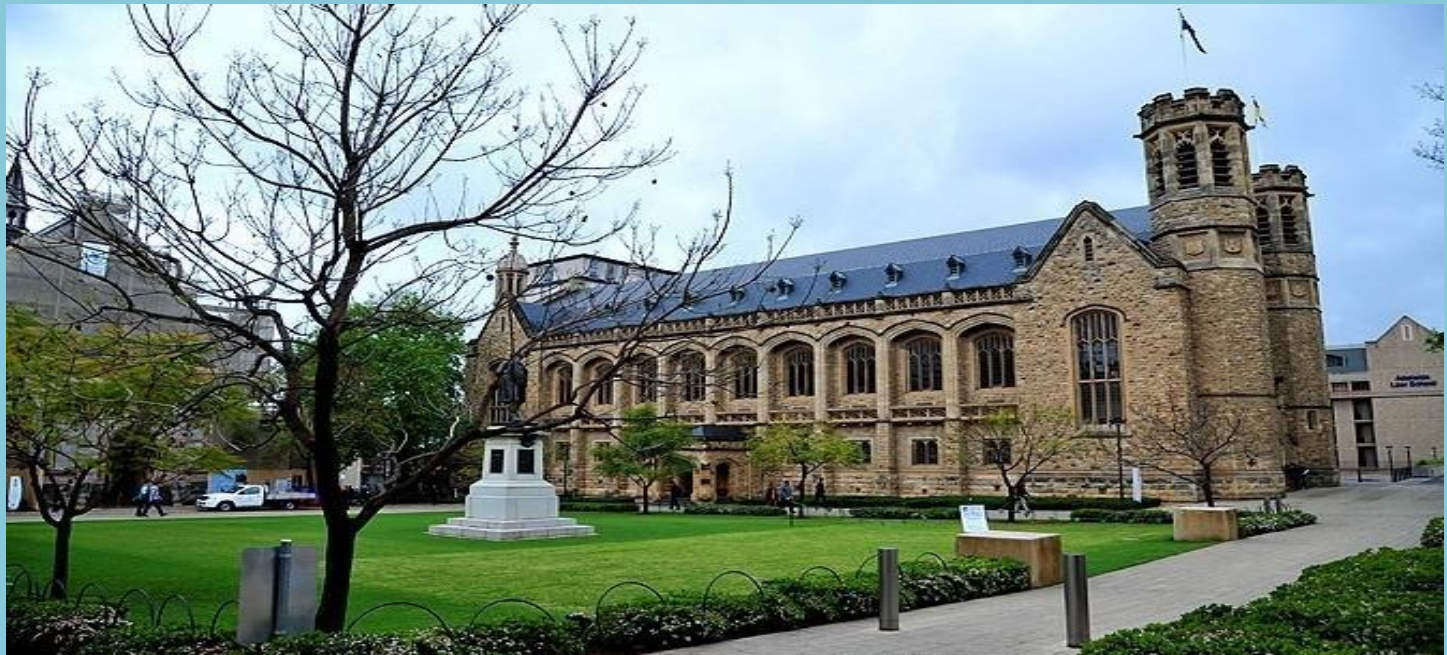




THE UNIVERSITY
of ADELAIDE



2016 Masters project 141

Cracking the Voynich manuscript code

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Outline

- ✓ The Voynich manuscript (background and history)
- ✓ The project 141
- ✓ Phase 1: Text investigation
- ✓ Phase 2: Illustrations research
- ✓ Phase 3: Marginal symbols investigation
- ✓ Conclusion
- ✓ Applications

The Voynich manuscript (background and history)



Wilfrid Voynich (1865-1930)

- Born in Telsze in Polish.
- In 1912, the Voynich manuscript was found.
- In 1914, he brought the manuscript to New York.

https://en.wikipedia.org/wiki/Voynich_manuscript#/media/File:Micha%C5%82_Wojnicz_c._1885.png

The Voynich manuscript



- ✓ About 240 pages remaining.
- ✓ folios, numbered from f1 to f116.
- ✓ Each folio have two pages, r and v.

[https://en.wikipedia.org/wiki/Voynich_manuscript#/media/File:Voynich_Manuscript_\(170\).jpg](https://en.wikipedia.org/wiki/Voynich_manuscript#/media/File:Voynich_Manuscript_(170).jpg)

Six sections

Herbal section



http://www.voynich.nu/q02/f016v_crd.jpg

Astronomical section



http://www.voynich.nu/q09/f067r1_crd.jpg

Cosmological section



http://www.voynich.nu/q10/f069v_crd.jpg

Biological section



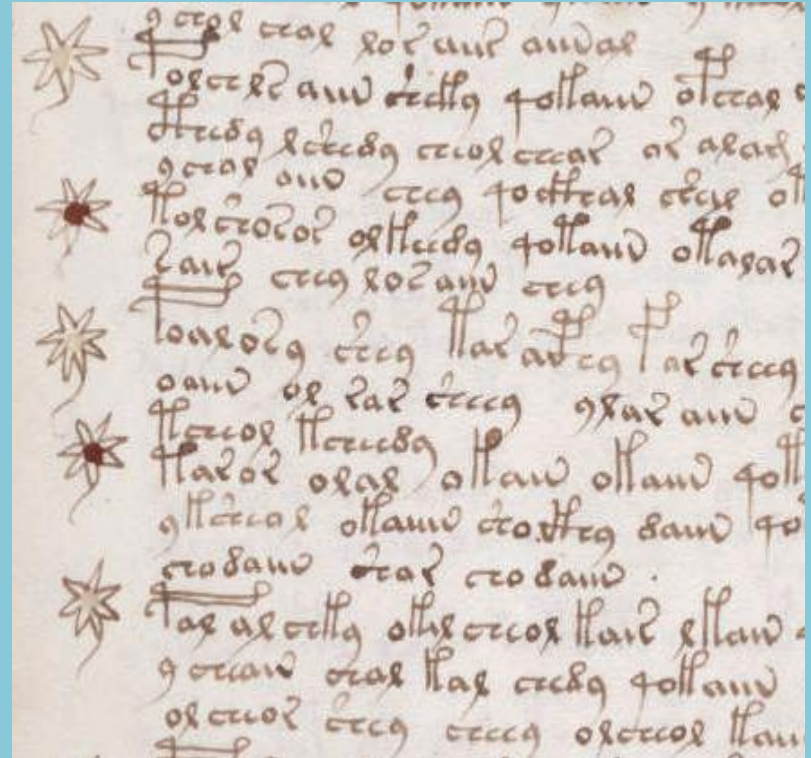
http://old.world-mysteries.com/sar_13.htm

Pharmaceutical section



http://www.voynich.nu/q15/f089r2_crd.jpg

Recipes section (marginal stars)



<https://cogitz.wordpress.com/2009/09/14/the-mysterious-voynich-manuscript/>

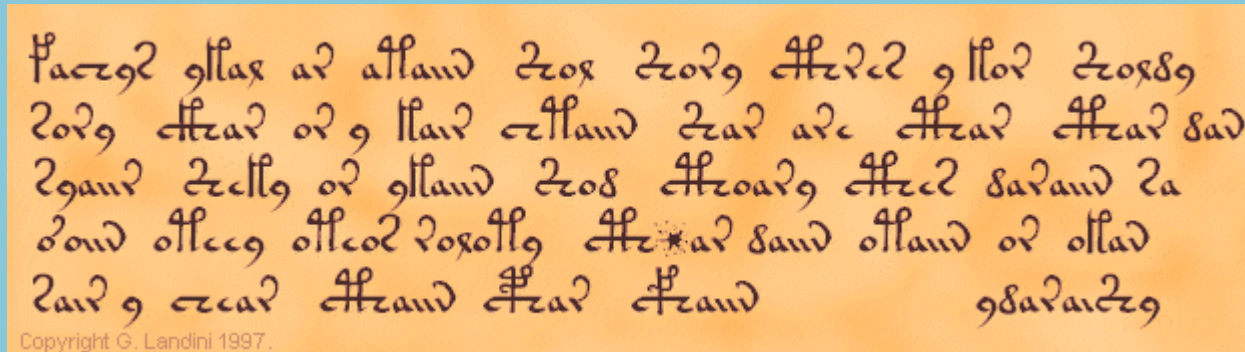
The Project 141

✓ In order to determine which language this manuscript uses, we study it from the perspective of possible written numbers. Moreover, we search for digits possibly related enumerated items in the manuscript's illustrations by employing data analysis. Thus we provide pathway for cracking the Voynich manuscript and we discuss our findings.

* Because of the massive number of words and illustrations in the Voynich manuscript, the aim of this project is not solve the whole Voynich manuscript, but we will crack this manuscript to the best of our abilities.

Phase 1: Text investigation

The Voynich manuscript



Copyright G. Landini 1997.

<http://www.voynich.nu/analysis.html>

Takahashi Version

fachys ykal ar atain Shol Shory cThres y kor Sholdy
sory cThar or y kair chtain Shar are cThar cThar dan
syair Sheky or ykain Shod cThoary cThes darain sa
o'oiin oteey oteor roloty cTh*ar daiin otain or okan
sair y chear cThain cPhar cFhain ydaraiShy

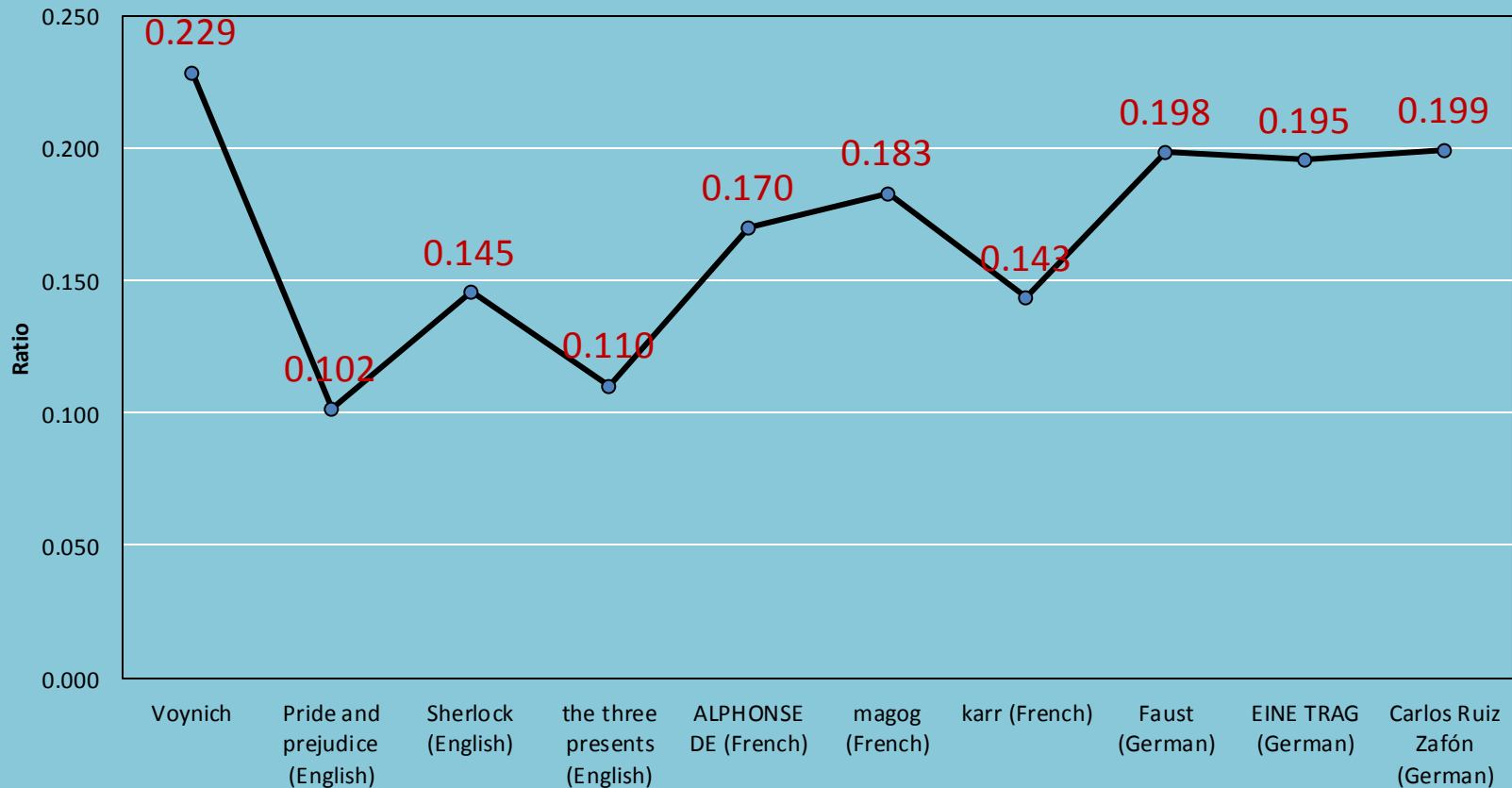
Text investigation:

Use the MATLAB to deal with the features of the text.

- ✓ The number of words.
- ✓ The people's writing habits: the length of words, the occurrence frequencies of unique words.
- ✓ Compare the Voynich manuscript with other known languages.

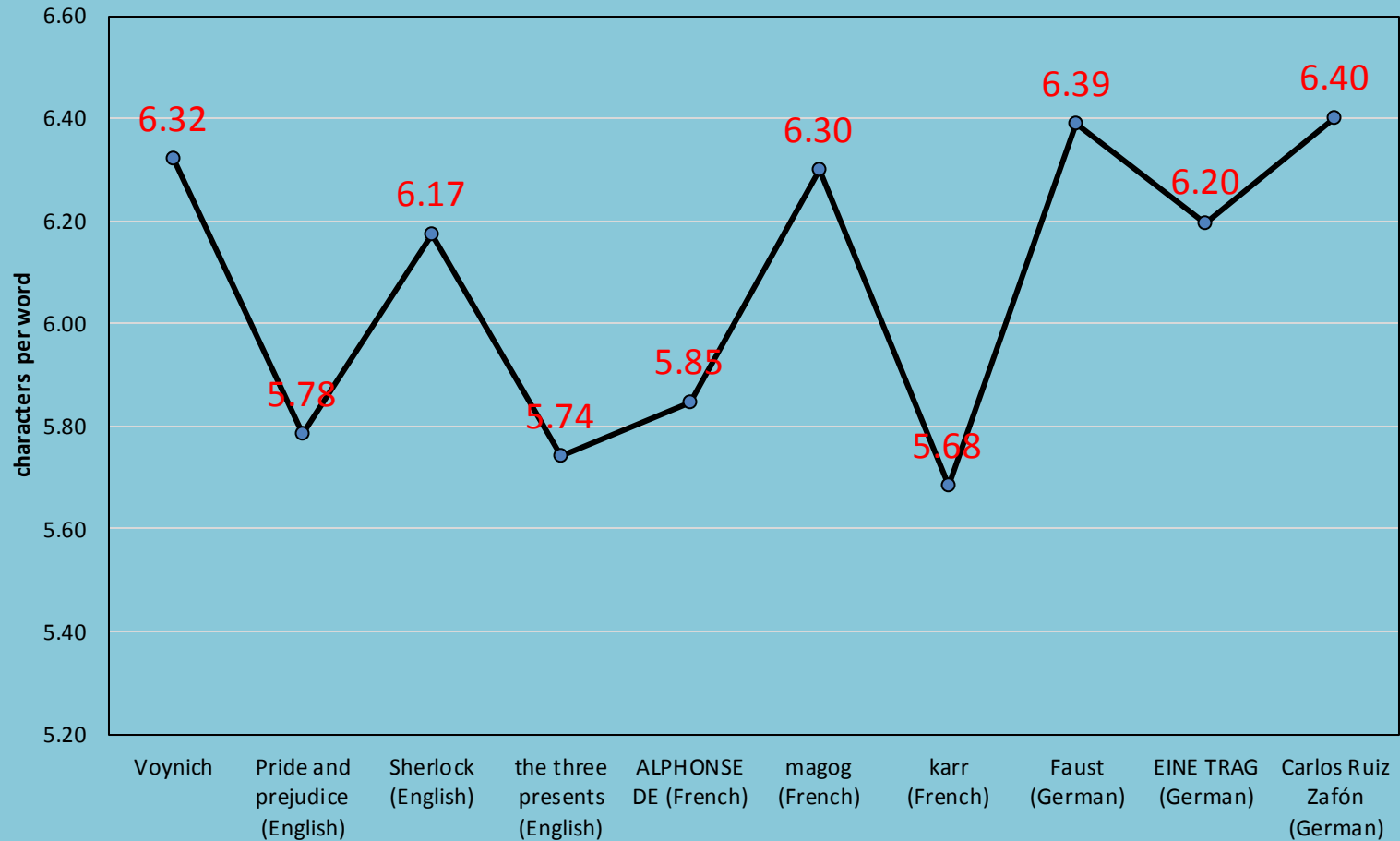
Text investigation: analysis

Unique words/total words



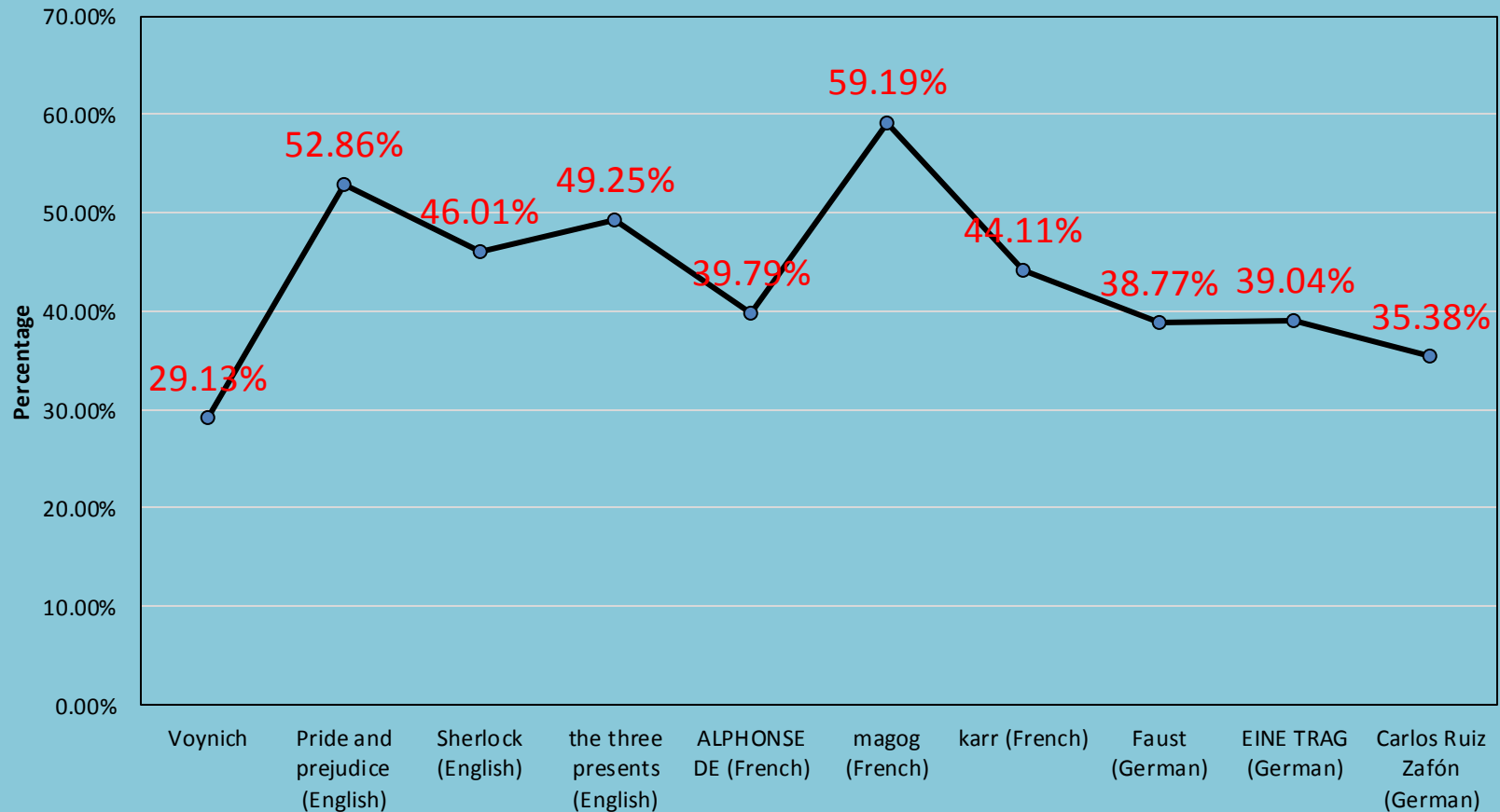
Text investigation

word length



Text investigation

words appear > 1/total unique words



Text investigation: conclusion

The most possible language which the author of the Voynich manuscript used is German (ancient German).

Phase 2: Illustrations research

- ✓ Numbers in pictures
- ✓ Potential digits



http://old.world-mysteries.com/sar_13.htm

Illustrations investigation: Analysis

letter	number	frequency
o	1	24
	2	20
	3	16
	4	14
	5	12
ol	10	14
	13	12
	12	11
	11	9
or	10	19
	12	13
	13	12

os	19	11
	12	4
	13	4
r	1	48
	2	26
	3	21
	5	19
	4	14
	2	54
s	1	46
	3	41
	5	32
	2	36
	1	30
y	3	29
	5	20

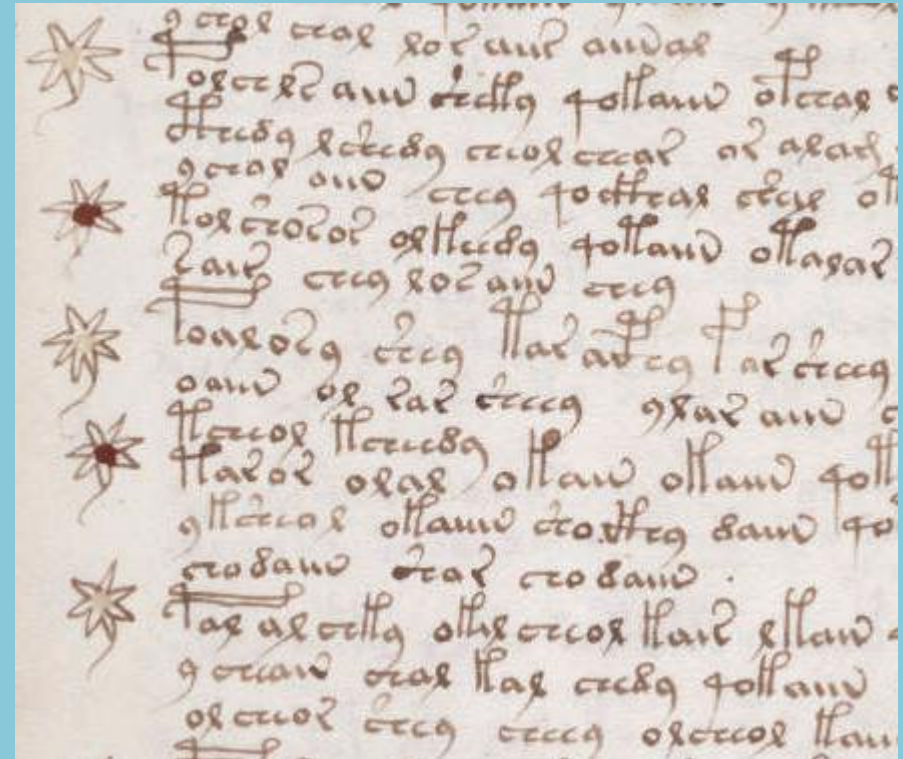
Illustrations investigation: Conclusion

There are potential relationships between:

- 'o' and '1'
- 'ol' and '10'
- 'ol' and '13'
- 'ol' and '12'
- 'or' and '10'
- 'or' and '12'
- 'or' and '13'
- 'os' and '19'
- 'r' and '1'
- 'r' and '2'
- 's' and '2'
- 's' and '1'
- 's' and '3'
- 'y' and '2'
- 'y' and '1'
- 'y' and '3'

Phase 3: Marginal symbols investigation

- ✓ Count the number of symbols for each page.
- ✓ Search potential digits from the text.



<https://cogitz.wordpress.com/2009/09/14/the-mysterious-voynich-manuscript/>

Marginal symbols investigation: Analysis

letter	Pages	Digit	Occurrence pages	frequency								
y	18	5	3	16.67%	s	10	6	4	40%			
		6	7	38.89%			7	3	30%			
		7	10	55.56%	o	8	6	4	50%			
		8	5	27.78%			8	2	25%			
l	13	7	7	53.85%	9	2	25%	ar	22	10	4	18.18%
		8	4	30.77%	12	3	13.64%					
		9	2	15.38%	13	6	27.27%					
or	17	10	3	17.65%	15	3	13.64%			al	21	10
		13	5	29.41%	13	6	28.57%					
ol	21	12	3	14.29%	14	2	9.52%	15	4			19.05%
		13	5	23.81%								
		15	4	19.05%								

Marginal symbols investigation: Conclusion

There are potential
relationships
between:

- ‘y’ and ‘6’
- ‘y’ and ‘7’
- ‘y’ and ‘8’
- ‘l’ and ‘7’
- ‘l’ and ‘8’
- ‘or’ and ‘13’
- ‘ol’ and ‘13’
- ‘ol’ and ‘15’
- ‘o’ and ‘1’
- ‘ar’ and ‘13’
- ‘ar’ and ‘10’
- ‘al’ and ‘15’
- ‘al’ and ‘13’
- ‘al’ and ‘10’
- ‘o’ and ‘6’
- ‘s’ and ‘6’

Conclusion

Text investigation: The language which is used in the Voynich manuscript may be a branch of German.

Illustrations and marginal symbols investigation:

The possible relationship	
Characters	Digits
s	2 and 6
y	2 and 6
a	1
r	1
The most possible relationship	
o	1
ol	13
or	13

Application

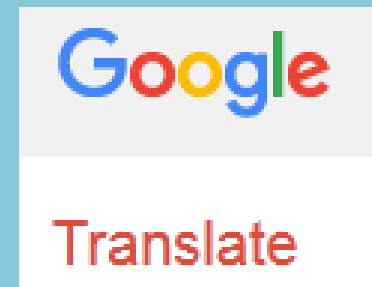
✓ Data analysis.



✓ Statistics.



✓ Information Theory.



References

- ✓ René Zandbergen, the Voynich manuscript, 2004 – 2016.
<<http://www.voynich.nu/>>
- ✓ European Voynich Alphabet (EVA).
<<http://www.voynich.nu/analysis.html>>
- ✓ First Study Group (FSG)
<<http://www.voynich.nu/transcr.html>>

**We would like to answer all your
questions.
Thank you for your listening!**