C SC 620
Advanced Topics in Natural Language Processing

Lecture 16
3/23
Reading List

- Reading list:
  - 12. *Correlational Analysis and Mechanical Translation*. Ceccato, S.
  - 16. Automatic Translation and the Concept of Sublanguage. Lehrberger, J.
  - 17. The Proper Place of Men and Machines in Language Translation. Kay, M.
Paper 12: Correlational Analysis and Mechanical Translation. Ceccato, S.

- The Three Approaches to Mechanical Translation
- Knowledge about the world
  - He eats and drinks vodka
    - *Eat*: intransitive
  - He buys, sells, and drinks vodka
    - *Vodka* may be the object of all three verbs
  - Ave Caesar, morituti te salutant
    - *Ave*: hail or *bird* + ablative case
    - Caesar, those who are about to die salute you with the bird
Paper 12: Correlational Analysis and Mechanical Translation. Ceccato, S.

- Linguistics for Machines
- Notional Sphere
  - I paid for the book with the old prints (ambiguous)
  - I paid for the book with the Swiss francs
  - I paid for the book with the pages missing
Paper 12: Correlational Analysis and Mechanical Translation. Ceccato, S.

Thesaurus/WordNet-style classification
**Paper 12: Correlational Analysis and Mechanical Translation. Ceccato, S.**

- 122 Things can be hung up

<table>
<thead>
<tr>
<th>Numbers</th>
<th>English Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>129</td>
<td>Things that are covered</td>
</tr>
<tr>
<td>130</td>
<td>Things that can be reached</td>
</tr>
<tr>
<td>131</td>
<td>Covers</td>
</tr>
<tr>
<td>132</td>
<td>Things open or closed by adding or subtracting something</td>
</tr>
<tr>
<td>133</td>
<td>Things open or closed owing to their position with respect to something else</td>
</tr>
<tr>
<td>134</td>
<td>Things open or closed owing to the position of a part of them</td>
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<tr>
<td>135</td>
<td>Sliding or rotating things that open or close something</td>
</tr>
<tr>
<td>136</td>
<td>Detachable things that open or close something</td>
</tr>
<tr>
<td>121</td>
<td>Complementary things for opening or closing something</td>
</tr>
<tr>
<td>122</td>
<td>Things that can be hung up</td>
</tr>
<tr>
<td>123</td>
<td>Implements for hanging up</td>
</tr>
<tr>
<td>124</td>
<td>Products of art</td>
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<tr>
<td>125</td>
<td>Solid things</td>
</tr>
<tr>
<td>126</td>
<td>Hollow things</td>
</tr>
<tr>
<td>127</td>
<td>Things that can be held in the hand</td>
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<tr>
<td>128</td>
<td>Easy things that can be held in the hand</td>
</tr>
<tr>
<td>129</td>
<td>Medium things that can be held in the hand</td>
</tr>
<tr>
<td>130</td>
<td>Things that can be transported</td>
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<tr>
<td>131</td>
<td>Things that can be transported by lifting</td>
</tr>
<tr>
<td>132</td>
<td>Things that can be transported by pushing or pulling</td>
</tr>
<tr>
<td>133</td>
<td>Transported things</td>
</tr>
<tr>
<td>134</td>
<td>Cutting things</td>
</tr>
<tr>
<td>135</td>
<td>Things used for indicating</td>
</tr>
<tr>
<td>136</td>
<td>Numbers</td>
</tr>
<tr>
<td>137</td>
<td>Things presenting themselves in pairs</td>
</tr>
<tr>
<td>138</td>
<td>Things presenting themselves in rows</td>
</tr>
<tr>
<td>139</td>
<td>Things which owing to their inside play a part in certain activities</td>
</tr>
<tr>
<td>140</td>
<td>Things which owing to their outside play a part in certain activities</td>
</tr>
<tr>
<td>141</td>
<td>Things which owing to their direction play a part in certain activities</td>
</tr>
</tbody>
</table>
Paper 12: Correlational Analysis and Mechanical Translation. Ceccato, S.

- The Fourth Approach to MT
- An Illustration of the Third Approach: Correlation Approach
  - *Engineer Small has a little train*
  - *Macchinista Small ha un piccolo treno*
  - 1. ENGINEER
    - 1.1 noun    ingegnere fuochista machinista
      - gender, number, common, person, profession
    - 1.2 verb    costruire organizzare sovrintendere …
      - 1.2.1 mood, tense, person (2nd), number
      - 1.2.2 mood, tense
        » 1.2.2.1 person (1, 2) number: sg
        » 1.2.2.2 person (1,2,3) number: pl
Paper 12: Correlational Analysis and Mechanical Translation. Ceccato, S.

2. SMALL
   - 2.1 adjective
     - 2.1.1 size
       - 2.1.1.1 literal piccolo sottile esigu
       - 2.1.1.2 metaphorical debole legger misero
     - 2.1.2 intensity leggero
   - 2.2 adverb
     - 2.2.1 size poco
     - 2.2.2 intensity basso
   - 2.3 noun piccola cosa
   - 2.4 noun proper (from capitalization)
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- 3. HAS
  - verb
    - 3.1 aux of tense  essere or avere
    - 3.2 aux of mood  dovere avere da
    - 3.3 principal  avere ricevere fare

- 4. A
  - article  un

- 5. LITTLE
  - 5.1 adjective
    - 5.1.1 size
      - literal  piccolo
      - metaphorical  meschino
    - 5.1.2 quantity  poco
  - 5.2 adverb
  - 5.3 noun
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- 6. TRAIN
  - 6.1 noun
    - 6.1.1 observatum means of transportation treno slitta
    - 6.1.2 mental category indicating an ordered succession coda fila
  - 6.2 verb allevare
    - 6.2.1 imperative, 2nd person
    - 6.2.2 indicative
      - 6.2.2.1 1st, 2nd sg
      - 6.2.2.2 1,2,3 pl
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- Diagram referenced in paper?