Probabilistic Interpretation of Figures of Speech
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• Metonymy and Metaphor
How could a Computer possibly find out that enjoy a book means enjoy reading/writing a book and not enjoy smoking a book? Or how could it deduce that to capture an idea is to understand/interpret an idea?

These are the questions my research is attempting to answer.

• Mechanisms of Creative Thought
Our knowledge about the world and the language is to a large extent encoded in combinatory preferences of the words in the text. Such preferences restrict our creative thought.

I model these probabilistically using the data from the British National Corpus to extract frequency information for selectional preferences and use WordNet to establish related meanings.

• WordNet Hierarchy

**Probabilistic Model**

for Metonymy (Lapata and Lascarides 2003)

\[ P(i, v, n) = P(i) \cdot P(v | i) \cdot P(n | i, v) = \frac{f(v, i)}{f(i)} \cdot \frac{f(i, n)}{\sum_k f(i_k)} \]

where \( i \) stands for interpretation (e.g. reading), \( n \) for noun (book) and \( v \) for the metonymic verb (e.g. enjoy)

for Metaphor (direct object verb frame)

\[ P(i, n) = P(i) \cdot P(n | i) = \frac{f(i)}{\sum_k f(i_k)} \cdot \frac{f(i, n)}{f(i)} = \frac{f(i, n)}{\sum_k f(i_k)} \]

where \( i \) stands for interpretation of the metaphoric verb, \( n \) for the noun in the metaphoric phrase

• Metonymy Interpretations
for enjoy a book
Log-Probability Interpretation
-16.15 read
-17.99 write
-19.46 work on
-19.96 browse
-19.97 look at
-20.22 get
-20.43 see
-20.55 throw

I cluster the verbs based on related meaning in order to filter these results.

• Metaphor Paraphrasing Results
for capture an idea
Log-Probability Interpretation
-10.41 get
-13.39 change
-13.59 represent
-14.15 interpret
-14.84 acquire
-15.53 modify
-15.53 catch
-16.23 seize

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