

Some remarks on goals and achievements of theoretical linguistics

Martin Haspelmath

Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany
<martin_haspelmath@eva.mpg.de>

This commentary starts by discussing the future of theoretical linguistics in the context the rise of Large Language Models (LLMs). While comparative linguistics will likely persist due to universal interest in linguistic diversity, it is indeed questionable whether Chomskyan generative linguistics will continue as before. Its key contributions are mid-level generalizations, but its claims about innate linguistic knowledge have not been supported. One problem with Chesi's article is his focus on computational efficiency as this diverges from the Chomskyan goals. The commentary lists six core theoretical goals of linguistics and relates Chesi's article to these six goals. In particular, the conflation of theories (language-specific descriptions) and frameworks (general tools) has often created confusion. Ultimately, the text concludes that generative linguistics' decline does not doom the discipline.

KEYWORDS: comparative linguistics, mental vs social languages, evolution of linguisticity, communicative efficiency.

What has theoretical linguistics achieved, and will it survive after the evident success of Large Language Models (LLMs)? Cristiano Chesi (*this issue*) considers this question from the perspective of mainstream generative grammar (the Minimalist Program), touching upon a wide range of topics.

From my perspective, it would be a great pity if comparative theoretical linguistics did not survive, because people will always be interested in differences and similarities between languages. As linguistic diversity is dwindling, small languages are getting more attention everywhere, and popular culture is creating new languages such as Klingon and Dothraki. Thus, I trust that people will always wonder (and form ideas) about linguistic diversity, even if current social and academic trends may point toward a reduced future role of traditional (non-LLM-based) linguistics. But whether 'generative' theoretical linguistics is worth developing further is a question that I am less sure about. In a way, it has already ended, because 'generative linguistics' is primarily defined as a way of doing linguistics in Noam Chomsky's footsteps. Chomsky was active as a linguist between the 1950s and the 1990s, but mostly as a philosopher (of language or linguistics) afterwards.

The discourse in linguistics is still filled with buzzwords going back to Chomsky, and Chesi's paper has quite a few of them, e.g.

- poverty of the stimulus
- observational/descriptive/explanatory adequacy
- I-language/competence
- formalization
- learnability
- innate knowledge

What have these concepts contributed? What have we actually learned from the many discussions over the years? Are there any robust findings coming from generative linguistics, in addition to the large number of ideas and proposals that are no longer discussed (and remembered only by older linguists)?

It appears that the main lasting contributions are 'mid-level generalizations', of the sort discussed by Peter Svenonius and Roberta D'Alessandro (see Svenonius 2016; D'Alessandro 2019). Some of these are cross-linguistic generalizations not unlike the Greenbergian universals, while others are salient conceptual distinctions that had not been made before. All of these are widely recognized, but there is no shared theoretical understanding of them. In the 1980s, the idea of the principles and parameters program was that cross-linguistic similarities might be explainable in terms of Universal Grammar (UG) and a set of innate parameters, but this idea has largely been given up (see Newmeyer 2004; Haspelmath 2008; Boeckx & Leivada 2013). Generative linguistics has certainly led to a lot of additional descriptive breadth (Baker 2021: 161), while it is less clear that it has led to additional depth of understanding (Haspelmath *to appear*).

But worldwide comparative linguistics is not Chesi's focus, and he is more concerned with some of the classical ideas of Chomsky's, as exemplified by the buzzwords listed above. However, these terms are not always very clear, and it seems to me that linguists would profit from a simpler set of concepts for the basic theoretical goals. Below, I list a few theoretical goals for which there seems to be a very broad consensus.

- (1)
 - (i) describing mental languages
 - (ii) describing social languages
 - (iii) describing universals of social languages (Greenbergian universals)
 - (iv) explaining universals of social languages
 - (v) explaining the ease of language acquisition
 - (vi) explaining the evolution of 'linguisticity' (= the capacity for language)

But what exactly is a ‘theory’? How do we recognize the ‘best’ descriptions and explanations? The answers to some basic questions seem to be unclear, though Chesi tries to start at the beginning, with the need for a complete descriptive theory (‘X’) for language L:

Language Problem

Is theory X capable of generating and recognizing all and only the sentences Ss
belonging to language L?

Descriptive grammars are not usually called ‘theory’; for example, my grammar of Lezgian was not called ‘A theory of Lezgian’ (Haspelmath 1993). But descriptive grammars solve (large parts of) the ‘Language Problem’ for the language they describe, so in this sense, they can be called ‘theories’. This usage goes back to Chomsky (1957: 49) (“A grammar of the language L is essentially a theory of L”), and it is still current, as I discussed in Haspelmath (2021: 8). From this perspective, description and explanation cannot really be separated, and the three ‘descriptive’ goals require theories as well (as also discussed by Dryer 2006).

Chesi seems to come from computational linguistics and is more concerned with computer-like abstract systems than with human mental capacities, so he does not even consider the distinction between (i) describing a mental language and (ii) describing a social language. *De facto*, linguists are engaged in describing social languages (i.e. languages understood as sets of social conventions), because it is perfectly normal for linguists to ask multiple speakers/signers when they are unsure about acceptability judgements. And the judgements they get are judgements of social acceptability, not ‘introspective’ data that allow them direct access to speakers’ mental structures (or I-languages).¹ Many linguists see their goal primarily as that of describing mental (or ‘cognitive’) languages, but this goal does not seem very realistic. LLMs have shown us that correct language use is possible even without human minds, and second language speakers are often quite capable of using a language in ways very much like people who learned the language as children. Thus, languages are primarily social entities and logically independent of mental representations. Chesi pays lipservice to Chomsky’s notion of ‘I(internal)-language’, but psychological concerns do not play a significant role in his paper.

Now how do we go to the next level, to human language in general, beyond the level of particular languages such as Lezgian, Italian, or English? In Chesi’s paper, all the examples are from English, as if

the distinction between particular languages and language in general did not matter. In theoretical linguistics in general, the term ‘theory’ is often used for general frameworks that are hypothesized to represent innate knowledge; trying out such frameworks on particular languages and hoping that they might correspond to what humans are born with is a common strategy. Highly general ideas such as the central role of a ‘merge’ operation or the ‘T-model’ (involving ‘Logical Form’ and ‘Phonetic Form’) are not primarily intended to serve goals (i)-(iii) above, but are intended as hypotheses about innate knowledge, perhaps contributing to goals (iv)-(vi). There is little independent evidence for this, and describing one language at a time by means of a framework is not a good way of testing a far-reaching hypothesis, so the idea that these structures are innate must remain at a speculative level.

For many linguists outside the Minimalist community, the key idea of reducing grammatical machinery to its bare minimum has always seemed trivial, because all of science obeys Occam’s Razor. And ‘descriptive adequacy’ in the sense of trying to ‘capture more data with fewer instructions’ is likewise uncontroversial: Every descriptive grammar tries to formulate general rules (of phonology and morphosyntax) and does not limit itself to listing. So what is it that is special to the Minimalist Program? I never understood this, and Chesi’s paper does not really throw light on it. Chesi appears to basically equate ‘descriptive adequacy’ with minimum description length, a well-known notion from mathematics that has sometimes been discussed by typologists in the connection of ‘complexity measures’ (e.g. Dahl 2020), but that has never played a role in Chomsky’s thinking, as far as I am aware. According to Chomsky (1965: 24), a grammar “is descriptively adequate to the extent that it correctly describes the intrinsic competence of the idealized native speaker.” This seems to refer to mental grammars, thus going beyond Chesi’s abstract characterization.

