# Proxemics and information visualization

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October 14, 2012

# Information visualization on wall-sized displays

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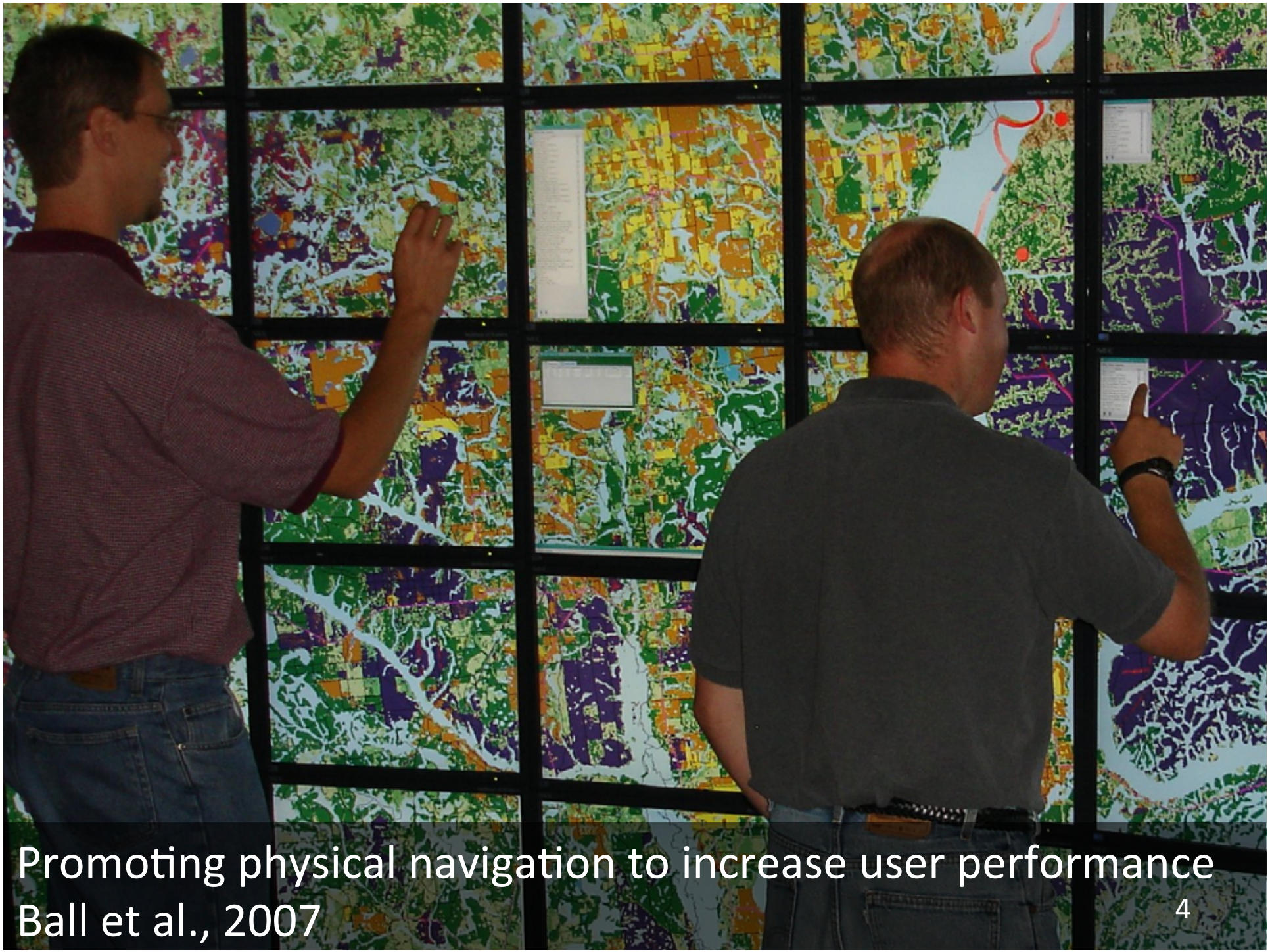
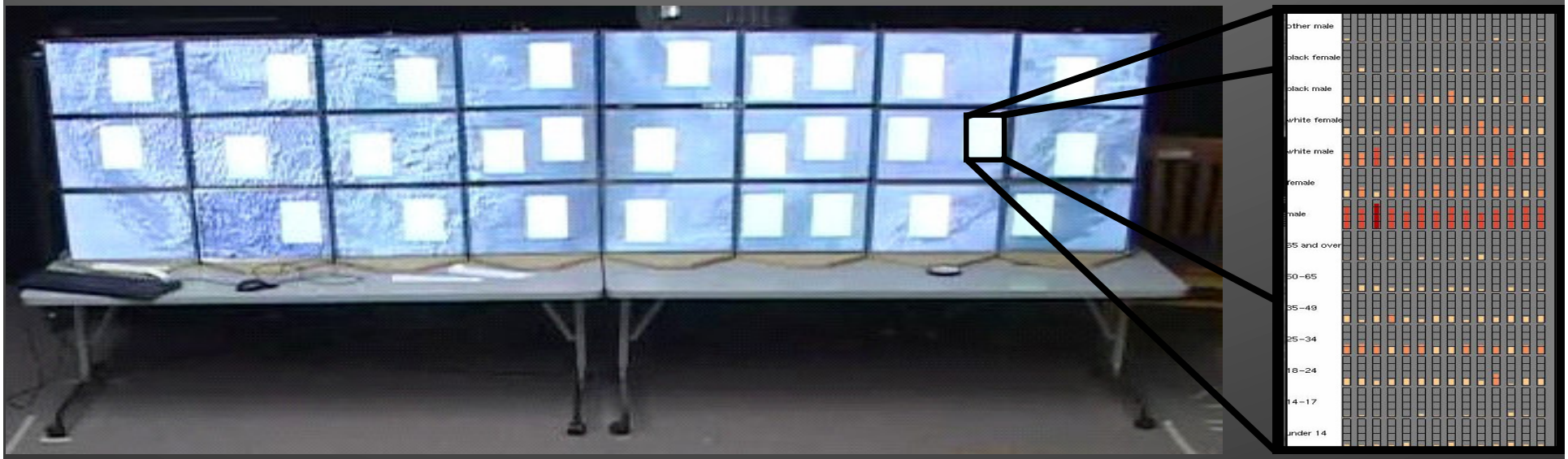
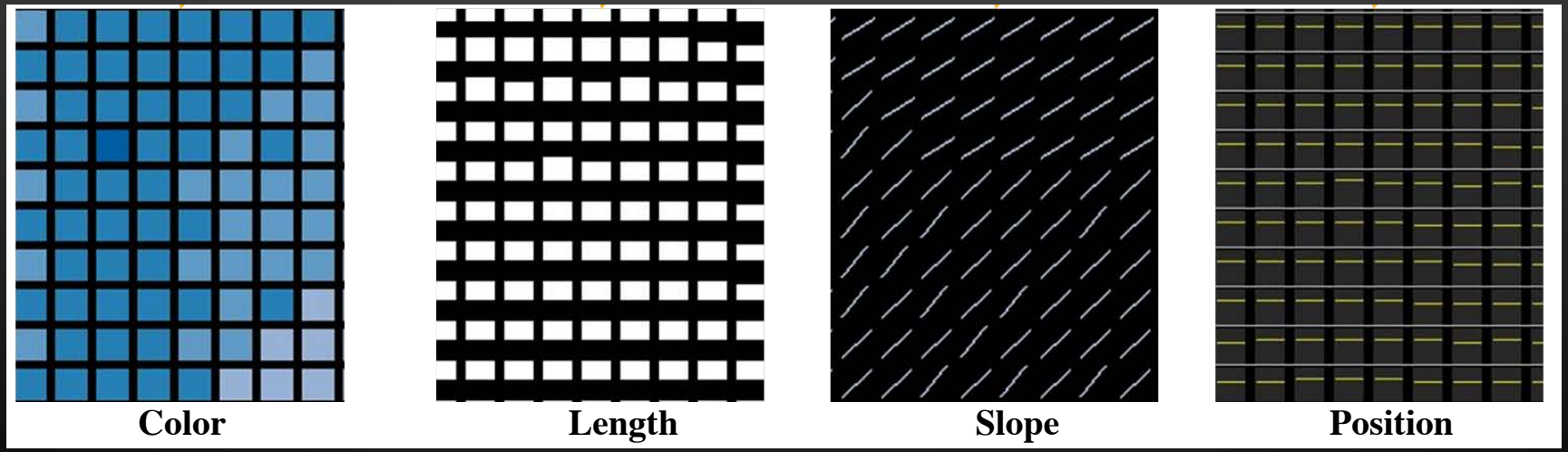
Desktop-sized displays
Single user
Mouse and keyboard

