Linking qualitative and quantitative analysis of metaphor in end-of-life care

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As part of the ESRC-funded project ‘Metaphor in End of Life Care’, we are using a number of techniques from corpus linguistics and natural language processing alongside manual techniques for the investigation of metaphors in large-scale data sets.

Here, we focus on the challenges of bringing multiple methods and tools together.

We also describe the wider context of the project as motivation for this work, and some preliminary findings.
End-of-life care strategy

- The way in which the experience of end-of-life care is talked about can shed light on people’s views, needs, challenges, and emotions, as well as identify areas with a potential for increased anxiety and/or misunderstanding.

- Department of Health End-of-life care strategy (2008)
- Liverpool Care Pathway (July 2013)
Aims and Research Questions

• How do members of different stakeholders groups (health professionals, patients and unpaid family carers) use metaphor to talk about their experiences, attitudes and expectations of end-of-life care (e.g. palliative treatment, preparations for dying, etc)?

• What does the use of metaphor by these stakeholder groups suggest about (a) the experiences and needs of the members of these groups and their mutual relationships, and (b) the nature of metaphor as a linguistic and cognitive phenomenon?
What is metaphor?

Talking and, potentially, thinking about one thing in terms of another.

Often used to communicate about experiences that are subjective, complex and sensitive, including death and the emotions around death (e.g. Kövecses 2000).

We apply a well-established analytical method (Pragglejaz Group 2007) in order to identify the metaphors that were used in the data.
Metaphors of journey and movement

“I guess as a professional I'd like to see them comfortable and not suffering any form of distress or agitation that the patient comfortable, the family erm at peace with the journey as it's going and where things have got to erm and that you know they can go through a natural normal grief. That to me would be a good death.”
Overall methodology

- Previous techniques for the linguistic analysis of metaphor have been largely manual and qualitative.
- Exploitation of larger corpora is constrained by lack of automation and using previously identified expressions. Recent interest in CL and NLP literature e.g. Meta4NLP workshop.
- We use USAS semantic tagger and adapted Wmatrix software to identify a much more comprehensive set of potential metaphorical expressions. (see previous CL conferences)
## Data

1.5 million words; 90,000 manual sample

<table>
<thead>
<tr>
<th></th>
<th>Patients</th>
<th>Carers</th>
<th>Healthcare Professionals</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-structured Interviews</td>
<td>100,000</td>
<td>100,000</td>
<td>100,000</td>
<td>300,000</td>
</tr>
<tr>
<td>Online forum posts</td>
<td>400,000</td>
<td>400,000</td>
<td>400,000</td>
<td>1.2 mil</td>
</tr>
<tr>
<td>Total</td>
<td>500,000</td>
<td>500,000</td>
<td>500,000</td>
<td>1.5 mil</td>
</tr>
</tbody>
</table>
Method

- Manual intensive analysis of 90,000-word sample: MIP + elements of MIPVU
- Annotation using eMargin
- Automated analysis of 1.5 million words: Wmatrix + Broad Sweep searching
  ~ a modification to Wmatrix especially developed to facilitate corpus-based metaphor analysis
  ~ allows us to see and explore all the semantic categories an expression can belong to, thereby capturing more metaphorical expressions
Manual analysis in eMargin

eMargin is a collaborative annotation tool. You can highlight, barcode, write notes and assign tags to individual words or pages of a text. These annotations can be shared amongst peers online, generating discussions and allowing analyses and interpretations to be combined.
eMargin

- Replicates manual annotation in a digital form
- Originally designed for the ‘close-reading’ of literary texts
- Since used in a variety of text-based disciplines
- Specifically designed for collaboration

emargin.bcu.ac.uk
**eMargin - Features**

- **Collaborate**
  - Share texts online
  - Share amongst groups
- **Annotate**
  - Highlight
  - View others’ annotations
  - Discuss parts of a text
- **Categorise**
  - Colours
  - Tags / Labels
- **Search**
eMargin manual annotation