And when Chesi talks about ‘computational efficiency’, he seems to take the perspective of computer science, not the abstract ‘efficiency’ notion that Chomsky uses (e.g. in Chomsky 2005). Counting the number of bytes that a Python program needs is not something that generative grammar has done over the last decades. Over the last decade,² a notion of communicative efficiency has become more and more prominent (e.g. Gibson *et al.* 2019; Levshina 2023), but its relation to computational efficiency remains unclear. It appears that a lot of progress has been made in goal (iv) (explaining language universals) with reference to communicative efficiency (e.g. Hawkins 2014), but it is not clear that generative grammar at the Minimalist stage has any explanatory mechanism left that could help us achieve that goal.

Chesi does talk about goal (v) (language acquisition, or learnability), for which Chomsky has made an argument from the ‘poverty of the stimulus’. Surprisingly, Chesi talks about the ‘Poverty of Stimulus Hypothesis’, even though the earlier literature discusses ‘poverty of the stimulus’ in the context of the ‘innateness hypothesis’. But what exactly is meant by ‘innateness’ (or by ‘explanatory adequacy’)? It is clear that a lot of the prerequisites for the human capacity for language (or ‘linguisticity’, as it has been called it in analogy to ‘musicality’; Haspelmath 2020) are present at birth or develop independently of particular cultures. Thus, there are a lot of ‘innate prerequisites’, just as there are for music, marriage, and group bonding, to name a few other ubiquitous human behaviours. What is highly questionable is whether specific notions of morphosyntax, phonology or semantics are innately given, i.e. whether the categories of grammar with which linguists work can be regarded as ‘natural kinds’ (see Haspelmath 2018).

Goal (vi) (the biological emergence of ‘linguisticity’) has recently become prominent in Chomsky’s thinking (e.g. Berwick & Chomsky 2016), but Chesi does not mention it at all. Maybe this is because there is no relation to LLMs, but there would be another good reason: Language is a quirk of one particular species, and biologists are best at identifying adaptive developments when they occur repeatedly across a range of taxa. If human language were like the wings of bats, i.e. if we found very similar independent developments across the animal kingdom (just as we find wings also in birds and pterosaurs), we might have greater hopes of explaining its emergence.

Chesi seems to think that a ‘fully explicit (formalized) theory’ is an important desideratum, which again is understandable from a computational linguistics background. Proponents of computationally oriented approaches such as HPSG have long complained that Chomsky’s ideas were insufficiently formal(ized).³ By contrast, it seems to me that the biggest problem is the lack of distinction between theories and frameworks. For example, when he formulates his ‘Language Problem’, Chesi treats a ‘theory’ as having a particular language *L* in its scope. Then in his §2.3, he talks about a ‘Minimalist theory’, which seems to refer to a formal framework. But frameworks are not the same thing as theories (Haspelmath 2010), unless one assumes that the frameworks are innate. And assuming or hypothesizing that the various ingredients of generative analyses (e.g. the rich functional sequences of the ‘cartography’ approach) are innate is a high-risk strategy. Generative linguists rarely see their proposals as speculative, and they even teach them in introductory classes as if they were scientifically established (not just socially

established, among a group of linguists). I see this as a much bigger problem of the enterprise than the lack of formalization.

Chesi reflects on the possible ‘end of (generative) linguistics’, but what exactly is ‘generative linguistics’, if not linguistics as carried out and approved by Noam Chomsky and his followers? And why should the end of one scholar’s long career be of particular concern for an entire discipline (such as linguistics)? Some authors have claimed that it was only because of Chomsky that linguistics became so prominent (e.g. Newmeyer 1980), but as early as 1988, Jackendoff observed that linguistics was not as well-respected among cognitive scientists as it was 20 years earlier. Chomskyan/generative linguistics has been very influential, but there was a lot of great linguistics before, and there will be linguistics afterwards. Whether it will be as generously funded in the future as during Chomsky’s heyday is another question, but the level of funding for a discipline does not necessarily correspond to the breadth of its achievements and the depth of its scientific insights.

Note

¹ See also this blogpost: <dlc.hypotheses.org/2433>.

² Until the 1970s, Chomsky seemed to entertain the idea that competing grammars could be evaluated by counting the number of elements of a description (by some kind of ‘evaluation metric’; see Newmeyer 2021), but this was never actually implemented, and the idea played no role after 1981.

³ See also this blogpost: <dlc.hypotheses.org/1698>.

Bibliographical References

See the unified list at the end of this issue.

Unified Bibliographical References

- Abels, Klaus & Neeleman, Ad 2012. Linear Asymmetries and the LCA: Linear Asymmetries and the LCA. *Syntax* 15,1. 25-74. <doi.org/10.1111/j.1467-9612.2011.00163.x>.
- Abney, Steven 1996. Statistical methods. In Klavans, Judith L. & Resnik, Philip (eds.), *The Balancing Act: Combining Symbolic and Statistical Approaches to Language*. Cambridge, MA: MIT Press. 1-26.
- Acemoglu, Daron 2024. *The Simple Macroeconomics of AI*. Working paper 32487. Cambridge, MA: National Bureau of Economic Research. <DOI: 10.3386/w32487>.
- Achinstein, Peter 1985. *The Nature of Explanation*. Oxford: Oxford University Press.
- Aksënova, Alëna & Deshmukh, Sanket 2018. Formal restrictions on multiple tiers. In *Proceedings of the society for computation in linguistics (SCiL) 2018*. 64-73.
- Aksënova, Alëna; Graf, Thomas & Moradi, Sedigheh 2016. Morphotactics as tier-based strictly local dependencies. In *Proceedings of the 14th SIGMORPHON workshop on computational research in phonetics, phonology, and morphology*. 121-130.
- Aksënova, Alëna; Rawski, Jonathan; Graf, Thomas & Heinz, Jeffrey 2024. The computational nature of hamony patterns. In Ritter, Nancy & van der Hulst, Harry (eds.), *Handbook of vowel harmony*. Oxford, UK: Oxford University Press. 437-451.
- Allott, Nicholas; Kush, Dave & Dillon, Brian 2021. Sentence processing and syntactic theory. In Lohndal, T. & Rey, G. (eds.), *A Companion to Chomsky*. Wiley Publishing. 305-324.
- Ambridge, Ben & Blything, Liam 2024. Large language models are better than theoretical linguists at theoretical linguistics. *Theoretical Linguistics* 50,1-2. 33-48.
- Anderson, Chris 2008. The end of theory: The data deluge makes the scientific method obsolete. *Wired* 23 June.
- Askill, Amanda; Bai, Yuntao; Chen, Anna; Drain, Dawn; Ganguli, Deep; Henighan, Tom; Jones, Andy; Joseph, Nicholas; Mann, Ben; DasSarma, Nova *et al.* 2021. A general language assistant as a laboratory for alignment. <arXiv:2112.00861>.
- Ayers, John W. *et al.* 2023. Comparing Physician and Artificial Intelligence Chatbot Responses to Patient Questions Posted to a Public Social Media Forum. *JAMA Internal Medicine*. 589-596. <DOI: 10.1001/jamainternmed.2023.1838>.
- Baker, Mark 2001. *The atoms of language* (1st ed.). New York: Basic Books.
- Baker, Mark 2009. Formal generative typology. In Heine, Bernd & Narrog, Heiko (eds.), *The Oxford Handbook of Linguistic Analysis*. 1st edition. Oxford: Oxford University Press. 285-312.

