



Eastern Region SolidWorks User Conference 2005:

# The Art of Filletting

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# The Art of Filleting

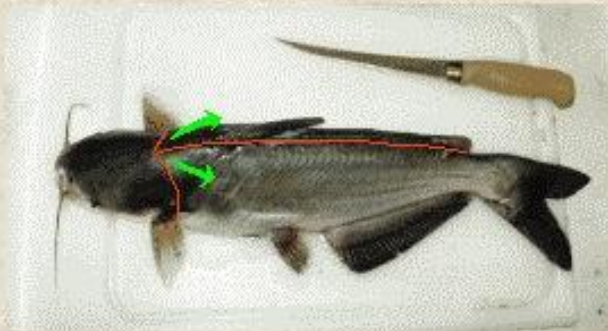


# Catfish

## Items needed:

- Sharp Fillet Knife
- Cutting Board (use plastic or glass to reduce bacteria)
- Newspaper
- Wax Paper
- Plastic container to put fillets
- Paper Towels
- Clean Pliers
- Also recommended is household bleach for clean-up

1. Lay the fish on the cutting board. With your fingers, hold the fish by the mouth then slice through the skin along its back and all the way around its neck (see orange line in photo.) With your pliers grab one corner of skin flap (see green arrows in photo) and pull in the direction of the arrow all the way to the tail. Repeat with the other skin flap. Don't be afraid to dig slightly into the meat with your plier tips to get a hold of the skin flap.

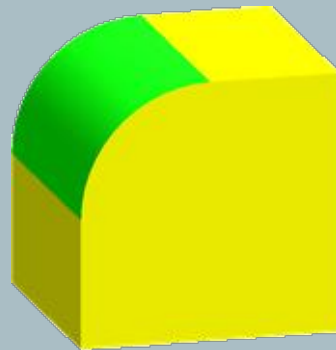


2. Flip the fish on its back. Cut through its belly, splitting the fillets and exposing the entrails, but be careful not cut into any organs to keep the meat as clean as possible.

3. Slide your fingers into the opening and with your knife, cut the fillets from the backbone, sliding the knife all the way to the head to retrieve the maximum meat. Clean and store the fillets as with bass (see above.)

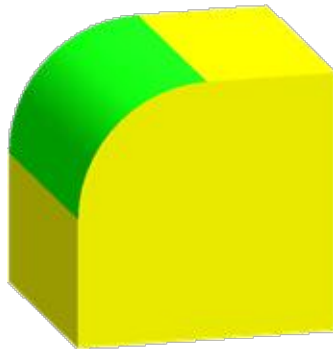


# The Art of Filletting



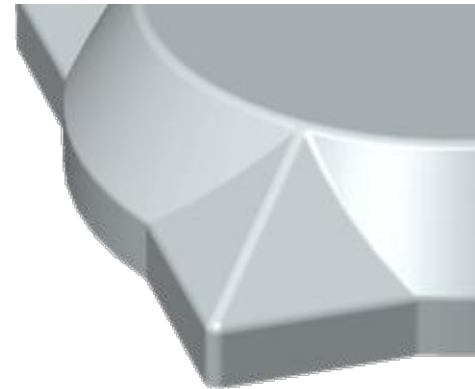
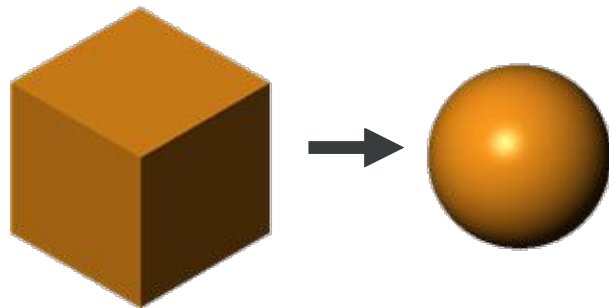
# The Art of Filleting

- SolidWorks Fillet capabilities are very strong.
- Learn some techniques to be aware of in everyday filleting.
- Try some gee-whiz examples of tricky fillets.



# Art vs. Science

- SolidWorks has "wicked good" filleting algorithms.
  - Able to eliminate faces.
  - Works in tough corners.



