Evaluation of neural coreference annotation of simplified German

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Simplified German

- Easy German (*Leichte Sprache*) and Plain German (*einfache*) Sprache)
- Simplified lexicon, morphology and syntax

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- Various target groups (Bredel & Maaß 2016, Baumert 2019)
- Players: Netzwerk Leichte Sprache, social and governmental

Coreference

Geld verschwunden . Das Geld war in einem Geld transporter . Ein Geld-transporter ist ein besonderes Auto . Ein Geld·transporter ist besonders gesichert . Ein Geld·transporter hat zum Beispiel sehr dicke Türen . Ein Geld-transporter bringt zum Beispiel Geld zu einer Bank . Die Polizei hat

institutions, broadcasting services (e.g. AWO, *Bundestag*, NDR)



gesagt : In dem Geld·transporter war sehr viel Geld . Von

Fig. 1: Easy German by NDR



Referring expressions (e.g. noun phrases with definite or indefinite articles, personal pronouns, proper nouns)

Research Questions

How well does a neural coreference resolver (c2f, Schröder et al. 2021) trained on Standard German newspaper texts (TüBa-D/Z) detect mentions in simplified German texts?

What kind of errors (error sources) occur in simplified and Standard German texts?

Annotation Study

Coreference links

Links between mentions referring to the same entity





LeiKo core corpus, complemented by standard German texts (taz Standard)



- Automatic coreference annotation by c2f
- Manual correction and extension of the annotation in order to 2 capture phenomena typical of simplified German (see guidelines on Zenodo, LeiKo v1.5)
- Mentions: Identification of true/false positives and false 3 negatives
- 4 Annotation of possible error sources: Linguistic context and noun phrase types (1.412 mentions in 28 texts).

Fig. 3: Association plot of false negative mentions

Conclusions

- Quality of mention detection and coreference resolution in simplified German is comparable to Standard German given the modified guidelines (on avg. F1 LEA: 73.72, CoNLL: 74.52).
- Easy German has high proportions of def_NPs (NDR) or indef_NPs (tazleicht).
- All subcorpora have high error proportions of indef_NP. Statistically significant proportion in tazleicht ($\chi^2_{without SR}$ = 65.136, df=12, p= 2.573e-09) \rightarrow hypothesis: effect of genericity.
- \blacktriangleright No annotation of singleton mentions \rightarrow follow up errors in identification.
- Simplified variants: Idiosyncratic spellings do not pose a problem (e.g. midpoint).
- Infrequent error issues: direct speech, personal pronouns, segmentation.
- Further investigation of correlations between mention type and formal entity characteristics. Hypothesis: more restricted variants have more uniform mentions/entities that are easier to resolve.

References:

• Baumert, A. 2019. Mit einfacher Sprache Wissenschaft kommunizieren. Wiesbaden: Springer Fachmedien Grundlagen, Orientierung fur die Praxis. Berlin: Dudenverlag. • Poesio, M. et al. 2018. 'Anaphora Resolution with the ARRAU Corpus'. In Proceedings of the First Workshop on Computational Models of Reference, Anaphora and Coreference, 11–22. New Orleans, Louisiana: ACL. • Pradhan, S., X. Luo, M. Recasens, E. Hovy, V. Ng & M. Strube. 2014. Scoring Coreference Partitions of Predicted Mentions: A Reference Partitions of Predicted Mentions: A Reference Partitions of Predicted Mentions: A Reference Partitions of Predicted Mentions. In Proc. of the 52nd ACL Meeting (Vol. 2: Short Papers), 30–35. • Schröder, F., H. O. Hatzel & C. Biemann. 2021. Neural End-to-end Coreference Resolution for German in Different Domains. In Proc. of KONVENS 2021, 170–181.