Uncovering Plagiarism, Authorship, and Social Software Misuse

PAN 2011 Results

[pan.webis.de]

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Plagiarism Detection

The web is rife with text reuse: boilerplate, translations, paraphrases, summaries, and plagiarism.

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Tasks:

- *External Detection*. Given a suspicious document and a set of potential source documents, the task is to find all plagiarized passages in the suspicious document and their corresponding source passages in the source documents.
- *Intrinsic Detection*. Given a suspicious document, the task is to extract all plagiarized passages based on clues extracted from the document itself.

Corpus:

- PAN plagiarism corpus of 2010, 2011 [www.webis.de/research/corpora]
- 61 000 plagiarism cases hidden in about 27 000 documents
- 5 plagiarism-relevant parameters (length, language, task, obfuscation, fraction)

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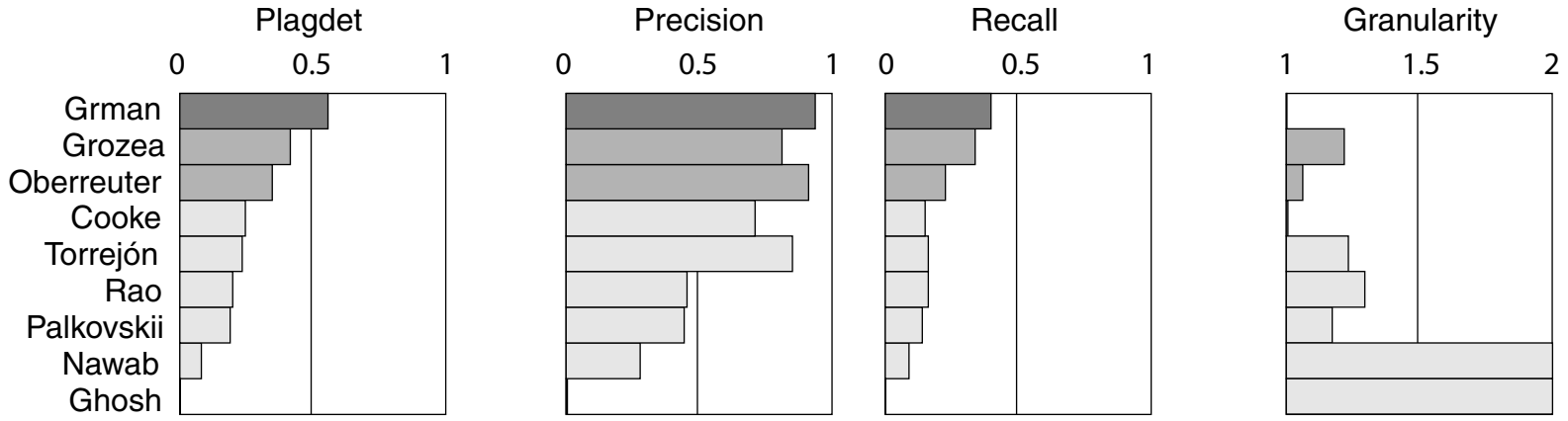
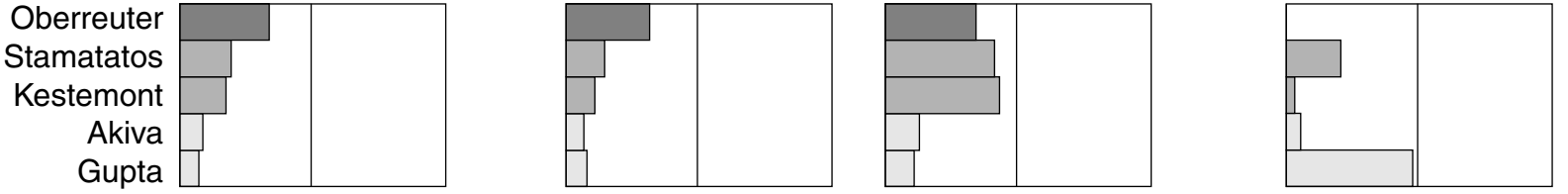
External plagiarism detection:



Intrinsic plagiarism detection:



- Plagdet combines the measures as F / log(granularity).
- Granularity measures the average number of times a plagiarism case is detected.

