Panel: SciVis, InfoVis – Bridging the Community Divide?!

Breadth vs. Depth, and the Usefulness of Interdisciplinarity
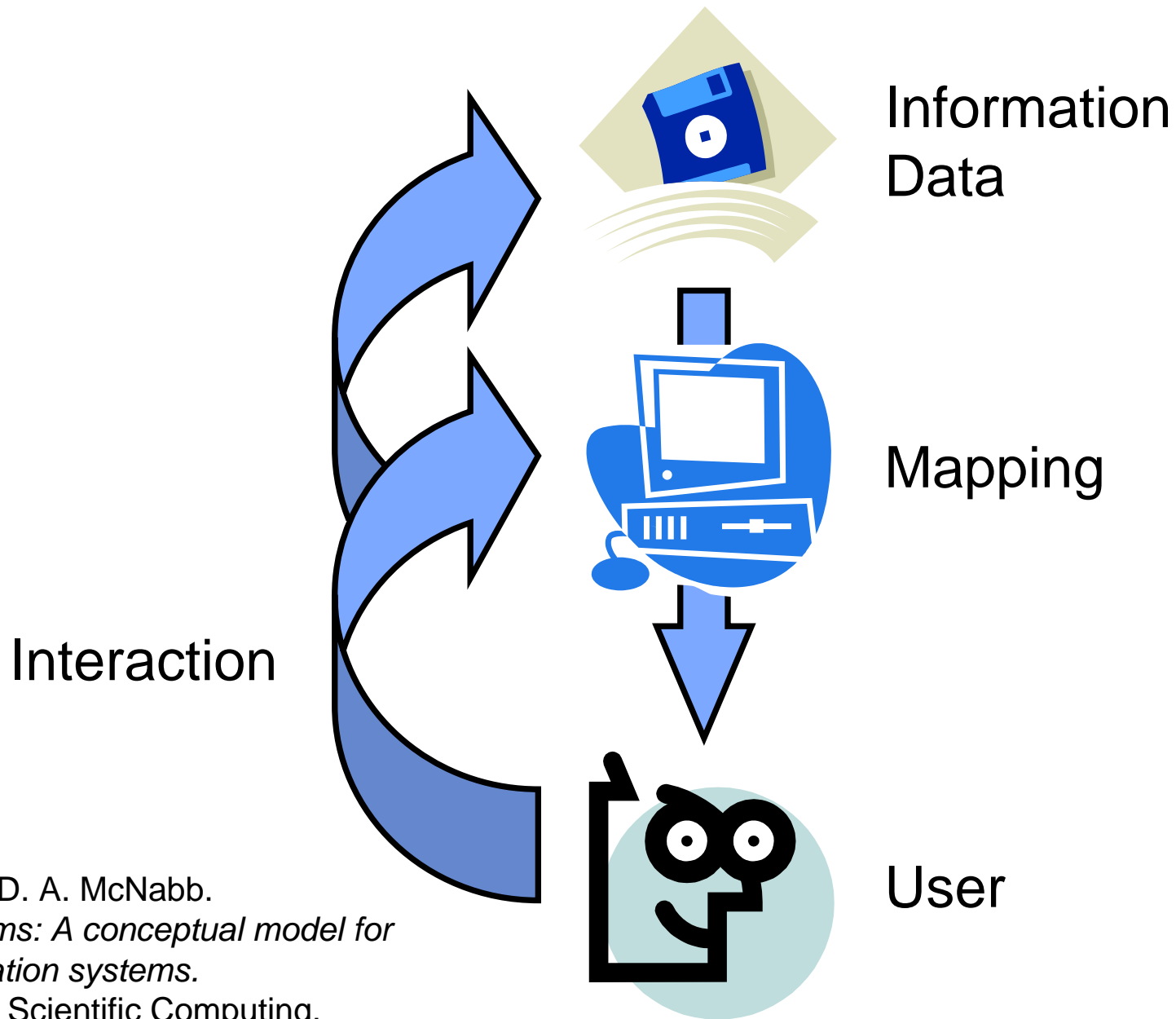
D. Weiskopf

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gruvi graphics + usability + visualization

… or: a largely oversimplified view

# *Same Goals*

Information Data

Mapping

Interaction

User

[R. B. Haber and D. A. McNabb.
*Visualization idioms: A conceptual model for
scientific visualization systems.*
In Visualization in Scientific Computing,
p. 74-93, Computer Society Press, 1990]

Why and Where Is a Divide?

