**Overview**

- Regard predicate-argument (PA) structure as a basic unit of handling the meaning, and perform the matching between text (T) and hypothesis (H) on PA structure.
- Utilize wide coverage relations between words/phrases, which are automatically acquired from a dictionary, Wikipedia, and a Web corpus.

**PA Structure Analysis**

東京都西多摩地区では、各地で季節を楽しむイベントが開かれる。
(In Tokyo West Tama area, the event, where people enjoy the season every place, is held.)

**PA-matching Method**

- If all the PAs in H are matched to a PA in T, the system judges “T entails H”.
- Entailment of PAs is defined as follows:
  - The predicate and all the arguments in H are matched to those in T
  - Correspondence of surface form / SYNID
  - Distributional similarity between predicates > threshold
  - Arguments or predicate in H are more “general” compared to those in T

**SVM-based Method**

- Take a machine learning approach (SVM) to consider relatively shallow clues
- Features
  - Overlap ratio of morphemes
  - Overlap ratio of characters (1-gram, 2-gram, 3-gram, 4-gram)
  - Result of PA-matching method (Y/N)
  - …

**Resource**

- Extract synonym, is-a, and antonym relations automatically from a dictionary and Wikipedia
- Assign synonymous groups to IDs (SYNID)
- Distributional similarity is calculated using a large Web corpus
- Feature vector: a set of “noun + case marker”
- Calculate similarity between two vectors
  - Distributional similarity between predicates > threshold
  - Correspondence of surface form / SYNID
  - Arguments or predicate in H are more “general” compared to those in T

**Experiments**

- We participated in Japanese BC, MC, EXAM, and RITE4QA
- Resources
  - Reikai-shogaku dictionary (30,000 entries)
  - Japanese Wikipedia
  - Japanese Web page (100 million pages)

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Two-stage method first applies PA-matching method, and if “Y” is obtained, the result is adopted; otherwise the SVM-based method is applied.