/instituut voor de Nederlandse taal/

enetCollect WG3&5 meeting Leiden, 24-25 October 2018

Recognizing blends: First experiments with PYBOSSA

Peter Dekker
Tanneke Schoonheim
Instituut voor de Nederlandse Taal

cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

/instituut voor de Nederlandse taal/

Introduction of INT

Instituut voor de Nederlandse Taal (Dutch Language Institute)

- Scholarly institute in the field of the Dutch language
- Central position in the Dutch-speaking world
- Developer, keeper and distributor of corpora, lexica, dictionaries and grammars
- Provider of necessary building blocks of the study of Dutch

/instituut voor de Nederlandse taal/

Introduction of INT

Current staff of INT:

- 17 (computational and corpus) linguists, lexicographers, terminologists,
  4 linguistic assistants and trainees
- 5 software engineers, 1 system administrator
- 5 administration and communication

/instituut voor de Nederlandse taal/

Introduction of INT

Current projects at INT:

- Contemporary and historical dictionaries and dictionary portals
- Contemporary and historical corpora and lexica
- Grammar portal, spelling database, terminology lists
- Infrastructure, tools and data for linguistic research (CLARIN)

/instituut voor de Nederlandse taal/

Introduction of INT

Relatively new projects at INT:

Development and hosting of products for educational purposes, such as

- Bilingual dictionaries (New Greek, Portuguese, Estonian)
- Dutch Word Combinations
- Corpus Eenvoudig Nederlands (Corpus of Elementary Dutch)

Can crowdsourcing help us developing these and other educational products?

/instituut voor de Nederlandse taal/

Research objective

Crowdsourcing:

- Task solved by public: answer unknown
- User details not important

Traditional (socio)linguistic research/survey:

- Answer of task known beforehand, in many cases
- User details important

Our research objective: combination

- PYBOSSA can be suitable, more solutions exist

/instituut voor de Nederlandse taal/

PYBOSSA installation

- Hosted version (crowdcrafting.org) vs hosting on own server
    - Own server: existing infrastructure at INT, more flexibility
- Clear installation guide on PYBOSSA website
- Complexity: PYBOSSA consists of multiple software packages
- Ansible script: recipe for reproducible installation

/instituut voor de Nederlandse taal/

Experiments with blends: Data

Blend

- Compound of two words, where parts of the words are lost
- Signifies a new meaning, related to the words it consists of

Examples:

- *glamping* (glamour + camping)
- *mup* (millenial + yup)

Blends in English: Gries, S. T. (2004). Shouldn't it be breakfunch? A quantitative analysis of blend structure in English. *Linguistics*, 639-668.

/instituut voor de Nederlandse taal/

Experiments with blends: Data

Blends are part of two related projects at INT:

- Algemeen Nederlands Woordenboek (ANW; Dictionary of Contemporary Dutch)
- Neologism portal (upcoming)

Neologism Workflow at INT:

1. Data from newspapers and websites
2. Processed automatically, new words put aside
3. Lexicographer selects neologisms, creates entries in
    a. neologism portal (all neologisms)
    b. ANW dictionary (rooted neologisms only)

/instituut voor de Nederlandse taal/

Experiments with blends: Crowd

Where did we find the crowd?

- Newsletter Instituut voor de Nederlandse Taal
- Congress Internationale Vereniging voor Neerlandistiek

/instituut voor de Nederlandse taal/

Experiments with blends: Jobs

Can the crowd help in recognizing and analyzing blends?

Two jobs created in PYBOSSA:

- Blend recognition
  - Recognize blends in a text
- Blend analysis
  - Analyze the words a blend consists of

10 tasks per job

/instituut voor
de Nederlandse
taal/

User interface design

Freedom in UI design: design using HTML and Javascript

PYBOSSA only loads and saves tasks from database

/instituut voor de Nederlandse taal/

User details

Herkennen van blends 1: Contribute

Hieronder kunt u enkele persoonlijke gegevens invullen, die ons extra inzichten geven in ons onderzoek. Deze worden anoniem opgeslagen, gekoppeld aan uw antwoorden, zichtbaar voor bezoekers van dit platform. De velden die u niet wilt invullen, kunt u leeg laten.

