

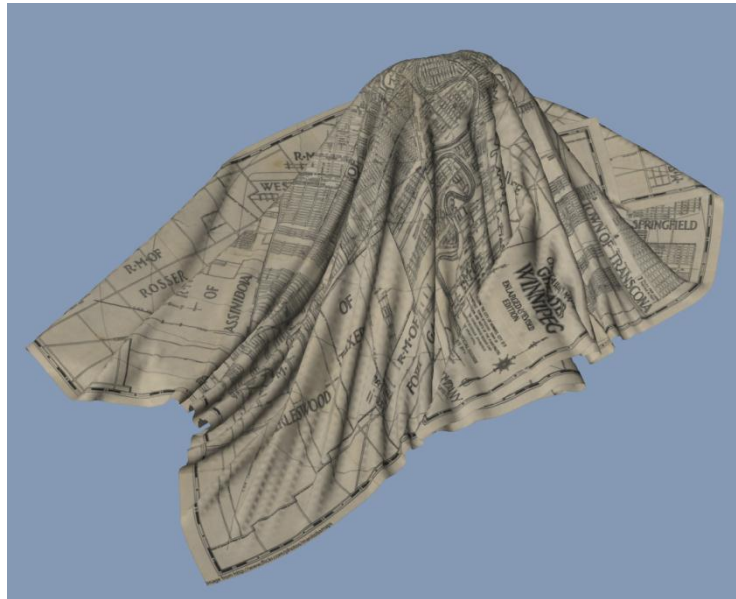
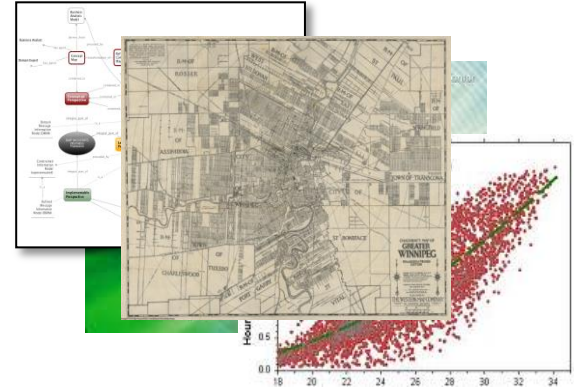
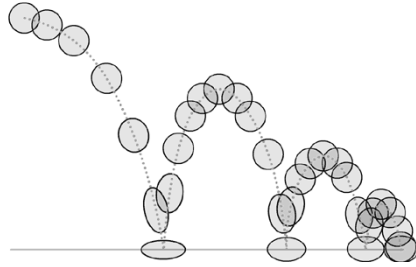
# Exploring Physical Information Cloth on a Multitouch Table



Kimberly Mikulecky, Mark Hancock,  
John Brosz, & Sheelagh Carpendale



Simulated Cloth provides a familiar medium for interacting with and exploring information.



# Related Work

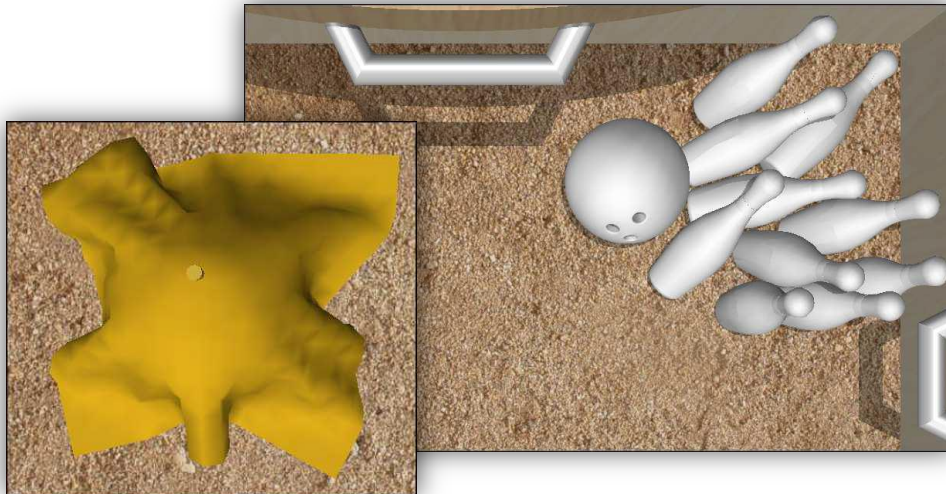
## Bump Top

Agarawala &  
Balakrishnan, CHI '06



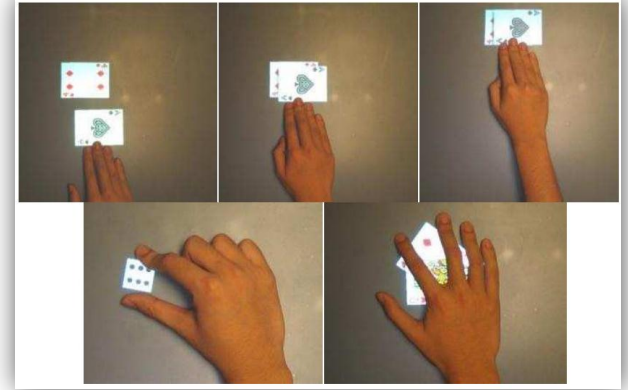
## Sticky Tools

Hancock et al., ITS '09



## ShapeTouch

Cao et al., Tabletop '08



## Bringing Physics to the Surface

Wilson et al., UIST '08



# Cloth

Familiar

Interesting interactions:

Fold

Bend

Drape

Tear

Stretch

Bunch

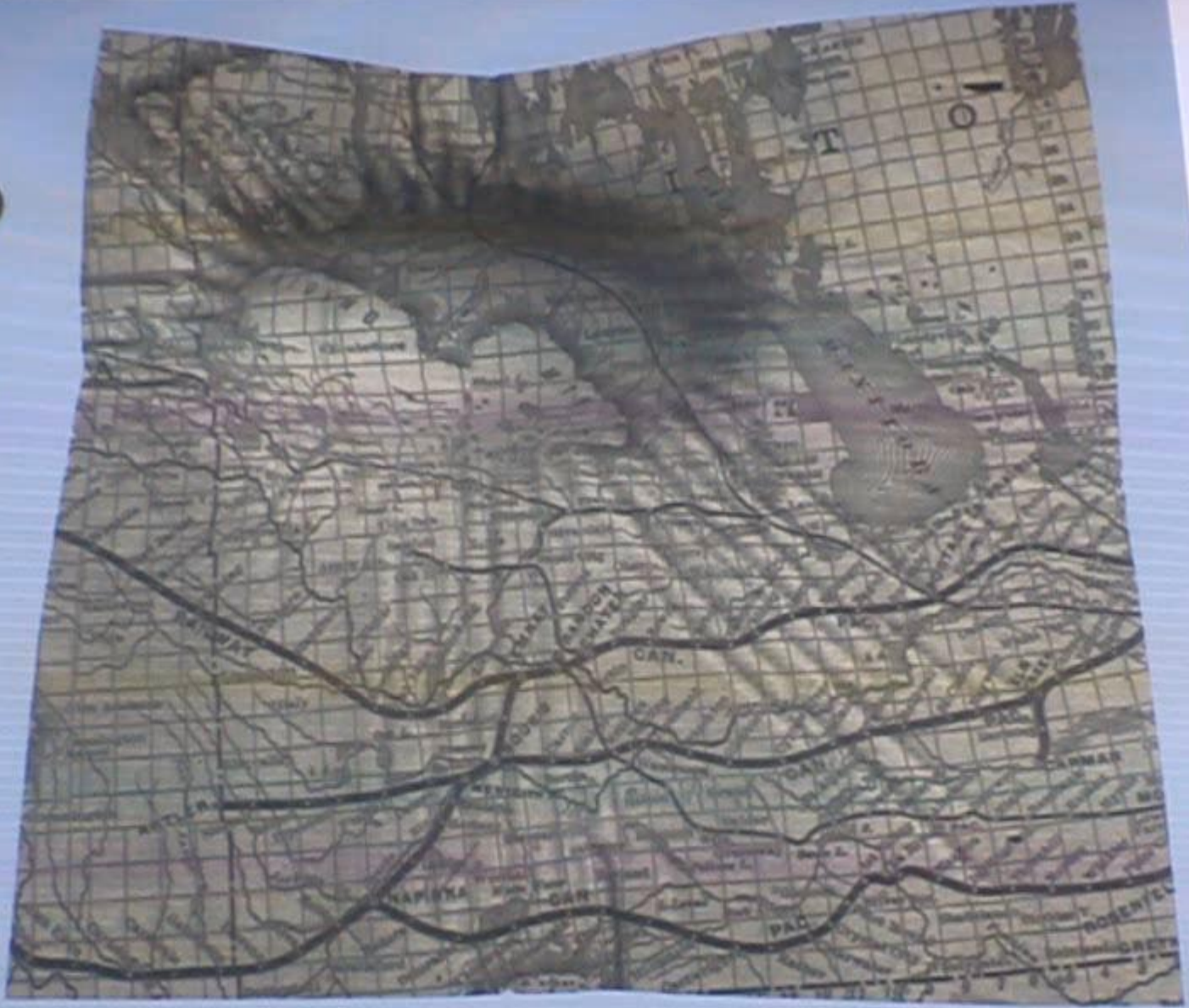


checks

map

city

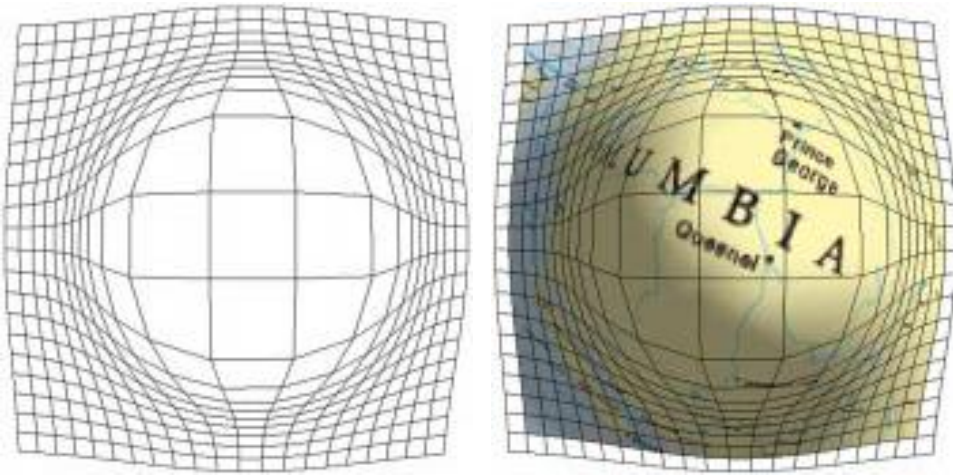
WCT



# Application

## Detail-in-Context

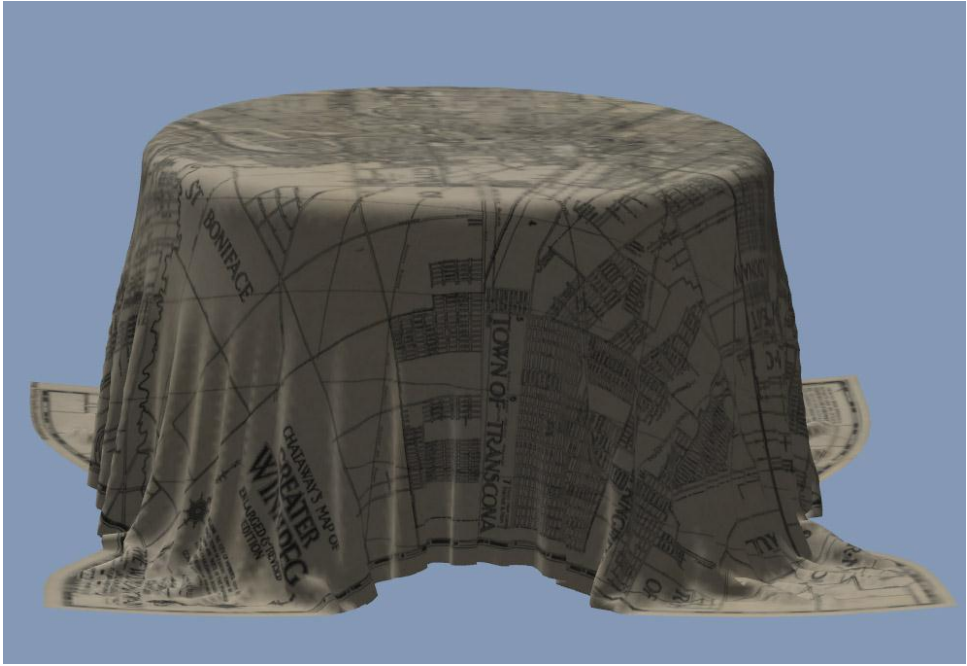
- Recreate existing work
- A physics-based interface for a variety of lenses.