- Baker, Mark 2013. On agreement and its relationship to case: Some generative ideas and results. *Lingua* 130. 14-32.
- Baker, Mark 2021. On Chomsky's legacy in the study of linguistic diversity. In Allott, Nicholas; Lohndal, Terje & Rey, George (eds.), *A companion to Chomsky*. Hoboken, NJ: Wiley Blackwell. 158-171. <doi:10.1002/9781119598732.ch10>.
- Baker, Mark & McCloskey, Jim 2007. On the relationship of typology to theoretical syntax. *Linguistic Typology* 11. 285-296.
- Bai, Yuntao; Kadavath, Saurav; Kundu, Sandipan; Askell, Amanda; Kernion, Jackson; Jones, Andy; Chen, Anna; Goldie, Anna; Mirhoseini, Azalia; McKinnon, Cameron *et al.* 2022. Constitutional AI: Harmlessness from AI feedback. <arXiv:2212.08073>.
- Baltin, Mark 2017. Extraposition. In Everaert, Martin & van Riemsdijk, Henk C. (eds.), *The Wiley Blackwell Companion to Syntax, Second Edition*. Hoboken, NJ: John Wiley & Sons, Inc. 1-33. <doi.org/10.1002/9781118358733.wbsyncom111>.
- Barile, Joseph *et al.* 2024. Diagnostic accuracy of a Large Language Model in pediatric case studies. *JAMA Pediatrics*. 313-315. <DOI: 10.1001/jamapediatrics.2023.5750>.
- Baroni, Marco 2022. On the proper role of linguistically oriented deep net analysis in linguistic theorizing. In Lappin, Shalom & Bernardy, Jean-Philippe (eds.), *Algebraic structures in natural language*. Boca Raton: CRC Press, Taylor & Francis. 1-16. *ICoRR* <arxiv.org/abs/2106.08694> (2021).
- Barton, G. Edward; Berwick, Robert C. & Ristad, Eric Sven 1987. *Computational complexity and natural language*. Cambridge, MA: MIT Press.
- Bates, Elizabeth; Elman, Jeffrey L.; Johnson, Mark H.; Karmiloff-Smith, Annette; Parisi, Domenico & Plunkett, Kim 1996. *Rethinking Innateness: A Connectionist Perspective on Development*. Cambridge, MA: MIT Press. <doi.org/10.7551/mitpress/5929.001.0001>.
- Beghelli, Filippo & Stowell, Tim 1997. Distributivity and Negation: The Syntax of Each and Every. In Szabolcsi, Anna (ed.), *Ways of Scope Taking* (Vol. 65). Dordrecht: Springer Netherlands. 71-107. <doi.org/10.1007/978-94-011-5814-5_3>.
- Beier, Eleonora J. & Ferreira, Fernanda 2022. Replication of Cutler, Anne & Fodor, Jerry A. 1979, Semantic focus and sentence comprehension. *Journal of Memory and Language* 126. <doi.org/10.1016/j.jml.2022.104339>.
- beim Graben, Peter & Potthast, Roland 2014. Universal neural field computation. In Coombes, Stephen; beim Graben, Peter; Potthast, Roland & Wright, James (eds.), *Neural Fields*. Berlin: Springer. <doi.org/10.1007/978-3-642-54593-1_11>.
- Belkin, Mikhail; Hsu, Daniel; Ma, Siyuan & Mandal, Soumik 2019. Reconciling modern machine-learning practice and the classical bias-variance trade-off. *Proceedings of the National Academy of Sciences* 116. 15849-15854. <doi.org/10.1073/pnas.1903070116>.

- Belletti, Adriana 2004. *Structures and Beyond: The Cartography of Syntactic Structures, Volume 3*. Oxford, UK: Oxford University Press.
- Bender, Emily M.; Gebru, Timnit; McMillan-Major, Angelina & Shmitchell, Shmargaret 2021. On the dangers of stochastic parrots: Can language models be too big? New York, NY: Association for Computing Machinery. 610-623. <DOI: 10.1145/3442188.3445922>.
- Bender, Emily M. & Hanna, Alex 2025. *The AI Con: How to Fight Big Tech's Hype and Create the Future We Want*. Harper Collins.
- Bender, Emily & Koller, Alexander 2020. Climbing toward NLU: On meaning, form, and understanding in the age of data. In *Proceedings of the 58th annual meeting of the Association for Computational Linguistics*. 5185-5198. <www.aclweb.org/anthology/2020.acl-main.463>.
- Benesty, Michaël 2023. *Unexpected description of GPT4 architecture*. <x.com/pommedeterre33/status/1671263789914677248>.
- Bengio, Yoshua; Hinton, Geoffrey; Yao, Andrew; Song, Dawn; Abbeel, Pieter; Darrell, Trevor; Harari, Yuval Noah; Zhang, Ya-Qin; Xue, Lan; Shalev-Shwartz, Shai; Hadfield, Gillian; Clune, Jeff; Maharaj, Tegan; Hutter, Frank; Baydin, Atilim Gunes; McIlraith, Sheila; Gao, Qiqi; Acharya, Ashwin; Krueger, David; Dragan, Anca; Torr, Philip; Russell, Stuart; Kahneman, Daniel; Brauner, Jan & Mindermann, Soren 2024. Managing extreme AI risks amid rapid progress. *Science* 384. 842-845. <doi.org/10.1126/science.adn0117>.
- Berwick, Robert C. & Chomsky, Noam 2016. *Why only us: Language and evolution*. Cambridge, MA: MIT Press.
- Berwick, Robert C.; Pietroski, Paul; Yankama, Beracah & Chomsky, Noam 2011. Poverty of the stimulus revisited. *Cognitive Science* 35,7. 1207-1242. <DOI: 10.1111/j.1551-6709.2011.01189.x>.
- Bever, Thomas G. 1970. The cognitive basis for linguistic structures. *Cognition and the Development of Language*.
- Bever, Thomas G. & Townsend, David J. 2001. Some Sentences on Our Consciousness of Sentences. In Dupoux, Emmanuel (ed.), *Language, Brain, and Cognitive Development: Essays in Honor of Jacques Mehler*. Cambridge, MA: MIT Press. 143-155.
- Bianchi, Valentina & Chesi, Cristiano 2014. Subject islands, reconstruction, and the flow of the computation. *Linguistic Inquiry*. 525-569. <doi.org/10.1162/LING_a_00166>.
- Bjorkman, Bronwyn M. 2017. Singular *they* and the syntactic representation of gender in English. *Glossa: A Journal of General Linguistics* 2,1. <DOI: 10.5334/gigl.374>.
- Blank, Idan 2016. *The Functional Architecture of Language Comprehension Mechanisms: Fundamental Principles Revealed with fMRI*. PhD dissertation. MIT. <doi.org/1721.1/7582>.
- Bloom, Paul A. & Fischler, Ira 1980. Completion norms for 329 sentence contexts. *Memory & Cognition* 8,6. 631-642. <doi.org/10.3758/BF03213783>.