- Yellow: metaphor
- Green: metonymy
- Red: needs discussion
- Cyan: simile
- Purple: other comment
Interoperability of tools project (Feb-July 2012)

- [http://cuba.coventry.ac.uk/interoperability/about](http://cuba.coventry.ac.uk/interoperability/about)
- Paul Rayson (Lancaster University), Serge Sharoff (University of Leeds), Hilary Nesi and Emma Moreton (Coventry University)
Connecting methods and tools

eMargin

XML export

Wmatrix

MELCdb interface created by Stephen Wattam
<table>
<thead>
<tr>
<th>Id</th>
<th>Colour</th>
<th>Tags</th>
<th>Head</th>
<th>Token</th>
<th>Tail</th>
<th>File</th>
</tr>
</thead>
<tbody>
<tr>
<td>38</td>
<td>yellow</td>
<td>Movement</td>
<td>be given sedatives as they</td>
<td>approach</td>
<td>the last hours of their</td>
<td>Online Professional 2.xml</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>be alert as they</td>
<td></td>
<td>face one life to the</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>yellow</td>
<td>Movement</td>
<td>to be alert as they</td>
<td></td>
<td>to the next</td>
<td></td>
</tr>
<tr>
<td>59</td>
<td>yellow</td>
<td>Direction</td>
<td>be alert as they pass</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>yellow</td>
<td>Direction</td>
<td>they pass from one life</td>
<td></td>
<td>to the next</td>
<td></td>
</tr>
<tr>
<td>83</td>
<td>yellow</td>
<td>Location</td>
<td>aware of ( not just</td>
<td></td>
<td>the next</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>at the end of life</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>116</td>
<td>yellow</td>
<td>Physical</td>
<td>topic and hopefully will not</td>
<td></td>
<td>too much competing interest with</td>
<td></td>
</tr>
<tr>
<td>119</td>
<td>yellow</td>
<td>SportGames</td>
<td>will not spark too much</td>
<td></td>
<td>competing interest with some</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>religiously concerned</td>
<td></td>
</tr>
<tr>
<td>130</td>
<td>yellow</td>
<td>Military</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>173</td>
<td>yellow</td>
<td>Movement</td>
<td>some may wish 'not to</td>
<td>put</td>
<td>on if they are in</td>
<td></td>
</tr>
<tr>
<td>174</td>
<td>yellow</td>
<td>Location</td>
<td>may wish 'not to put</td>
<td></td>
<td>on if they are in a</td>
<td></td>
</tr>
<tr>
<td>178</td>
<td>yellow</td>
<td>Containment</td>
<td>put on if they are in</td>
<td></td>
<td>in a condition' of that.</td>
<td></td>
</tr>
</tbody>
</table>
An example: ‘violence’ metaphors

• ‘Violence’ tag on eMargin
  - ‘we will all carry on fighting this shit we all face together’

• MELCdb interface shows that the expressions we tagged as ‘violence’ metaphors fall under different USAS semantic tags, including:
  - E3- ‘Violent/angry’
  - G3 ‘Warfare, defence and the army; weapons’
  - S8+ ‘Helping’
G3 metaphors in the online forum data

- carers (0.09/1,000 words)
- patients (0.17/1,000 words)
- professionals (0.19/1,000 words)
Differences between patients and professionals

- Patients tend to use G3 expressions metaphorically to talk about the individual’s attempt to survive cancer:
  - ‘Battle Cry: Do I wither and retreat from this weary battle? Will I surely lose this war or will the positive cries of those around me spur me to win this war.’

- Professionals tend to use G3 expressions metaphorically to talk about their profession:
  - ‘We are in the Army, Dr Jones, not a nunnery and the army is the battalion of medicine with the foe being all things that contrive to sink the ship of each of us, be it disease, accident, homicide or suicide.’
Summary

- Combining qualitative and quantitative methods and techniques for the analysis of metaphorical expressions in end-of-life care
- Linking methods and tools together
- Lessons learned about software interoperability
- Project running until 2014
- More results coming soon
Thanks for your attention

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- @perayson

- Questions, comments?