Leeftijd:

Geslacht:

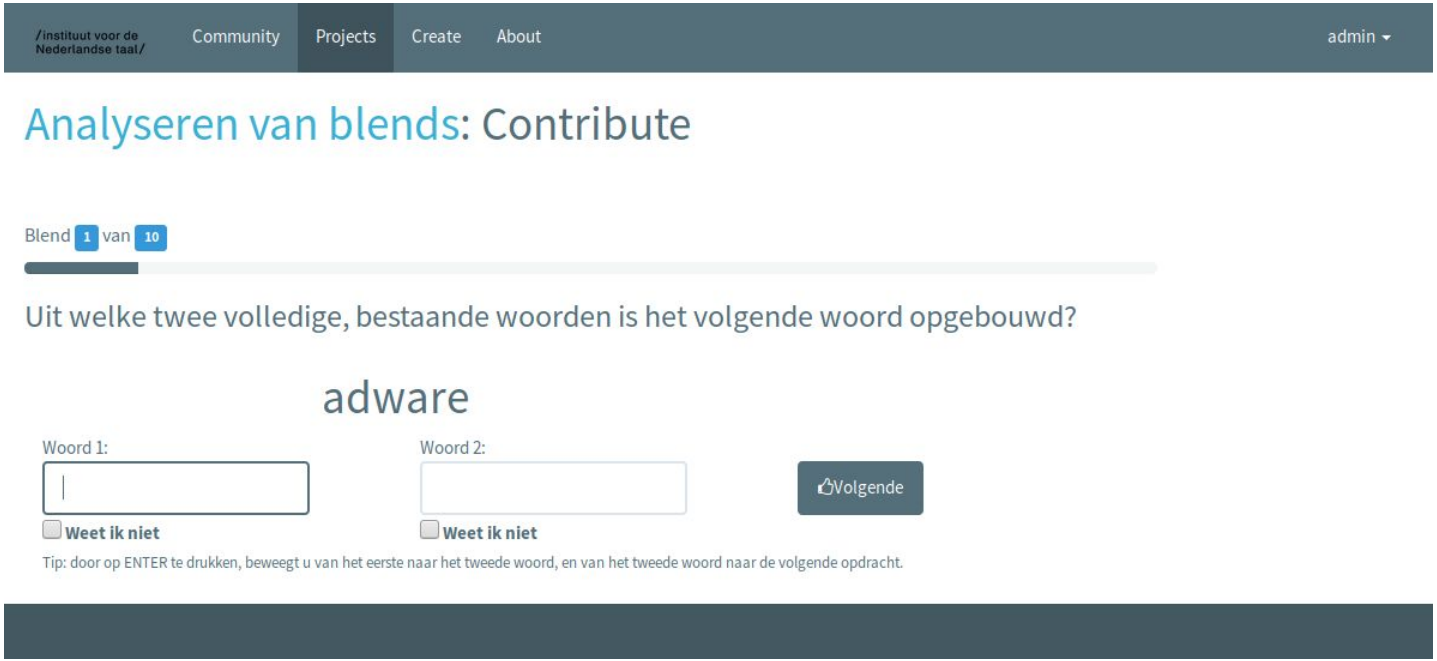
Zeg ik niet

Woonplaats:

Verzend!