- Bobaljik, Jonathan D. 2012. *Universals in comparative morphology: Suppletion, superlatives, and the structure of words*. Cambridge, MA: MIT Press.
- Bobaljik, Jonathan D. & Wurmbrand, Susi 2008. Case in GB / Minimalism. In Malchukov, Andrej & Spencer, Andrew (eds.), *The Handbook of Case*. New York: Oxford University Press. 44-58.
- Bobrow, Daniel G.; Cheslow, Bob; Condoravdi, Cleo; Karttunen, Lauri; Holloway King, Tracy; Nairn, Rowan; de Paiva, Valeria; Price, Charlotte & Zaenen, Annie 2007. PARC's bridge and question answering system. In *Proceedings of the Grammar Engineering Across Frameworks Workshop (GEFA 2007)*. CSLI Publications Online. 46-66.
- Bock, J. Kathryn 1986. Meaning, sound, and syntax: Lexical priming in sentence production. *Journal of Experimental Psychology: Learning, Memory, and Cognition* 12,4. 575-586. <doi.org/10.1037/0278-7393.12.4.575>.
- Boeckx, Cedric & Leivada, Evelina 2013. Entangled parametric hierarchies: Problems for an overspecified Universal Grammar. *PLOS ONE* 8,9. <doi:10.1371/journal.pone.0072357>.
- Bögel, Tina; Freiseis, Mila; Hill, Romi; Wambach, Daniel & Zhao, Tianyi 2024. Language redundancy and acoustic salience: An account in LFG. In Butt, Miriam; Findlay, Jamie A. & Toivonen, Ida (eds.), *The proceedings of the lfg'24 conference*. 90-115.
- Bögel, Tina & Zhao, Tianyi 2025. From speech signal to syntactic structure: A computational implementation. *Journal of Language Modeling* 13,1. 1-42.
- Borer, Hagit 2005. *Structuring sense: In name only*. Oxford: Oxford University Press.
- Bošković, Željko 2005. On the locality of left branch extraction and the structure of NP. *Studia Linguistica* 59. 1-45.
- Bošković, Željko 2016. Introduction. *The Linguistic Review* 33,1. 1-16. <doi.org/10.1515/tlr-2015-0012>.
- Bowman, Samuel R.; Hyun, Jeeyoon; Perez, Ethan; Chen, Edwin; Pettit, Craig; Heiner, Scott; Lukošiušė, Kamilė; Askell, Amanda; Jones, Andy; Chen, Anna *et al.* 2022. Measuring progress on scalable oversight for large language models. <arXiv:2211.03540>.
- Brayton, Flint; Laubach, Thomas & Reifschneider, David 2014. *The FRB/US Model: A Tool for Macroeconomic Policy Analysis*. Washington, DC: Board of Governors of the Federal Reserve System. <DOI: 10.17016/2380-7172.0012>.
- Brennan, Jonathan R.; Stabler, Edward P.; Van Wagenen, Sarah E.; Luh, Wen-Ming & Hale, John T. 2016. Abstract linguistic structure correlates with temporal activity during naturalistic comprehension. *Brain and Language* 157-158. 81-94. <doi.org/10.1016/j.bandl.2016.04.008>.
- Bresnan, Joan 1982. Control and complementation. *Linguistic Inquiry* 13,3. 343-434.
- Bresnan, Joan 2016. Linguistics: The Garden and the Bush. *Computational Linguistics* 42,4. 599-617. <doi.org/10.1162/COLI.a.00260>.

- Bresnan, Joan; Cueni, Anna; Nikitina, Tatiana & Baayen, R. Harald 2007. Predicting the dative alternation. In Bouma, Gerlof; Krämer, Irene & Zwarts, Joost (eds.), *Cognitive Foundations of Interpretation*. Amsterdam: Royal Netherlands Academy of Science. 69-94.
- Bressan, Veronica; Piccini Bianchessi, Maria Letizia; Fusco, Achille; Rossi, Sarah; Neri, Sofia & Chesi, Cristiano 2025. BLiMP-IT. <doi.org/10.17605/OSF.IO/2JKFN>.
- Brown, Tom B.; Mann, Benjamin; Ryder, Nick; Subbiah, Melanie; Kaplan, Jared; Dhariwal, Prafulla; Neelakantan, Arvind; Shyam, P.; Sastry, G.; Askell, A.; Agarwal, S.; Herbert-Voss, A.; Krueger, G.; Henighan, T.; Child, R.; Ramesh, A.; Ziegler, D. M.; Wu, J.; Winter, C.; ... Amodei, D. 2020. Language Models are Few-Shot Learners. In Larochelle, Hugo *et al.* (eds.), *Advances in Neural Information Processing Systems 33 (NeurIPS 2020) Proceedings*. <arxiv.org/abs/2005.14165>.
- Brunato, Dominique; Chesi, Cristiano; Dell'Orletta, Felice; Montemagni, Simonetta; Venturi, Giulia & Zamparelli, Roberto 2020. AcCompl-it@EVALITA2020: Overview of the acceptability & complexity evaluation task for Italian. *Proceedings of Seventh Evaluation Campaign of Natural Language Processing and Speech Tools for Italian. Final Workshop (EVALITA 2020)*, Online. CEUR. Org.
- Burness, Phillip; McMullin, Kevin & Chandlee, Jane 2021. Long-distance phonological processes as tier-based strictly local functions. *Glossa* 6. 1-37. <doi.org/10.16995/glossa.5780>.
- Burness, Phillip; McMullin, Kevin & Nevins, Andrew 2024. Revisiting locality in vowel harmony. In Ritter, Nancy & van der Hulst, Harry (eds.), *Handbook of vowel harmony*. Oxford, UK: Oxford University Press. 269-290.
- Butt, Miriam; Bögel, Tina; Zymła, Mark-Matthias & Mumtaz, Benazir 2024. Alternative questions in Urdu: from the speech signal to semantics. In Butt, Miriam; Findlay, Jamie & Toivonen, Ida (eds.), *Proceedings of the LFG'24 Conference*. Konstanz: PubliKon. 141-164. <lfg-proceedings.org/lfg/index.php/main/article/view/65/50>.
- Butt, Miriam; Holloway King, Tracy; Niño, María-Eugenia & Second, Frédérique 1999. *A Grammar Writer's Cookbook*. Stanford: CSLI Publications.
- Butt, Miriam & Ramchand, Gillian 2005. Complex aspectual structure in Hindi/Urdu. In Ertishik-Shir, Nomi & Rappaport, Tova (eds.), *The Syntax of Aspect*. Oxford: Oxford University Press. 117-153.
- Cahill, Aoife 2008. Treebank-based probabilistic phrase structure parsing. *Language and Linguistics Compass* 2,1. 36-58.
- Cann, Ronnie; Kempson, Ruth & Marten, Lutz 2005. *The Dynamics of Language: An introduction*. Elsevier Academic Press.
- Cao, Rosa & Yamins, Daniel 2024. Explanatory Models in Neuroscience, Part 2: Functional Intelligibility and the Contravariance Principle. *Cognitive Systems Research* 85. 101200. <doi.org/10.1016/j.cog-sys.2023.101200>.

- Carnie, Andrew 2013. *Syntax: A Generative Introduction, Third Edition*. Malden, MA: Wiley Blackwell.
- Carnie, Andrew 2021. *Syntax: A Generative Introduction, Fourth Edition*. Malden, MA: Wiley Blackwell.
- Cauchy, Augustin 1847. Méthode générale pour la résolution des systèmes d'équations simultanées. *Comptes rendus hebdomadaires des séances de l'Académie des sciences* 25. 536-538.
- Cecchetti, Gabriele; Tomasini, Cedric A.; Herff, Steffen A. & Rohrmeier, Martin A. 2023. Interpreting rhythm as parsing. *Cognitive Science* 47. e13389. <doi.org/10.1111/cogs.13389>.
- Chaitin, Gregory J. 1969. On the Simplicity and Speed of Programs for Computing Infinite Sets of Natural Numbers. *Journal of the ACM* 16,3. 407-422. <doi.org/10.1145/321526.321530>.
- Chandlee, Jane 2014. Strictly local phonological processes. PhD dissertation. University of Delaware.
- Chandlee, Jane 2017. Computational locality in morphological maps. *Morphology* 27. 599-641.
- Chandlee, Jane 2022. Less is more: Reexamining assumptions through the narrow focus of subregularity. *Theoretical Linguistics* 48. 205-218.
- Chandlee, Jane & Heinz, Jeffrey 2018. Strict locality and phonological maps. *Linguistic Inquiry* 49. 23-60.
- Charchidi, Vincent J. 2024. Creative Minds Like Ours? Large Language Models and the Creative Aspect of Language Use. *Biolinguistics* 18. 1-31.
- Charpentier, Lucas Georges Gabriel & Samuel, David 2023. Not all layers are equally as important: Every Layer Counts BERT. *Proceedings of the BabyLM Challenge at the 27th Conference on Computational Natural Language Learning*. 210-224. <doi.org/10.18653/v1/2023.conll-babylm.20>.
- Chen, Binglin; Lewis, Colleen M.; West, Matthew & Zilles, Craig 2024. Plagiarism in the age of Generative AI: Cheating method change and learning loss in an Intro to CS Course. In *L@S '24: Eleventh ACM Conference on Learning @ Scale, Atlanta GA USA*. New York, NY: ACM. 75-85. <DOI: 10.1145/3657604.3662046>.
- Chen, Tianlong; Frankle, Jonathan; Chang, Shiyu; Liu, Sijia; Zhang, Yang; Wang, Zhangyang & Carbin, Michael 2020. The lottery ticket hypothesis for pre-trained BERT networks. In Larochelle, H.; Ranzato, M.; Hadsell, R.; Balcan, M. F. & Lin, H. (eds.), *Advances in Neural Information Processing Systems 33 (NeurIPS 2020)*. Online: Curran Associates, Inc. 15834-15846.
- Chen, Zhong & Hale, John T. 2010. Deforesting logical form. *Procs. Mathematics of Language*. Berlin: Springer. LNCS 6149. <doi.org/10.1007/978-3-642-14322-9_2>.
- Cheng, Lisa L.-S.; Heycock, Caroline & Zamparelli, Roberto 2017. Two levels for definiteness. In Erlewine, M. Y. (ed.), *Proceedings of GLOW in Asia XI – Vol. 1*. Volume 84 of *MIT Working Papers in Linguistics*. MIT.
- Cheng, Lisa L.-S. & Sybesma, Rint 1999. Bare and not-so-bare nouns and the

