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Towards the automatic detection of syntactic differences

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Bibliography

- Aarts, Flor G. A. M. and Herman Chr. Wekker (1987). *A contrastive grammar of English and Dutch: Contrastieve grammatica Engels / Nederlands*. Dordrecht: Springer. DOI: <https://doi.org/10.1007/978-94-017-4984-8>.
- Abu-Aisheh, Zeina et al. (2015). ‘An exact graph edit distance algorithm for solving pattern recognition problems’. In: *4th International Conference on Pattern Recognition Applications and Methods 2015*.
- Abzianidze, Lasha et al. (2017). ‘The Parallel Meaning Bank: Towards a Multilingual Corpus of Translations Annotated with Compositional Meaning Representations’. In: *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics: Volume 2, Short Papers*. Valencia, Spain: Association for Computational Linguistics, pp. 242–247. URL: <https://aclanthology.org/E17-2039>.
- Agić, Željko and Ivan Vulić (2019). ‘JW300: A wide-coverage parallel corpus for low-resource languages’. In: *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*. Florence, Italy: Association for Computational Linguistics, pp. 3204–3210. DOI: 10.18653/v1/P19-1310. URL: <https://aclanthology.org/P19-1310>.
- Babická, Blanka et al. (2008). ‘The passive voice in English and Czech and some implications for teaching’. In: *Discourse and Interaction* 1.2, pp. 19–30.
- Barbiers, Sjef (2009). ‘Locus and limits of syntactic microvariation’. In: *Lingua* 119.11, pp. 1607–1623.
- Barbiers, Sjef et al. (2005/2008). *Syntactic atlas of the Dutch dialects*. 2 vols. Amsterdam University Press.
- Bard, Gregory V. (2007). ‘Spelling-error tolerant, order-independent pass-phrases via the Damerau-Levenshtein string-edit distance metric’. In: *Proceedings of the fifth Australasian symposium on ACSW frontiers – Volume 68*. Citeseer, pp. 117–124.

- Barron, Andrew, Jorma Rissanen and Bin Yu (1998). ‘The minimum description length principle in coding and modeling’. In: *IEEE Transactions on Information Theory* 44.6, pp. 2743–2760.
- Benjamini, Yoav and Yosef Hochberg (1995). ‘Controlling the false discovery rate: A practical and powerful approach to multiple testing’. In: *Journal of the Royal statistical society: Series B (Methodological)* 57.1, pp. 289–300.
- Bertens, Roel, Jilles Vreeken and Arno Siebes (2016). ‘Keeping it short and simple: Summarising complex event sequences with multivariate patterns’. In: *Proceedings of the 22nd ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*. ACM, pp. 735–744.
- Berwick, Robert C. and Noam Chomsky (2016). *Why only us: Language and evolution*. Cambridge, MA: MIT press.
- Bonferroni, Carlo (1936). ‘Teoria statistica delle classi e calcolo delle probabilità’. In: *Pubblicazioni del R. Istituto Superiore di Scienze Economiche e Commerciali di Firenze* 8, pp. 3–62.
- Brandsen, Alex (2022). ‘Digging in documents: using text mining to access the hidden knowledge in Dutch archaeological excavation reports’. PhD thesis. Leiden University. URL: <https://hdl.handle.net/1887/3274287>.
- Brill, Eric (1992). ‘A simple rule-based part of speech tagger’. In: *HLT*.
- Broekhuis, Hans (2020). *R-pronominalization and R-words*. Retrieved October 14, 2020 from https://www.taalportaal.org/taalportaal/topic/link/syntax__Dutch__adp__adp5__P5_strand.xml.
- Brown, Peter F. et al. (1993). ‘The mathematics of statistical machine translation’. In: *Computational Linguistics* 19.2, pp. 263–313. URL: <http://acl.ldc.upenn.edu/J/J93/J93-2003.pdf>.
- Christodoulopoulos, Christos and Mark Steedman (2015). ‘A massively parallel corpus: The Bible in 100 languages’. In: *Language resources and evaluation* 49.2, pp. 375–395.
- Cinque, Guglielmo (1999). *Adverbs and functional heads: A cross-linguistic perspective*. Oxford University Press.
- Cinque, Guglielmo and Richard S. Kayne, eds. (2005). *The Oxford handbook of comparative syntax*. Oxford University Press.
- Cohen, Jacob (1960). ‘A coefficient of agreement for nominal scales’. In: *Educational and Psychological Measurement* 20.1, pp. 37–46.
- Cysouw, Michael (2010). ‘Semantic maps as metrics on meaning’. In: *Linguistic Discovery* 8.1, pp. 70–95.
- Cysouw, Michael and Bernhard Wälchli (2007). ‘Parallel texts: Using translational equivalents in linguistic typology’. In: *Language typology and universals* 60.2, pp. 95–99.
- Dahl, Östen (2007). ‘From questionnaires to parallel corpora in typology’. In: *Language Typology and Universals* 60.2, pp. 172–181.
- Davies, Mark (2008). *The sorpus of contemporary American English*. URL: www.english-corpora.org/coca/.
- de Lange, Joke (2004). ‘Article omission in child speech and headlines’. In: *Utrecht Institute of Linguistics OTS Yearbook*, pp. 109–119.

