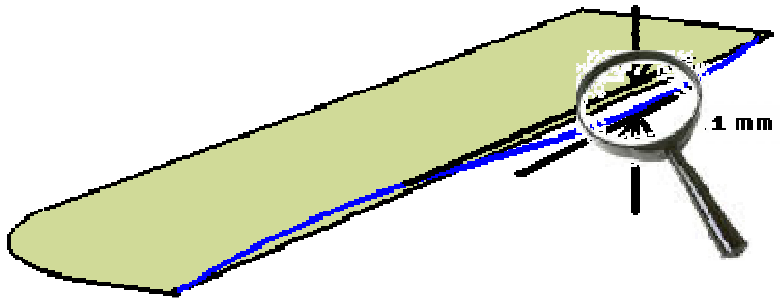
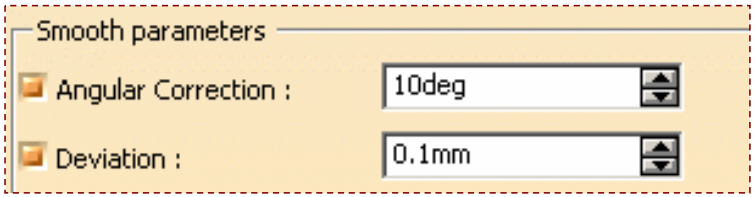
Student Notes:

Tolerant Modeling

You will see the tolerant Modeling Concept.

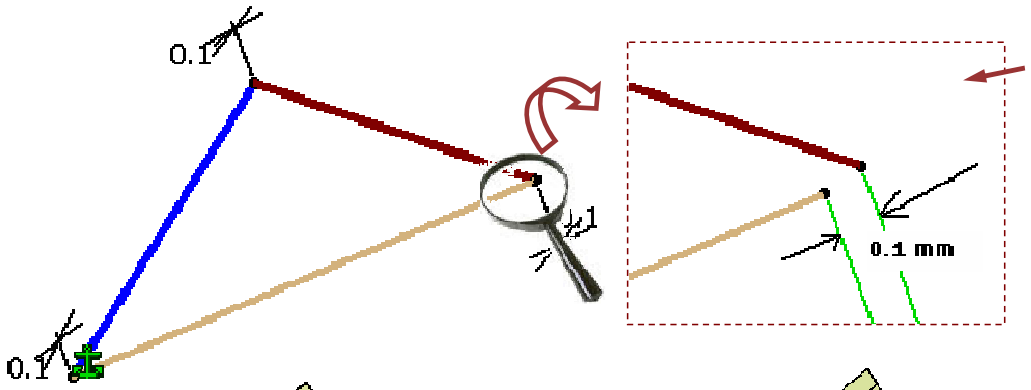




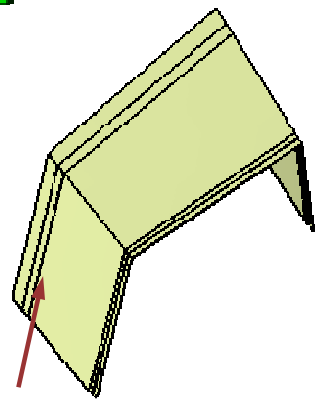
Student Notes:

Why Tolerant Modeling?

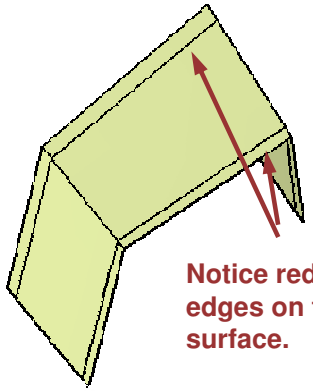
Sometimes the input wireframe and surfaces are not of desired quality. Using these elements propagates the problem to child elements.
Tolerant Modeling aims at creating good results using imperfect inputs.



As seen in this example there is a gap between the two curves. You will still succeed in creating a fill surface using the three curves , because of Tolerant Modeling.(The gap should not be more than 0.1mm).

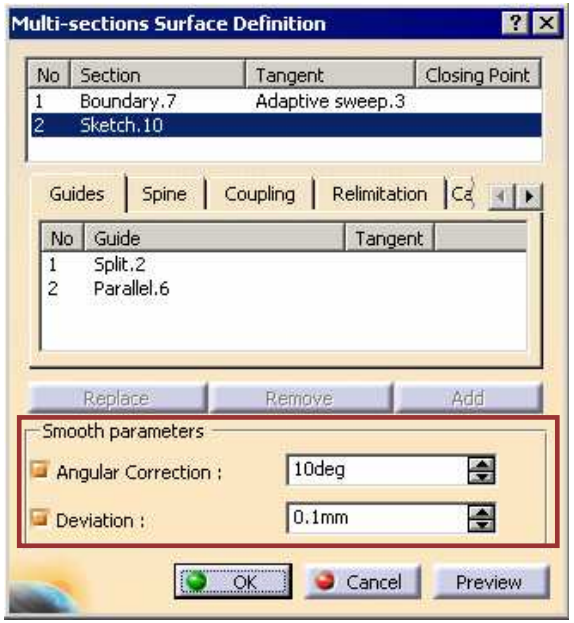


Before Application of Tolerant Modeling Parameters in Multisection Surface there are many edges.