- structure of NP. *Linguistic Inquiry* 30,4. 509-542.
- Chesi, Cristiano 2007. An introduction to phase-based minimalist grammars: why move is top-down from left-to-right. In Moscati, V. (ed.), *STIL – Studies in Linguistics*, Volume 1. CISCL Press. 38-75.
- Chesi, Cristiano 2021. Expectation-based Minimalist Grammars. <arxiv.org/abs/2109.13871>.
- Chesi, Cristiano 2023. Parameters of cross-linguistic variation in expectation-based Minimalist Grammars (e-MGs). *Italian Journal of Computational Linguistics* 9,1. 21.
- Chesi, Cristiano *forthcoming*. Linearization (as Part of Core Syntax). In Grohmann, Kleanthes & Leivada, Evelina (eds.), *Cambridge Handbook of Minimalism*. Cambridge (UK): Cambridge University Press. <ling.auf.net/lingbuzz/006689>.
- Chesi, Cristiano; Barbini, Matilde; Bressan, Veronica; Neri, Sofia; Piccini Bianchessi, Maria Letizia; Sarah, Rossi & Sgrizzi, Tommaso 2024. Different Ways to Forget: Linguistic Gates in Recurrent Neural Networks. In *Proceedings of the BabyLM Challenge at the 28th Conference on Computational Natural Language Learning*.
- Chesi, Cristiano & Bianchi, Valentina 2014. Subject islands, reconstruction, and the flow of the computation. *Linguistic Inquiry* 45,4. 525-569.
- Chesi, Cristiano & Moro, Andrea 2015. The subtle dependency between Competence and Performance. *MIT Working Papers In Linguistics* 77. 33-46.
- Chesi, Cristiano; Vespignani, Francesco & Zamparelli, Roberto *to appear*. Large language models under evaluation: An acceptability, complexity and coherence assessment in Italian. *Italian Journal of Computational Linguistics*.
- Chierchia, Gennaro 1998. Reference to kinds across languages. *Natural Language Semantics* 6. 339-405.
- Cho, Kyunghyun; van Merriënboer, Bart; Gulcehre, Caglar; Bahdanau, Dzmitry; Bougares, Fethi; Schwenk, Holger & Bengio, Yoshua 2014. Learning phrase representations using RNN encoder-decoder for statistical machine translation. In Moschitti, Alessandro; Pang, Bo & Daelemans, Walter (eds.), *Proceedings of the 2014 Conference on Empirical Methods in Natural Language Processing*. Doha, Qatar: Association for Computational Linguistics. 1724-1734. <DOI: 10.3115/v1/D14-1179>.
- Chomsky, Noam 1956. Three models for the description of language. *IEEE Transactions on Information Theory* 2,3. 113-124. <doi.org/10.1109/TIT.1956.1056813>.
- Chomsky, Noam 1957. *Syntactic Structures*. Berlin: Mouton de Gruyter.
- Chomsky, Noam 1959. A Review of B. F. Skinner's Verbal Behavior. *Language* 35,1. 26. <doi.org/10.2307/411334>.
- Chomsky, Noam 1964. *Current Issues in Linguistic Theory*. Berlin: De Gruyter.
- Chomsky, Noam 1965. *Aspects of the Theory of Syntax* (Vol. 11). Cambridge, MA: MIT Press.

- Chomsky, Noam 1966. *Cartesian Linguistics: A Chapter in the History of Rationalist Thought*. New York, NY: Harper & Row.
- Chomsky, Noam 1968. *Language and Mind*. New York, NY: Harcourt, Brace & World.
- Chomsky, Noam 1968b. Quine's Empirical Assumptions. *Synthese* 19,1-2. 53-68. <doi.org/10.1007/bf00568049>.
- Chomsky, Noam 1969. Quine's empirical assumptions. In Davidson, Donald & Hintikka, Jaakko (eds.), *Words and Objections: Essays on the Work of W.V. Quine*. Dordrecht, Netherlands: Springer Dordrecht. 53-68. <DOI: 10.1007/978-94-010-1709-1_5>.
- Chomsky, Noam 1975. *Questions on Form and Interpretation*. Lisse: Peter de Ridder. <doi.org/10.1007/978-3-642-14322-9_2>.
- Chomsky, Noam 1981. *Lectures on government and binding: The Pisa lectures*. Walter de Gruyter.
- Chomsky, Noam 1986. *Knowledge of language: Its nature, origin, and use*. New York: Praeger.
- Chomsky, Noam 1995. *The minimalist program*. Cambridge, MA: MIT Press.
- Chomsky, Noam 1995b. Language and Nature. *Mind* 104 (413). 1-61.
- Chomsky, Noam 2001. Derivation by phase. In Kenstowicz, Michael (ed.), *Ken Hale: A life in language*. Cambridge, MA: MIT Press. 1-52.
- Chomsky, Noam A. 2004. *The generative enterprise revisited. Discussions with Riny Huybregts, Henk van Riemsdijk, Naoki Fukui and Mihoko Zushi*. De Gruyter Mouton.
- Chomsky, Noam A. 2005. Three Factors in Language Design. *Linguistic Inquiry* 36,1. 1-22.
- Chomsky, Noam 2008. On phases. In Freidin, Robert; Otero, Carlos P. & Zubizarreta, Maria Luisa (eds.), *Foundational issues in linguistic theory: Essays in Honor of Jean-Roger Vergnaud* (Vol. 45). Cambridge, MA: MIT Press. 133-166.
- Chomsky, Noam 2012. Language and Limits of Understanding. <www.nets.iusspavia.it/dox/chomsky2012-LLU-IUSS_Pavia.pdf>.
- Chomsky, Noam 2013. Problems of projection. *Lingua* 130. 33-49.
- Chomsky, Noam 2015. Problems of projection: Extensions. In Di Domenico, Elisa; Hamann, Cornelia & Matteini, Simona (eds.), *Linguistik Aktuell/ Linguistics Today* (Vol. 223). Amsterdam: John Benjamins. 1-16. <doi.org/10.1075/la.223.01cho>.
- Chomsky, Noam 2021a. Simplicity and the form of grammars. *Journal of Language Modelling* 9,1. <doi.org/10.15398/jlm.v9i1.257>.
- Chomsky, Noam 2021b. Minimalism: where are we now, and where can we hope to go. *Gengo Kenkyu* 160. 1-42.
- Chomsky, Noam 2024. The Miracle Creed and SMT. In Greco, M. & Mocci, D. (eds.), *A Cartesian dream: A geometrical account of syntax: In honor of Andrea Moro*. *Rivista di Grammatica Generativa / Research in Generative Grammar* 17-40.
- Chomsky, Noam & Lasnik, Howard 1977. Filters and Control. *Linguistic*

