GAZELLE: Using Statistics to Fill Knowledge Gaps in MT

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System Demonstration

Knowledge-based machine translation (KBMT) techniques yield high quality in domains with detailed semantic models, limited vocabulary, and controlled input grammar. Scaling up along these dimensions means acquiring large knowledge resources. It also means behaving reasonably when definitive knowledge is not yet available.

This presentation describes GAZELLE, a broad-coverage MT system that uses robust statistical techniques to fill various KBMT knowledge gaps. We currently translate Japanese, Spanish, and Arabic to English. Our approach includes:

• a natural language generation system called Nitrogen, which combines knowledge from a human linguist with that of an automatic "learning by reading" program.
• a robust syntactic analyzer that skips trouble words.
• a large conceptual knowledge base called Sensus, plus large syntactic and semantic knowledge bases.
• a transliterator for unknown names and technical terms (e.g., anjira <-> angela).

We will describe GAZELLE and demonstrate the software within a prototype translating photocopier called AUTOSCRIBE. Selected references:


