

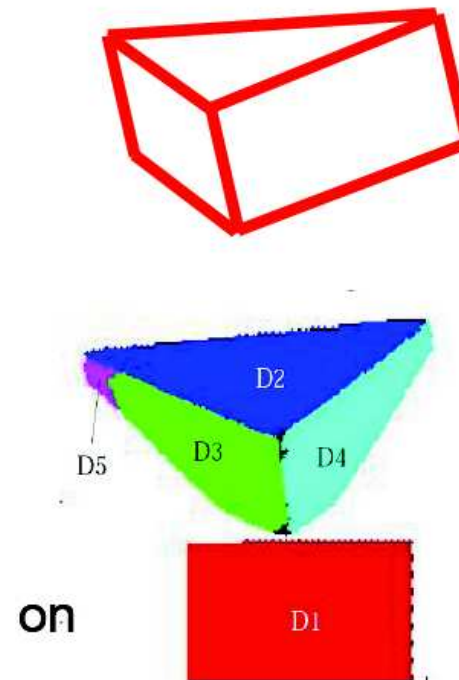
# 3D Model Matching Pipeline

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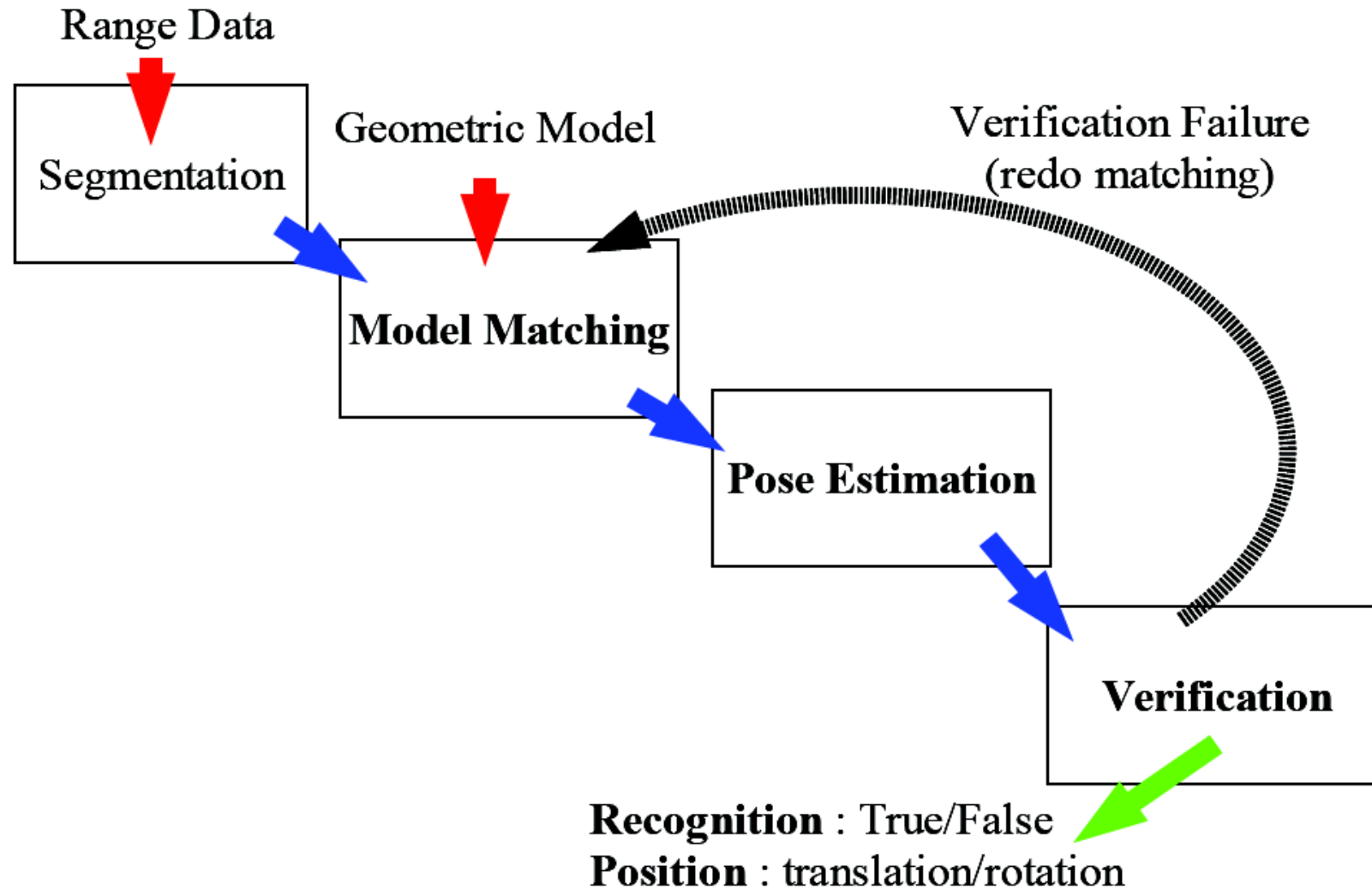
## 3D Plane-based Recognition

Is there a wedge in the scene?

