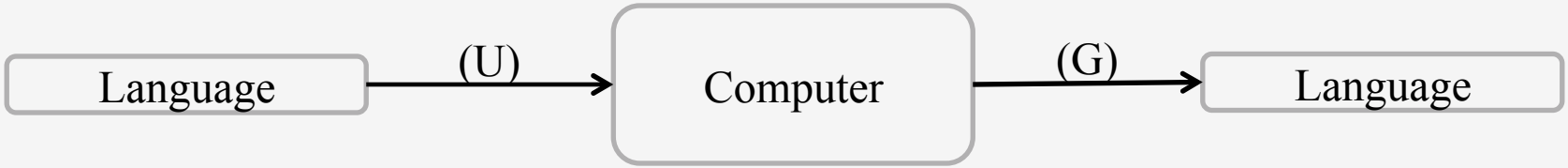
NLP

Introduction to NLP

Text Generation

Basic NLP Pipeline

- (U)nderstanding and (G)eneration



Definition

- Natural language generation is the process of deliberately constructing a natural language text in order to meet specified communicative goals.

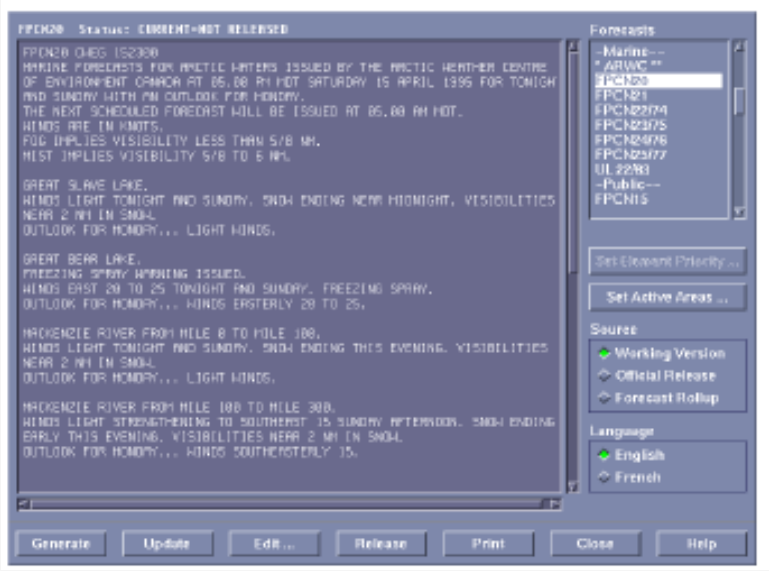
[McDonald 1992]

What is NLG?

- Mapping meaning to text
- Stages:
  - Content selection
  - Lexical choice
  - Sentence structure: aggregation, referring expressions
  - Discourse structure

Example of an NLG System

- FOG (Goldberg et al. 1994)
- Weather forecast reports for the Canadian Weather Service
- Input
  - Numerical simulation data annotated by humans



Plandoc

- Function:
  - Produces a report describing the simulation options that an engineer has explored
- Input
  - A simulation log file
- Developer
  - Bellcore and Columbia University

Input for Plandoc

- RUNID fiberall FIBER 6/19/93 act yes
- FA 1301 2 1995
- FA 1201 2 1995
- FA 1401 2 1995
- FA 1501 2 1995
- ANF co 1103 2 1995 48
- ANF 1201 1301 2 1995 24
- ANF 1401 1501 2 1995 24
- END. 856.0 670.2

Output

- This saved fiber refinement includes all DLC changes in Run-ID ALLDLC. RUN-ID FIBERALL demanded that PLAN activate fiber for CSAs 1201, 1301, 1401 and 1501 in 1995 Q2. It requested the placement of a 48-fiber cable from the CO to section 1103 and the placement of 24-fiber cables from section 1201 to section 1301 and from section 1401 to section 1501 in the second quarter of 1995. For this refinement, the resulting 20 year route PWE was $856.00K, a $64.11K savings over the BASE plan and the resulting 5 year IFC was $670.20K, a $60.55K savings over the BASE plan.

Considerations

- NLG is about choices
  - Content
  - Coherence
  - Style
  - Media
  - Syntax
  - Aggregation
  - Referring expressions
  - Lexical choice

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