/instituut voor de Nederlandse taal/

Blends analysis

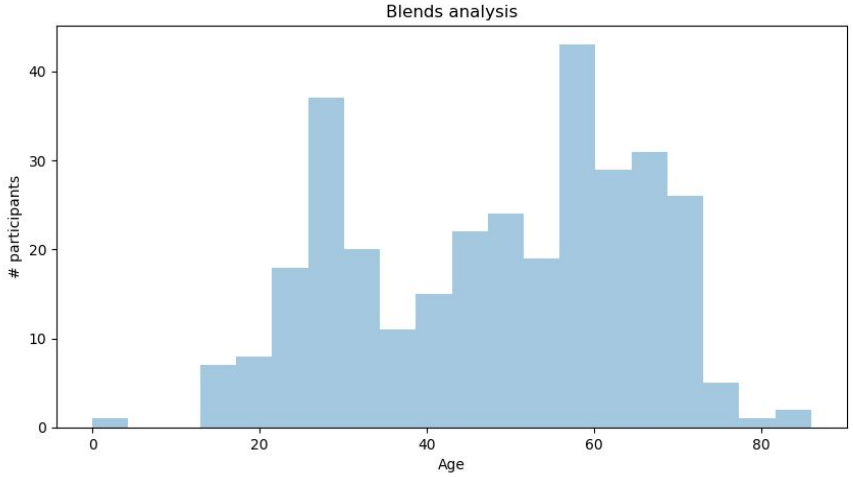


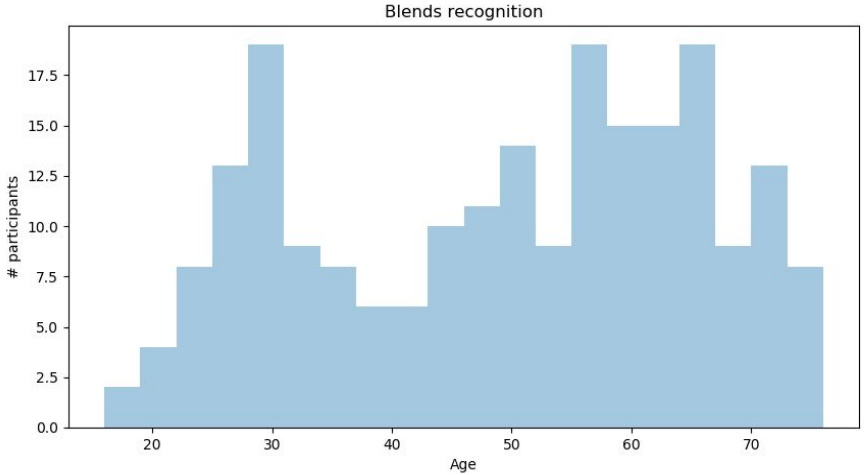
/instituut voor de Nederlandse taal/

Blends recognition

/instituut voor de Nederlandse taal/

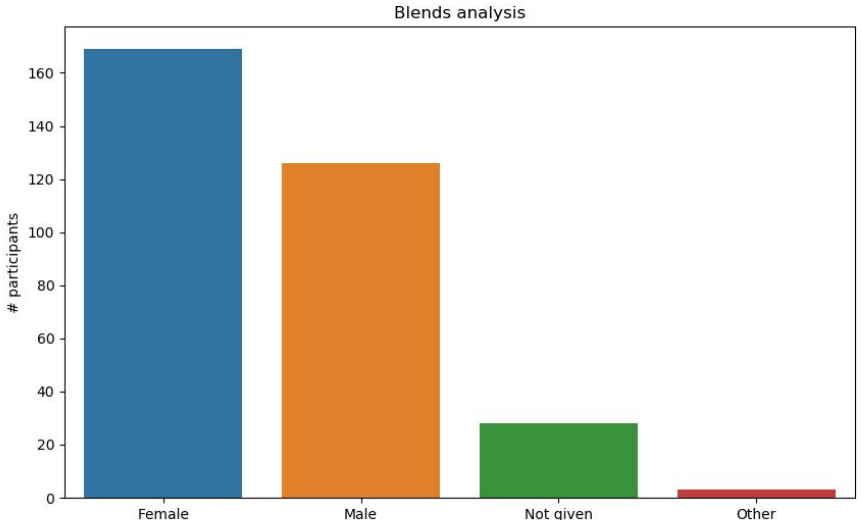
Results: Age

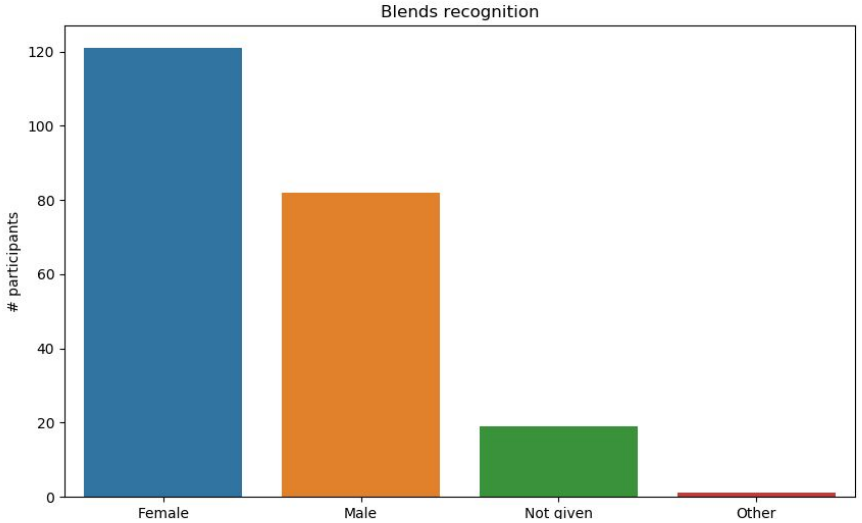




/instituut voor de Nederlandse taal/

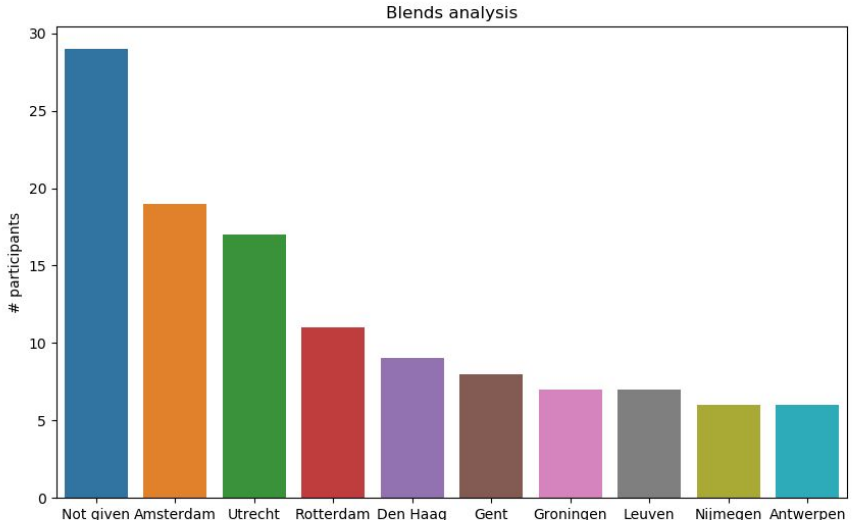
Results: Gender

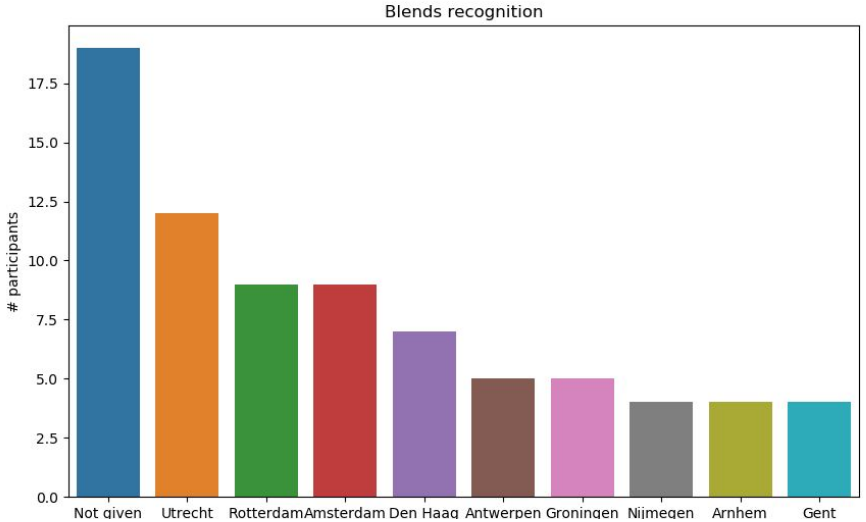




/instituut voor de Nederlandse taal/

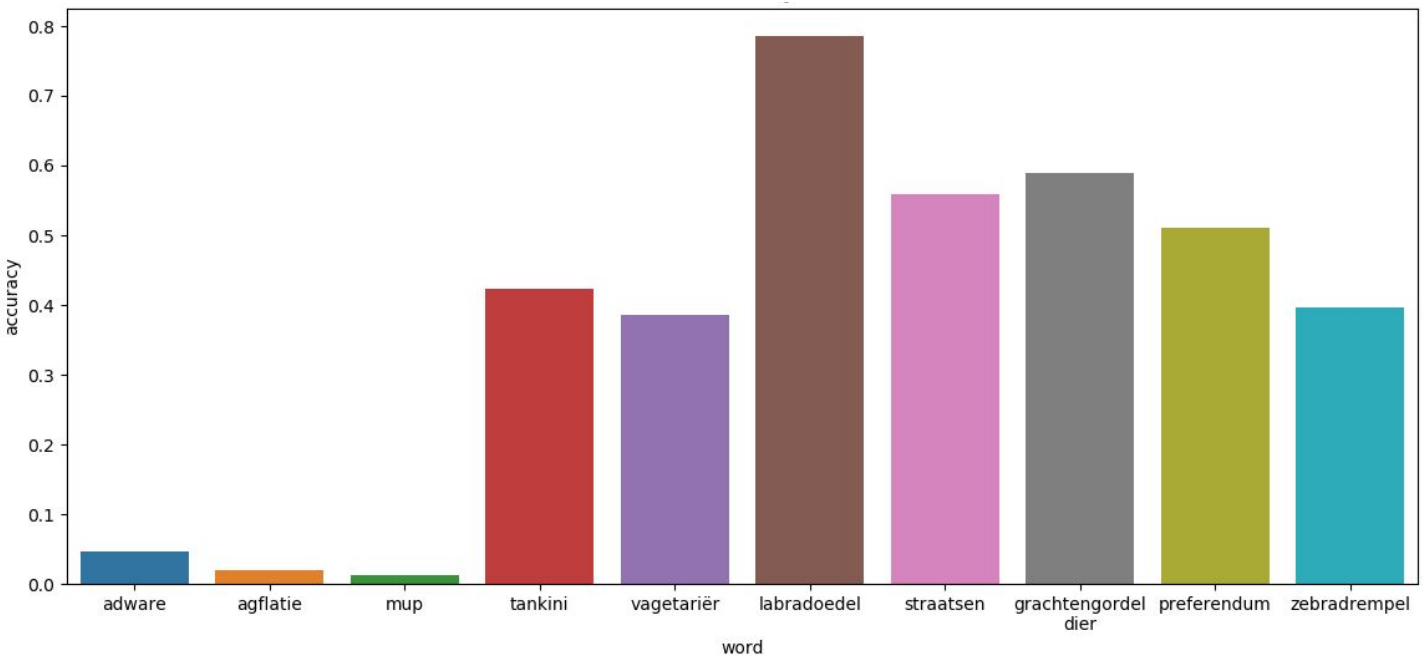
Results: Location





/instituut voor de Nederlandse taal/

Results: Blends analysis



n = 326

/instituut voor de Nederlandse taal/

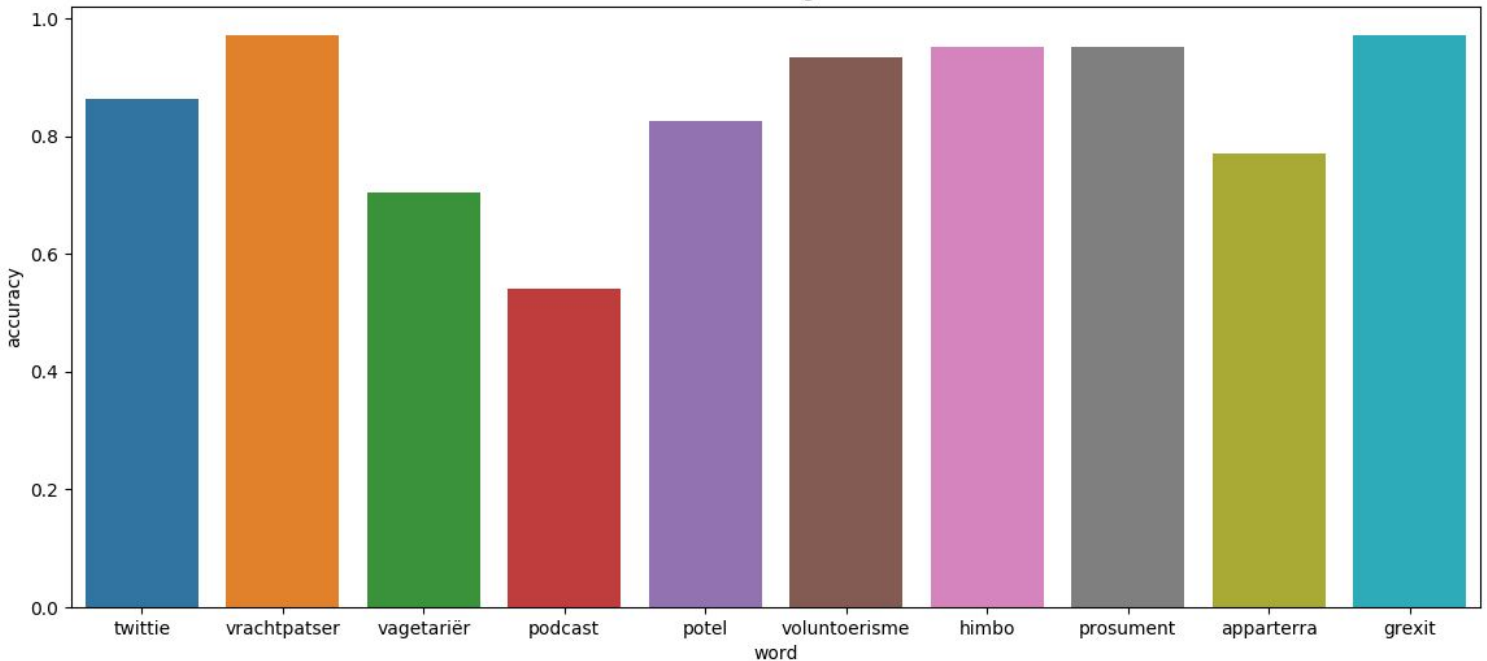
