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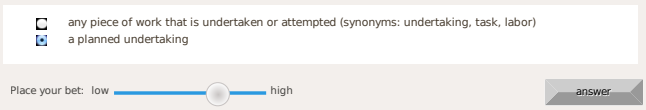
wordrobe

Gamification for Word Sense Labeling

Game

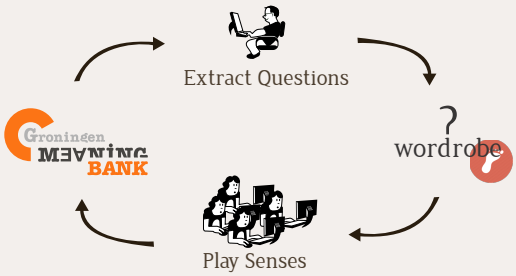
- Senses is a Game With a Purpose
- Using crowdsourcing for linguistic annotation
- Players are asked to select the senses of nouns and verbs
- Game material is generated from the Groningen Meaning Bank

More electrical power capacity is needed for additional investment **projects** in titanium extraction and processing and garment manufacturing that could further close the import/export gap.



Purpose

- Goal: **to use answers from the game for Word Sense Labeling**
  Players assign senses from WordNet 3.1 to words
- Challenge: **players are no experts**
  We cannot expect consistent, high quality answers
- Solution: **check for high agreement on answers**
  Consider only answers upon which many players agree



Evaluation

- Gold Standard: 115 questions manually annotated by experts
- Several measures of agreement
- Only questions that received exactly 6 answers

Precision and recall based on different agreement measures

Strategy	Precision	Recall	F-score
Relative majority	0.880	**0.834**	**0.857**
Absolute majority ($t = 0.5$)	0.882	0.782	0.829
Absolute majority ($t = 0.7$)	0.945	0.608	0.740
Unanimity ($t = 1$)	**0.975**	0.347	0.512
Chi-square test ($p < 0.05$)	0.923	0.521	0.666

When taking into account only confident answers, precision is higher and recall is lower

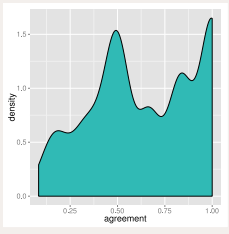
Precision and recall for questions with average bet $b \geq 80\%$

Strategy	Precision	Recall	F-score
Relative majority	0.917	**0.478**	**0.629**
Absolute majority ($t = 0.5$)	0.930	0.461	0.616
Absolute majority ($t = 0.7$)	0.956	0.383	0.547
Unanimity ($t = 1$)	**0.961**	0.217	0.355
Chi-square test ($p < 0.05$)	0.950	0.330	0.355

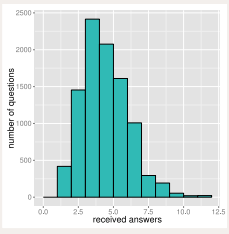
Conclusion

Results (update 12/3/2013)
- 9,563 single answers
- 3,035 questions
- 508 players

Future work
- Players can bet (measure of confidence)
- Different strategies for agreement assessment
- Coarse vs fine-grained sense inventory



Density of agreement distribution on questions with 6 answers



Distribution of number of received answers per question

university of groningen
Groningen MEANING BANK

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