The colour of emotion
An empirical study into the metaphoric structuring
of ‘anger’, ‘fear’ and ‘sadness’ in French

Mai Kumamoto

University of Paris VIII
Linguistique Empirique: Cognition, Société et Langage
Aim of the study

Operationalizing the structure of concepts, using elicitation data

In order to permit empirical and quantified description of conceptual metaphors
Problem

Conceptual Metaphor Theory (CMT)

Conceptual structure is abstract

   Non-observable – concepts are cognitive constructs / analytical artefacts
   Non-discrete – concepts are fuzzy bounded / prototype structured

   How to operationalize the conceptual structure?
Methodological approach

Questionnaire-based elicitation social psychology
Retrieving people’s intuitions about language
Language is an index of conceptual structure
  => Dimensional features, GRID project (Fontaine et al. 2013)

Multivariate statistical analysis of results
Identification of patterns in questionnaire responses
  => generalizations over conceptual structure
Choice of target and source concepts

EMOTIONS ARE COLOURS

COLOUR: perceptually universal, conceptually concrete
EMOTION: conceptually abstract, suitable for questionnaire

Actual choice of colour and emotion lexemes / terms

<table>
<thead>
<tr>
<th>Concepts</th>
<th>Lexemes</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMOTION</td>
<td>colère ‘anger’, peur ‘fear’, tristesse ‘sadness’</td>
</tr>
<tr>
<td>COLOUR</td>
<td>noir ‘black’, blanc ‘white’, rouge ‘red’, bleu ‘blue’</td>
</tr>
</tbody>
</table>

On the basis of frequency in FRANTEXT (20th century novels)

“basic colour terms” (cf. Berlin & Kay 1967)

Manual sorting: co-occurrence with emotional terms
Methodology – Questionnaire

Metadata - age, sex, L1, L2, L3, origin

156 native speakers of French born and raised in France

Questions on conceptual structure

Evaluation using Likert scale (1 to 9)

5 features:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Feature</th>
<th>Feature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axiology</td>
<td>positive</td>
<td>negative</td>
</tr>
<tr>
<td>Heat</td>
<td>hot</td>
<td>cold</td>
</tr>
<tr>
<td>Energetic Arousal</td>
<td>feel energetic</td>
<td>feel tired</td>
</tr>
<tr>
<td>Tensive Arousal</td>
<td>feel restless</td>
<td>feel calm</td>
</tr>
<tr>
<td>Power</td>
<td>feel powerful</td>
<td>feel powerless</td>
</tr>
</tbody>
</table>
Results – Correlations between concepts and dimensional features

<table>
<thead>
<tr>
<th>COLOR</th>
<th>AXIOLOGY</th>
<th>HEAT</th>
<th>TENSION</th>
<th>ENERGY</th>
<th>POWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>BLACK</td>
<td>NEGATIVE</td>
<td>COLD</td>
<td>CALM</td>
<td>TIRED</td>
<td>POWERFUL</td>
</tr>
<tr>
<td>BLUE</td>
<td>POSITIVE</td>
<td>COLD</td>
<td>CALM</td>
<td>TIRED</td>
<td>POWERLESS</td>
</tr>
<tr>
<td>RED</td>
<td>POSITIVE</td>
<td>HOT</td>
<td>RESTLESS</td>
<td>ENERGETIC</td>
<td>POWERFUL</td>
</tr>
<tr>
<td>WHITE</td>
<td>POSITIVE</td>
<td>COLD</td>
<td>CALM</td>
<td>ENERGETIC</td>
<td>POWERLESS</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EMOTION</th>
<th>AXIOLOGY</th>
<th>HEAT</th>
<th>TENSION</th>
<th>ENERGY</th>
<th>POWER</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANGER</td>
<td>NEGATIVE</td>
<td>COLD</td>
<td>CALM</td>
<td>TIRED</td>
<td>POWERFUL</td>
</tr>
<tr>
<td>FEAR</td>
<td>POSITIVE</td>
<td>COLD</td>
<td>CALM</td>
<td>TIRED</td>
<td>POWERLESS</td>
</tr>
<tr>
<td>SADNESS</td>
<td>POSITIVE</td>
<td>HOT</td>
<td>RESTLESS</td>
<td>ENERGETIC</td>
<td>POWERFUL</td>
</tr>
</tbody>
</table>

Based upon Chi², P-value < 0.05, Pearson residuals
Results – Conceptual structure of colour concepts
Results – Conceptual structure of emotion concepts
Results – Interaction of emotion and colour
Results – Ontological mapping of heat-, tension-, and energy dimensions for COLOUR and EMOTION
Conclusion

Identification of the conceptual structure

COLOUR: Continuum
BLUE -(WHITE)-BLACK-RED

EMOTION: Continuum
SADNESS-FEAR-ANGER

Questionnaire combined with statistic methods allows the elucidation the conceptual structure in terms of interaction of dimensional features.
References