Results: Blends analysis for *preferendum*

Analysis	*Frequency*
referendum, prefereren	154
referendum, preferentie	60
referendum, pre	16
[Don't know]	11
referendum, preferent	8

- Multiple word forms (noun, verb) for prefer
- Multiple interpretations (at least when word is presented without context):
  - referendum + to prefer
  - referendum + pre

/instituut voor de Nederlandse taal/

Results: Blends recognition



n = 223

/instituut voor de Nederlandse taal/

Results: Blends recognition for *twittie*

Recognized blends	*Frequency*
twittie	122
twittie, fittie	56
fittie	16
twittie, tweet, fittie	5
[Do not know]	4

- twittie: twitter + fittie ‘fight’ (slang)
- fittie itself also occurred in text: misinterpreted as blend
- More input fields (3) than real blends per task (1): stimulates giving more blends

/instituut voor
de Nederlandse
taal/

User feedback

- English language of PYBOSSA, while tasks ar about Dutch
- Too many buttons
- Task not always clear
- Make welcome page attractive

/instituut voor
de Nederlandse
taal/

Experiences with PYBOSSA

Benefits

- Freedom when developing tasks
- Share tasks with other researchers
- Everything else (account system and loading/saving tasks) handled by PYBOSSA
- Quick answers from developers via bug tracker

Drawbacks

- No ready-made translation for all languages
- PYBOSSA not designed for asking user details
- When uploading large number of tasks, there is no clear end of job (you have to code that yourself)
- User cannot easily go back to a previous task
- User identification by IP address does not always work

Possible alternative for some purposes: Google Forms

/instituut voor de Nederlandse taal/

Future experiments

- Neologisms and dialects
- User detail prediction as reward

Interesting issue:

- Is PyBossa better suited for these tasks than for instance Google forms?

/instituut voor de Nederlandse taal/

Conclusion

Is crowdsourcing useful for the analysis of blends?

Yes, because it gives an insight in how blends are interpreted by non-linguists.

Is PYBOSSA useful for this kind of crowdsourcing?

Yes, powerful platform, with its own strengths and drawbacks.

cost
EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY