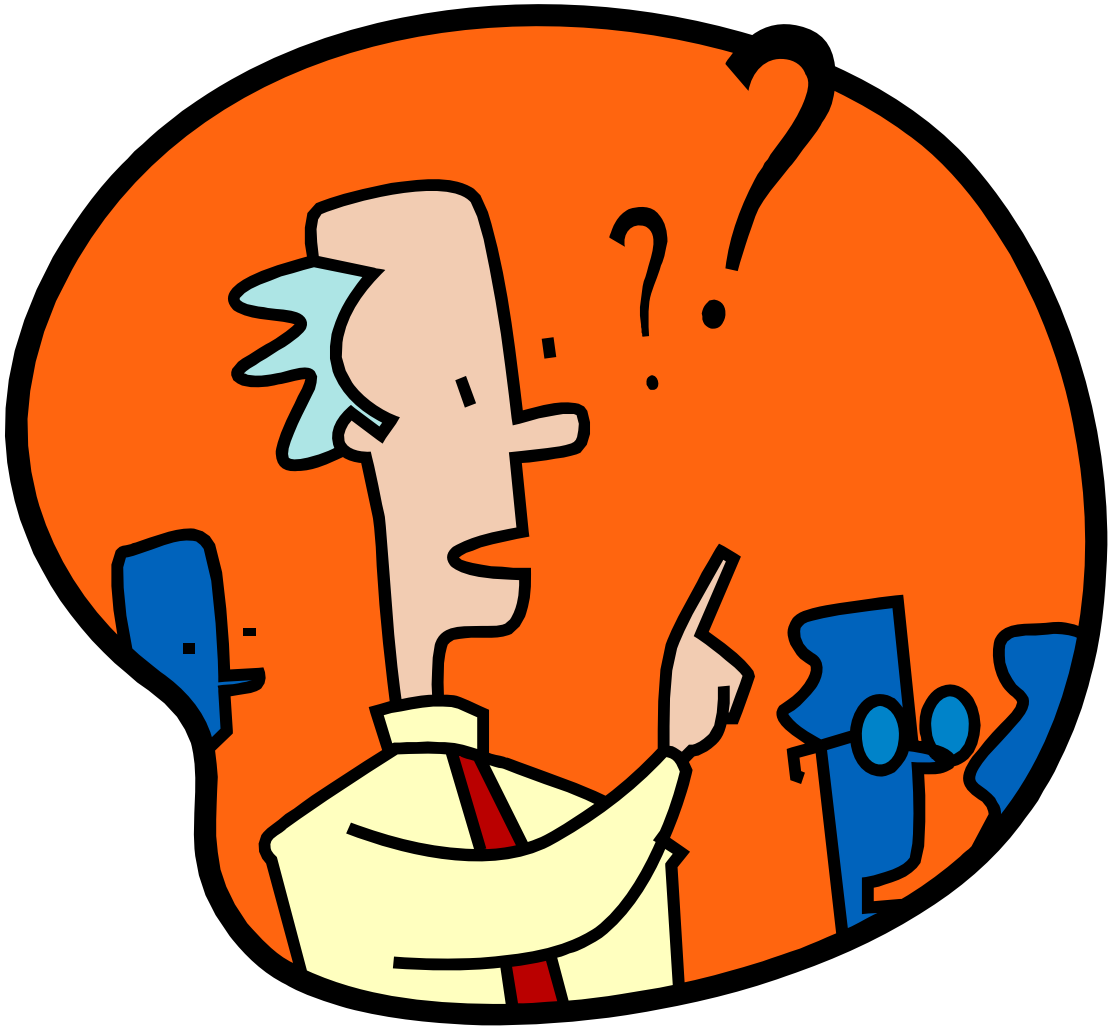
Studio Surface N x N
Example 1



Studio Surface N x N
Example 2



Resources

- Snap Fit Design Tools (http://www.rpi.edu/dept/mane/deptweb/student/snapfit/index2.htm)
- Design Guidelines (http://www.protomold.com/designguidelines)
- Design Guidelines (http://www.efunda.com/designstandards/plastic_design/plastic_intro.cfm)
- Design Guidelines (http://www.basf.com/webplasticsportal/cre?gui=1&dtitle=searchResult&dtext=1&objecttype=ktn_technical_documents&ktn_t_doctype=Design_Guide)
- Design Guidelines (http://www.ticona.com/index/tech/design.htm)
- Design Guidelines (http://www.bayermaterialsciencenafta.com/resources/index.cfm?f=10247629-D94D-FDDD-B63BB6BDC92B451A)

Questions?