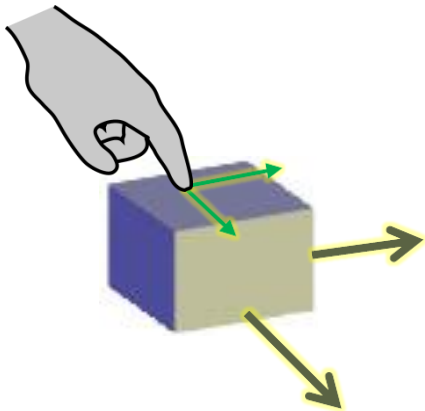
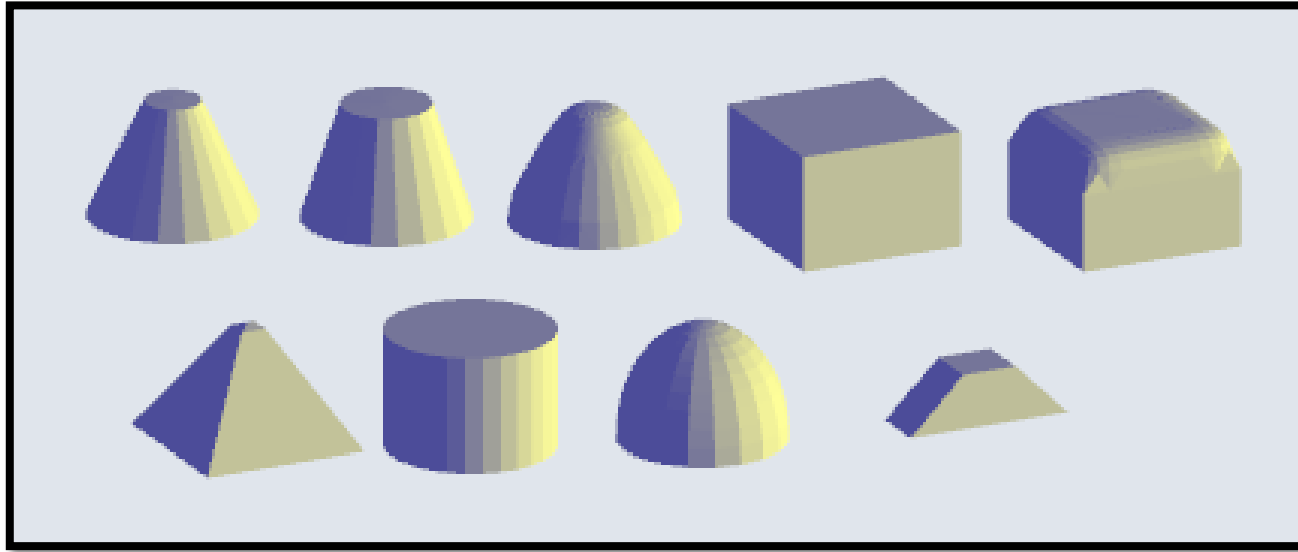
*Images from Carpendale. A Framework for Elastic Presentation, PhD Thesis, Simon Fraser University, 1999.*



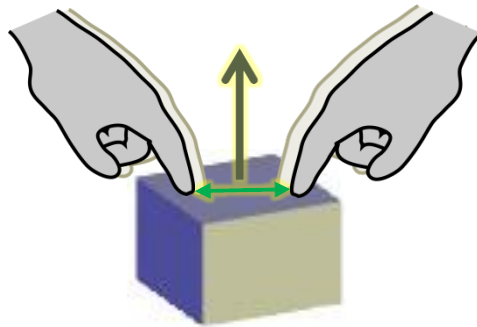
*Forlines & Shen. DTLens: Multi-user Tabletop Spatial Data Exploration, UIST, 2005.*



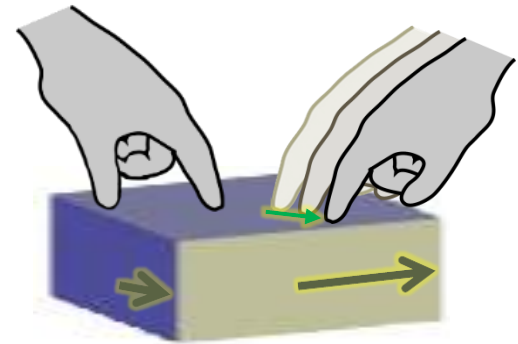
# Interaction



1

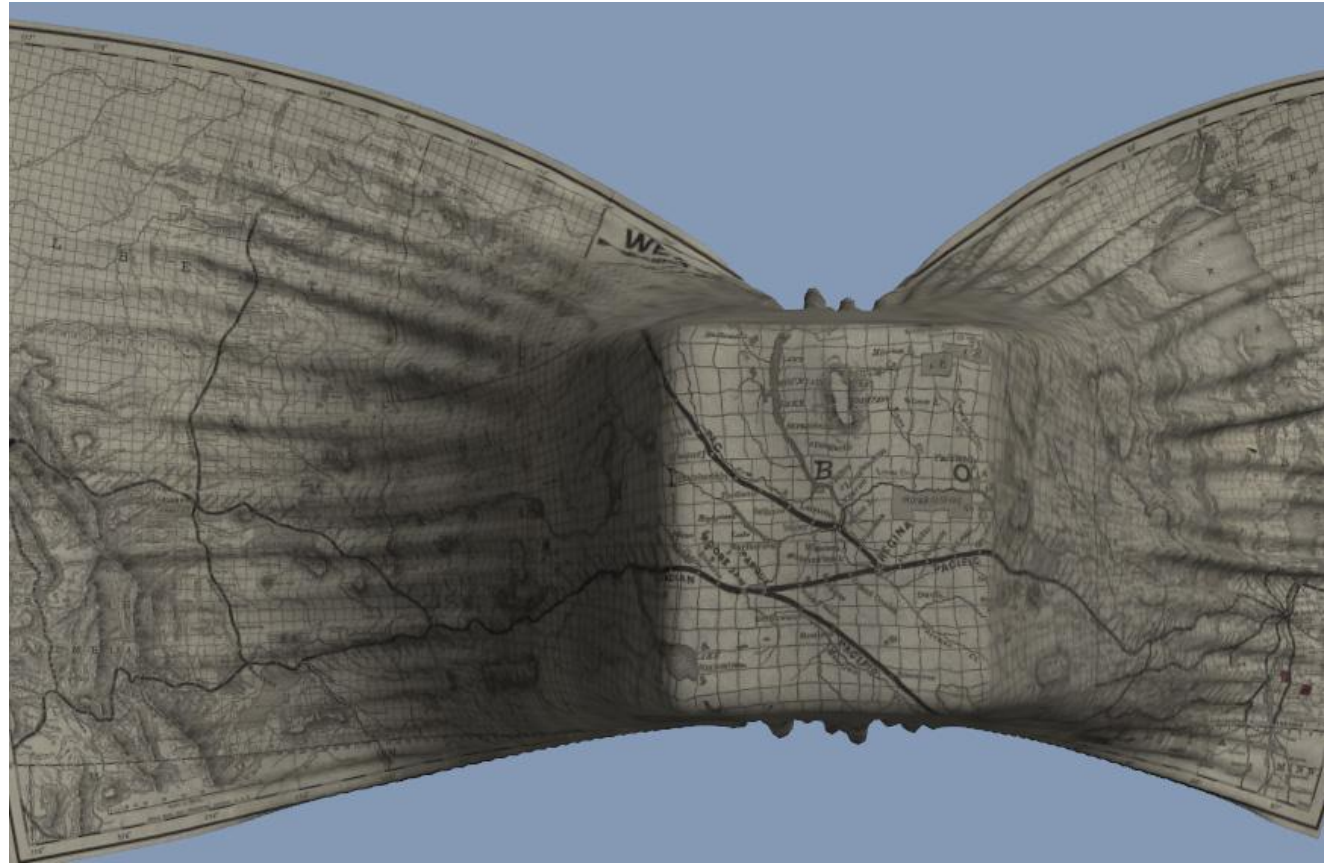
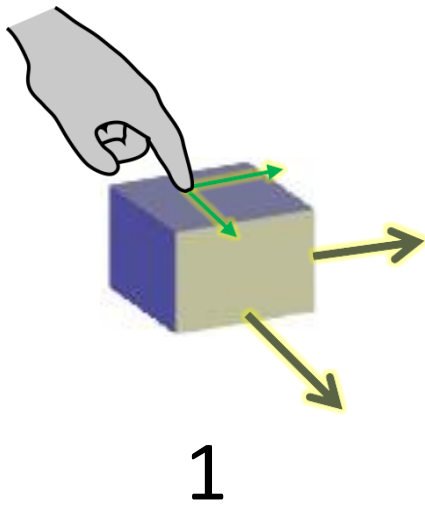


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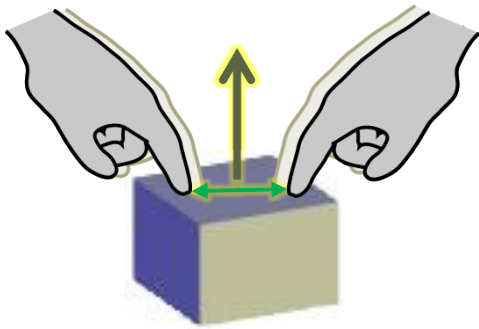