Wall-sized displays
Multiple users
Gestures and **movement**



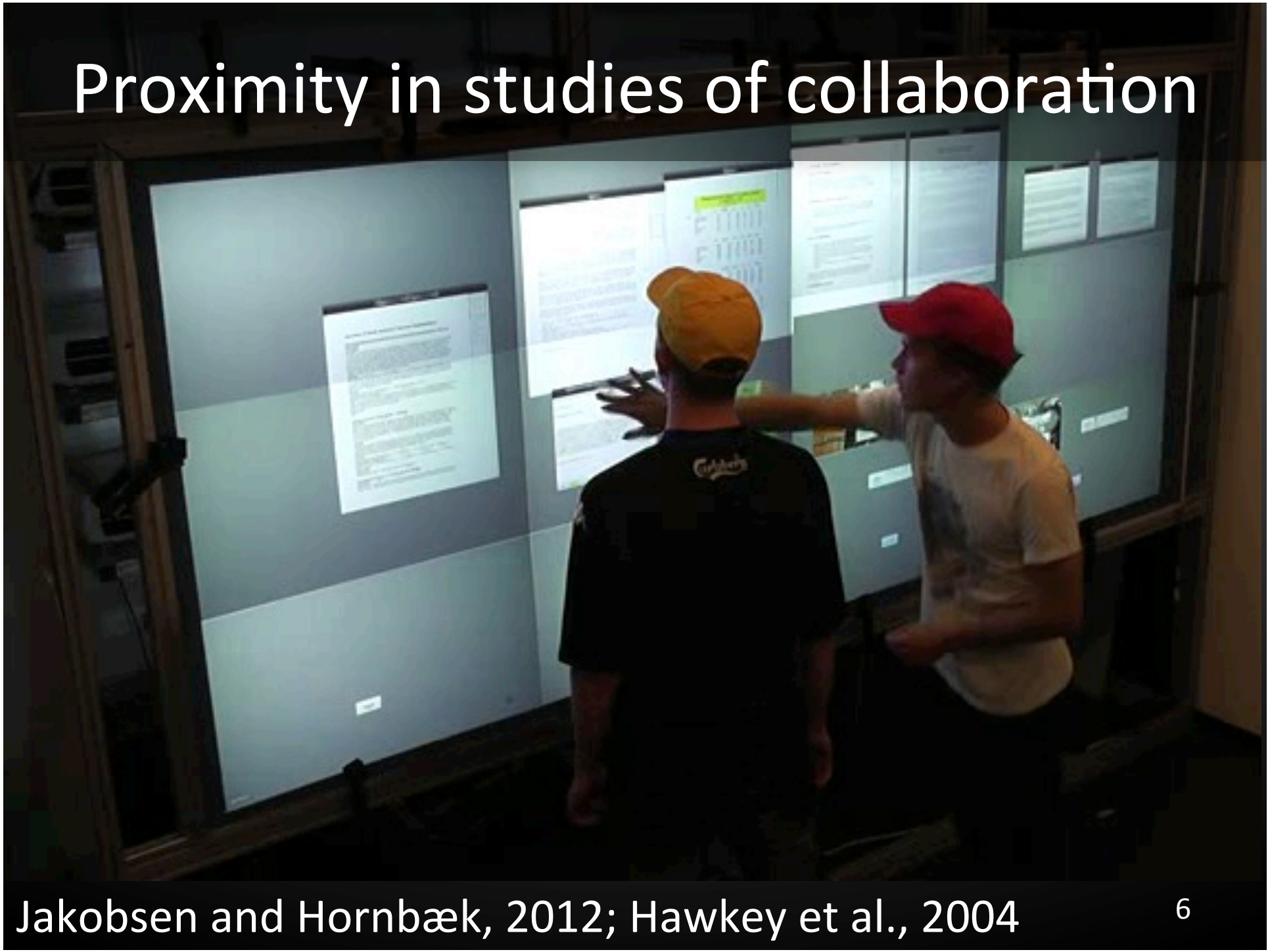
Promoting physical navigation to increase user performance
Ball et al., 2007



