Euclidean AA, SS, SA, ASA, AAS, HL

Work (no internet searches) to look for counterexamples, if they exist. You may use IGS. Fill with "yes" or a counterexample.

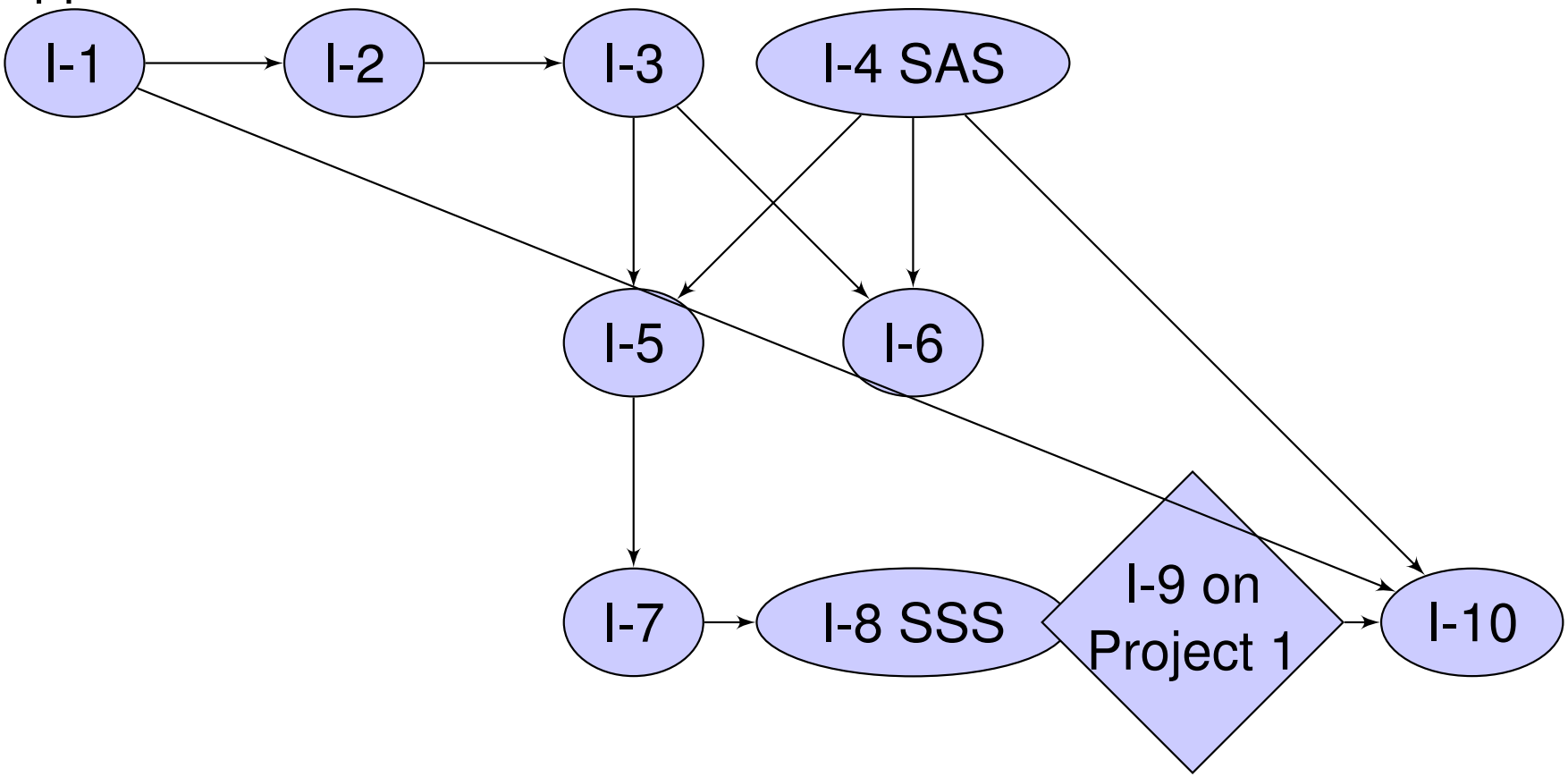
	congruence?	if not then similarity?
AA		
AAA		
SS		
SA		
ASA		
AAS		
HL		

A=angle, S=side, H=hypotenuse, L=leg of a right triangle

	congruence?	if not then similarity?
AA		
AAA		
SS		
SA		
SAS		
SSS		
SSA		
ASA		
AAS		
HL		