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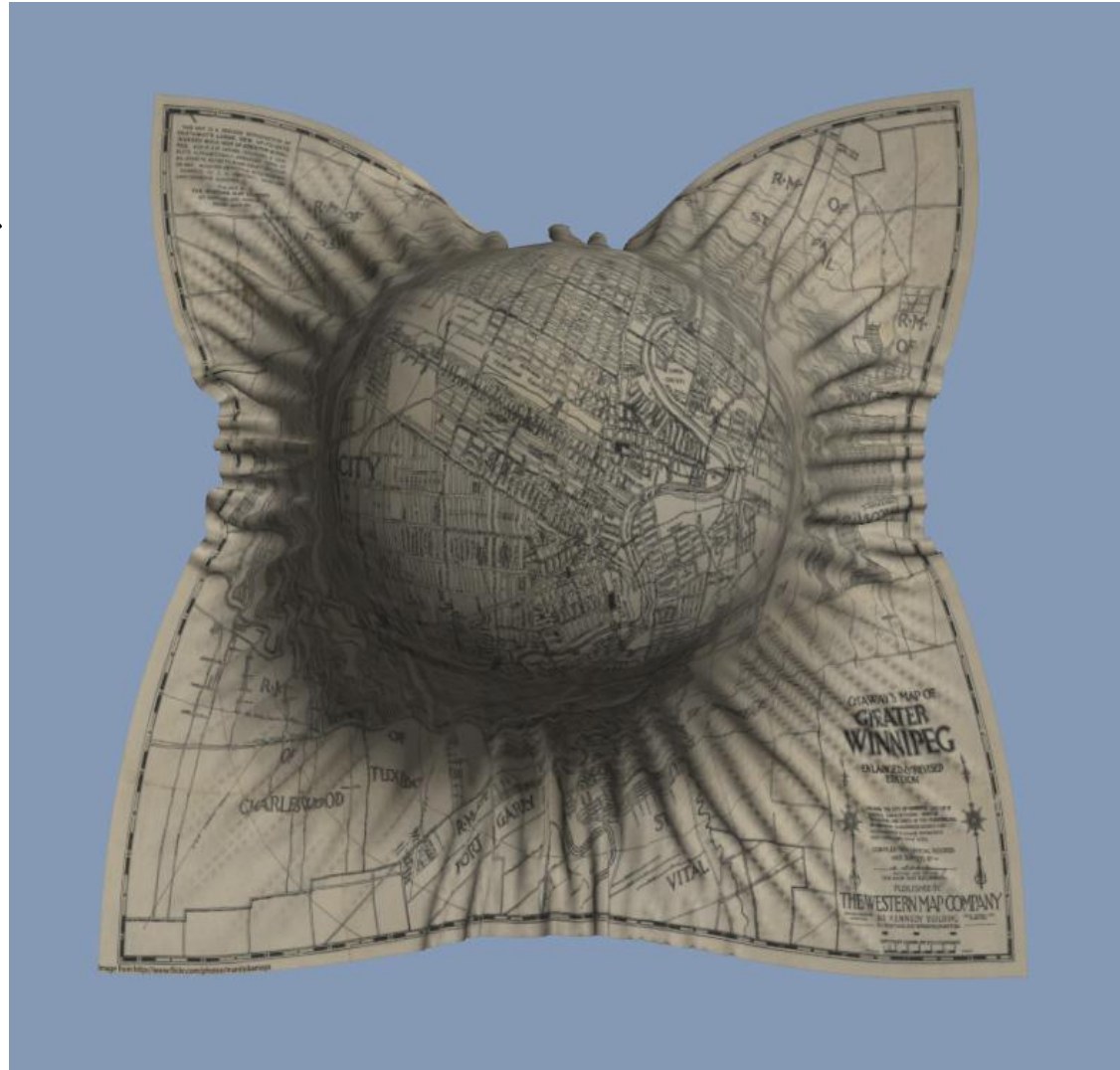
# Manipulating Lenses



# Manipulating Lenses

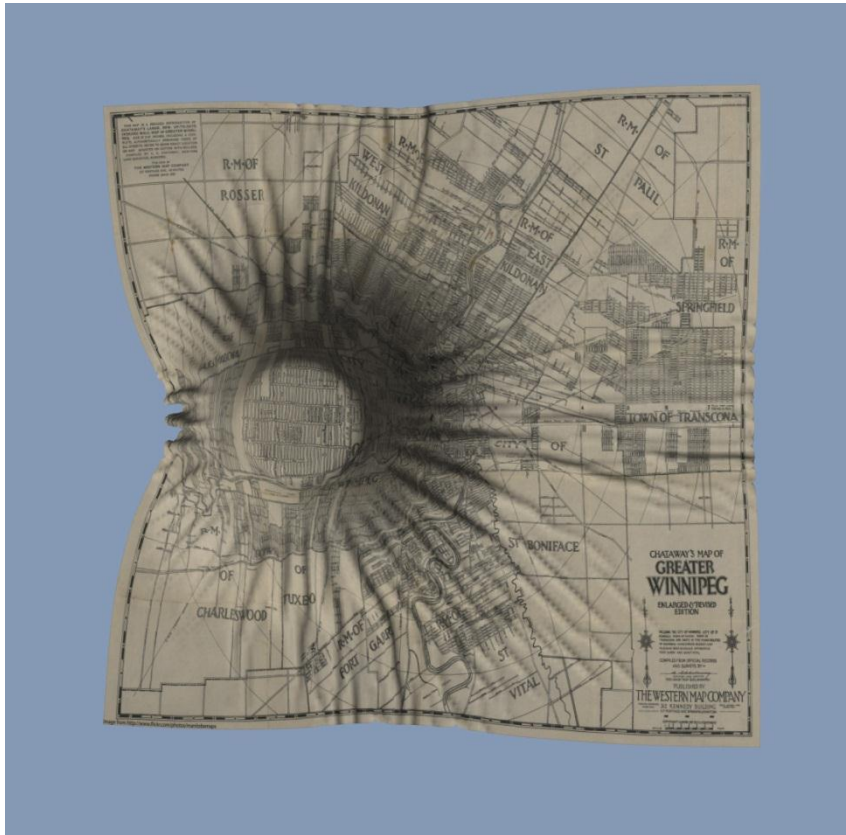


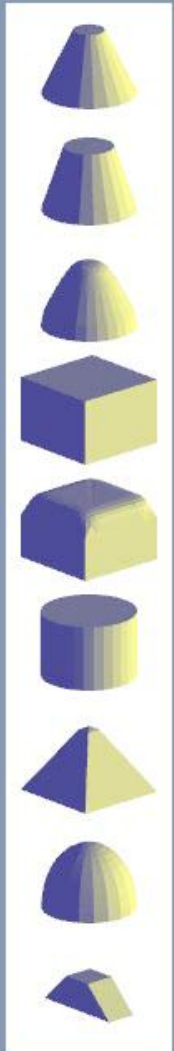
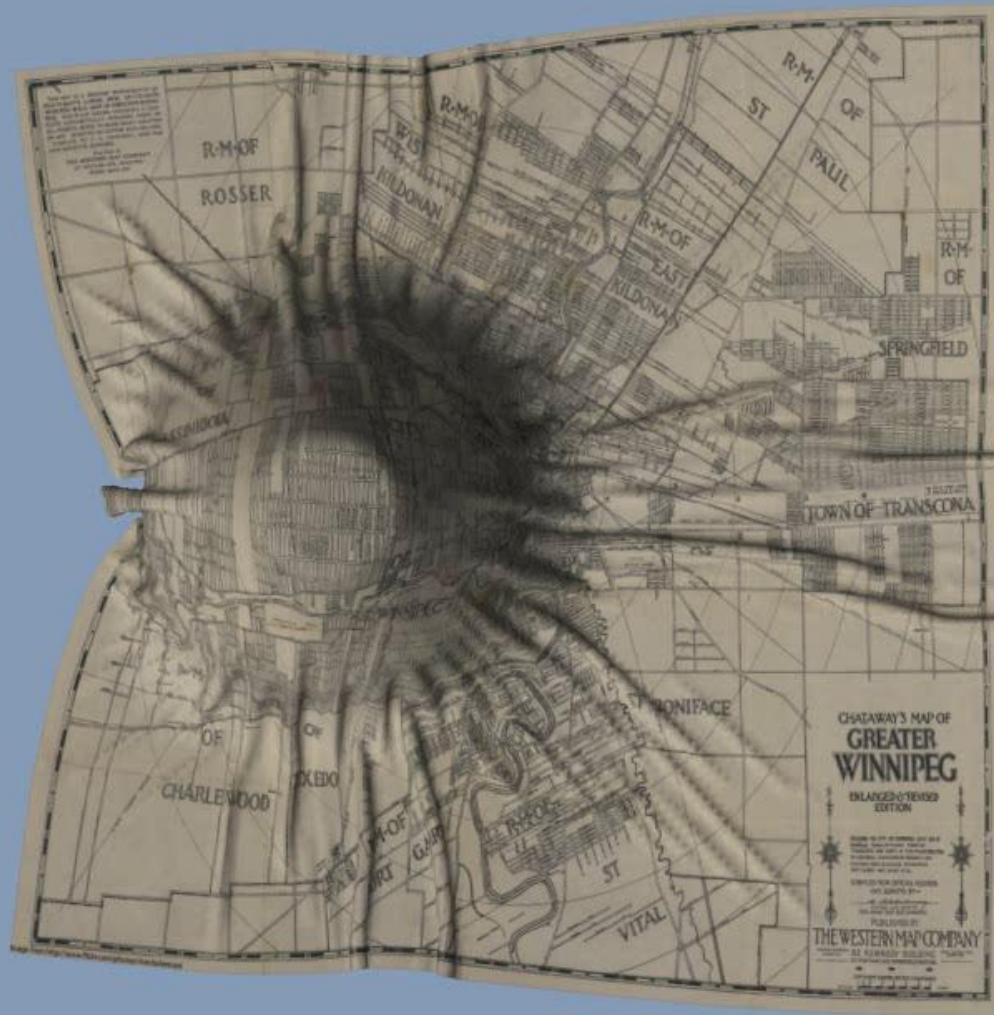
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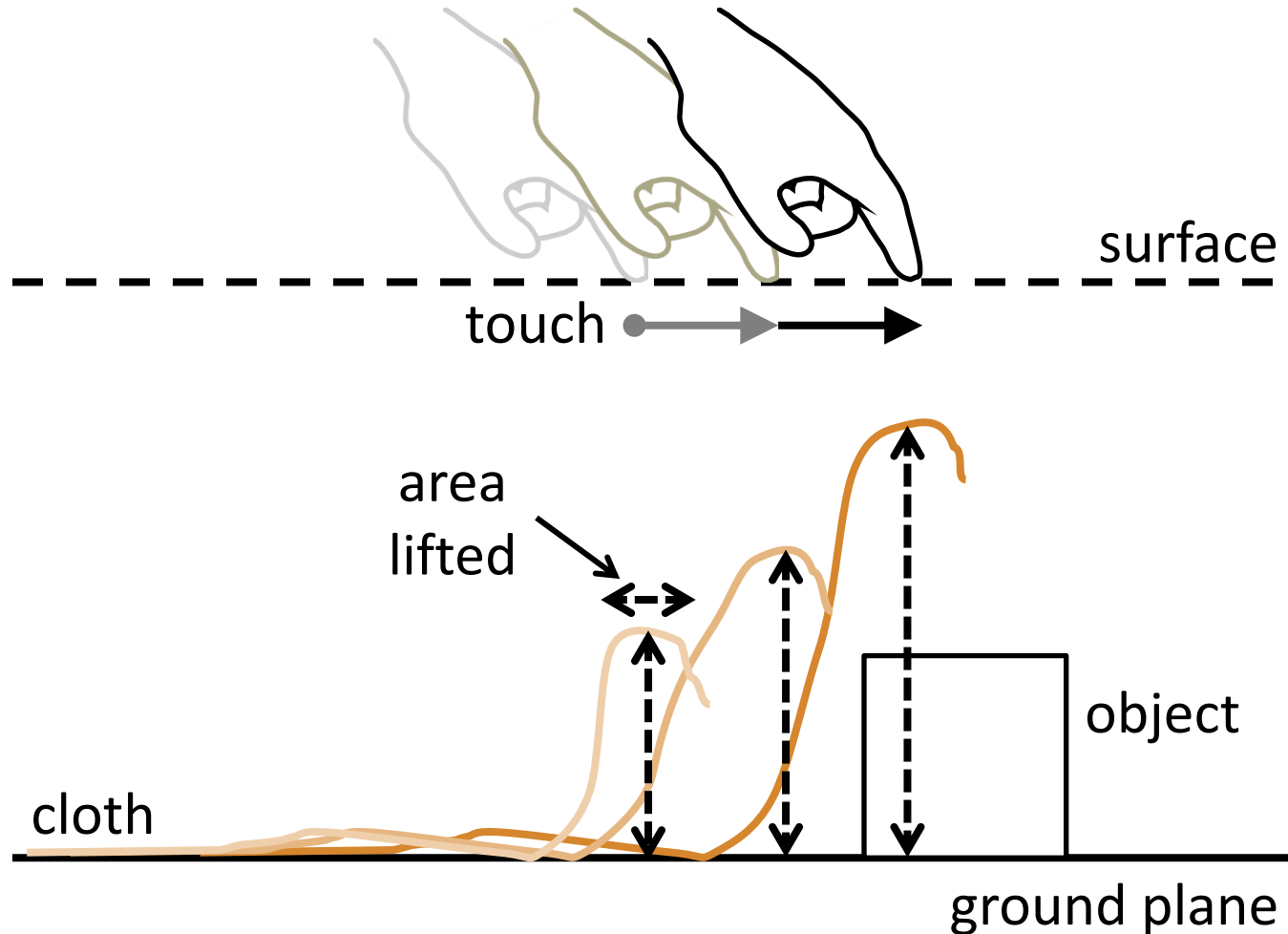