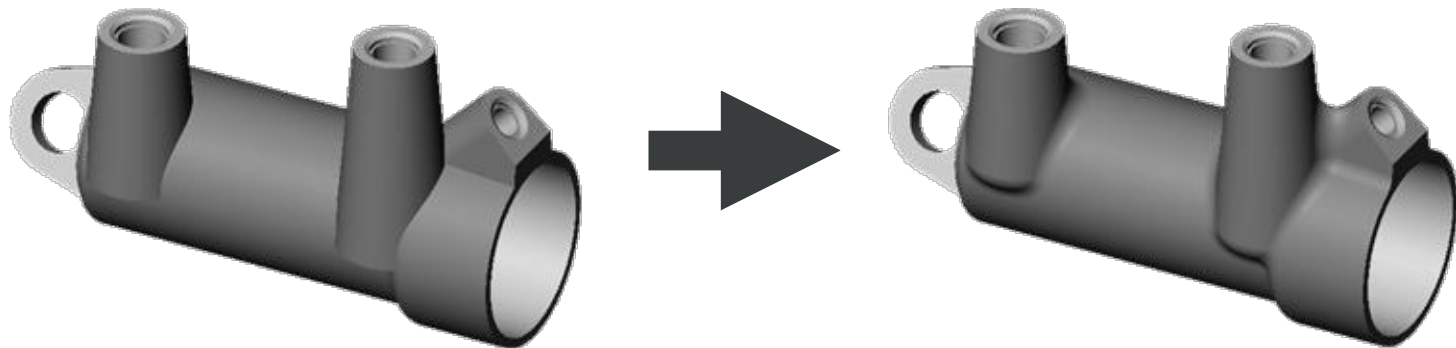
# Art vs. Science

- Still, sometimes getting the result you want is more of an art than a science.



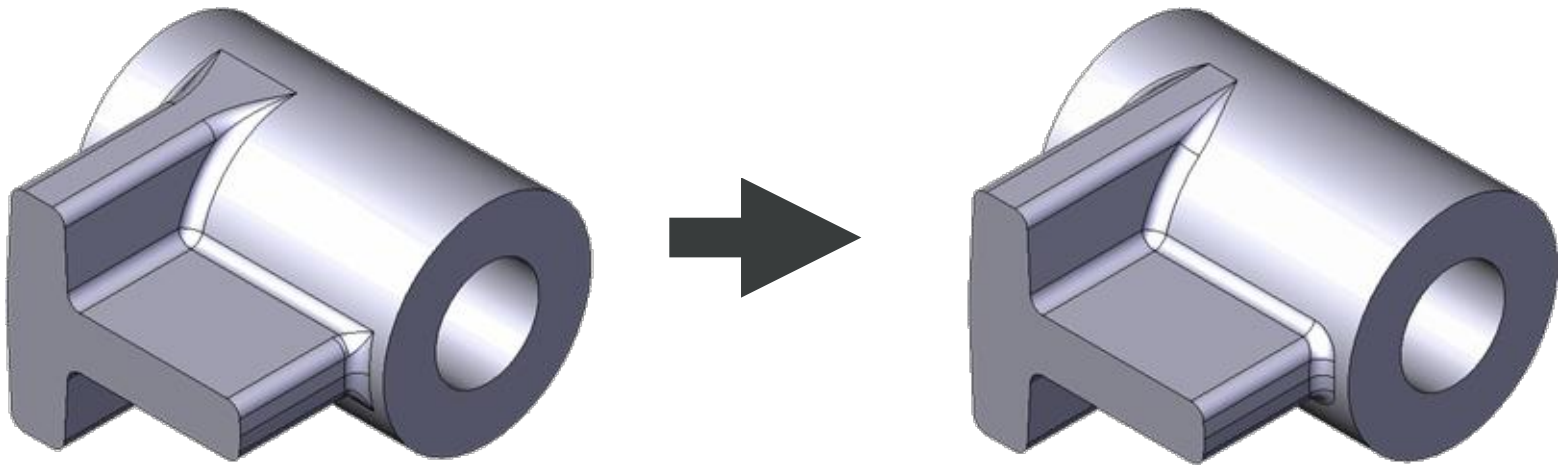
# Small Faces

- Sometimes fillets need to live in the sketch.
- Use Face Fillet to swallow small faces and slivers.



