Some comments on the paper by Paul Biemer & Marcus Berzofsky:

LATENT CLASS MODELS & QUESTIONNAIRE PRETESTING

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Brief History of Latent Variable Analysis

- 1967-69: Karl Jöreskog – development of confirmatory factor analysis
- 1973: Karl Jöreskog – LISREL software
- 1974: Leo Goodman – development of generalized latent class analysis
- 1977: Clifford Clogg – MLLSA software

Available Latent Class Analysis Software

- Latent GOLD (Vermunt & Magidson, 2005)

- *LEM* (General Program for the Analysis of Categorical Data)

- MLLSA (Maximum Likelihood Latent Structure Analysis)

- Mplus (Muthén & Muthén, 1998-2007)

- SAS Proc LCA & Proc LTA

- WinLTA (Latent Class Analysis & Transition Analysis)

Biemer & Berzosky's Paper:

- Discusses LCA, a highly advanced form of categorical data analysis
  - Carefully reviews technical assumptions
- Adds to the small body of literature that provides examples of the application of LCA to question design problems:
  - See also:
    - Alwin (2007)
    - Biemer (2001; 2004); Biemer & Wiessen (2002); Biemer & Witt (1996)
    - Flaherty (2002)
    - Krueter, Yan & Tourangeau (2008)

Why is this paper important?

- Addresses an advanced methodology that is not commonly applied to survey measurement problems
- Latent variables are seldom empirically examined in the survey methodology literature,
  - …despite the fact that measurement error remains a serious problem (cf., Moffitt et al, in-press)

Advantages of LCA for Questionnaire Design

- Can be used to examine measurement quality when gold standard measures are not available or do not exist

- Can be used for theory testing as well as exploratory work

- Can be used to provide evidence of various error mechanisms (e.g., social desirability bias)

Disadvantages of LCA for Questionnaire Design

- Realistically, is more useful for question evaluation than questionnaire pretesting per se
- Issue of data sparseness
- Multiple measures of construct of interest are required
  - Respondent is required to answer series of similar items
- Important that data file not be edited to enforce consistent answers across questions
- LCA is still not accessible to many survey professionals

Conclusions

- Biemer & Berzofsky make a valuable contribution
  - Valuable introduction of LCA to survey community
- Is good evidence that LCA *can* be used to identify problematic survey questions
- However:
  - Most applications will require careful advance planning
  - Will not be applicable in many situations

Future Directions

- LCA could be applied to comparative measurement problems via multi-group models
  - (i.e., can latent class measurement structures and findings be replicated across cultural groups?)
- Also examine models in which auxiliary data is also employed to develop latent classes
  - Might enable us to take advantage of the best of both worlds
- Important to train more survey professionals in the use of LCA