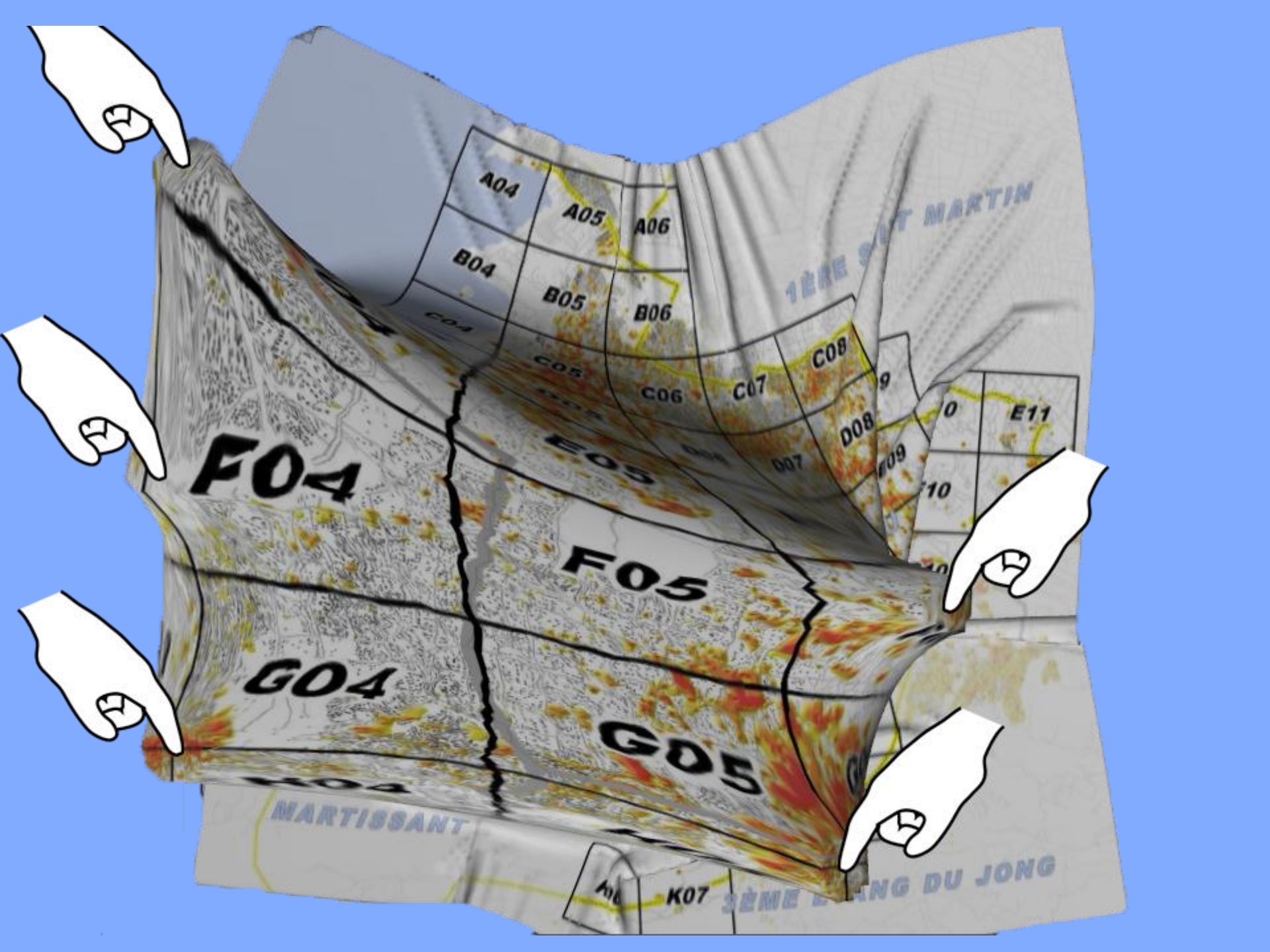
# Manipulating Lenses

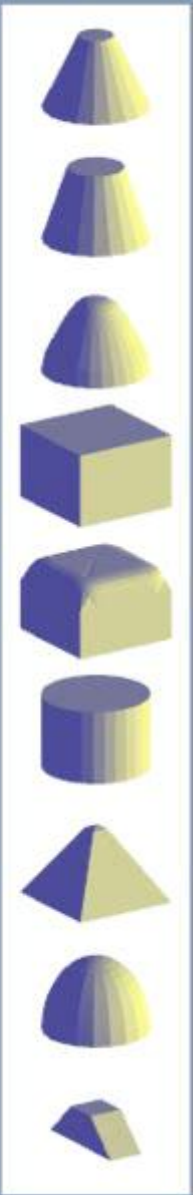
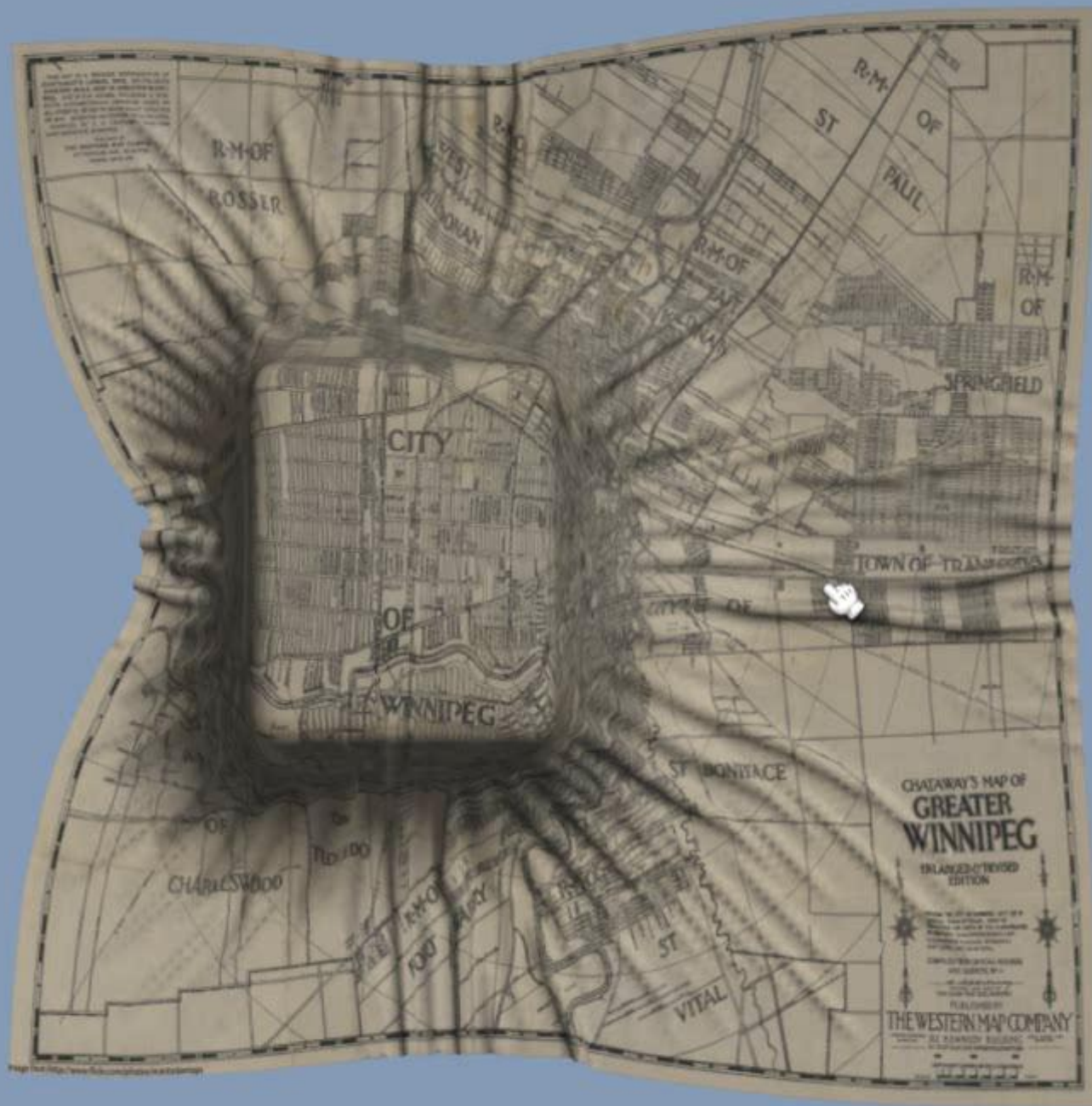




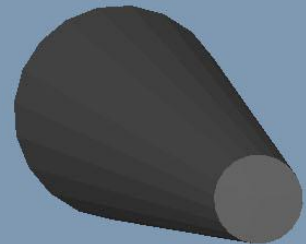
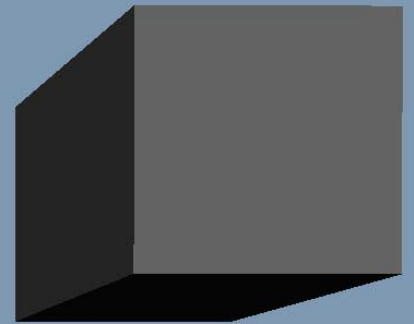
# Manipulating Cloth Directly



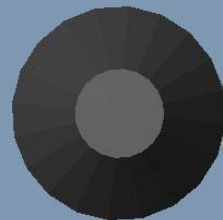
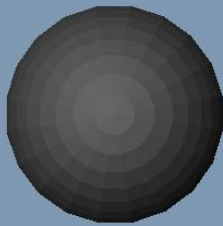




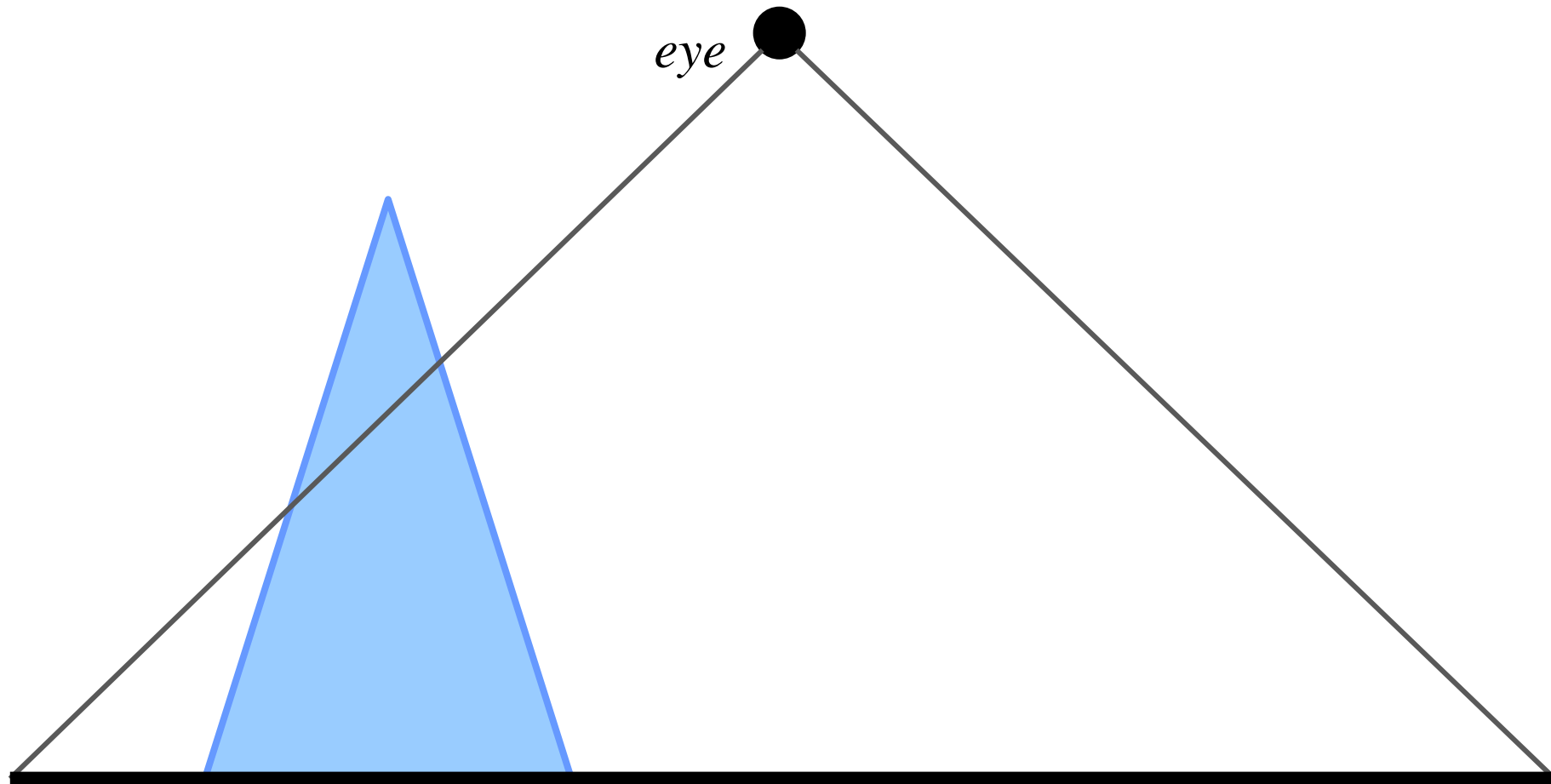
# Perspective Shifting



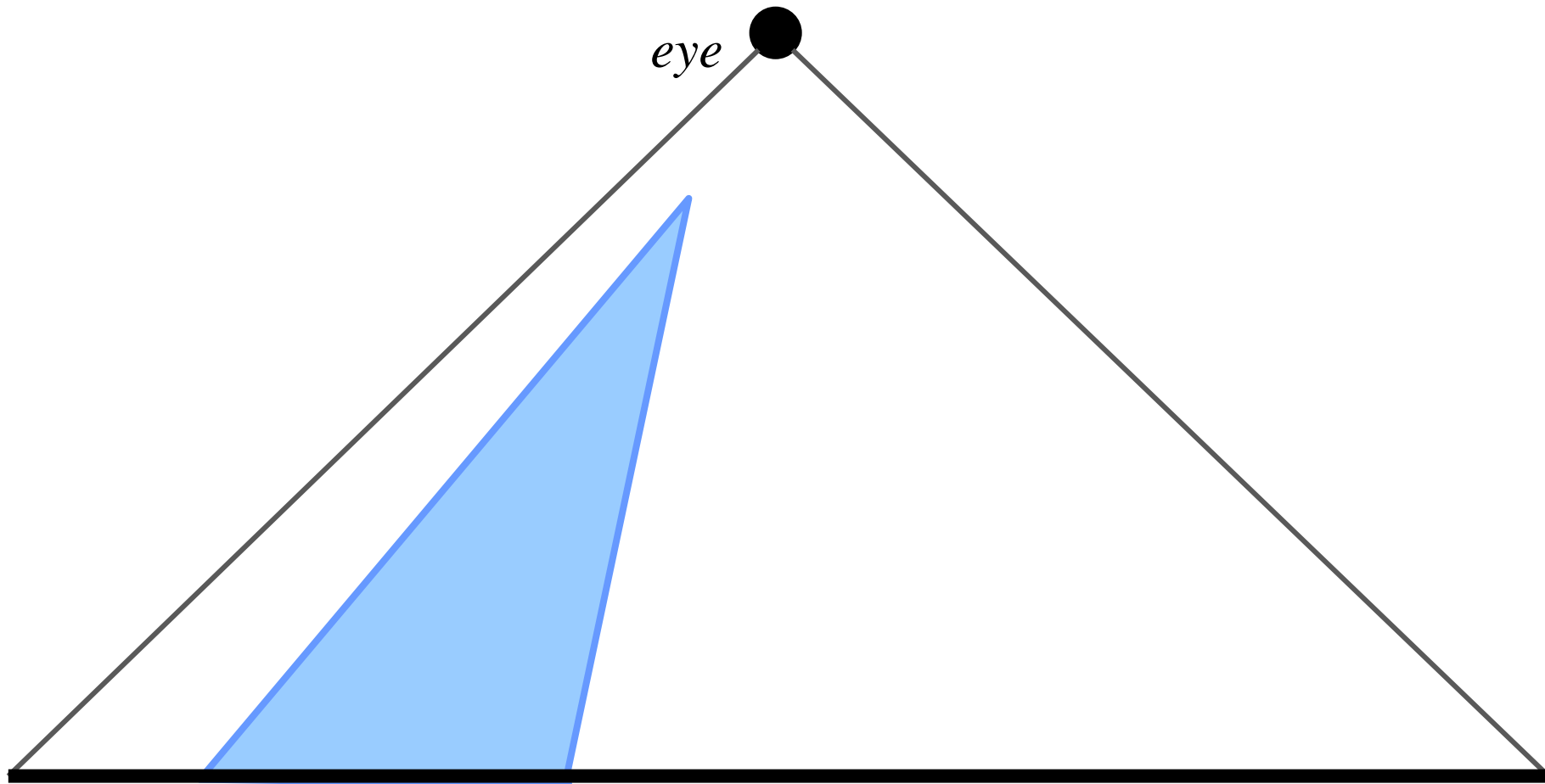
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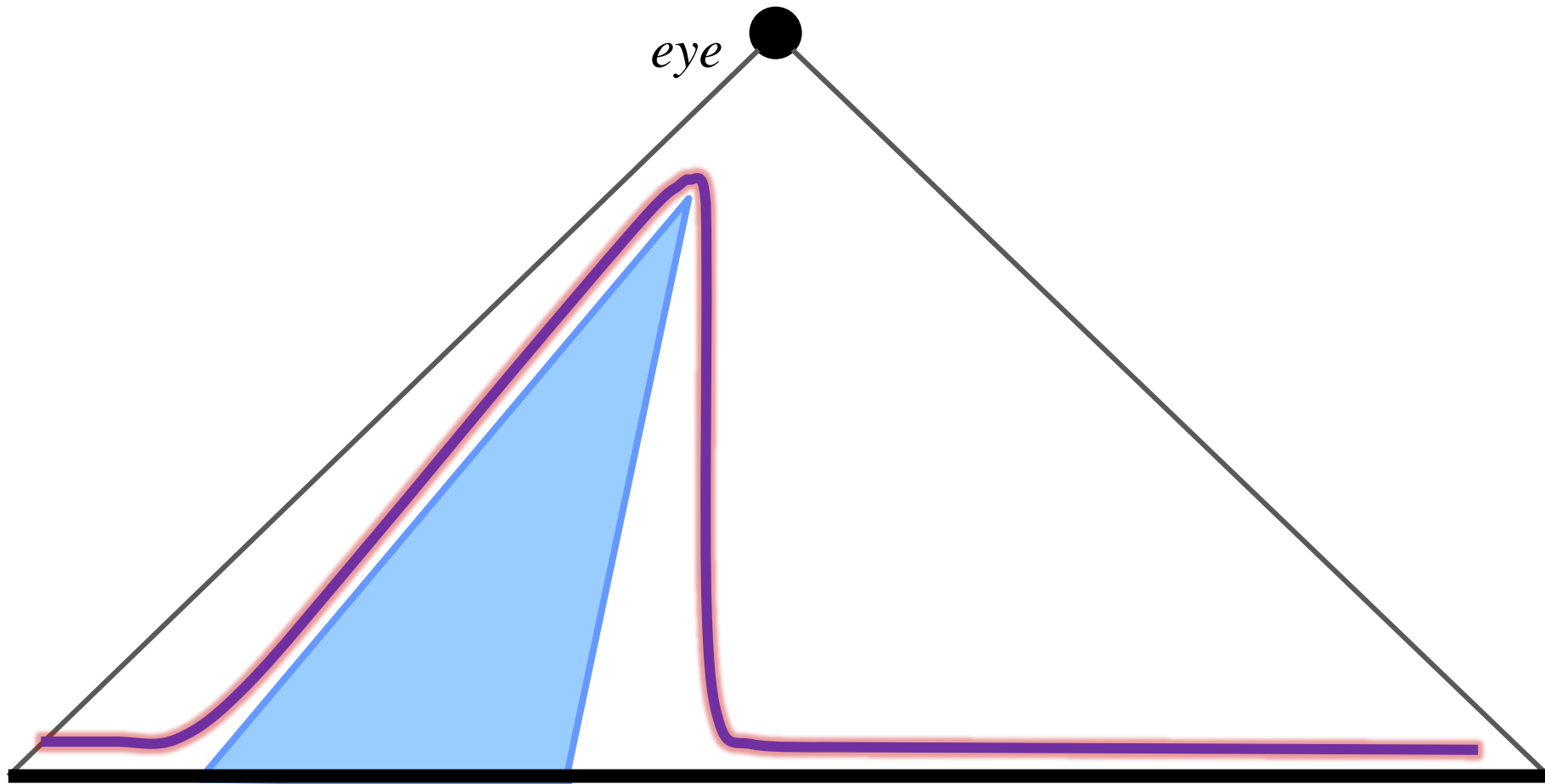
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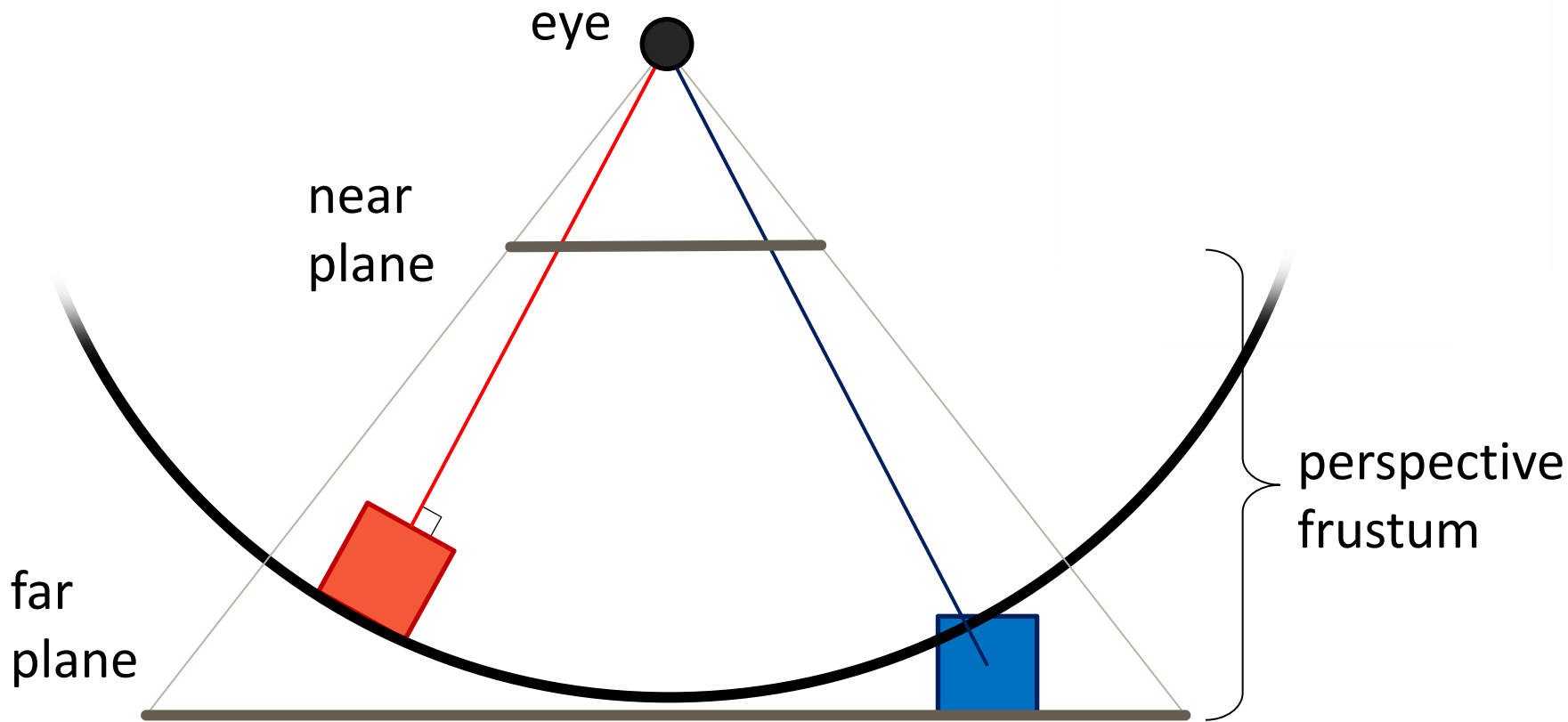
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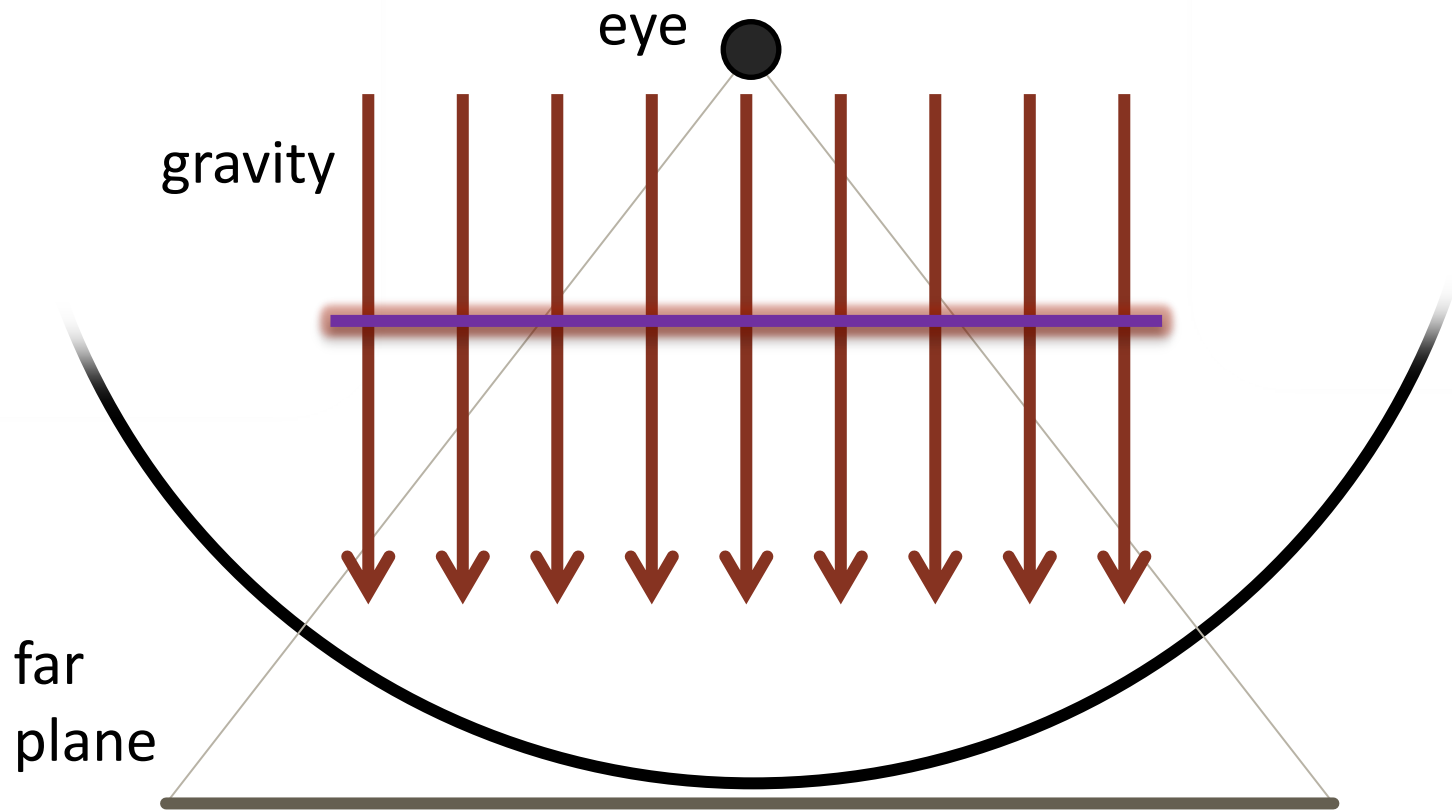