Notice reduced edges on the surface.

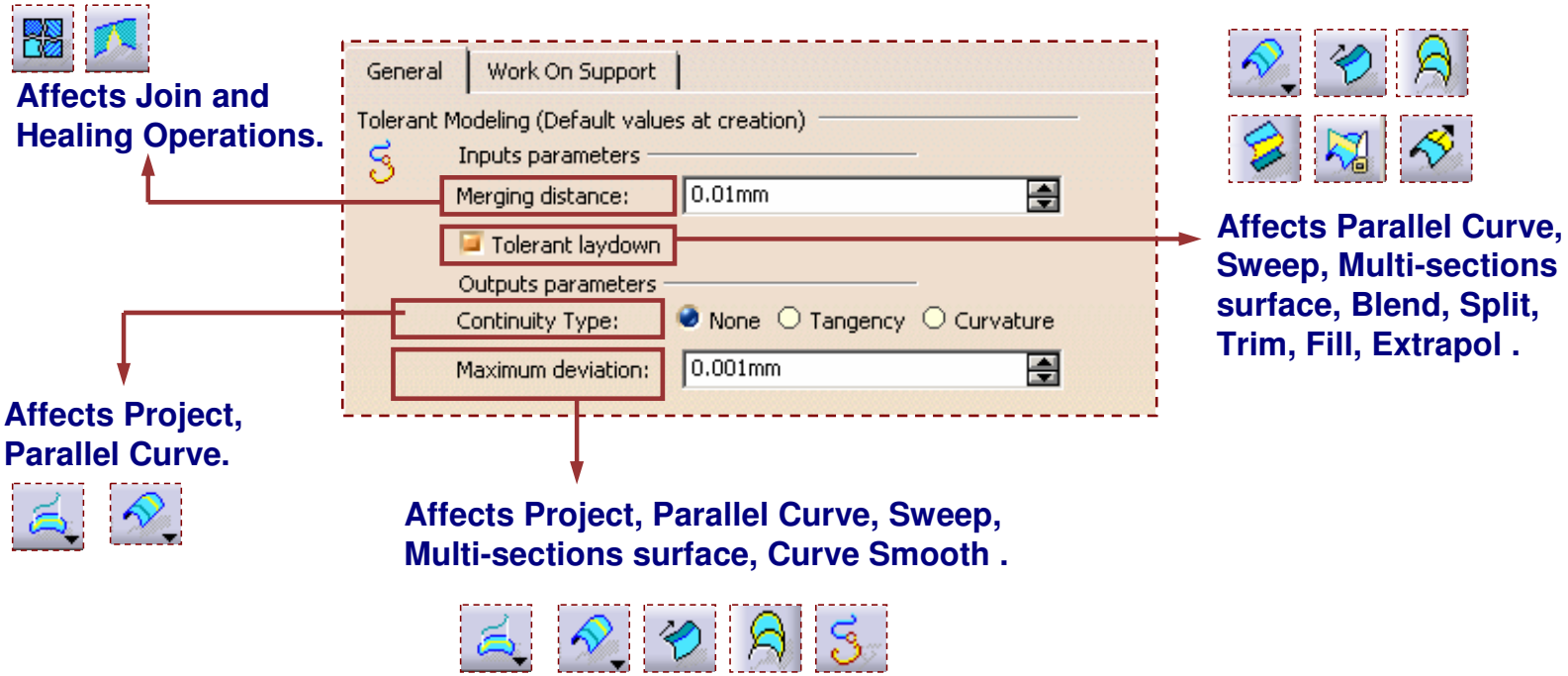
After Application of Tolerant Modeling Parameters the edges is reduced.



Student Notes:

What About Tolerant Modeling

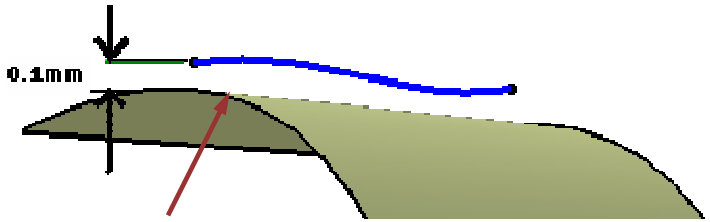
Some of the tolerant Modeling facilities are inbuilt and no UI is available.
There are settings in Tools > Options > Shape >Generative Shape Design >General from where you can set some of the Tolerant Modeling parameters.