What Meets the Eye?
Latent and Manifest Entities in Design and Pretesting

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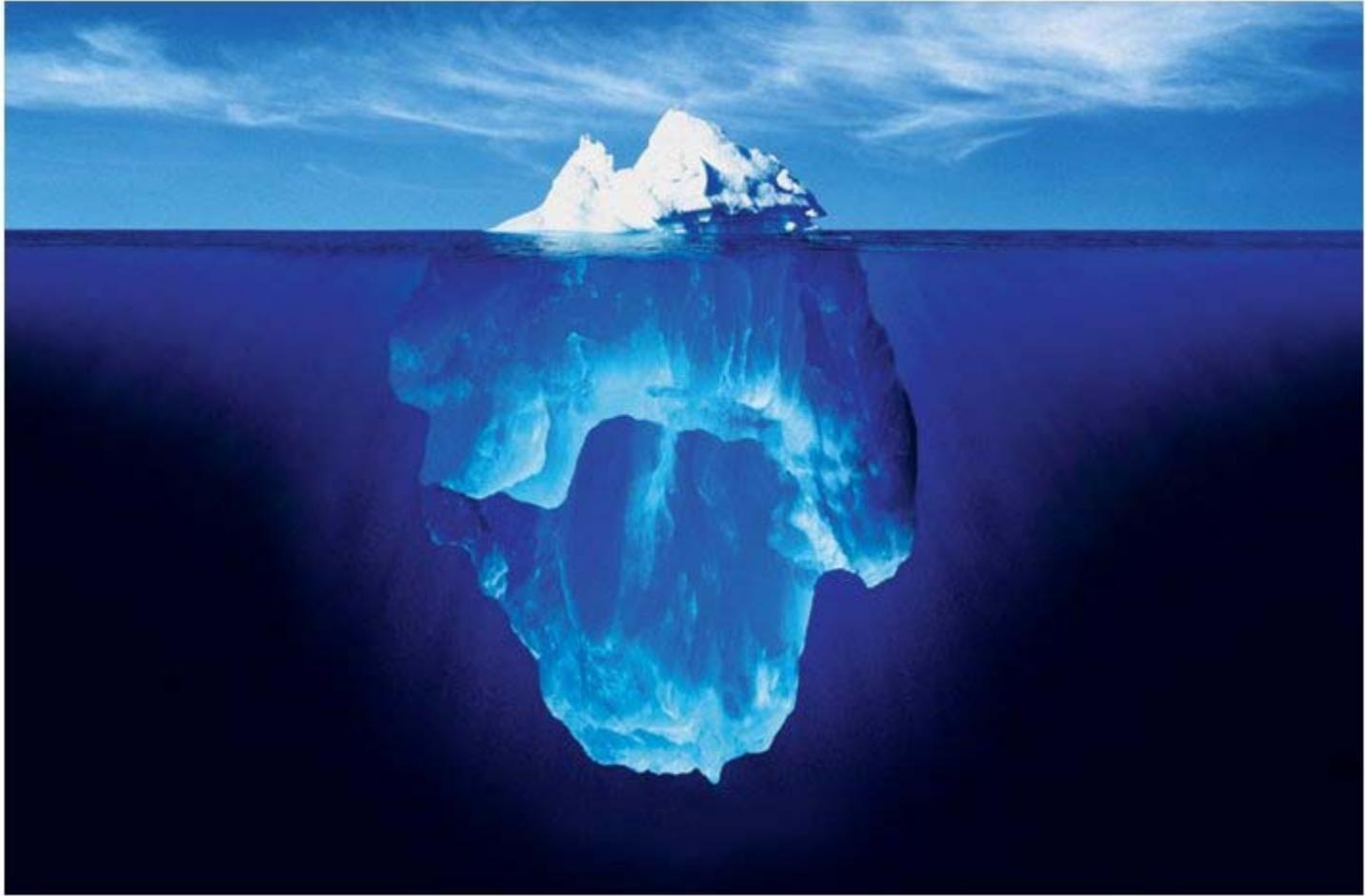
http://www.amsterdamgothic.nl/pictures/box.gif