- Inquiry* 8,3. 425-504.
- Chomsky, Noam; Roberts, Ian & Watumull, Jeffrey 2023. Noam Chomsky: The False Promise of ChatGPT. *New York Times* 8 March.
- Chomsky, Noam; Seely, T. Daniel; Berwick, Robert C.; Fong, Sandiway; Huybregts, M. A. C.; Kitahara, Hisatsugu; McInnerney, Andrew & Sugimoto, Yushi 2023. *Merge and the Strong Minimalist Thesis* (1st ed.). Cambridge: Cambridge University Press. <doi.org/10.1017/9781009343244>.
- Chowdhury, Shammur Absar & Zamparelli, Roberto 2018. RNN Simulations of Grammaticality Judgments on Long-distance Dependencies. *Proceedings of the 27th International Conference on Computational Linguistics*. 133-144. <aclanthology.org/C18-1012>.
- Cinque, Guglielmo 1999. *Adverbs and functional heads: A cross-linguistic perspective*. Oxford, UK: Oxford University Press.
- Cinque, Guglielmo 2002. *Functional Structure in DP and IP: The Cartography of Syntactic Structures, Volume 1*. Oxford, UK: Oxford University Press.
- Cinque, Guglielmo 2005. Deriving Greenberg's Universal 20 and Its Exceptions. *Linguistic Inquiry* 36,3. 315-332. <doi.org/10.1162/0024389054396917>.
- Cinque, Guglielmo & Rizzi, Luigi 2010. The Cartography of Syntactic Structures. In Heine, B. & Narrog, H. (eds.), *The Oxford Handbook of Linguistic Analysis*. Oxford / New York: Oxford University Press. 51-65.
- Clark, Alexander & Lappin, Shalom 2010. Computational learning theory and language acquisition. *Philosophy of Linguistics*. 445-475.
- Clark, Alexander & Lappin, Shalom 2011. *Linguistic Nativism and the Poverty of the Stimulus*. Chichester: Wiley-Blackwell.
- Clifton, Charles Jr; Ferreira, Fernanda; Henderson, John M.; Inhoff, Albrecht W.; Liversedge, Simon P.; Reichle, Erik D. & Schotte, Elizabeth R. 2015. Eye movements in reading and information processing. *Journal of Memory and Language* 86. 1-19.
- Collins, Chris; Kayne, Richard & Koopman, Hilda 2009. *Syntactic structures of the world's languages (SSWL)*. <terraling.com/groups/7>.
- Collins, Chris & Stabler, Edward P. 2016. A Formalization of Minimalist Syntax. *Syntax* 19,1. 43-78. <doi.org/10.1111/synt.12117>.
- Collins, Joe 2024. The simple reason LLMs are not scientific models (and what the alternative is for linguistics). <lingbuzz.net/lingbuzz/008026>.
- Conneau, Alexis; Kruszewski, German; Lample, Guillaume; Barrault, Loïc & Baroni, Marco 2018. What you can cram into a single \$&!#* vector: Probing sentence embeddings for linguistic properties. In Gurevych, Iryna & Miyao, Yusuke (eds.), *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers)*. Melbourne, Australia: Association for Computational Linguistics. 2126-2136. <DOI: 10.18653/v1/P18-1198>.
- Corbett, Greville G. 2010. Implicational hierarchies. In Song, Jae

- Jong (ed.), *The Oxford Handbook of Linguistic Typology*. Oxford: Oxford University Press. 190-205. <doi.org/10.1093/oxford-hb/9780199281251.013.0011>.
- Cottier, Ben; Rahman, Robi; Fattorini, Loredana; Maslej, Nestor; Besiroglu, Tamay & Owen, David 2025. The rising costs of training frontier AI models. <arXiv:2405.21015>.
- Crain, Stephen & Nakayama, Mineharu 1987. Structure Dependence in Grammar Formation. *Language* 63,3. 522. <doi.org/10.2307/415004>.
- Crain, Stephen & Thornton, Rosalind 2021. Universal grammar and language acquisition. In Allot, Nicholas; Lohndahl, Terje & Rey, Georges (eds.), *A Companion to Chomsky*. Wiley. <doi.org/10.1002/9781119598732.ch21>.
- Crawford, Kate 2024. Generative AI's environmental costs are soaring – and mostly secret. *Nature* 626. 693. <DOI: 10.1038/d41586-024-00478-x>.
- Crystal, David 2011. *Internet Linguistics: A Student Guide*. London: Routledge.
- Cutler, Anne & Fodor, Jerry A. 1979. Semantic focus and sentence comprehension. *Cognition* 7. 49-59. <doi.org/10.1016/0010-0277(79)90010-6>.
- Cybenko, George 1989 Approximation by superpositions of a sigmoidal function. *Mathematics of control, signals and systems* 2,4. 303-314.
- Dahl, Östen 2020. Morphological complexity and the minimum description length approach. In Arkadiev, Peter & Gardani, Francesco (eds.), *The complexities of morphology*. Oxford: Oxford University Press. 331-343.
- D'Alessandro, Roberta 2019. The achievements of Generative Syntax: A time chart and some reflections. *Catalan Journal of Linguistics*. 7-26.
- Dalrymple, Mary (ed.) 2023. *The Handbook of Lexical Functional Grammar*. Empirically Oriented Theoretical Morphology and Syntax. Berlin: Language Science Press. <10.5281/zenodo.10037797>.
- Dalrymple, Mary; Gupta, Vineet; Lamping, John & Saraswat, Vijay 1999. Relating resource-based semantics to categorial semantics. In Dalrymple, Mary (ed.), *Semantics and syntax in Lexical Functional Grammar: The resource logic approach*. Language, Speech, and Communication. Cambridge, MA: MIT Press. 261-280.
- Dalrymple, Mary; Patejuk, Agnieszka & Zymla, Mark-Matthias 2020. XLE+Glue – A new tool for integrating semantic analysis in XLE. In Butt, Miriam & Toivonen, Ida (eds.), *Proceedings of the LFG'20 Conference*. Stanford, CA: CSLI Publications. 89-108. <cslipublications.stanford.edu/LFG/2020/lfg2020-dpz.pdf>.
- De Santo, Aniello 2019. Testing a Minimalist Grammar Parser on Italian Relative Clause Asymmetries. *Proceedings of the Workshop on Cognitive Modeling and Computational Linguistics*. 93-104. <doi.org/10.18653/v1/W19-2911>.
- De Santo, Aniello 2020. Structure and memory: A computational model of storage, gradience, and priming. PhD dissertation. Stony Brook University.

