

Estimating literary readability through lexical & syntactic complexity.

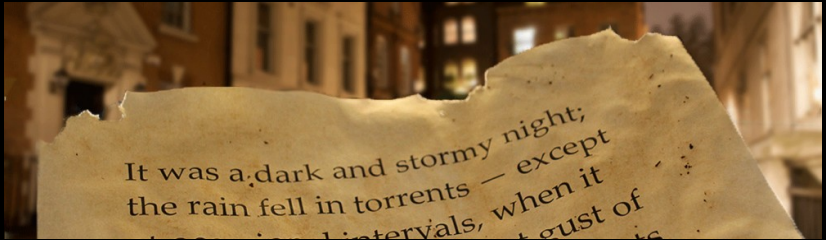
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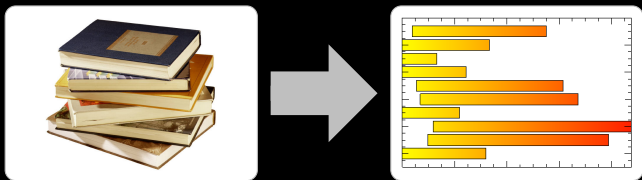
Nov 7, 2013

Meertens, Amsterdam, 2013



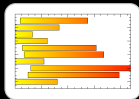
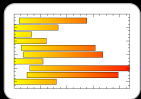
The Riddle of Literary Quality

- ▶ The Riddle of Literary Quality aims to find properties which make certain texts literary.

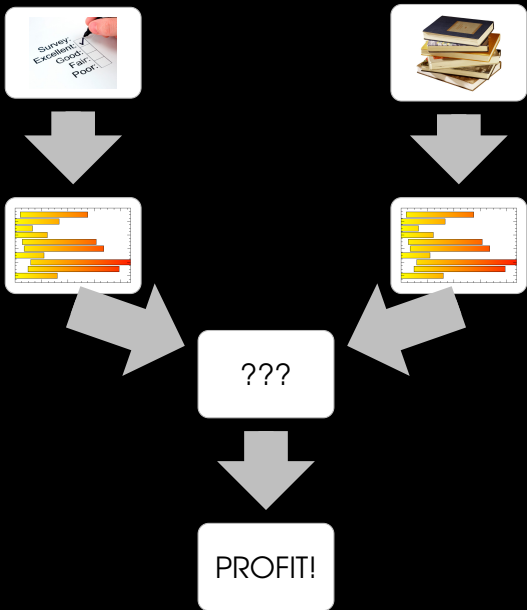


- ▶ Literary complexity, the idea that literary texts are more complex than others, is one such property.

The project



The project



Readability

Simple readability measures use superficial features:

- ▶ words per sentence
- ▶ syllables per word

⇒ two-parameter multiple regression equations

Readability

Vocabulary-based tests

- ▶ fixed word lists & frequencies (Lexile)
- ▶ smoothed unigram model (C & C, 2004)

The Lexile framework for reading. <http://www.lexile.com> Collins-Thompson & Callan (2004). A language modeling approach to predicting reading difficulty. In Proc. of HLT/NAACL, pp. 193–200.

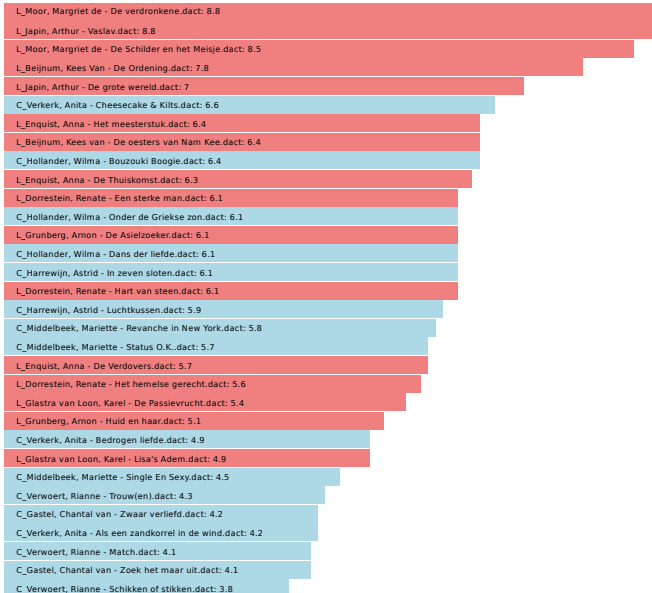
Measuring success

- ▶ Ashok et al. (2013) report an inverse correlation between simple readability measures and literary success.
- ▶ Basically, more VPs => more readability, but less success.

Ashok, Feng and Choi (2013). Success with Style—Using Writing Style to Predict the Success of Novels. EMNLP

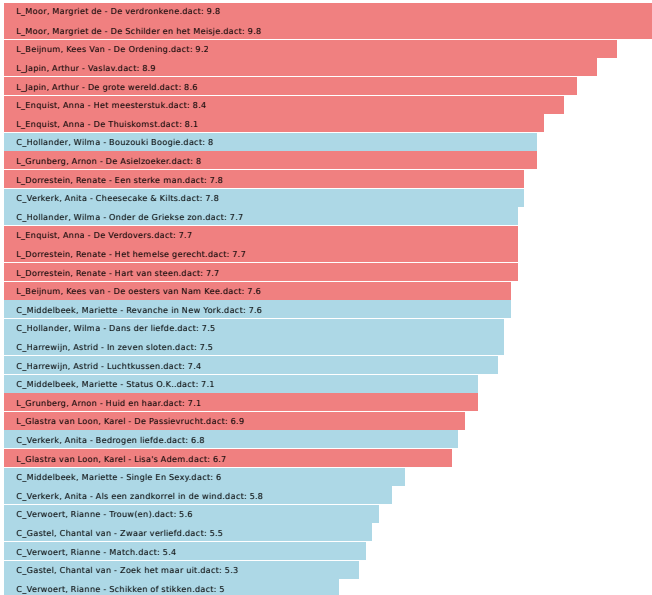
Kincaid measure

Kincaid:



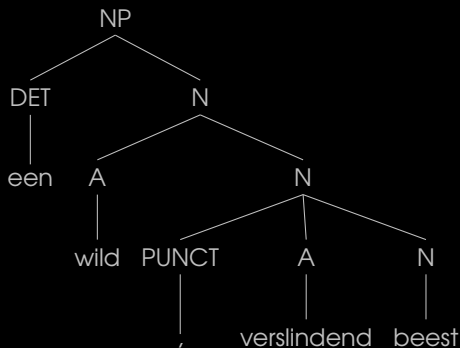
Coleman-Lau measure

Coleman-Liau:



Syntactic patterns

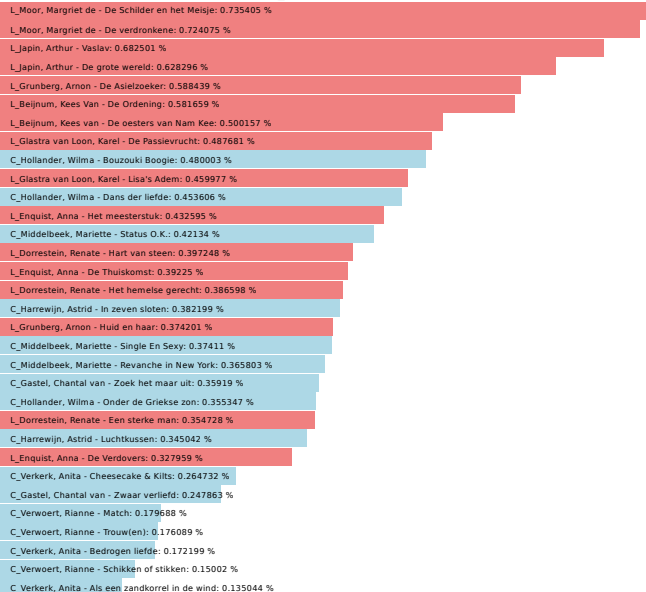
- ▶ Parse sentences in books
- ▶ Count occurrences of 'complex' patterns with query engine



Jautze, Koolen, van Cranenburgh, de Jong (2013). From high heels to (...): a syntactic investigation of chick lit and literature. Proc. of CLFL.

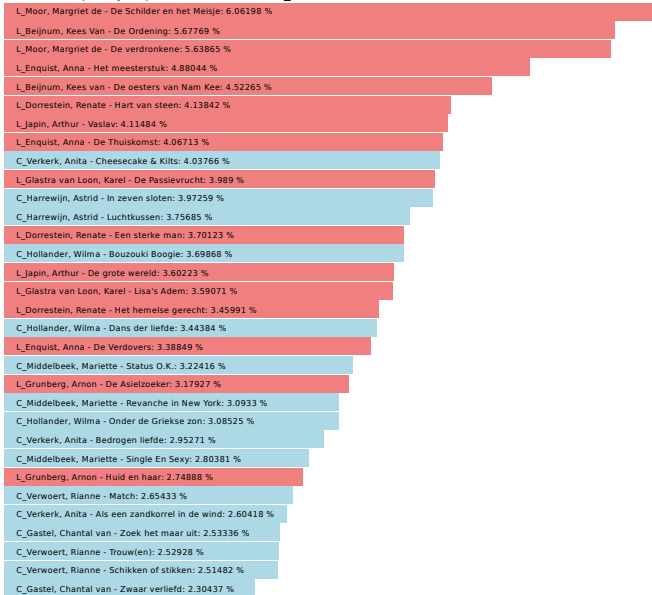
Relative clauses

Relative frequency of pattern: (count / num_consts * 100)



NP modifiers

Relative frequency of pattern: (count / num_consts * 100)



Outliers

	Kincaid	Coleman	Rel.	NP mod
Verkerk - Cheesecake	+	+	-	+
Hollander - Bouzouki	+	+	+	-
Dorrestein - Hemelse Gerech	-	+/-	+/-	+/-
Dorrestein - Sterke Man	+/-	+	-	+/-
Enquist - Verdovers	-	+/-	-	+/-
Glastra van Loon	-	-	+	+
Grunberg - Huid en Haar	-	-	+/-	-

+ = 'complex'

- = 'simple'

Other measures

Syntactic & higher-level complexity

- ▶ Perplexity: n -gram model (Schwam & Ostendorf, 2005)
- ▶ Coherence (Graesser et al., 2004)
 - ▶ Adjacent sentences which share a noun
 - ▶ Logical connectives between sentences

Schwam & Ostendorf (2005). Reading level assessment using SVM and stat. lang. models. Proc. of ACL, pp. 523–530.

Graesser et al. (2004). Coh-Matrix (...) BRMIC (36), pp. 193–202.

Beyond syntax: narrative complexity

- ▶ Slow vs. fast pace
- ▶ Linear vs. non-linear timeline
- ▶ Multiple narrators

Conclusion

Either ...

- ▶ Some chick lit is more complex, some literature is simpler?
- ▶ ... or not all complexity is in the lexical & syntactic realm

That's all, folks!