Attribution of Authorship for Medieval Persian Quasidas with Stylometry

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Disclaimer of the speaker

https://computationalstylistics.github.io/projects/focs/

10 Computational 01
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Stylometry

What is stylometry?

Stylometry

use of quantitative methods to examine similarities and differences within a group of texts

What is it useful for?

- authorship attribution,
- tracing chronology,
- analysis of cross and inter genre relationships,
- big data analysis,
- style transfer and anonymization,
- and many others.

What is stylometry?

corpus of texts

+

distance measure

+

classification algorithm

+

(visualisation)

Background of the problem

Siyar al-muluk

- first political treatise written in Persian by Nizam al-Mulk(k. 485/1092), the great prime minister of the Saljuq dynasty.
- first publication by Ch.Schefer (d. 1898) in 1891 up to the present time, since then several critical editions

Siyar al-muluk – appended quasida

- anonymous qasida composed in praise of the Sultan Muhammad b. Malikshahand appended to the first redaction of the Siyar al-muluk

- held by the British and Berlin libraries, transcribed in 1032/1623 and1058/1648, from the protocopy made in the city of Urumiya in 564/1168

Our approach

Data

A corpus of normalized texts in UTF-8 encoding consisting of:

- Examined text: the anonymous “...ar”-ending qasida — 837 words
- [and a set of candidate authors]

Data

A corpus of normalized texts in UTF-8 encoding consisting of: [Examined text] and

a set of texts written by candidate authors:

1. 50 “...ar”-ending qasidas by Amir Mu‘izzi — over 35 000 words
2. 12 “...ar”-ending qasidas by Farrukhi Sistani — over 8 000 words
3. 9 “...ar”-ending qasidas by Anwari — over 7 000 words

Methods

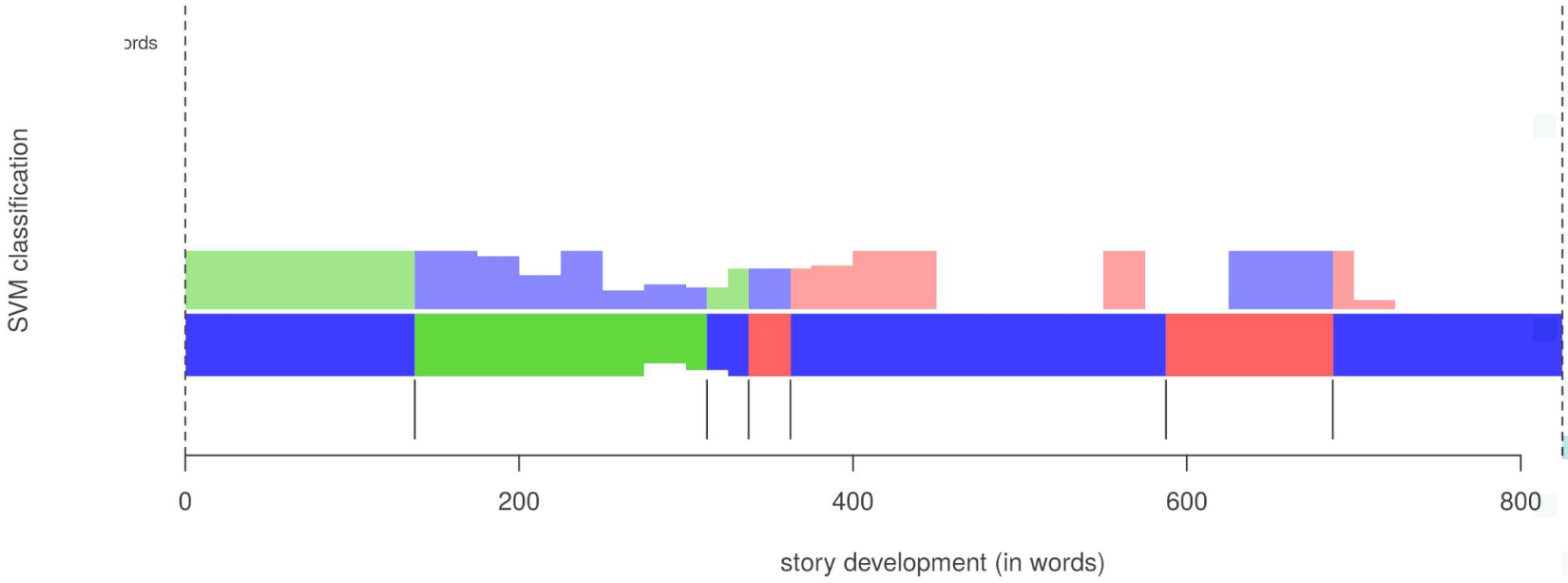
- Cluster analysis
- Classification with Support Vector Machine
- Rolling stylometry method
- Authorship verification with General Imposters (GI) method

All as implemented with stylo R package.

Methods – data selection

- A series of experiments:
  - Random selection of 9 sample texts per candidate author
  - How many most frequent words? 50-350
  - Specialized wordlist

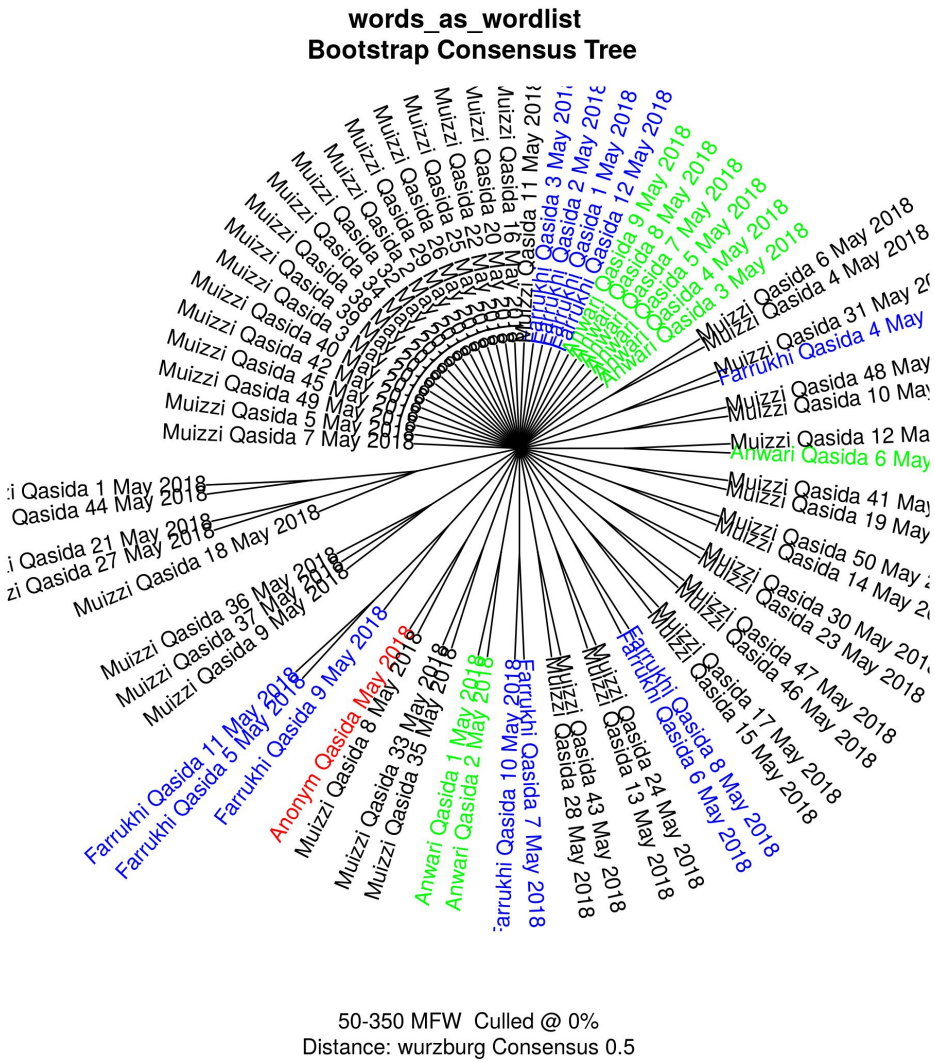
Methods


ords
Anwari
Farrukhi
Muizzi
SVM classification
0
200
400
600
800
story development (in words)

Problem – inconsistent authorial signal

Solution – using rhyming *-ar* words as features

Result – almost perfect classification



Bootstrap consensus

50-350 most frequent words, Cosine Delta as a distance measure

Conclusions

Amir Mu‘izzi likely the author

- Most often pointed by computational methods
- Supported by literary and textual arguments

questions, questions, questions

Confusing attribution with existing methods

Feature of

- only this set?
- historical texts (editions, redactions)?
- texts written in R2L systems?

Confusing attribution with existing methods

Attribution with specialized wordlist(s)

–

a solution?

Further problems

- Can we (how to?) use ngrams of words / characters?
- How to prepare data?
- Lemmatize?

Thank you!

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