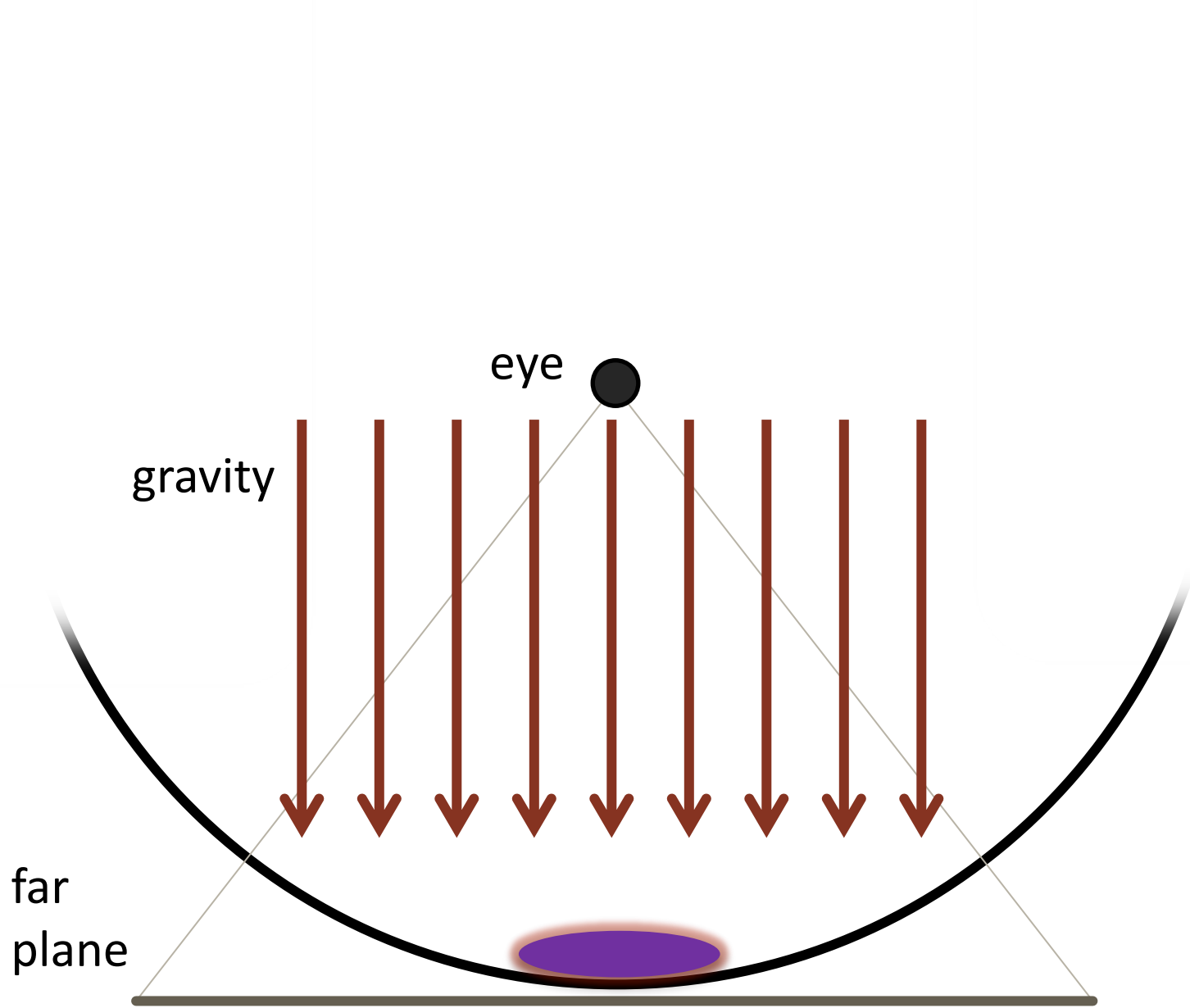
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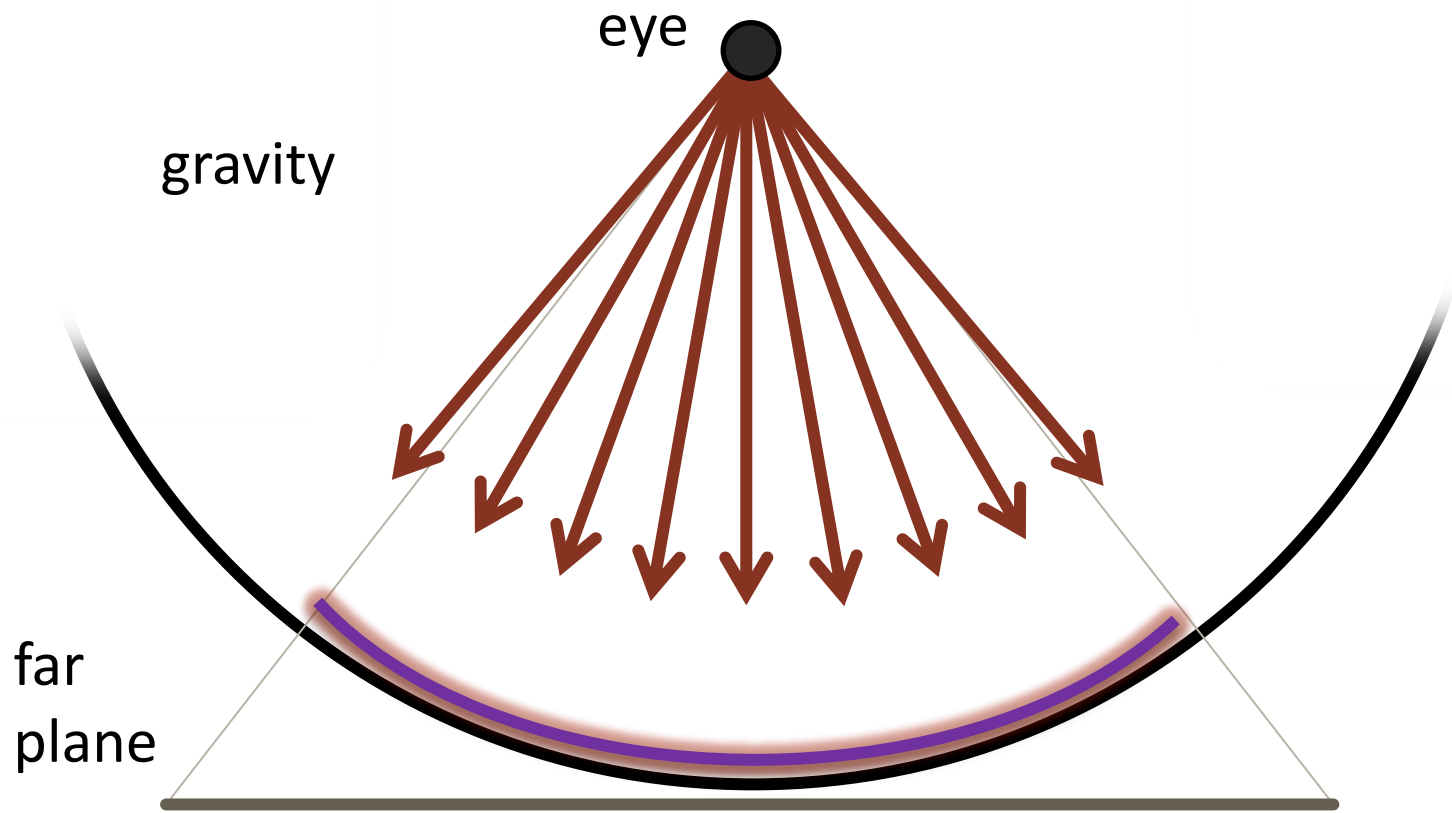


# Perspective Shifting



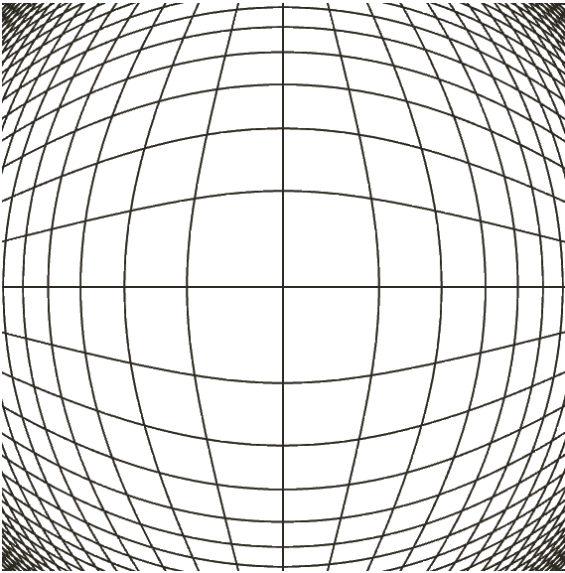






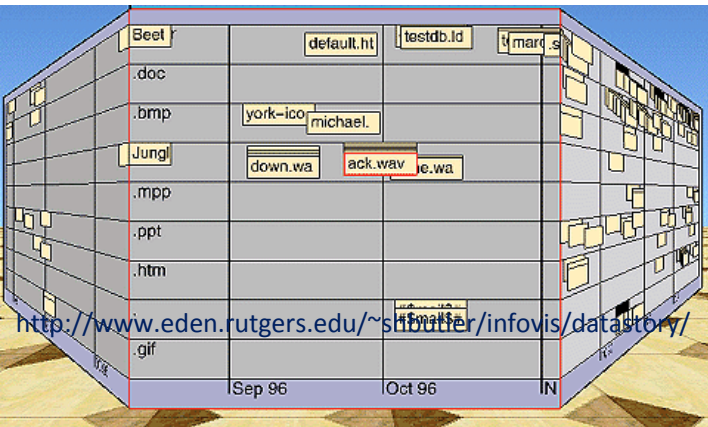
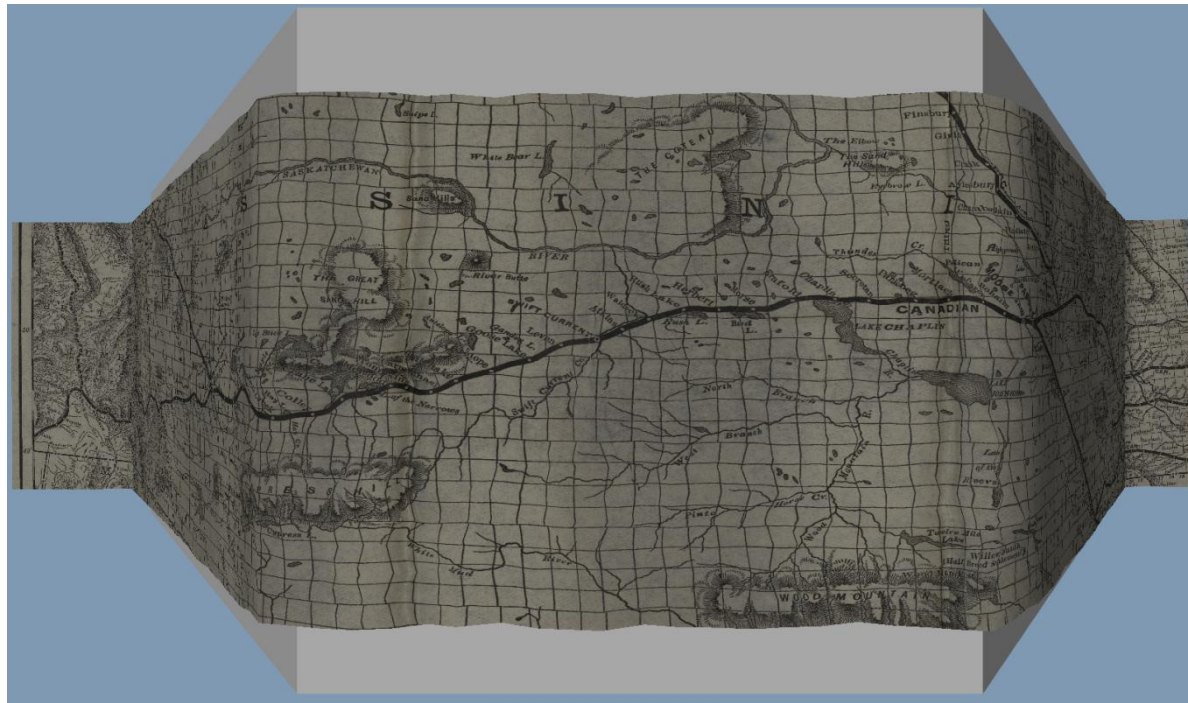
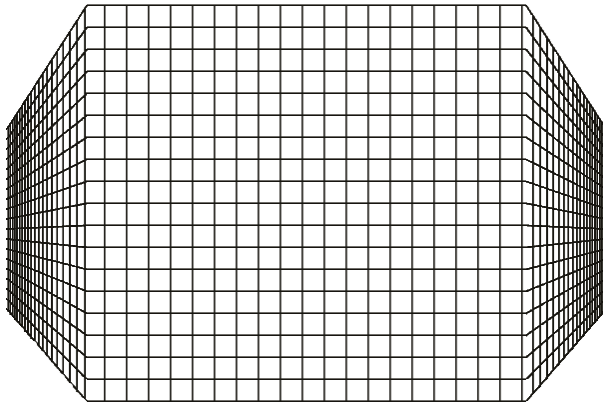
# Reproducing Lenses

## Graphical Fisheye



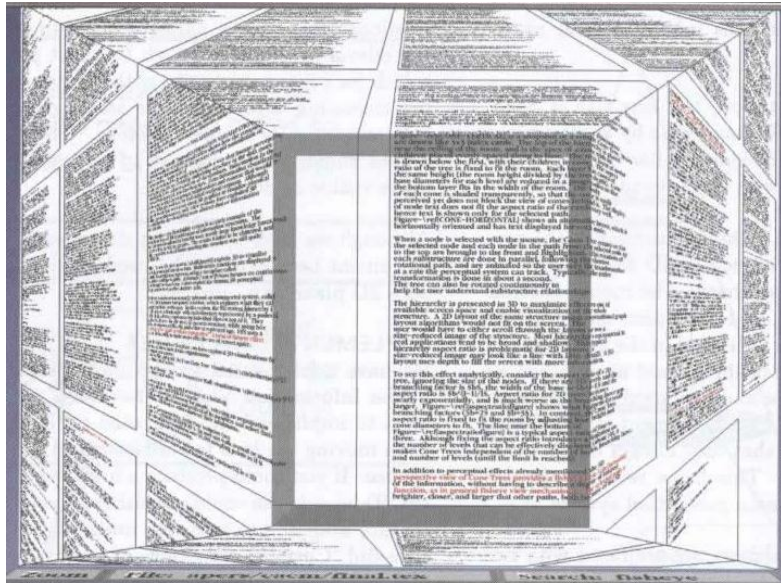
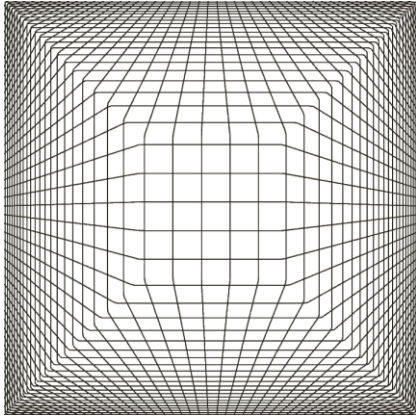
# Reproducing Lenses