- Have geometric model: 3D *a priori* knowledge
- Data from laser scanner
- Planar region segments
- Geometric transformations



# Range data: 3D Recognition Pipeline



## Recognition: Model Matching

Use Interpretation Tree

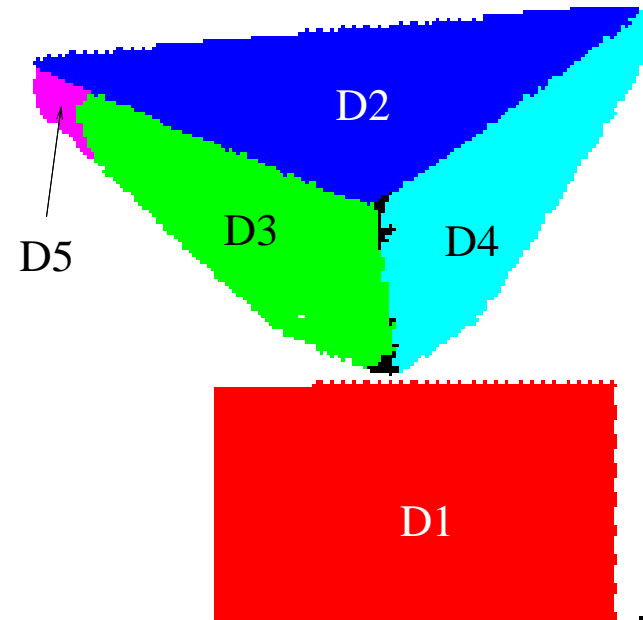
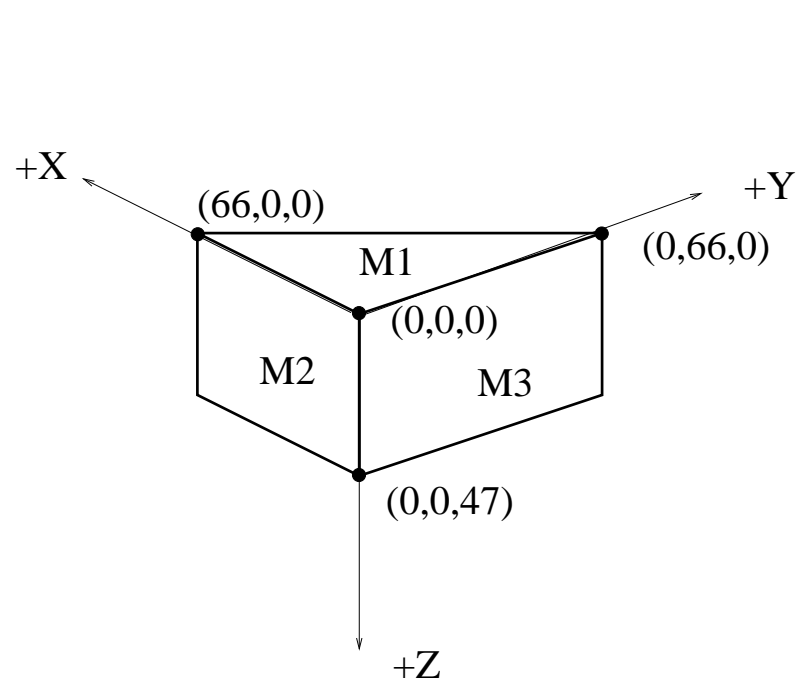
Unary constraint: eg. surface area

Binary constraint: eg. angle between  
vectors, like surface normals

Trinary constraint: sign of vector triple  
product  $\vec{a} \cdot (\vec{b} \times \vec{c})$   
eg. on surface normals

Result: paired model and data planes

# Recognition: Matching Results



matchedpairs =

model	data
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M1	D2
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M2	D3
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M3	D4
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## What We Have Learned

- An application of the interpretation tree matching algorithm to 3D data
- A review of 3D coordinate systems