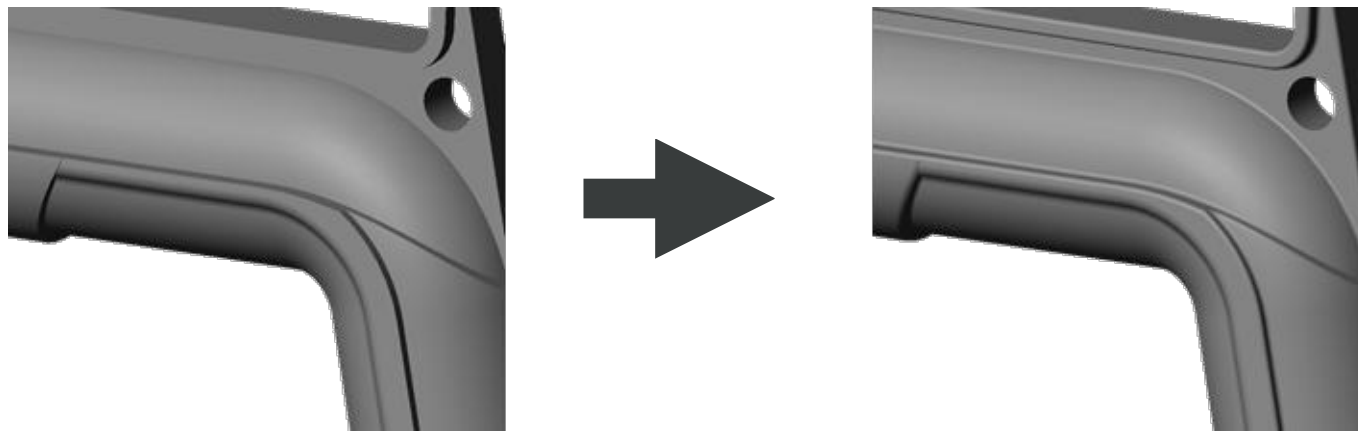
# Order Matters

- Turn that frown ☹️ upside-down! 😊
- First fillet creates an edge,  
second fillet rounds it.



# Order Matters

- Make use of tangent propagation.
- Earlier fillets pave the way for later fillets.



# Order Matters

- The Kitchen Sink:  
Fillets and Draft.
- Variable Radius Fillet vs. Loft.



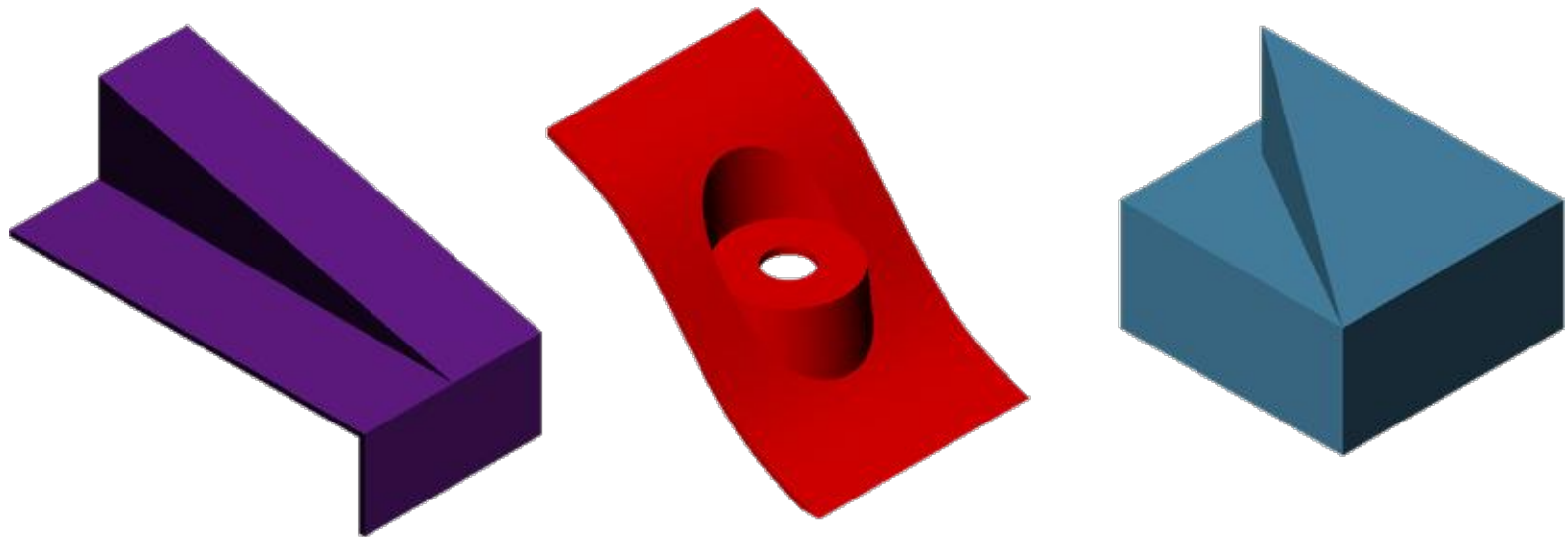
# Enhance Your Performance

- Minimize the number of fillet features.
- Do fillets last to avoid unanticipated dependants.
- Large fillets, then shell, then small fillets.
- Create fillets as separate features to be more editable.

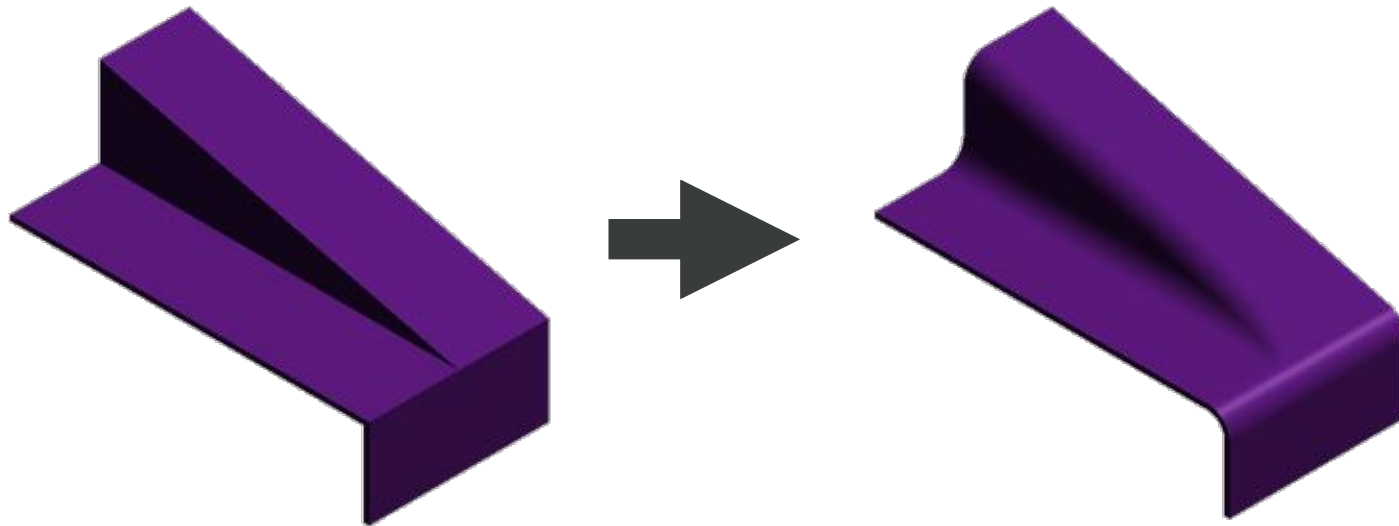


# Complex Corners

- Any time you have a vertex with more than 3 edges, expect the fillet to be challenging.

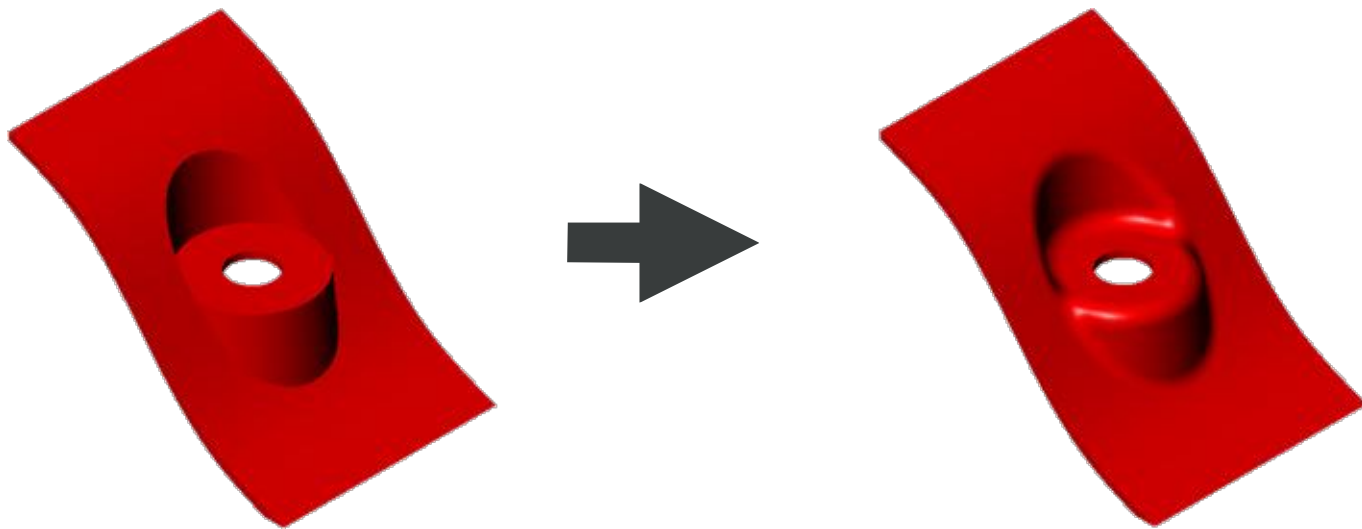


- Fades are not easy.
- Get the fillets into the design of the model.



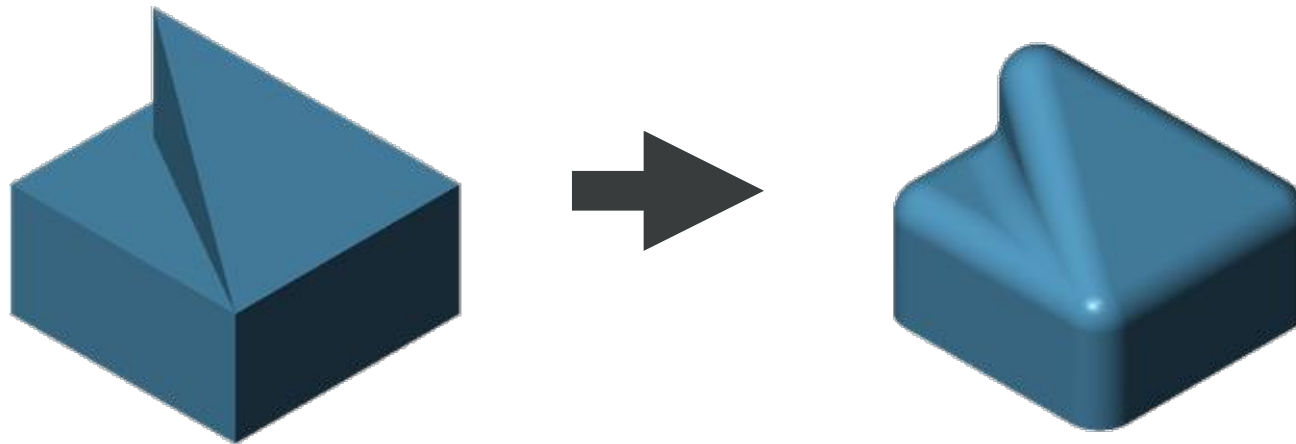
# Innie-Outie Corners

- Use Surface-Fill for nasty corners.
- Does not keep strict radius of curvature.



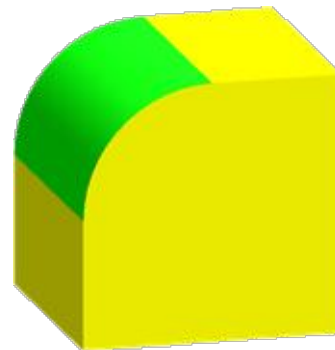
# Boolean Union

- Combine-Add when a multi-body approach is the only way.
- This gives another level of fillet order control.



# Summary

- Often, filleting is more art than science.
- Fillet order is extremely important!
- Plan ahead for special rounds.
- Consider other modeling options when standard fillets don't apply.





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