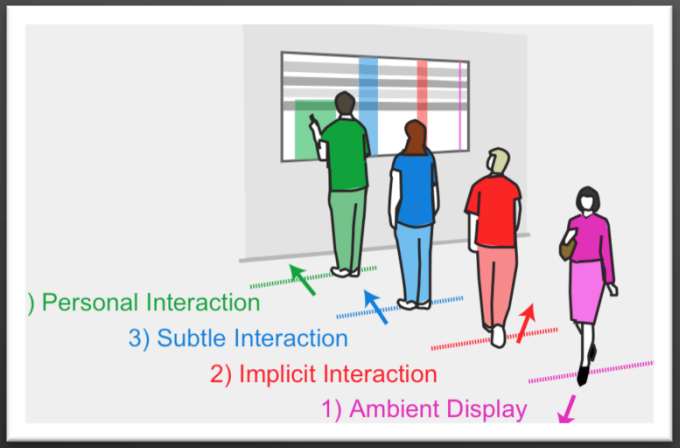

Perceptual scalability of visualization
Yost and North, 2006; Endert et al. 2011

# Proximity in studies of collaboration



Jakobsen and Hornbæk, 2012; Hawkey et al., 2004

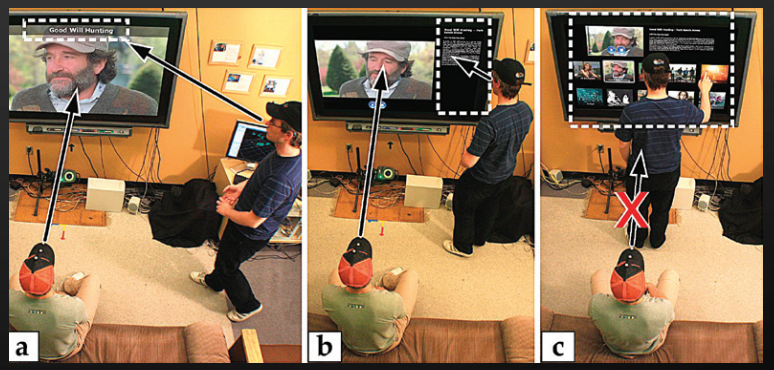
# Proxemics-based interaction




Vogel and Balakrishnan, 2004

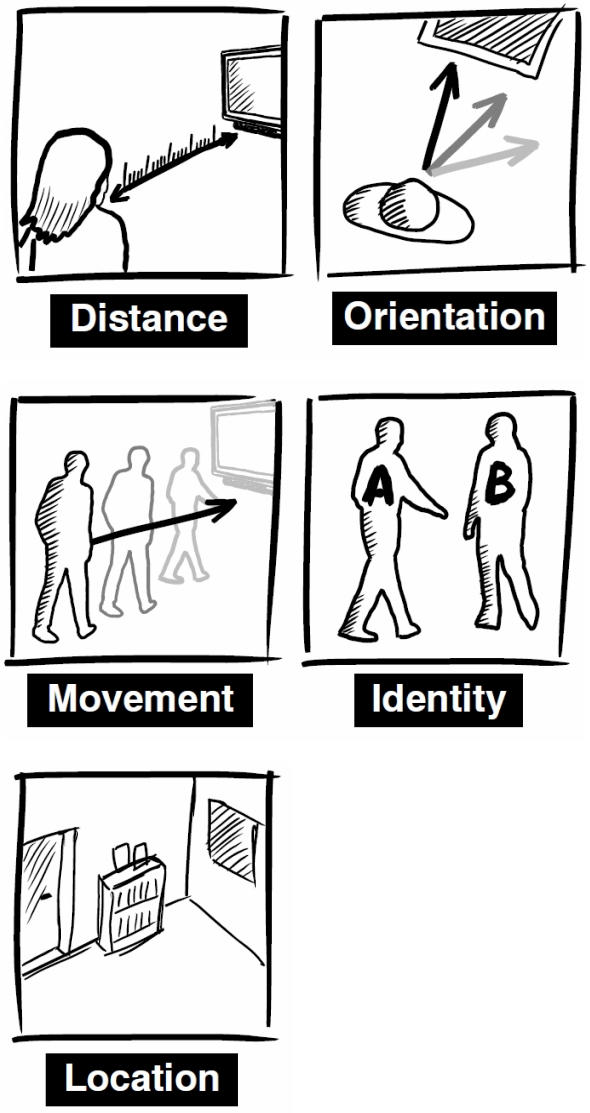
Peck et al., 2009

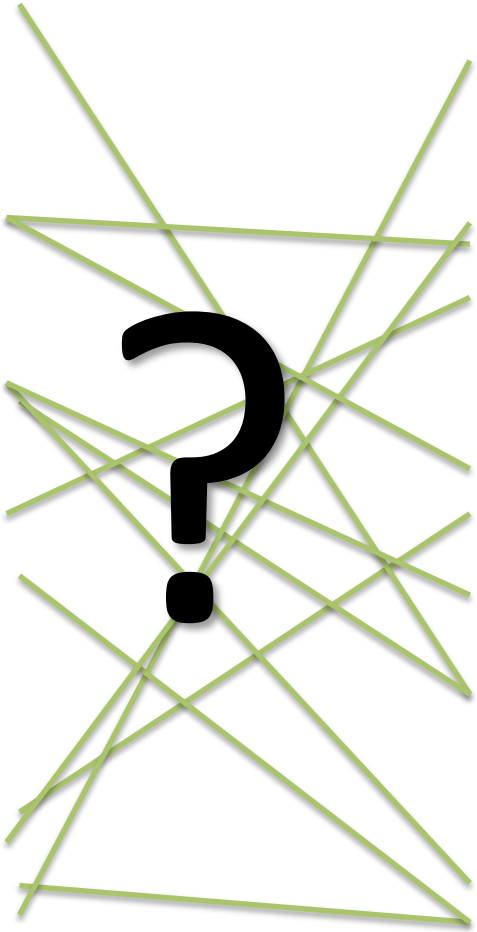
Shoemaker et al., 2010




Greenberg et al., 2011

# Proxemics + information visualization




Data & View Specification

Visualize, Filter,
