Pilesorts

Eliciting judged similarities
Pile Sort Technique

• Basic idea:
  – On each of these cards is written the name of a thing. Please sort the cards into piles according to how similar they are. You can use as many or as few piles as you like.
Why do we do it?

• Understand structure of the domain, via a fundamental perceptual relation: similarity

• To uncover attributes of items that people use to distinguish among them
  – Like componential analysis
Special Advantages

• Respondents only asked for non-quantitative judgments
• Can handle large domains (up to 200)
• Respondents like it
Processing

• For each pair of items, count the proportion of respondents who put them in the same pile
  – Called approx – the aggregate proximity matrix
• Assuming consensus, this is a measure of the similarity of each pair of items
Aggregate Proximity Matrix

• Item by item matrix gives the percent of respondents placing the two items in the same pile

• Typically visualize with MDS and cluster analysis
Representing Proximities

- Multidimensional scaling (MDS)
  - Maps items to points in Euclidean space such that points corresponding to more similar items are placed nearer to each other in the space

- Cluster analysis

- Network analysis techniques
MDS of animals domain

-Strong clustering indicates subdomains

Stress = 0.12
MDS of land animals only
Fruits & Vegetables

BRUSSELS SPROUTS
CABBAGE
SPINACH
PEAS
GREEN BEANS
BROCCOLI

CAULIFLOWER
CELERY
ARTICHOKE
ASPARAGUS
LIMA BEANS
SQUASH
ZUCCHINI
CUCUMBER
BELL PEPPERS

BEETS

CORN
TURNIPS
RADISHES

POTATOES

CARROTS
ONIONS

CANTALOUPE
WATERMELON

AVOCADO

TOMATOES

LIMES
PINEAPPLE

GRAPEFRUIT

PAPAYA

LEMON
TANGELO
TANGERINE
NECTARINE
PEAR

APPLE
POMEGRANATE
GRAPE
ORANGE
PEACH
PLUM
APRICOT

CHERRY
BLUEBERRY

BANANA
RASPBERRY
Things people are scared of

- Being alone
- Bugs
- Change
- Commitment
- Dentists
- Disease
- Doctors
- Dogs
- Drowning
- Enclosed space
- Failure
- Financial trouble
- Flying
- Ghosts
- Growing old
- Guns
- Heights
- Lightning
- Losing a loved one
- Public speaking
- Tests
- Thunder
- Water
- Fire
- Scary movies
- Sharks
- Sickness
- Snakes
- Spiders
- Rats
- Harks
- Dentists
- Drowning
- Death
- Rape
- Disease
- Sickness
Things to notice …

• Can use MDS with any proximity matrix
  – Aggregate similarities, Direct ratings, Confusion matrices, Correlation matrices, etc.
• Typically use 1-3 dimensions (mostly 2)
• Measure of fit (stress)
• Simplifies complex data
• Interpretation centers on
  – Looking for dimensions (quantitative item attributes)
  – Looking for clusters (qualitative item attributes)
Undergraduates’ view of animals domain

- Strong clustering indicates subdomains

Stress = 0.12
Biologists’ view of animal domain
Things people are scared of

Female respondents
Things people are scared of

- BEING_ALONE
- BUGS
- CHANGE
- COMMITMENT
- DEATH
- DENTISTS
- DISEASE
- DOCTORS
- DOGS
- DROWNING
- ENCLOSED_SPACE
- FAILURE
- FINANCIAL_TROUBLE
- FLYING
- GHOSTS
- GROWING_OLD
- GUNS
- HEIGHTS
- LIGHTNING
- LOSING_A_LOVED_ONE
- PUBLIC_SPEAKING
- TESTS
- THE_DARK
- WATER
- THUNDER
- FIRE
- DOGS
- BUGS
- SPIDERS
- SNAKES
- RATS
- SHARKS
- DOCTORS
- DENTISTS
- DROWNING
- DEATH
- SICKNESS
- RAPE
- DISEASE

Male respondents
Juxtaposed Boys & Girls

Few big differences
Discrepancy Analysis

MDS of similarities in respondents’ sorts

* English
  • Japanese
Emotion Terms

Not intense

Bad

Intense

Good

disgust
anger
hate
envy
shame
excitement
love
happy
anguish
fear
änguish
bored
sad
lonely
tired

good
Holidays

• Demo of Visual Anthropac pre-release version
Network analysis

- Crimes dataset
- Animals
- Holidays