## Perspective Wall

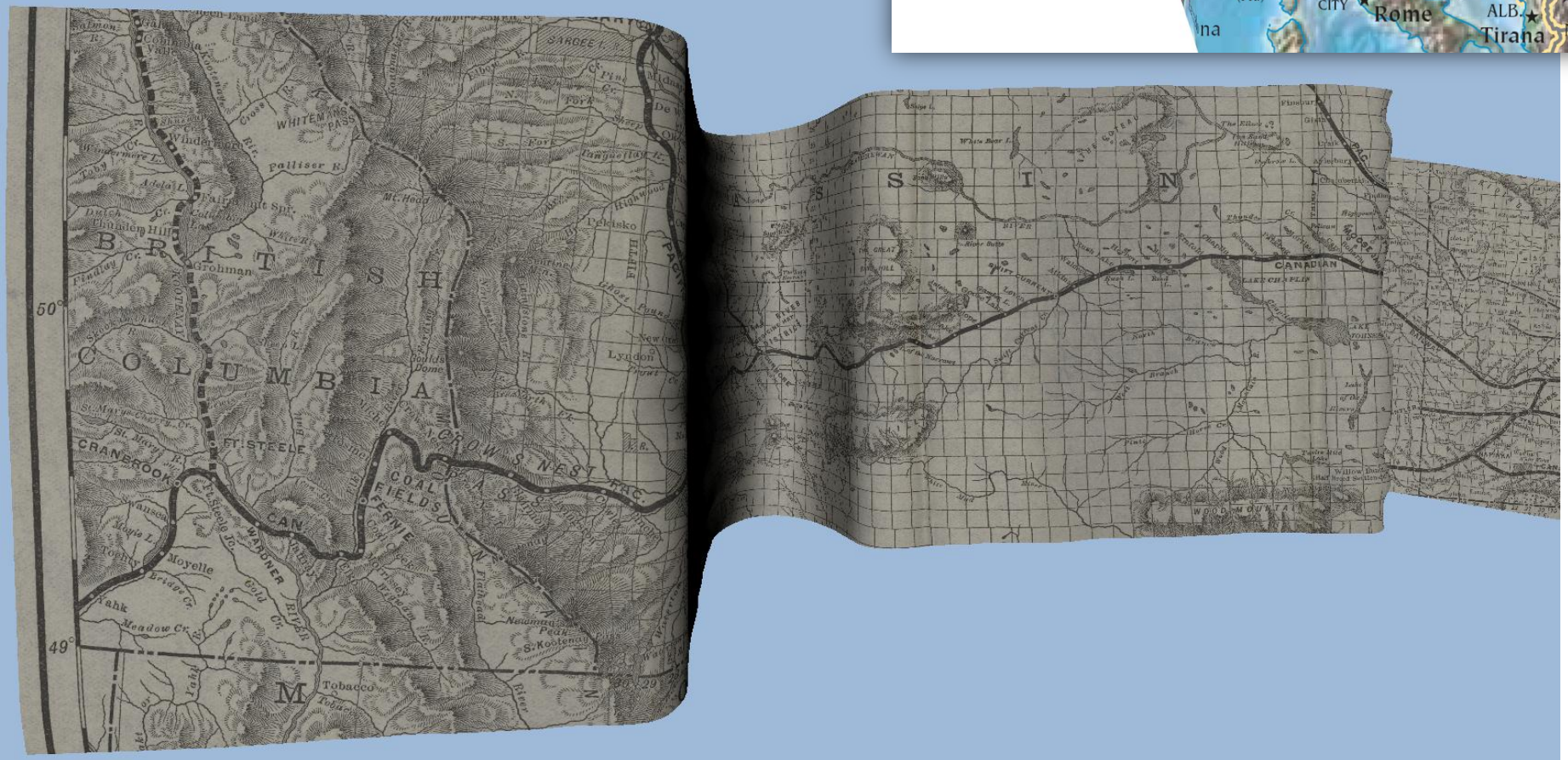
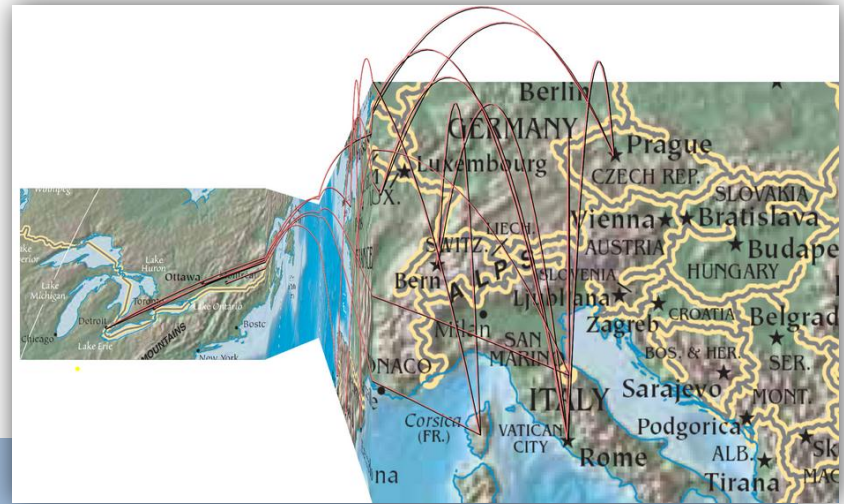


# Reproducing Lenses

## Document Lens



# Reproducing Lenses Mélange





# New Lens Possibilities

Bridging



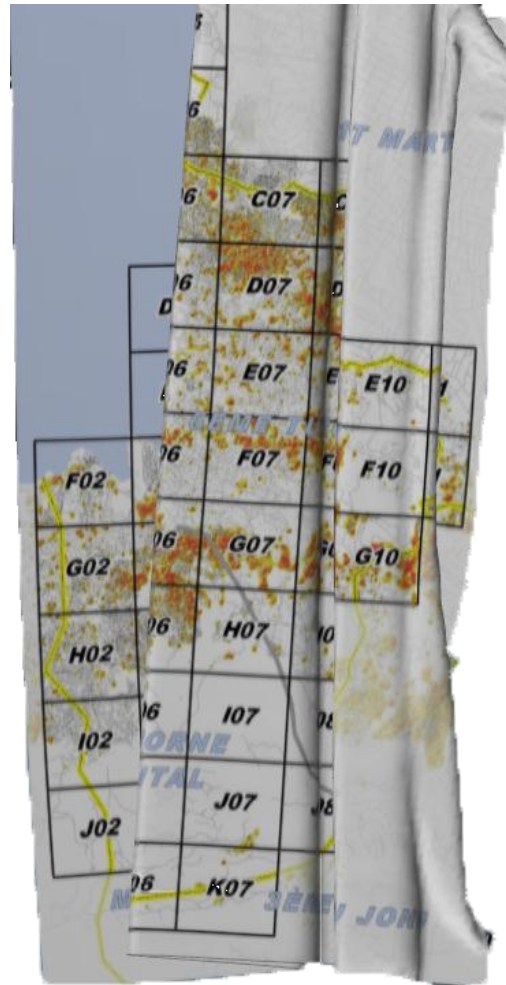
# New Lens Possibilities

Smoothing

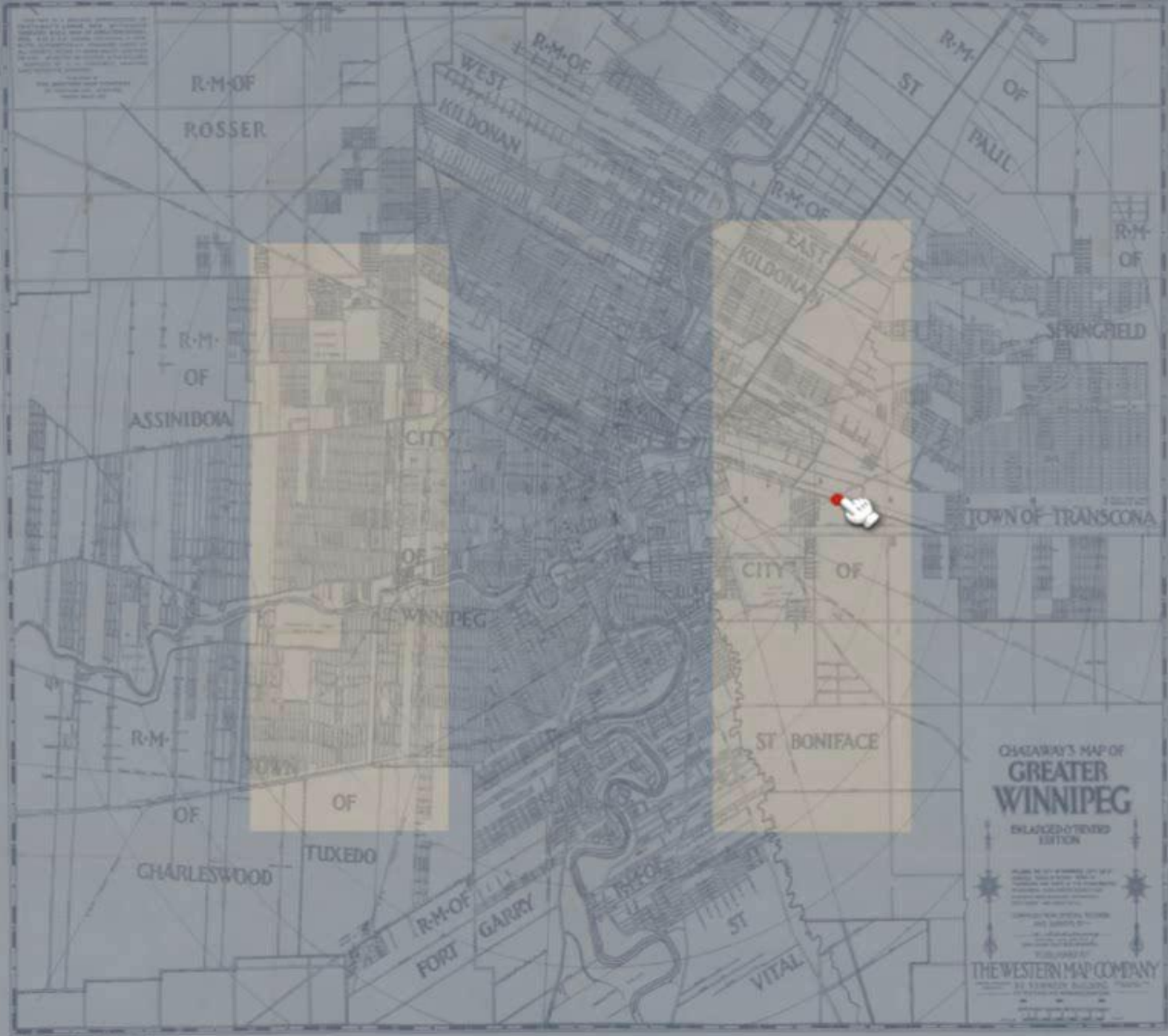


# New Lens Possibilities

Folding



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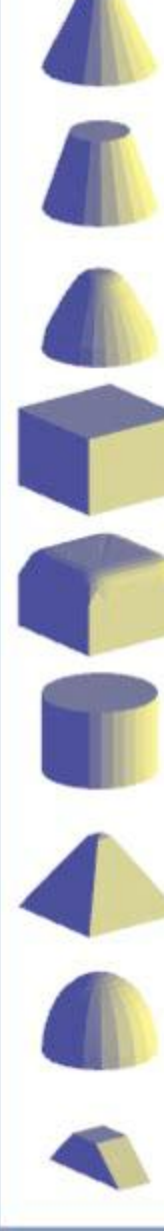


CHASARAY'S MAP OF  
**GREATER WINNIPEG**

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# Conclusions

## Detail-in-Context

- Approximate a wide variety of lenses
- Created w/ physically-based interaction

## Information Cloth

- Can be used for information exploration
- Physics + cloth may make interactions more clear & easily understood
  
- New solution to “tipping” for wide-angle perspective

# Future Work

- Tools
  - Folding
  - Smoothing
- Materials

# Questions



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CALGARY



UNIVERSITY OF  
Waterloo