Sort, Derive

View Manipulation

Select, Navigate,
Coordinate, Organize

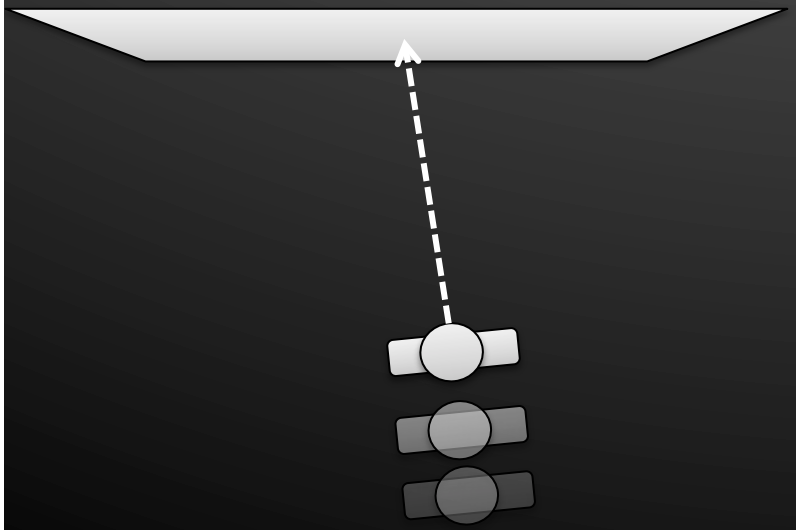
Process & Provenance

Record, Annotate,
Share, Guide

Marquardt & Greenberg, 2012

Heer & Shneiderman, 2012

# Movement-based zooming and panning



# Adapting a visualization to the user's distance

# Conclusion

We demonstrate single-user interaction with visualizations based on user's distance, movement, and orientation

Future work:

- Combine different proxemics data
- Combine with other input
- Design for multiple users
- Empirical studies