- Deacon, Terence W. 1997. *The symbolic species: The co-evolution of language and the human brain*. Allen Lane: The Penguin Press.
- Delétang, Grégoire; Ruoss, Anian; Grau-Moya, Jordi; Genewein, Tim; Wenliang, Li Kevin; Catt, Elliot; Cundy, Chris *et al.* 2022. Neural Networks and the Chomsky Hierarchy. <doi.org/10.48550/ARXIV.2207.02098>.
- Demirci, Ozge; Hannane, Jonas & Zhu, Xinrong 2024. Who is AI replacing? The impact of Generative AI on online freelancing platforms. *SSRN Electronic Journal*. <DOI: 10.2139/ssrn.4991774>.
- Demirdache, H.; Hornstein, N.; Lasnik, H.; May, R.; Rizzi, L. 2024. Structured Sentences and the Computational Theory of Mind: Roundtable. In *Festschrift for Howard Lasnik*. Cambridge: Cambridge University Press.
- Dennett, Daniel C. 1978. Why you can't make a computer that feels pain. *Synthese* 38. 415-456.
- Dentella, Vittoria; Günther, Fritz & Leivada, Evelina 2023. Systematic testing of three Language Models reveals low language accuracy, absence of response stability, and a yes-response bias. *Proceedings of the National Academy of Sciences* 120,51. e2309583120. <doi.org/10.1073/pnas.2309583120>.
- Devlin, Jacob; Chang, Ming-Wei; Lee, Kenton & Toutanova, Kristina 2019. BERT: Pre-training of deep bidirectional transformers for language understanding. In Burstein, Jill; Doran, Christy & Solorio, Tamar (eds.), *Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. Vol. 1. Minneapolis, MN: Association for Computational Linguistics. 4171-4186. <DOI: 10.18653/v1/N19-1423>.
- Dijkstra, Edsger W. 1982. *Selected Writings on Computing*. Berlin: Springer.
- Dobson, James E. 2023. On reading and interpreting black box deep neural networks. *International Journal of Digital Humanities* 5. 431-449. <DOI: 10.1007/s42803-023-00075-w>.
- Dryer, Matthew S. 2006. Descriptive theories, explanatory theories, and basic linguistic theory. In Ameka, Felix K.; Dench, Alan & Evans, Nicholas (eds.), *Catching language: The standing challenge of grammar writing*. Berlin: Mouton de Gruyter. 207-234. <www.acsu.buffalo.edu/~dryer/desc.expl.theories.pdf>.
- Dryer, Matthew & Haspelmath, Martin 2022. *The World Atlas of Language Structures Online* (v2020.3) [dataset]. Zenodo. <doi.org/10.5281/ZENODO.7385533>.
- Edinger, Harald 2022. Offensive ideas: structural realism, classical realism and Putin's war on Ukraine. *International Affairs* 98,6. 1873-1893. <DOI: 10.1093/ia/iia217>.
- Elman, Jeffrey L. 1990. Finding Structure in Time. *Cognitive Science* 14,2. 179-211. <doi.org/10.1207/s15516709cog1402_1>.
- Elman, Jeffrey L. 1991. Distributed representations, simple recurrent net-

- works, and grammatical structure. *Machine Learning* 7,2. 195-225. <DOI: 10.1023/A:1022699029236>.
- Elman, Jeffrey L. 1993. Learning and development in neural networks: The importance of starting small. *Cognition* 48,1. 71-99. <doi.org/10.1016/0010-0277(93)90058-4>.
- Engelfriet, Joost; Lilin, Eric & Maletti, Andreas 2009. Extended multi bottom-up tree transducers: Composition and decomposition. *Acta Informatica* 46. 561-590. <doi.org/10.1007/s00236-009-0105-8>.
- Epstein, Samuel David; Groat, Erich M.; Kawashima, Ruriko & Kitahara, Hisatsugu (eds.) 1998. *A derivational approach to syntactic relations*. Oxford, UK: Oxford University Press.
- Ermolaeva, Marina 2023. Evaluating syntactic proposals using Minimalist grammars and minimum description length. *Journal of Language Modelling* 11. 67-119. <doi.org/10.15398/jlm.v11i1.334>.
- Espinal, Maria Teresa & Cyrino, Sonia 2022. A syntactically-driven approach to indefiniteness, specificity and antispecificity in Romance. *Journal of Linguistics* 58. 535-570.
- Ettinger, Allyson 2020. What BERT is not: Lessons from a new suite of psycholinguistic diagnostics for language models. *Transactions of the Association for Computational Linguistics* 8. 34-48. <doi.org/10.1162/tacl.a.00298>.
- Evans, Lyndon 2007. The Large Hadron Collider. *New Journal of Physics* 9,9. 335-335. <doi.org/10.1088/1367-2630/9/9/335>.
- Evans, Nicholas & Levinson, Stephen C. 2009. The myth of language universals: Language diversity and its importance for cognitive science. *Behavioral and Brain Sciences* 32,5. 429-448. <DOI:10.1017/S0140525X0999094X>.
- Evanson, Linnea; Lakretz, Yair & King, Jean-Rémi 2023. Language acquisition: do children and language models follow similar learning stages? <arXiv:2306.03586>.
- Fazi, M. Beatrice 2021. Beyond human: Deep learning, explainability and representation. *Theory, Culture & Society* 38. 55-77.
- Feyerabend, Paul K. 1962. Explanation, reduction, and empiricism. In Feigl, Herbert & Maxwell, Grover (eds.), *Scientific explanation, space, and time*. Vol. 3. Minneapolis, MN: University of Minnesota Press. 28-97.
- Fisher, Cynthia 2002. The role of abstract syntactic knowledge in language acquisition: A reply to Tomasello (2000). *Cognition* 82. 259-278.
- Fleck, Ludwik 1935. *Entstehung und Entwicklung einer wissenschaftlichen Tatsache: Einführung in die Lehre vom Denkstil und Denkkollektiv*. Basel, Switzerland: Benno Schwabe & Co.
- Fodor, Janet Dean 1998. Unambiguous triggers. *Linguistic Inquiry* 29. 1-36.
- Fodor, Jerry A. 1980. *The Language of Thought*. Harvard: Harvard University Press.
- Fodor, Jerry A. 1983. *The modularity of mind: An essay on faculty psychology*. Cambridge, MA: MIT Press.

- Fodor, Jerry A. 2010. *LOT 2: The Language of Thought Revisited*. Oxford, UK: Oxford University Press.
- Fodor, Jerry A. & Bever, Thomas G. 1965. The psychological reality of linguistic segments. *Journal of Verbal Learning and Verbal Behavior* 4. 414-420. <doi.org/10.1016/s0022-5371(65)80081-0>.
- Fong, Sandiway 1991. *Computational properties of principle-based grammatical theories*. PhD dissertation. MIT, Cambridge (MA).
- Fong, Sandiway & Ginsburg, Jason 2012. Computation with doubling constituents: Pronouns and antecedents in Phase Theory. In Di Sciullo, Anna Maria (ed.), *Towards a Bilingual Understanding of Grammar: Essays on interfaces*. Amsterdam: John Benjamins. 303-338.
- Fong, Sandiway & Ginsburg, Jason 2014. A new approach to tough-constructions. In Santana-LaBarge, Robert E (ed.), *Proceedings of the 31st West Coast Conference on Formal Linguistics (WCCFL 31)*. Somerville, MA: Cascadia Proceedings Project. 180-188.
- Fong, Sandiway & Ginsburg, Jason 2019. Towards a Minimalist Machine. In Berwick, Robert C. & Stabler, Edward P. (eds.), *Minimalist Parsing*. Oxford: Oxford University Press. 16-38.
- Fong, Sandiway & Ginsburg, Jason 2023. On the computational modeling of English relative clauses. *Open Linguistics* 9. 1-35. <DOI: 10.1515/opli-2022-0246>.
- Forster, Kenneth I.; Guerrero, Christine & Elliot, Lisa 2009. The maze task: Measuring forced incremental sentence processing time. *Behavior Research Methods* 41,1. 163-171. <doi.org/10.3758/BRM.41.1.163>.
- Fox, Danny & Karzir, Roni 2024. Large Language Models and Theoretical Linguistics. *Theoretical Linguistics* 50. 71-76. <DOI: 10.1515/tl-2024-2005>.
- Fox, Danny & Nissenbaum, Jon 1999. Extraposition and scope: A case for overt QR. *Proceedings of the 18th West Coast Conference on Formal Linguistics* 18,2. 132-144.
- Fox, Melvin J. & Skolnick, Betty P. 1975. *Language in Education: Problems and Prospects in Research and Teaching*. New York, NY: Ford Foundation.
- Frampton, John & Gutmann, Sam 2002. Crash-Proof Syntax. In Epstein, Samuel David & Seely, T. Daniel (eds.), *Derivation and Explanation in the Minimalist Program* (1st ed.). Wiley. 90-105. <doi.org/10.1002/9780470755662.ch5>.
- Frank, Anette; Holloway King, Tracy; Kuhn, Jonas & Maxwell, John T. III 2001. Optimality theory style constraint ranking in large-scale LFG grammars. In Sells, Peter (ed.), *Formal and Empirical Issues in Optimality Theory*. Stanford: CSLI Publications. 367-397.
- Frank, Robert 1990. Licensing and tree adjoining grammar in government binding parsing. *28th Annual Meeting of the Association for Computational Linguistics*. 111-118.
- Frank, Robert 2002. *Phrase structure composition and syntactic dependencies*. Cambridge, MA: MIT Press.