Outline

- **Visual notions**
- **Design model:** latent and manifest
- **Speech acts**
- **Context and effects**
- **Pretesting surprises?**
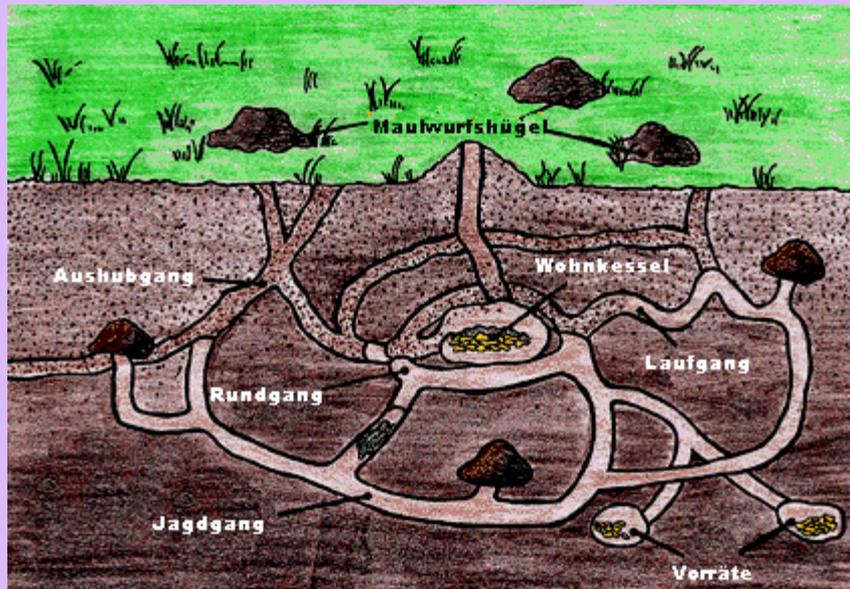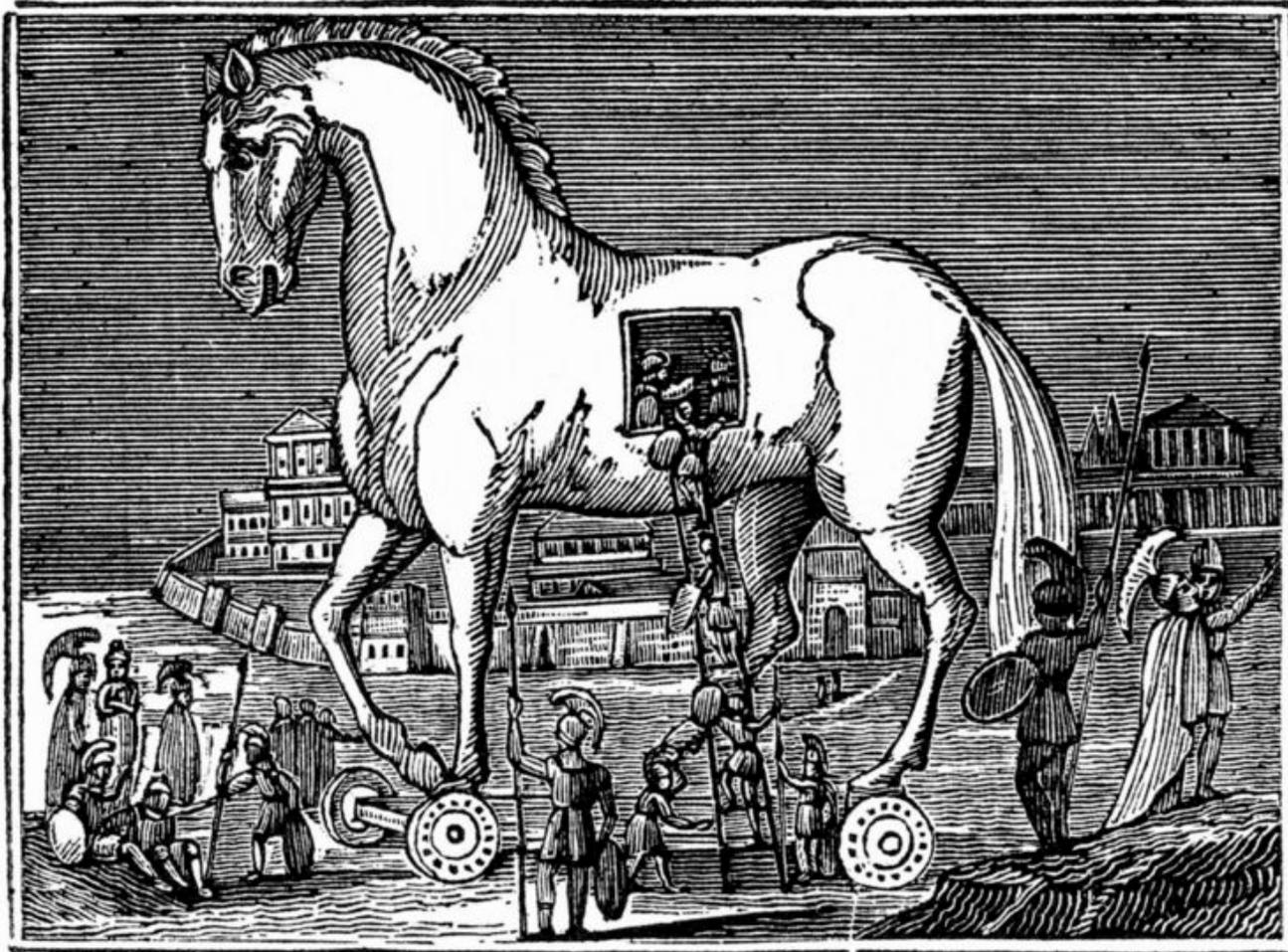- **Meaning** in theoretical context
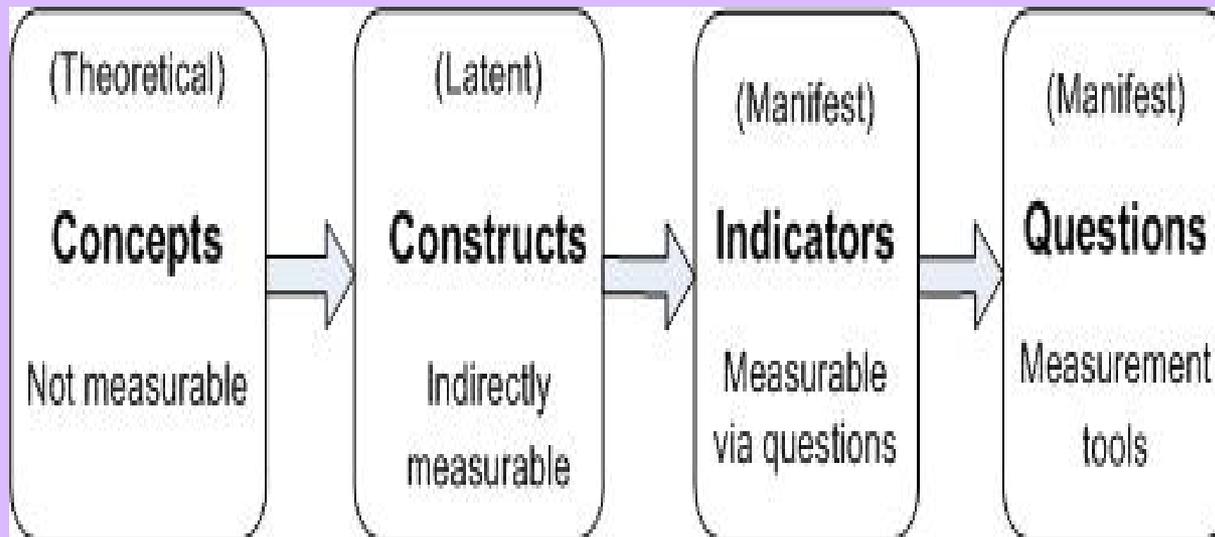
VISUAL NOTIONS