Student Notes:

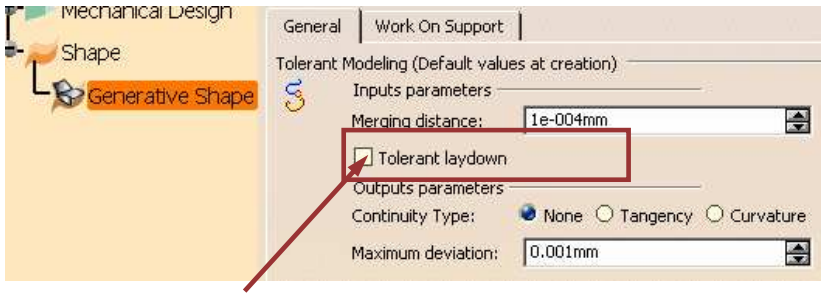
What is Tolerant Laydown?

Some features require wires that are laid down on their support shell. When those supports are created within a tolerance (tolerant modeling), this tolerance has to be used to lay down the wire on the support.

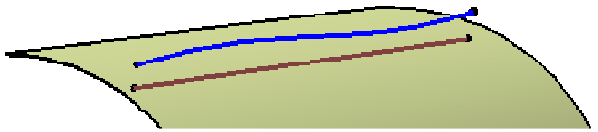


The wire does not lie on the surface and the distance is 0.1 mm

If you try to create parallel curve on the surface, using the curve shown in the figure, CATIA will give an error as it is expected that the curve should lie on the surface.



Select this option to make tolerant laydown work. The limit for Laydown is 0.1 mm



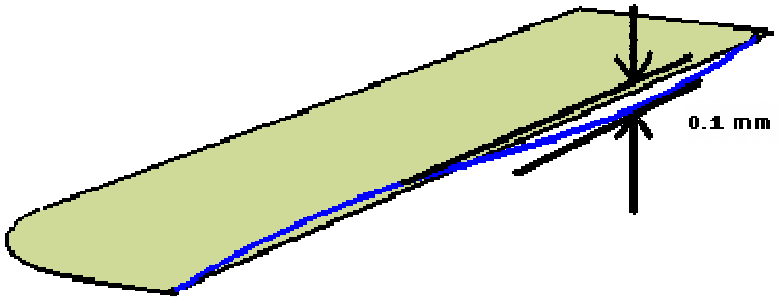
Tolerant laydown projects the wire on the support within the tolerance.

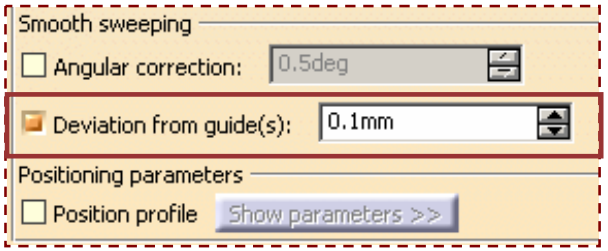
The support must thus be large enough for the whole wire to be projected

Student Notes:

Tolerant Projection for Fill and Extrapolate

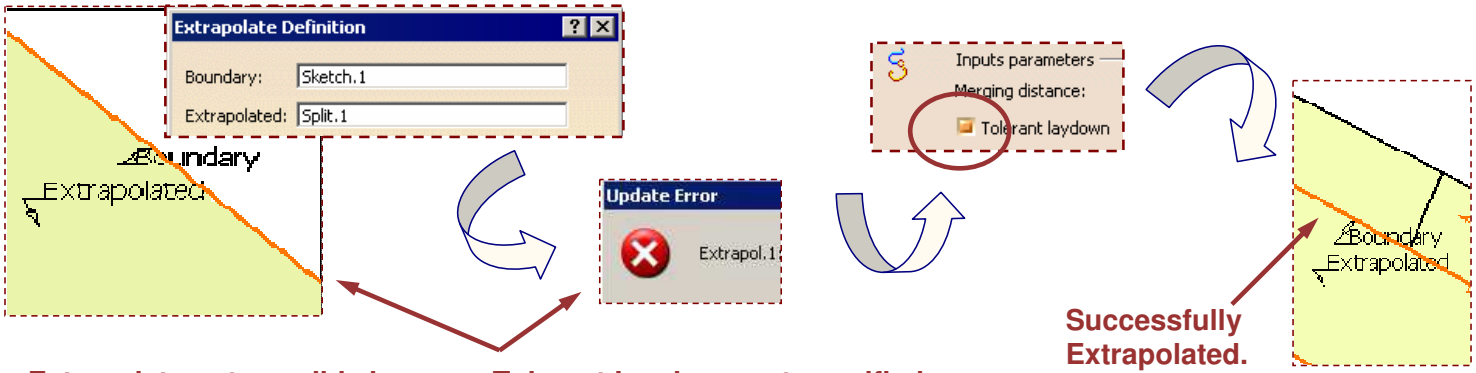
Tolerant Projection for Fill and Extrapolate lays down the input wire on the surface within the 0.1mm limit specified for Tolerance Laydown and makes possible the creation of Extrapolate and Fill which which otherwise would not have been possible.





The surface shown here has been created by sweep operation using the curve as shown.

Tolerant smoothening parameters were used and thus the surface is smoothened but there is a distance between the surface and the input curve.



Extrapolate not possible because Tolerant Laydown not specified.