- Dempster, Arthur P., Nan M. Laird and Donald B. Rubin (1977). ‘Maximum likelihood from incomplete data via the EM algorithm’. In: *Journal of the Royal Statistical Society: Series B (Methodological)* 39.1, pp. 1–22.
- Dice, Lee R. (1945). ‘Measures of the amount of ecologic association between species’. In: *Ecology* 26.3, pp. 297–302.
- Donaldson, Bruce (2008). *Dutch: A comprehensive grammar*. 2nd ed. Comprehensive Grammars. Routledge.
- Dušková, Libuše (1991). ‘The complex sentence in British and Czech grammar’. In: *Brno studies in English* 19.1, pp. 65–75. URL: <http://hdl.handle.net/11222.digilib/104417>.
- Dyer, Chris, Victor Chahuneau and Noah A. Smith (2013). ‘A simple, fast, and effective reparameterization of IBM Model 2’. In: *Proceedings of the 2013 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*, pp. 644–648.
- Eberhard, David M., Gary F. Simons and Charles D. Fennig, eds. (2021). *Ethnologue: Languages of the World*. 24th ed. Dallas, Texas: SIL International.
- Fleiss, J. L. and Jacob Cohen (1973). ‘The equivalence of weighted kappa and the intraclass correlation coefficient as measures of reliability’. In: *Educational and Psychological Measurement* 33, pp. 613–619.
- Greenberg, Joseph H. (1963). ‘Some universals of grammar with particular reference to the order of meaningful elements’. In: *Universals of Language*. Ed. by Joseph H. Greenberg. Cambridge, MA.: MIT Press, pp. 110–113.
- Grünwald, Peter D. (2007). *The minimum description length principle*. MIT press.
- Hagberg, Aric A., Daniel A. Schult and Pieter J. Swart (2008). ‘Exploring network structure, dynamics, and function using NetworkX’. In: *Proceedings of the 7th Python in Science Conference (SciPy2008)*. Ed. by Gäel Varoquaux, Travis Vaught and Jarrod Millman. Pasadena, CA USA, pp. 11–15.
- Haspelmath, Martin (1997). *Indefinite pronouns*. Oxford University Press.
- (2003). ‘The geometry of grammatical meaning: Semantic maps and cross-linguistic comparison’. In: *The new psychology of language*. Psychology Press, pp. 217–248.
- Hinrichs, Frauke and Jilles Vreeken (2017). ‘Characterising the difference and the norm between sequence databases’. In: *Proceedings of the 4th Workshop on Interactions between Data Mining and Natural Language Processing (DMNLP)*.
- Holmberg, Anders (2016). ‘Null subjects in Finnish and the typology of pro-drop’. In: *Uralic Syntax book project*. Cambridge: Cambridge University.
- Jalili Sabet, Masoud et al. (2020). ‘SimAlign: High quality word alignments without parallel training data using static and contextualized embeddings’. In: *Findings of the Association for Computational Linguistics: EMNLP 2020*. Association for Computational Linguistics, pp. 1627–1643. DOI: 10.18653/v1/2020.findings-emnlp.147. URL: <https://aclanthology.org/2020.findings-emnlp.147>.

- Kiss, Katalin É. (2002). *The syntax of Hungarian*. Cambridge University Press. DOI: <https://doi.org/10.1017/CB09780511755088>.
- Koehn, Philipp (2005). ‘Europarl: A parallel corpus for statistical machine translation’. In: *MT summit*. Vol. 5, pp. 79–86.
- Kroon, Martin et al. (2019). ‘A filter for syntactically incomparable parallel sentences’. In: *Linguistics in the Netherlands* 36. Ed. by Janine Berns and Elena Tribushinina, pp. 147–161. DOI: <https://doi.org/10.1075/avt.00029.kro>.
- (2020). ‘Detecting syntactic differences automatically using the Minimum Description Length principle’. In: *Computational Linguistics in the Netherlands Journal* 10, pp. 109–127.
- Ladányi, Mária (2015). ‘Particle verbs in Hungarian’. In: *Word-formation: An international handbook of the languages of Europe*. Ed. by Peter O. Müller et al. Vol. 1. De Gruyter Mouton, pp. 660–672.
- Levenshtein, Vladimir I. (1966). ‘Binary codes capable of correcting deletions, insertions, and reversals’. In: *Soviet physics doklady* 10.8, pp. 707–710.
- Lin, Chih-Long (1994). ‘Hardness of approximating graph transformation problem’. In: *Algorithms and Computation*. Ed. by Ding-Zhu Du and Xiang-Sun Zhang. Vol. 843. Lecture Notes in Computer Science. Berlin: Springer, pp. 74–82.
- Lison, Pierre and Jörg Tiedemann (2016). ‘Opensubtitles2016: Extracting large parallel corpora from movie and TV subtitles’. In: *Proceedings of the 10th International Conference on Language Resources and Evaluation (LREC 2016)*.
- Malá, Markéta (2014). *English copular verbs: A contrastive corpus-supported view*. Filozofická fakulta Univerzity Karlovy.
- Mårdh, Ingrid (1980). *Headlines: On the grammar of English front page headlines*. Vol. 58. Liberläromedel/Gleerup.
- McNemar, Quinn (1947). ‘Note on the sampling error of the difference between correlated proportions or percentages’. In: *Psychometrika* 12.2, pp. 153–157.
- Naughton, James (2005). *Czech: An essential grammar*. Essential grammars. Routledge.
- Nerbonne, John and Wybo Wiersma (2006). ‘A measure of aggregate syntactic distance’. In: *Proceedings of the Workshop on Linguistic Distances*. Association for Computational Linguistics, pp. 82–90.
- Nivre, Joakim et al. (2016). ‘Universal Dependencies v1: A Multilingual Treebank Collection’. In: *Proceedings of the Tenth International Conference on Language Resources and Evaluation (LREC’16)*. European Language Resources Association (ELRA), pp. 1659–1666. URL: <https://aclanthology.org/L16-1262>.
- Och, Franz Josef and Hermann Ney (2003). ‘A Systematic Comparison of Various Statistical Alignment Models’. In: *Computational Linguistics* 29.1, pp. 19–51.

- Oodijk, Jan et al. (2017). ‘The parse and query (PaQu) application’. In: *CLARIN in the Low Countries*. Ed. by Jan Oodijk and A. Hessen. London: Ubiquity Press, pp. 281–297. DOI: <https://doi.org/10.5334/bbi.23>.
- Oostdijk, Nelleke et al. (2013). ‘The construction of a 500-million-word reference corpus of contemporary written Dutch’. In: *Essential Speech and Language Technology for Dutch: Results by the STEVIN-programme*. Springer Verlag. Chap. 13.
- Osborne, Miles (1999a). ‘DCG induction using MDL and parsed corpora’. In: *International Conference on Learning Language in Logic*. Springer, pp. 184–198.
- (1999b). ‘MDL-based DCG induction for NP identification’. In: *EACL 1999: CoNLL-99 Computational Natural Language Learning*.
- Östling, Robert and Jörg Tiedemann (2016). ‘Efficient word alignment with Markov Chain Monte Carlo’. In: *Prague Bulletin of Mathematical Linguistics* 106, pp. 125–146. URL: <http://ufal.mff.cuni.cz/pbml/106/art-ostling-tiedemann.pdf>.
- Radford, A. (2004). *English syntax: An introduction*. Cambridge University Press. ISBN: 9780521542753. URL: <https://books.google.nl/books?id=LdAi292Q4-0C>.
- Reback, Jeff et al. (Mar. 2021). *pandas-dev/pandas: Pandas 1.2.3*. Version v1.2.3. DOI: 10.5281/zenodo.4572994. URL: <https://doi.org/10.5281/zenodo.4572994>.
- Rounds, Carol (2009). *Hungarian: An essential grammar*. Routledge.
- Sampson, Geoffrey (2000). ‘A proposal for improving the measurement of parse accuracy’. In: *International Journal of Corpus Linguistics* 5.1, pp. 53–68.
- Sanders, Nathan C. (2007). ‘Measuring syntactic difference in British English’. In: *Proceedings of the 45th Annual Meeting of the ACL: Student Research Workshop*. Association for Computational Linguistics, pp. 1–6.
- (2010). ‘A statistical method for syntactic dialectometry’. PhD thesis. Indiana University.
- Sanguinetti, Manuela and Cristina Bosco (2015). ‘PartTUT: The Turin University Parallel Treebank’. In: *Harmonization and development of resources and tools for Italian natural language processing within the PARLI project*. Springer, pp. 51–69.
- Shannon, Claude E. (1948). ‘A mathematical theory of communication’. In: *The Bell system technical journal* 27.3, pp. 379–423.
- Spruit, Marco René (2008). ‘Quantitative perspectives on syntactic variation in Dutch dialects’. PhD thesis. University of Amsterdam.
- Straka, Milan and Jana Straková (2017). ‘Tokenizing, POS tagging, lemmatizing and parsing UD 2.0 with UDPipe’. In: *Proceedings of the CoNLL 2017 Shared Task: Multilingual Parsing from Raw Text to Universal Dependencies*. Vancouver, Canada: Association for Computational Linguistics, pp. 88–99. URL: <http://www.aclweb.org/anthology/K/K17/K17-3009.pdf>.

- Tatti, Nikolaj and Jilles Vreeken (2012). ‘The long and the short of it: Summarising event sequences with serial episodes’. In: *Proceedings of the 18th ACM SIGKDD international conference on Knowledge discovery and data mining*. ACM, pp. 462–470.
- Taylor, Ann, Mitchell Marcus and Beatrice Santorini (2003). ‘The Penn treebank: An overview’. In: *Treebanks*, pp. 5–22.
- Tiedemann, Jörg (2011). ‘Bitext alignment’. In: *Synthesis Lectures on Human Language Technologies 4.2*, pp. 1–165.
- (2012). ‘Parallel data, tools and interfaces in OPUS’. In: *LREC*. Vol. 2012. Citeseer, pp. 2214–2218.
- Toutanova, Kristina et al. (2003). ‘Feature-rich part-of-speech tagging with a cyclic dependency network’. In: *Proceedings of the 2003 Human Language Technology Conference of the North American Chapter of the Association for Computational Linguistics*, pp. 252–259.
- Van Craenenbroeck, Jeroen, Marjo van Koppen and Antal van den Bosch (2019). ‘A quantitative-theoretical analysis of syntactic microvariation: Word order in Dutch verb clusters’. In: *Language* 95.2, pp. 333–370.
- van den Bosch, Antal et al. (2007). ‘An efficient memory-based morphosyntactic tagger and parser for Dutch’. In: *LOT Occasional Series 7*, pp. 191–206.
- van der Klis, Martijn, Bert Le Bruyn and Henriette De Swart (2017). ‘Mapping the PERFECT via translation mining’. In: *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics: Volume 2, Short Papers*. Vol. 2, pp. 497–502.
- Wälchli, Bernhard (2007). ‘Advantages and disadvantages of using parallel texts in typological investigations’. In: *Language Typology and Universals* 60.2, pp. 118–134.
- (2010). ‘Similarity semantics and building probabilistic semantic maps from parallel texts’. In: *Linguistic Discovery* 8.1, pp. 331–371.
- Weir, Andrew (2009). ‘Article drop in English headlines’. MA thesis. University College London.
- Wiersma, Wybo, John Nerbonne and Timo Lauttamus (2011). ‘Automatically extracting typical syntactic differences from corpora’. In: *Literary and Linguistic Computing* 26.1, pp. 107–124.
- Wong, Tak-sum et al. (2017). ‘Quantitative comparative syntax on the Cantonese-Mandarin parallel dependency treebank’. In: *Proceedings of the Fourth International Conference on Dependency Linguistics (Depling 2017)*. Pisa, Italy: Linköping University Electronic Press, pp. 266–275. URL: <https://www.aclweb.org/anthology/W17-6530>.
- Youden, William J. (1950). ‘Index for rating diagnostic tests’. In: *Cancer* 3.1, pp. 32–35.
- Zeng, Zhiping et al. (2009). ‘Comparing stars: On approximating graph edit distance’. In: *Proceedings of the VLDB Endowment* 2.1, pp. 25–36.
- Zwart, Jan-Wouter (2011). *The syntax of Dutch*. Cambridge Syntax Guides. Cambridge University Press. DOI: 10.1017/CB09780511977763.

Overview of URLs to used, referenced and developed tools and datasets

Detecting Syntactic Differences Automatically *This dissertation*

General link:

<https://github.com/mskroon/DeSDA>

Bible corpus (Christodoulopoulos and Steedman 2015)

General link:

<https://github.com/christos-c/bible-corpus>

DITTO (Bertens, Vreeken and Siebes 2016)

General link:

<http://eda.mmci.uni-saarland.de/prj/ditto>

eflomal (Östling and Tiedemann 2016)

General link:

<https://github.com/robertostling/eflomal>

Europarl v7 corpus (Koehn 2005)

General link:

<https://www.statmt.org/europarl>

`fast_align` (Dyer, Chahuneau and Smith 2013)

General link:

https://github.com/clab/fast_align

Frog tagger (van den Bosch et al. 2007)

General link:

<http://languagemachines.github.io/frog>

GIZA++ (Och and Ney 2003)

General link:

<https://www.statmt.org/moses/giza/GIZA++.html>

`networkx` (Hagberg, Schult and Swart 2008)

General link:

<https://networkx.org>

Download:

<https://pypi.org/project/networkx>

Opus corpus (including Europarl v7) (Tiedemann 2012)

General link:

<https://opus.nlpl.eu>

`pandas` (Reback et al. 2021)

General link:

<https://pandas.pydata.org>

Download:

<https://pypi.org/project/pandas>

SimAlign (Jalili Sabet et al. 2020)

General link:

<https://github.com/cisnlp/simalign>

SQS (Tatti and Vreeken 2012)

General link:

<http://adrem.uantwerpen.be/sqs>

Stanford tagger (Toutanova et al. 2003)

General link:

<https://nlp.stanford.edu/software/tagger.shtml>

UDPipe (Straka and Straková 2017)

General link:

<https://ufal.mff.cuni.cz/udpipe>

Tool:

<https://github.com/ufal/udpipe>

Models (from 15 Nov 2018; used in Chapters 2 and 3):

<https://lindat.mff.cuni.cz/repository/xmlui/handle/11234/1-2898>

Model (English ParTUT; used in Chapter 4):

https://github.com/UniversalDependencies/UD_English-ParTUT

Universal Dependencies (Nivre et al. 2016)

General link:

<https://universaldependencies.org>