http://ralphclevenger.com/

http://www.wellho.net/mouth/1071_Making-a-mountain-out-of-a-molehill.html

http://gidw-os.nibis.de/Bodenweb/lebewesn/gang.gif
[groundweb/creatures/tunnel]

DESIGN MODEL: LATENT/MANIFEST

(Theoretical) **Concepts** Not measurable → (Latent) **Constructs** Indirectly measurable → (Manifest) **Indicators** Measurable via questions → (Manifest) **Questions** Measurement tools

(Harkness, Villar, Edwards, Hansen,Miller, forthcoming)

Questions: Language Vehicles for Indicators

Do you feel happy?

Are you happy?

To what extent do you feel happy?

(…small extent, some extent, large extent…)

Overtly close or distant to indicator

What year were you born?

It is just too difficult for someone like me to do much for the environment (ISSP, agree/ disagree scale)

Language: Manifest and Latent

SPEECH ACTS

Speech Acts (cf. John Austin; John Searle)

The notion is that we DO things with words

We make promises, requests, threats, apologies, compliments….

Questions as Speech Acts

When did you last have your hair cut?

Is that a new dress?

Direct and indirect speech acts

CONTEXT AND EFFECTS

- Context : multiple facets and levels
  - "Measurement event"
    - yesterday's response models and more
  - Instrument
  - Interview
  - Day in the life of…
  - Common and uncommon ground…

Did you vote in the last election?

How many children do you have?

PRETESTING SURPRISES ?
ADVANCED COMMON SENSE? JM©

Pretesting Findings

"Have sex"

- Frame of reference differed across groups of different sexual orientation

- Words and concepts understood differently across groups

- Individuals changed their own frame of reference within interview

HOW QUESTIONS MEAN

Do questions mean?

- People have meanings
- Language: major tool to convey intended meaning
- Language is associated with "meanings" through use
- Salient, accessible language and presentation *help* intended meaning become perceived meaning

How questions mean

What we see is not (all) we understand

Do you have a watch?

When did you last see your mother?

Did you vote in the last election?

Meaning is dynamic, negotiated, co-constructed

(measurement can affect latent perspectives, dispositions)

How questions mean (2)

- Questions are culturally and linguistically framed
- Interpretation is framed
- Double life of questions

  - Questions and "discourse" for respondents

   - Tools for researchers

Is your appetite poor?

Is your appetite poor?

Assumed

- Question taps intended indicator
    - Lack of appetite
- Indicator taps intended latent construct
    - indicator for depression
- R understands question as intended
- Several indicators provide insight to latent construct
    - Poor appetite, loss of weight, changed sleep patterns

Is your appetite poor?

- Understood as question about availability of food (Kortmann, 1987)

What was the problem?

- Context (micro, meso, macro)
  - Knowledge & experience
- Common ground
- Meaning is dynamic, negotiated, co-constructed

Consequences: design and pretesting

Potential conflict

- notion of *fixed* salient overt and covert meaning
- one "version" for all populations
- one form of pretesting for all target populations and versions

Consequences for design and pretesting

Bodies of relevant knowledge requiring application

Design and test within a **overt framework of meaning**

Acknowledge and research **culture as covert** component

Manipulate designs to **investigate covert effects**

(request strategies, formats, visuals, words…….. Indicators and their questions)

Document findings for analysis

      to uncover/discover patterns and develop strategies