- **Historical separation**
  - Different data types, different mapping strategies
  - Different "age"

- **People**

- **Scientific background and methodologies**
  - Computing science
  - Mathematics, natural sciences
  - Psychology
  - HCI
  - …

- **Other aspects …**

The Divide – Revisited and Simplified

"SciVis"

Computing Science/
Algorithms

"InfoVis"

Psychology/
HCI
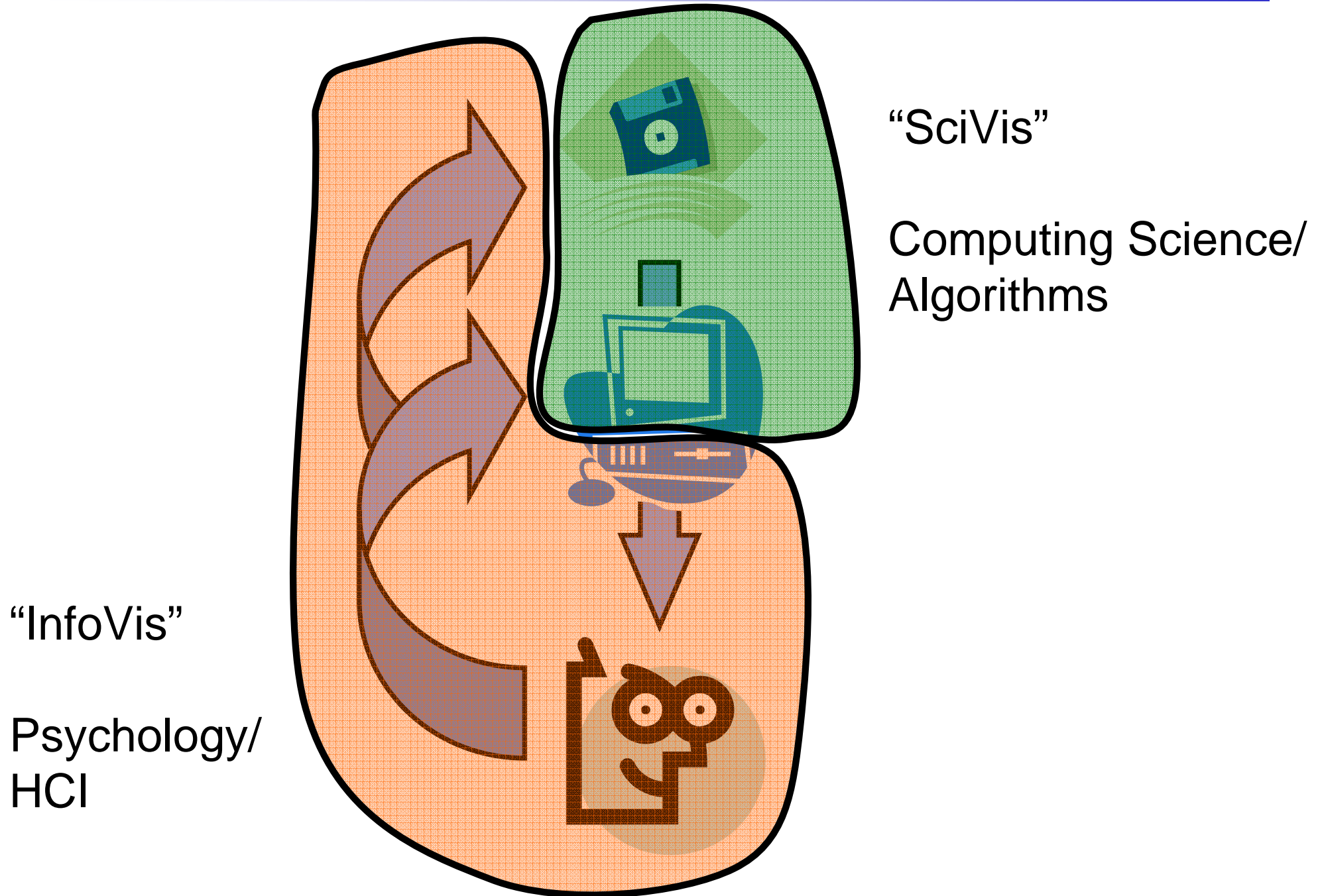
"InfoVis" vs. "SciVis"

- Wrong names?
  - Yes!

- Will they change?
  - I don't think so

- Divide
  - Less and less based on classification according to data types
  - More and more based on required expertise

Differences in Expertise

- Algorithm design
- Efficient implementation
- Large-data handling
- Mathematical modeling
- Numerical techniques

- User studies
- Perception research
- HCI
- Cognitive research

Efficiency

Effectiveness

Future?

- Lots of challenges in both areas

- Future will not be boring ;-)

- Validation is often not convincingly done!

- Need for more specialization, not less

- Need for depth

- "InfoVis" is still maturing

Dangers

1. Stretching your expertise

- Cover the whole visualization process?

2. Try to solve too difficult problems

- A full model of human cognition?!

Interdisciplinarity

- Separate methodologies - same goal

- Interdisciplinarity in a broad sense

- Breadth

"SciVis"		"InfoVis"

Mathematics		HCI

Engineering		Perception

Applications