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Authorship Identification

Many texts on the web are of uncertain authorship.

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Tasks:

- *Authorship Attribution.* Given a document of uncertain authorship and documents from a set of candidate authors, the task is to map the document onto its true authors among the candidates.
- *Authorship Verification.* Given a document of uncertain authorship and a document from a specific author, the task is to determine whether the given text has been written by that author.

Corpus:

- Subset of the Enron Email Dataset [www.cs.cmu.edu/~enron]
- More than 12 000 documents written by 118 authors.
- 3 relevant parameters (task, canidate set size, closed vs. open canidate set)

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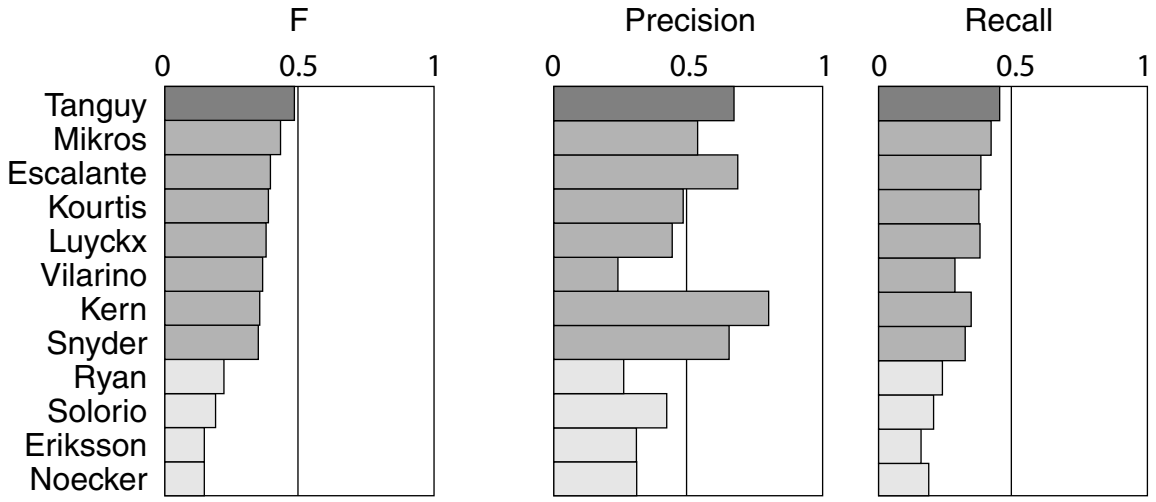
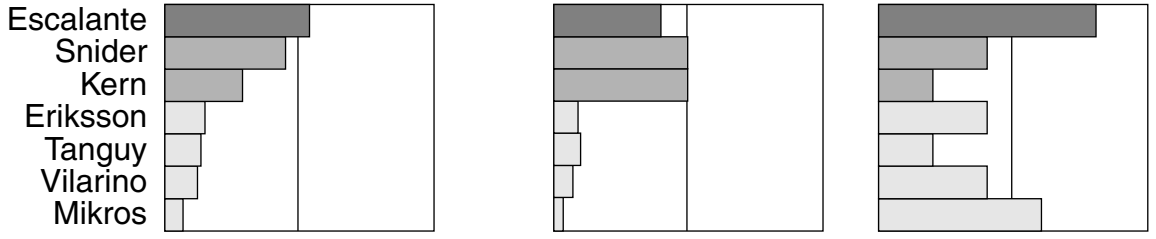
Authorship attribution:



Authorship verification:



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Wikipedia Vandalism Detection

Every edit on Wikipedia has to be double-checked for integrity.

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Wikipedia Vandalism Detection

Every edit on Wikipedia has to be double-checked for integrity.

Task:

- Given a set of edits on Wikipedia articles, separate the ill-intentioned edits from the well-intentioned edits.

Corpus:

- PAN Wikipedia vandalism corpus of 2010, 2011 [www.webis.de/research/corpora]
- About 2 800 vandalism cases among about 30 000 edits
- 3 languages with corpus annotations obtained from Mechanical Turk.

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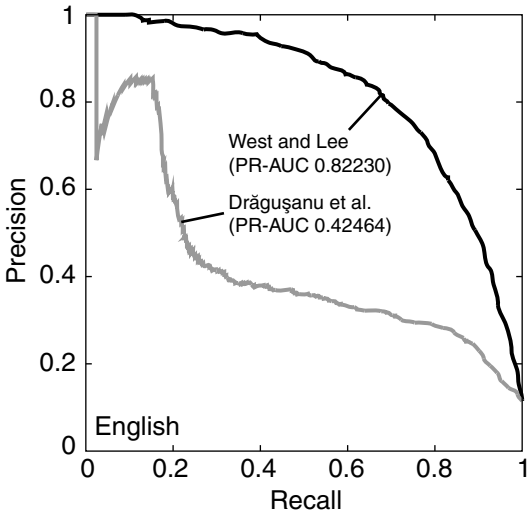
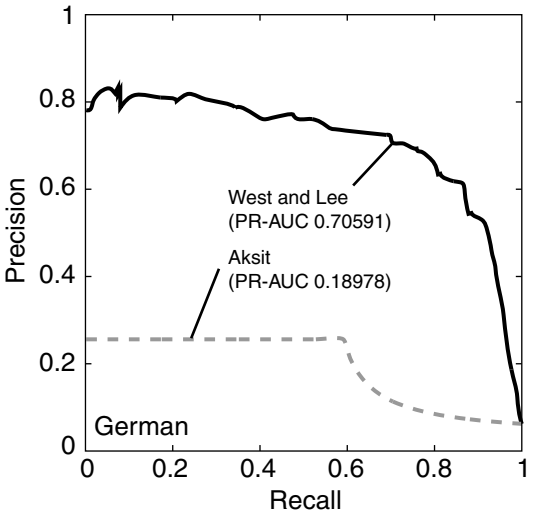
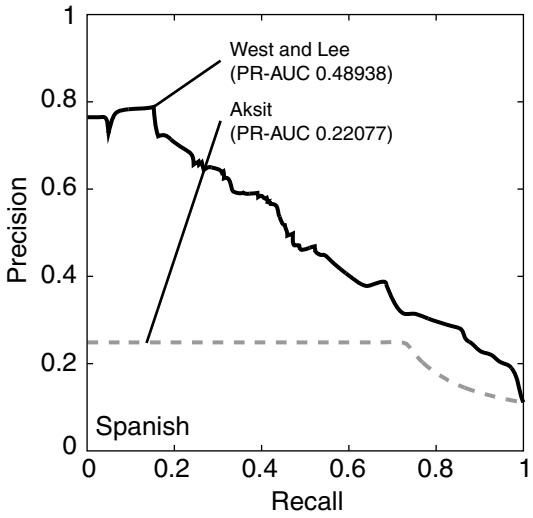
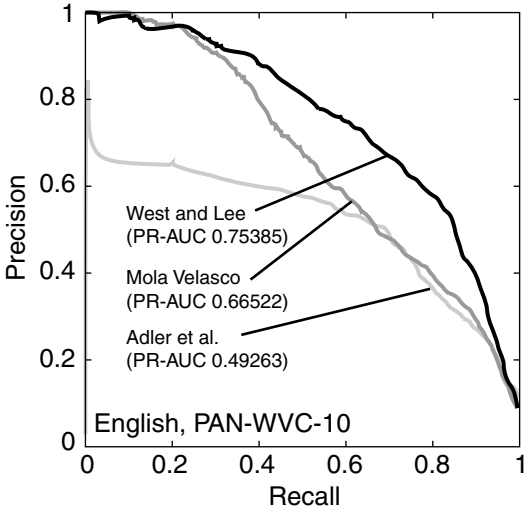
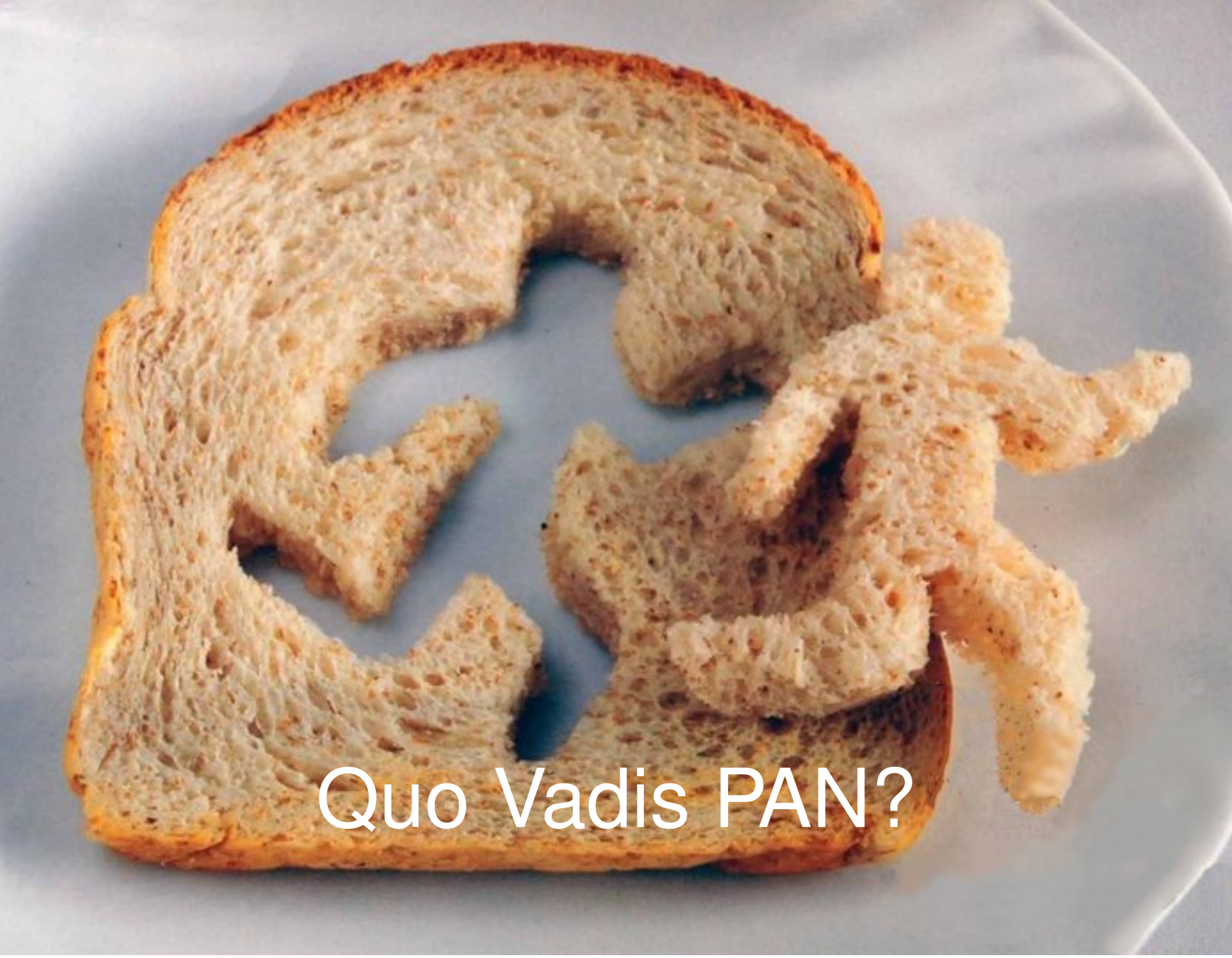
Wikipedia Vandalism Detection










Quo Vadis PAN?

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Lessons Learned and Outlook

- Focus & Simplicity
  - ➜ Focus on specific aspects of the tasks.
  - ➜ Reduced number of task variants.
  - ➜ Reduced number of parameters and limited ranges.
- Realism & Scale
  - ➜ New corpora for plagiarism detection and authorship identification.
  - ➜ Scale up where necessary, scale down otherwise.
- Contributions & Challenges
  - ➜ Inclusion of real plagiarism and real cases of disputed authorship.
  - ➜ Distinguishing text reuse and plagiarism.
  - ➜ Considering human performance.

Thank you!

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