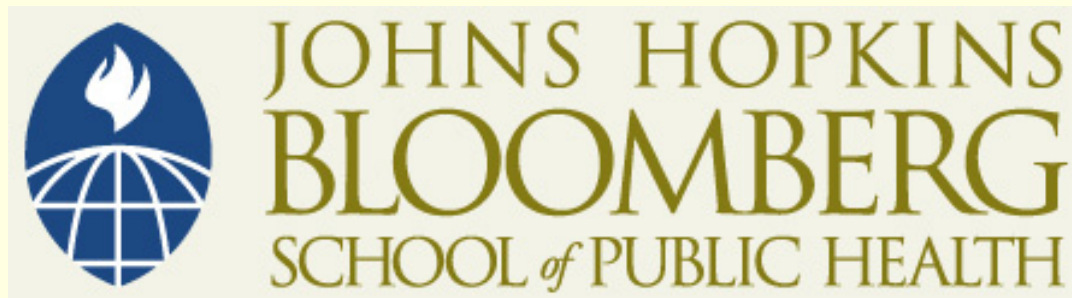


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Qualitative Data Analysis

Methods in Cultural Domain Analysis

April 28, 2008

Agenda for Today

- Introduce cognitive anthropology
- Define the term “cultural domain”
- Describe free-listing as a method for eliciting items within a cultural domain
- Discuss proximity methods (pile sorting and triads) to see which included terms within a domain go together
- Discuss example article from Bangladesh that uses these methods to explore women’s reproductive health.



Cognitive Anthropology

Cognitive Anthropology

- “Cognitive anthropologists study how people understand and organize the material objects, events, and experiences that make up their world.”*
- Try to understand cognitive categories (or cultural domains) as participants see them not as we researchers see them.
- Cultural domain analysis consists of a set of structured interviewing methods including free lists, pile sorts, and triad tests.

*<http://www.as.ua.edu/ant/Faculty/murphy/436/coganth.htm>

Cognitive anthropology on the epistemology continuum

Cognitive anthropology



Objectivist

Constructivist

Systematic Data Collection Methods

- In general should not be used in isolation
- Often good to place in a 'methodological sandwich'
 - Initial unstructured interviews to define relevant cognitive domains
 - Systematic methods to explore content and structure of cognitive domains
 - Further unstructured interviews to understand significance of structure of cognitive domains



Cognitive Domains

Cognitive domains

- A foundational concept in cognitive anthropology
- The purpose of freelisting is to define all of the items in a cognitive domain
- Other methods (pile sorting and triad tests) examine the internal structure of the domain
- Examples:
 - Days of the week (Relatively invariant)
 - Pets (Some variability)
 - Ways to make money (Highly contextual)
 - Types of diarrhea (*dast*) in Sindh Province
 - Types of fever (*homa*) in Bagamoyo District, Tanzania

“Etic” vs. “Emic”

- Biomedical disease classifications are “**etic**”, in that they are purported to be “universal” and independent of culture
- By extension, **emic** concepts and terms refer to concepts and terms that are meaningful in the local culture

Etic terms: Universal system of classification,
with objective definition for each term

Etic terms for
Culture #1

Etic terms for
Culture #2

Etic terms for
Culture #3



Free Listing

Free listing

- In free listing, you ask informants to “list all the X you know about” or “what kinds of X are there?”
- Common domains for free listing in public health
 - Illnesses
 - Symptoms of illness X or all illnesses
 - Causes of illness X or all illnesses
 - Treatments for illness X or all illnesses
 - Ways to prevent illness X or all illnesses
 - Health problems in this community
 - Types of food

Assumptions in free-listing (Quinlan, top of p 220)

- People tend to mention items in order of familiarity
 - Order of mention is indicator of salience
- People who know a lot about a subject list more than people who know less
 - More “competent” informants have longer lists
- People that most people list indicate locally prominent items
 - More prototypical items mentioned first

Advantages of freelisting (Quinlan p 221-222)

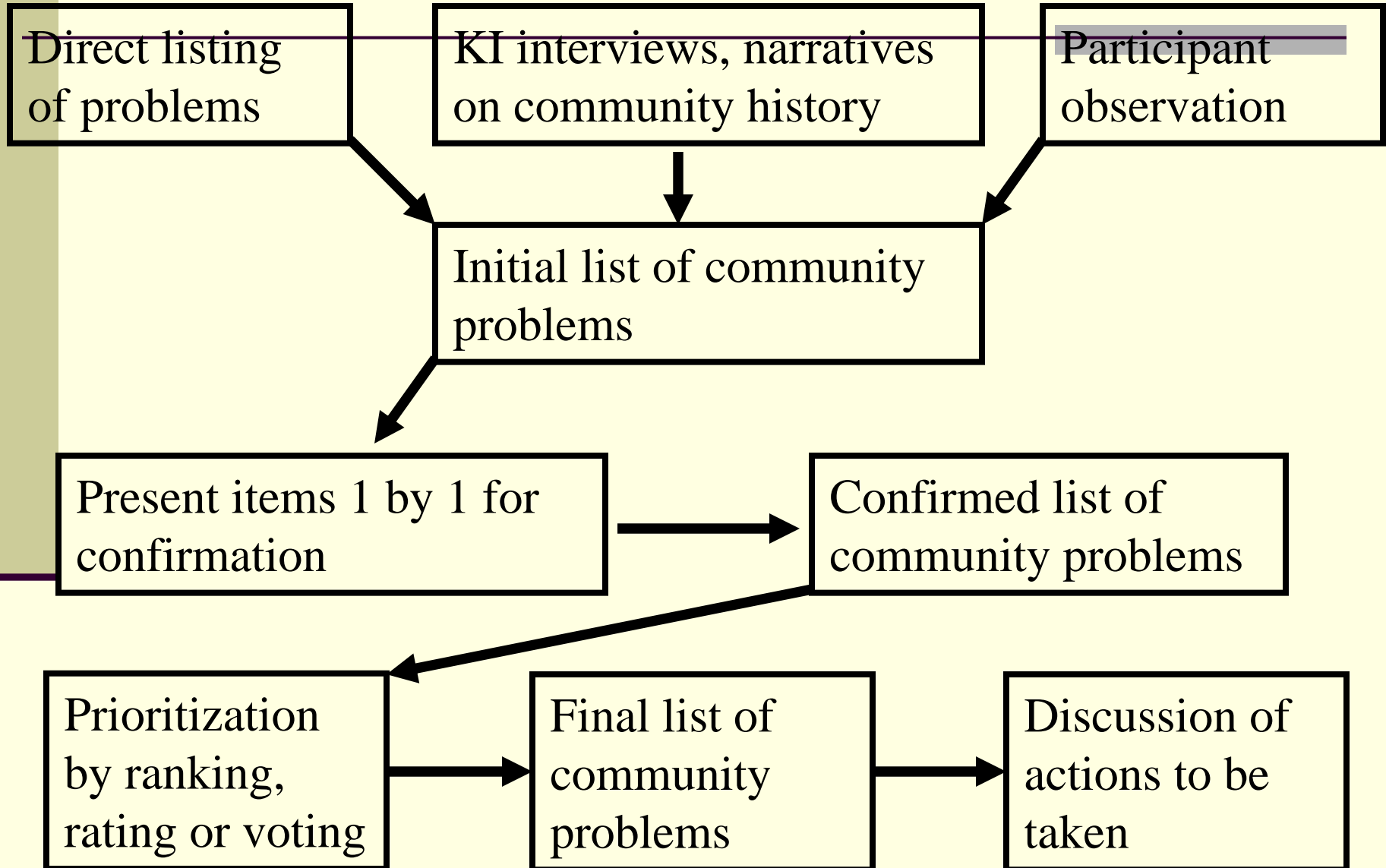
- Rapid
- Quantifiable
- Can find areas of consensus or modality
- List length is measure of knowledge of a domain
- Can examine intracultural variation
- Can identify “emic” terms for illnesses

Local term for type of diarrhea (Sindh Province, Pakistan)	Approximate English translation
Pani jehra dast	Watery diarrhea
Sawa dast	Green diarrhea
Achha dast	White diarrhea
Badhazmi wara dast	Diarrhea due to indigestion
Peela/ phikka dast	Yellow diarrhea
Mitti jehra dast	Color like clay/dust
Rat wara dast	Bloody diarrhea
Paichish	Dysentery
Mikkh wari paichish	Dysentery with mucus
Darg darg dast	Diarrhea mixed with water and stool

Need to use freelisting as part of methodological toolkit

- Free-listing will elicit some kinds of problems but not others
- Used alone, free-listing can be misleading
- Good to complement free-listing with other methods such as narratives on community history or direct observation
- Present list of all problems detected through all sources to community groups/ members for confirmation

Complementing free-listing with other methods: Community problems



The ideal process of Freelist according to Quinlan (p 232)

- Decide: Freelist or not
- If yes, then decide oral or written
 - Written: best when possible
 - Oral: avoid contamination
- Freelist
- Find salience → Ethnographic Interviews → Freelist → Find salience
- Final Analyses: list length, frequency, individual & intracultural variation, clustering
- Diagram available in full-text available at [Sage Journals Online](#)

Decide: Freelist or not:

What is a “free-listable” domain?

- There is a reasonable expectation that the informant/respondent will
 - understand the question
 - be able to give a list of included terms
- AND
- interviewing a limited number of people will produce a list containing all of the salient items in the domain

“Listability”

- Many (most?) domains are not listable
- People do not know what they know, knowledge is not explicit, so they cannot respond quickly to a free-list question
- Just because people respond does not mean the domain is “listable”

Example of an “unlistable” domain

All reasons that
women don't go for
antenatal care

```
graph TD; A[All reasons that women don't go for antenatal care] --> B[Reasons woman are unaware of]; A --> C[Reasons women don't feel comfortable in mentioning]; A --> D[Reasons women can't articulate]; B --> E[Final list of reasons that are mentioned]; C --> E; D --> E;
```

Reasons
woman are
unaware of

Reasons women don't
feel comfortable in
mentioning

Reasons
women can't
articulate

Final list of reasons
that are mentioned

How “free-listable” is each domain?

- What are all the days of the week?
- What are all the reasons you didn't go to the clinic?
- What are the types of food your family eats?
- What are the most important problems in this community?
- What are all the reasons you have trouble talking to your husband?
- What about your own project? Could you have used free-listing?

Free Listing

- Examples of suitable topics
 - Types of foods in the local diet, which foods are consumed by whom, when, and why
 - Types of childhood illnesses, their causes, symptoms and treatments, which are considered serious
 - Types of drugs sold in the market, what each is used for

We decide to do a freelist.

What is the basic method?

- Step #1: Find the cover term for your cognitive domain (Often identified in analysis/coding of your interviews)
 - “Days of the week”
- Step #2: Formulate your “primary question” based on the cover term
 - “Could you tell me all of the days of the week that you know”

The basic method

- Step #3: Probe to ensure you have all of the included terms.
- Brewer suggests three techniques to maximize freelist output:
 - (1) nonspecific prompting (“What other kinds of X are there?”)
 - (2) reading back the list of free-listed items (allows respondents to review list and add items they thought had mentioned)

The basic method

- Brewer suggests three techniques to maximize freelist output:
 - (3) using free-listed items as semantic cues
 - For each item on the free list, the interviewer asks the informant to think about all the other items in the domain that are similar to or like that item. Then asked to list any of those items not yet mentioned.
 - Takes advantage of natural associative process (goats and sheep; bananas and plantains, etc.)

Cultural salience

- Salience is a statistic accounting for rank and frequency (Quinlan, pg. 221)
 - Frequency indicates common knowledge within a culture
 - Differences in length and content are measures of intracultural variation
- Want to avoid non-salient terms in pile sorts and triads

Calculation of Smith's salience

Quinlan p226 & Table 2 p 227

- Invert the ranks (so that item mentioned first gets more points)
- Divide inverted rank of item by number of items mentioned = Individual Salience (S)
 - First mentioned item always has $S=1$
 - Last mentioned item has $S=1/\text{no. items}$
- Sum S values across all lists and divide by number of lists

Calculating S for one freelist

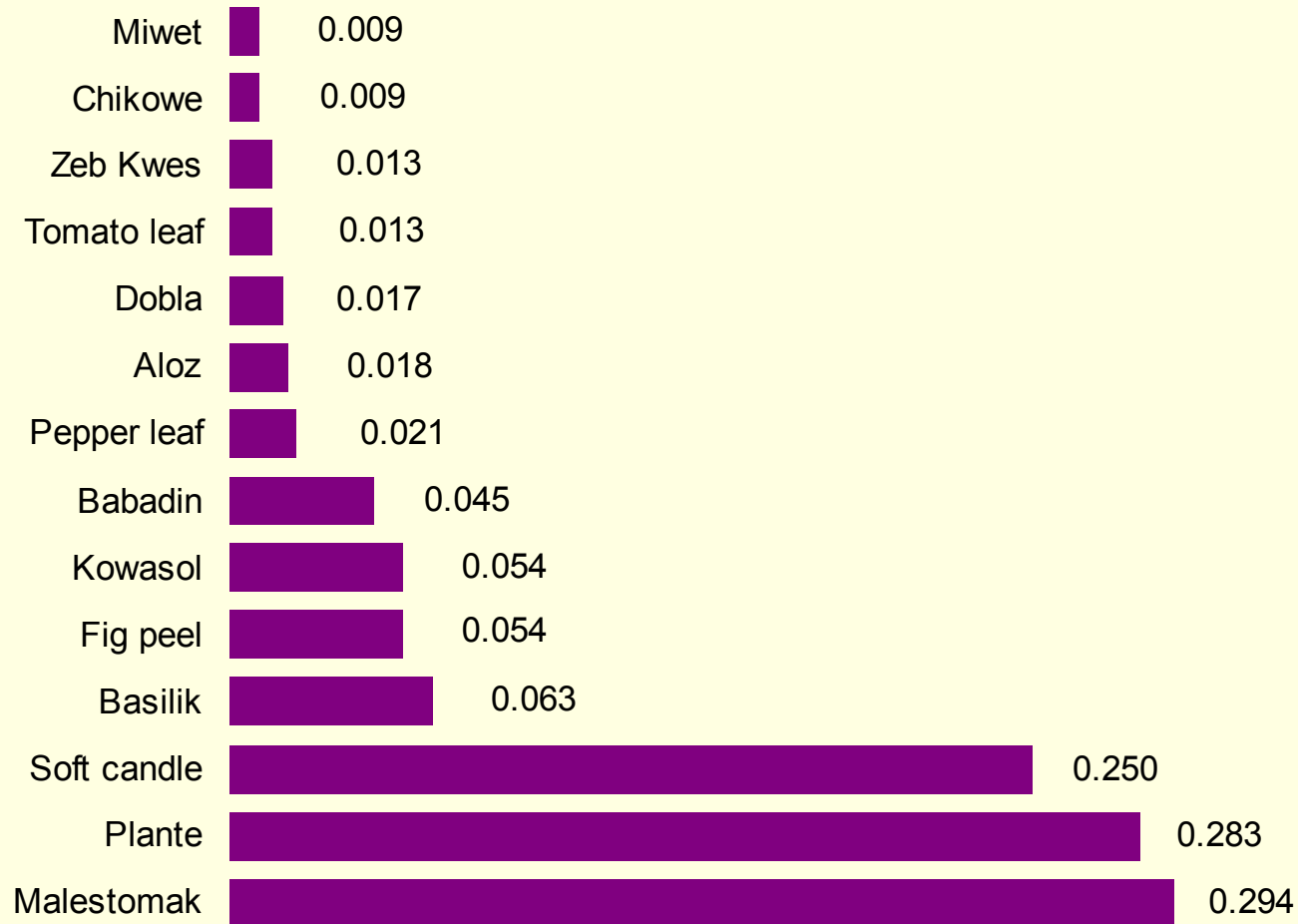
Quinlan (p 226)

Illness	Inverted Rank/Total Listed	Salience (S)
Vomiting	5/5	1
Pressure	4/5	0.8
Sore throat	3/5	0.6
Something hurts you	2/5	0.4
Sprains	1/5	0.2

Determining composite salience for 3 freelisters (Quinlan Table 2, p 227)

Illness	Freelister			Illness Σ	Composite Salience Σ/n (n = 3)
	1	2	3		
Worms		1	1	2.000	0.667
Pressure	0.8	0.571	0.625	1.996	0.665
Buttons		0.865	0.75	1.615	0.538
Vomiting	1	0.428		1.428	0.476
Cold		0.857	0.5	1.357	0.452
Inflammation			0.875	0.875	0.292
Sore throat	0.6		0.25	0.850	0.283
Cough		0.286	0.35	0.636	0.212
Something hurts you	0.4			0.400	0.133
Sprains	0.2			0.200	0.067
Asthma		0.143		0.143	0.048
Cuts			0.125	0.125	0.042

Salience of Dominican boil treatments (p 228 Quinlan)



Let's try it!

- Make a list (quickly) of the first 10 reality shows that come to your mind
- When you are done, write the saliency beside each of the ten items

Analysis

- In Excel compile a master list of all terms mentioned
- Make a column for each participant and enter the saliency for the ten shows they mentioned
 - Enter 0 for the terms not mentioned
 - Make two columns on right: Sum of saliencies across all lists, and sum of saliencies divided by number of lists



Proximity Data

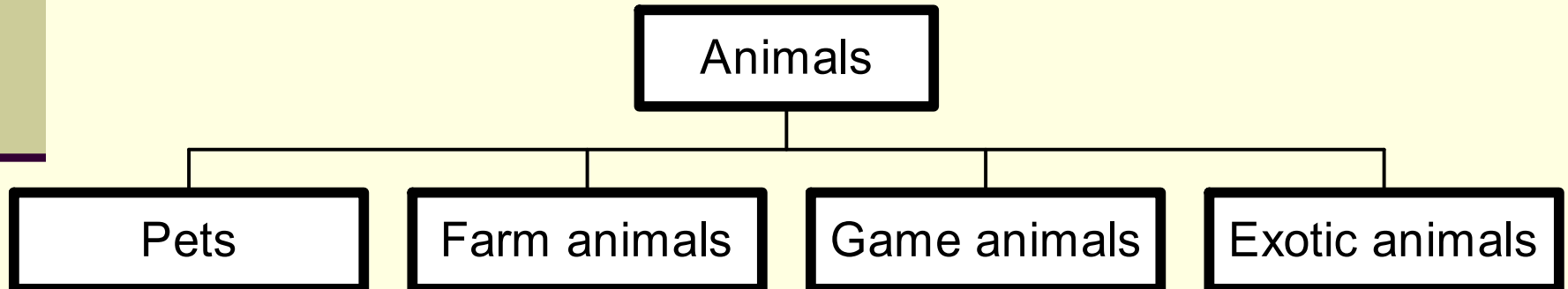
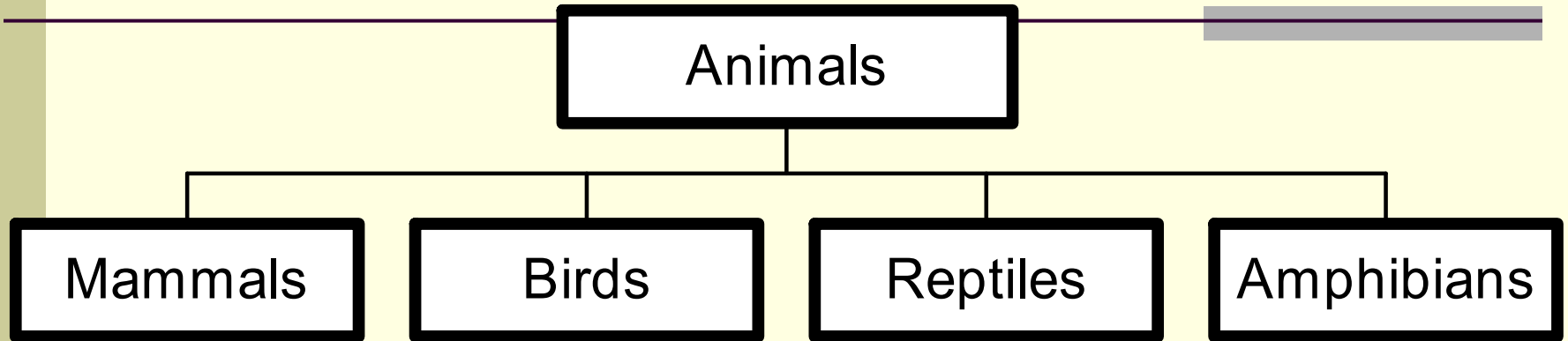
Methods to explore cognitive domains

- Once we have the items within our cognitive domain from freelisting, we need to see how they are related.
- Proximity methods: Explore taxonomy of terms within the domain
 - Pile sorts
 - Triadic comparisons

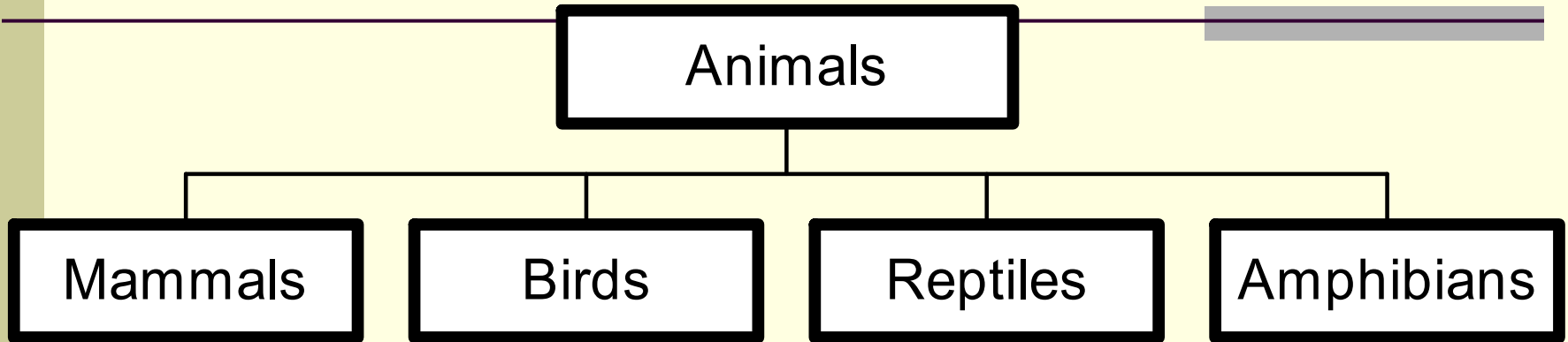
The problem

- The way people classify items in the sub-domains may not correspond to how we classify items in the sub-domains

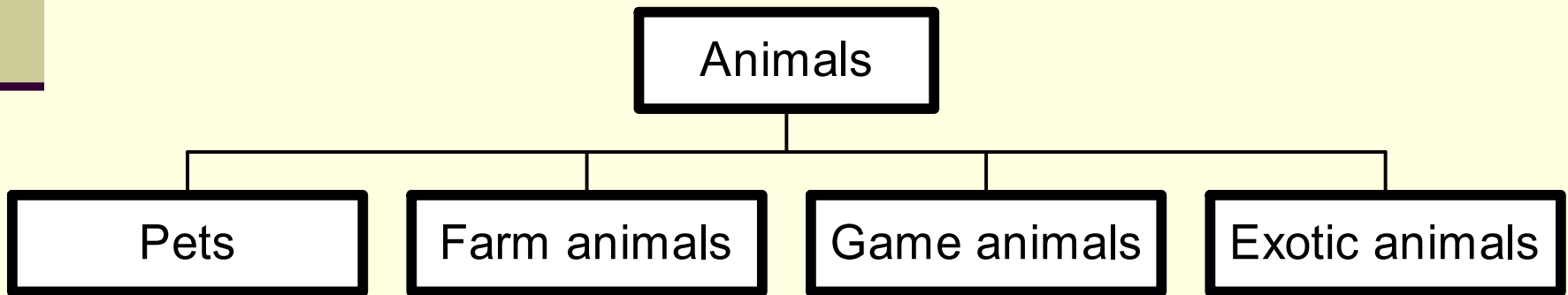
How do these 2 taxonomies differ?



Two types of taxonomies



(Etic) Biological classification or taxonomy



(Emic) Ethnoclassification or folk taxonomy

Pile sorts/card sorts

- Most commonly used method for proximity data → examining how people group things together
- Easiest to do, people like to do it
- Write names of items (or draw pictures) on cards
- Back of card has the number

Variants on kind of sorting

- Free sorts
 - Individual
 - Group of people
- Successive: Divide into two, then into two, then into two
- Constrained: Make three piles (e.g., very serious, serious, not serious)

Steps in pile sorts #1

- Introduce the exercise as a game, not a test: “We’re going to play a game with these cards”
- Find a suitable name for piles such as “illnesses in our community”
- Interviewer demonstrates the sorting on an irrelevant domain such as animals
- Ask respondent if he/she wants to proceed

Steps in pile sorts #2

- Introduce cards one-by-one to respondent, verify that respondent knows each one
- Unknown cards are “removed from play”
- Lay all the cards out in front of respondent
- Ask respondent to make groups
- Once groups are made, ask respondent to explain/talk about each group

Let's Try It

Make cards for these twenty reality shows:

- Survivor
- America's Next Top Model
- American Idol
- Extreme Makeover: Home Edition
- Cops
- Queer Eye for the Straight Guy
- The Biggest Loser
- Supernanny
- Fear Factor
- Star Search
- So You Think You Can Dance
- The Real Life
- The Singing Bee
- The Amazing Race
- The Simple Life
- Big Brother
- Dancing with the Stars
- Miami Ink
- The Bachelor
- Dog the Bounty Hunter

Possible problems when performing pile sorts (1)

- Inappropriate domain for cognitive methods
- Inappropriate choice of items for sorting
 - Items from more than one cognitive domain (robin, sparrow, frog)
 - Non-salient items (Marbled godwit)
 - Different levels of contrast

Different levels of contrast

- Sort these cards:
 - Dog, Beagle, Poodle, Pet, Cat, Siamese, Dachshund
- Triads: Which of the three is different?
 - Dog, Pet, Beagle

Possible problems when performing pile sorts (2)

- Respondent problems with the sorting task
 - Failure of the respondent to understand the instructions for how to do the task
 - Illiteracy
 - Sorting on extraneous criteria e.g. first letter of the word

Possible problems when performing pile sorts (3)

- Sampling problems
 - More than one culture/sub-culture in the sample
 - Respondents with little knowledge of the domain

Triadic comparisons

- Make all possible triads
 - CAT DOG COW
 - CAT DOG HORSE
 - CAT COW HORSE
 - DOG COW HORSE
- Randomize order of presentation and order of items within each triad
- Ask standard question: “Which of these three animals does not belong/which two animals are most similar?”

Which to use?

- People enjoy pile sorts
 - Feel they are in control
 - More potential for conversation
- People don't enjoy direct comparisons and triadic comparisons => Too boring
 - The number of triads in N items
$$= \frac{N(N-1)(N-2)}{6}$$
- With 9 items that is 84 possible triads!!

Steps in analysis of proximity data (pile sorts, triads)

- Collect data
- Convert raw data into proximity matrices
- Analysis of proximity matrices
 - Multi-dimensional scaling
 - Hierarchical clustering
 - Cultural consensus analysis

Individual lower-half proximity matrix

	CAT	DOG	COW	HORSE
CAT				
DOG	1			
COW	0	0		
HORSE	0	0	1	

Triadic comparisons: Results

- CAT DOG **COW**
 - cat-dog gets one point
- CAT DOG **HORSE**
 - cat-dog gets one point
- **CAT** COW HORSE
 - cow-horse gets one point
- **DOG** COW HORSE
 - cow-horse gets one point

Individual lower-half proximity matrix

	CAT	DOG	COW	HORSE
CAT				
DOG	2			
COW	0	0		
HORSE	0	0	2	

Multi-dimensional scaling

- Cognitive map that shows the underlying structure of relations between entities by providing a geometrical representation of these relations

Example of Multi-Dimensional Scaling Showing Male and Female Kinships

See [Figure 5](#) from Katrijn Van Deun, Luc Delbeke. Multidimensional Scaling. University of Leuven, Belgium. ODL: Open and Distance Learning, 2000

To learn more about these methods:

- Carroll, J. D., & Arabie, P. (1980). Multidimensional scaling. *Annual Review of Psychology*, 31, 607-649.
- Bernard H. (2000). *Social Research Methods: Qualitative and Quantitative Approaches*. Sage Publications
- Weller S. and Romney A. (1988). *Systematic Data Collection*. Sage Publications, Qualitative Research Methods Series, 10.

Example article

- Explanatory models of women's reproductive health in rural Bangladesh.
 - What do you think of their use of these methods? Was it an appropriate use?
 - Do you have any criticisms of the article?