Propositions, Assumptions and Applications

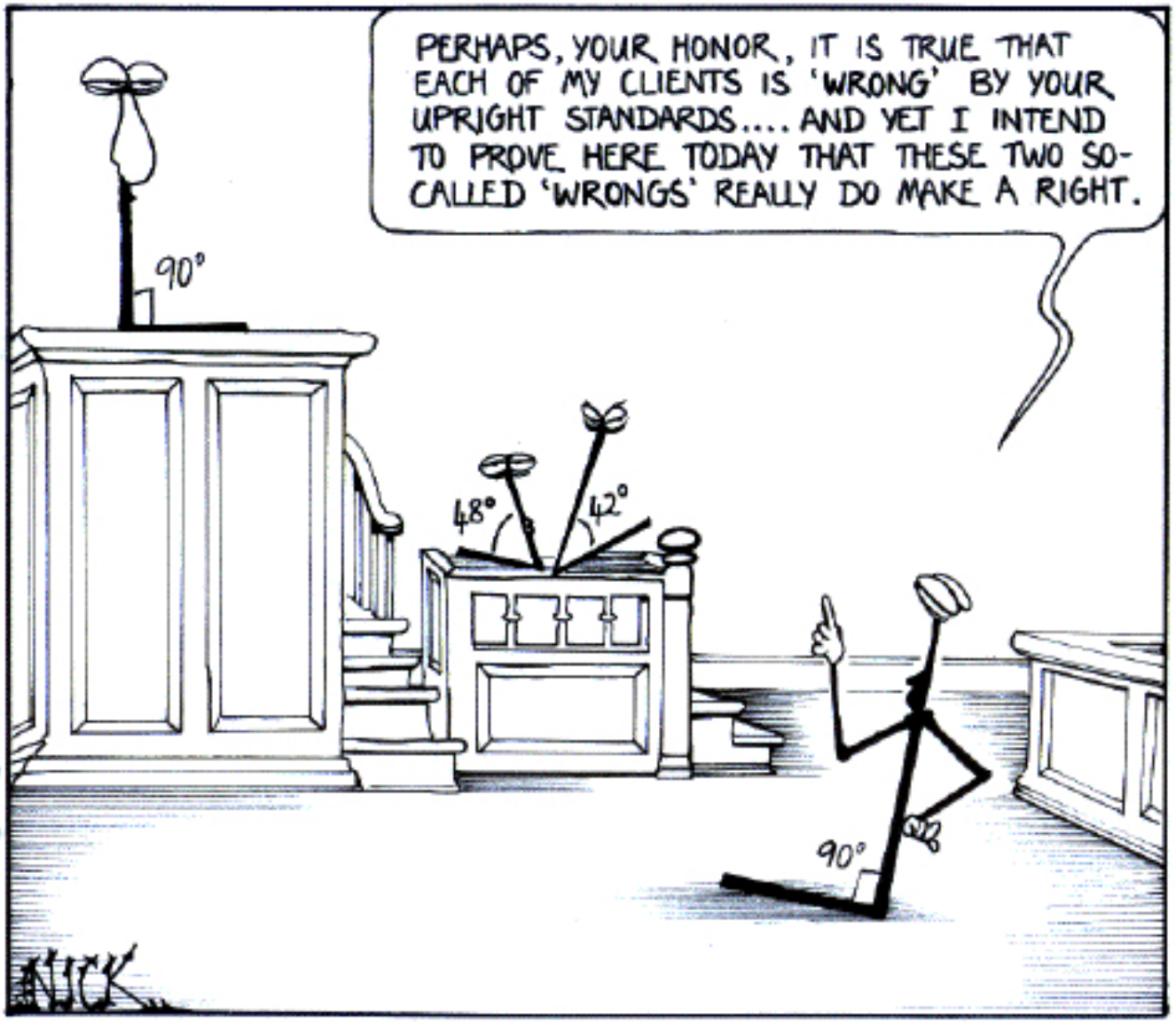
Proof Considerations: I can write rigorous proofs in geometry, identify underlying assumptions, and understand limitations and applications.



Applications of Congruence and Similarity

- every isometry in the plane is a product of at most three reflections (via SSS)
- two isometries which agree on three non-collinear points are the same on all points (via SSS)
- For triangles, SSS and more are lists of possible design choices in Euclidean geometry of the plane.
- More generally, in other geometries, or for more points, like for CAD or CAGD programming, when are design choices complete or when do we need more choices?

Burden of Proof: Is the defendant a square?



http://galadriel.ecaetc.ohio-state.edu/tc/sm/

Euclidean Quadrilateral Design Choices

Investigate similarity in quadrilaterals (no internet searches). Look for counterexamples of quadrilaterals and write them on the board as you find them (e.g. SSSS with a counterexample) You may use IGS. Then consider what is the smallest amount of information you need to determine that quadrilaterals are similar?

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`https://www.geogebra.org/m/zg3nzsRa`

`https://www.geogebra.org/m/Q8EYTUK2`

`https://www.geogebra.org/m/uKnpbCCc`

SSAA and SSASA?

SSAAA Similarity for a Euclidean Quadrilateral?

Assume two quadrilaterals $ABCD$ and $A'B'C'D'$ satisfy $\frac{\overline{AB}}{\overline{A'B'}} \cong \frac{\overline{BC}}{\overline{B'C'}}$ (i.e. SS similarity) and three pairs of the angles are congruent.

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- How about $ABCD$ and $A'B'C'D'$, and why?

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- How about $ABCD$ and $A'B'C'D'$, and why?

What about SS congruence + AAA?
What about SAAAA and SAASA? SSSSA?

Project 2: Euclidean & Spherical—Course Topics

(Geometric Perspectives) I can compare and contrast multiple geometric perspectives...

- individual project
- review Euclidean content
- importance of topic
- diverse spherical perspectives
- references