- Frankle, Jonathan & Carbin, Michael 2019. The lottery ticket hypothesis: Finding sparse, trainable neural networks. In *ICLR 2019 Conference Track*. New Orleans, LA: OpenReview.
- Friedmann, Naama; Belletti, Adriana & Rizzi, Luigi 2009. Relativized relatives: Types of intervention in the acquisition of A-bar dependencies. *Lingua* 119,1. 67-88.
- Fusco, Achille; Barbini, Matilde; Piccini Bianchessi, Maria Letizia; Bressan, Veronica; Neri, Sofia; Rossi, Sarah; Sgrizzi, Tommaso & Chesi, Cristiano 2024. Recurrent Networks Are (Linguistically) Better? An Experiment on Small-LM Training on Child-Directed Speech in Italian. In *Proceedings of the 10th Italian Conference on Computational Linguistics (CLiC-It 2024)*. Aachen: CEUR.
- Futrell, Richard; Gibson, Edward & Levy, Roger P. 2020. Lossy-Context Surprisal: An Information-Theoretic Model of Memory Effects in Sentence Processing. *Cognitive Science* 44,3. <doi.org/10.1111/cogs.12814>.
- Futrell, Richard & Levy, Roger 2017. Noisy-context surprisal as a human sentence processing cost model. *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics: Volume 1, Long Papers*. 688-698.
- Futrell, Richard; Wilcox, Ethan; Morita, Takashi; Qian, Peng; Ballesteros, Miguel & Levy, Roger 2019. Neural language models as psycholinguistic subjects: Representations of syntactic state. <arXiv:1903.03260>.
- Gauthier, Jon; Hu, Jennifer; Wilcox, Ethan; Qian, Peng & Levy, Roger 2020. SyntaxGym: An online platform for targeted evaluation of language models. In Celikyilmaz, Asli & Wen, Tsung-Hsien (eds.), *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics: System Demonstrations*. Online: Association for Computational Linguistics. 70-76. <DOI: 10.18653/v1/2020.acl-demos.10>.
- Gehrke, Berit & McNally, Louise 2019. Idioms and the syntax/semantics interface of descriptive content vs. reference. *Linguistics* 57,4. 769-814. <10.1515/ling-2019-0016>.
- Gerth, Sabrina 2015. Memory limitations in sentence comprehension. A structure-based complexity metric of processing difficulty. PhD dissertation. University of Potsdam.
- Gianollo, Chiara; Guardiano, Cristina & Longobardi, Giuseppe 2008. Three fundamental issues in parametric linguistics. In Biberauer, Theresa (ed.), *Linguistik Aktuell/Linguistics Today* (Vol. 132). Amsterdam: John Benjamins. 109-142. <doi.org/10.1075/la.132.05gia>.
- Gibson, Edward; Futrell, Richard; Piantadosi, Steven T.; Dautriche, Isabelle; Mahowald, Kyle; Bergen, Leon & Levy, Roger 2019. How efficiency shapes human language. *Trends in Cognitive Sciences* 23,5. 389-407. <doi:10.1016/j.tics.2019.02.003>.
- Gibson, Edward & Wexler, Ken 1994. Triggers. *Linguistic Inquiry* 25,3. 407-454.
- Gilkerson, Jill *et al.* 2017. Mapping the early language environment using

- all-day recordings and automated analysis. *American Journal of Speech-Language Pathology* 26. 248-265. <DOI: 10.1044/2016_AJSLP-15-016>.
- Ginsburg, Jason 2016. Modeling of Problems of Projection: A non-countercyclic approach. *Glossa: A Journal of General Linguistics* 1,1:7. 1-46. <DOI: 10.5334/gjgl.22>.
- Ginsburg, Jason 2024. Constraining free Merge. *Biolinguistics* 18, e14015. 1-60. <DOI: 10.5964/bioling.14015>.
- Ginsburg, Jason & Fong, Sandiway 2019. Combining linguistic theories in a Minimalist Machine. In Stabler, Edward P. & Berwick, Robert C. (eds.), *Minimalist Parsing*. Oxford, UK: Oxford University Press. 39-68. <doi.org/10.1093/oso/9780198795087.003.0003>.
- Giusti, Giuliana 2015. *Nominal Syntax at the Interfaces: A Comparative Analysis of Languages With Articles*. Cambridge: Cambridge Scholars Publishing.
- Gold, E. Mark 1967. Language identification in the limit. *Information and Control* 10,5. 447-474. <doi.org/10.1016/S0019-9958(67)91165-5>.
- Goldsmith, John & Riggle, Jason 2012. Information theoretic approaches to phonological structure: The case of Finnish vowel harmony. *Natural Language and Linguistic Theory* 30. 859-896.
- Gorman, Kyle 2016. Pynini: A Python library for weighted finite-state grammar compilation. In *Procs. SIGFSM Workshop on Statistical NLP and Weighted Automata*. <doi.org/10.18653/v1/W16-2409>.
- Goyal, Anirudh & Bengio, Yoshua 2022. Inductive Biases for Deep Learning of Higher-Level Cognition. *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences* 478 (2266). <doi.org/10.1098/rspa.2021.0068>.
- Graf, Thomas 2020. Curbing feature coding: Strictly local feature assignment. In *Proceedings of the Society for Computation in Linguistics (SCiL) 2020*. 362-371.
- Graf, Thomas 2022c. Typological implications of tier-based strictly local movement. In *Proceedings of the Society for Computation in Linguistics (SCiL) 2022*. 184-193.
- Graf, Thomas 2022b. Subregular linguistics: Bridging theoretical linguistics and formal grammar. *Theoretical Linguistics* 48. 145-184. <doi.org/10.1515/tl-2022-2037>.
- Graf, Thomas 2022a. Diving deeper into subregular syntax. *Theoretical Linguistics* 48. 245-278. <doi.org/10.1515/tl-2022-2043>.
- Graf, Thomas 2023. Subregular tree transductions, movement, copies, traces, and the ban on improper movement. In *Proceedings of the Society for Computation in Linguistics (SCiL) 2023*. 289-299. <doi.org/10.7275/tk1n-q855>.
- Graf, Thomas *to appear*. Minimalism and computational linguistics. In Grohman, Kleantes K. & Leivada, Evelina (eds.), *Handbook of Minimalism*. Cambridge: Cambridge University Press.
- Graf, Thomas & Abner, Natasha 2012. Is syntactic binding rational?

- In *Proceedings of the 11th international workshop on Tree Adjoining Grammars and related formalisms (TAG+11)*. 189-197.
- Graf, Thomas & Kostyszyn, Kalina 2021. Multiple wh-movement is not special: The subregular complexity of persistent features in Minimalist grammars. In *Proceedings of the Society for Computation in Linguistics (SCiL) 2021*. 275-285.
- Graf, Thomas & Mayer, Connor 2018. Sanskrit n-retroflexion is input-output tier-based strictly local. In *Proceedings of SIGMORPHON 2018*. 151-160.
- Graf, Thomas; Monette, James & Zhang, Chong 2017. Relative clauses as a benchmark for Minimalist parsing. *Journal of Language Modelling* 5,1. 57-106. <doi.org/10.15398/jlm.v5i1.157>.
- Graf, Thomas & Shafiei, Nazila 2019. C-command dependencies as TSL string constraints. In Jarosz, Gaja; Nelson, Max; O'Connor, Brendan & Pater, Joe (eds.), *Proceedings of the Society for Computation in Linguistics (SCiL) 2019*. 205-215.
- Grice, Herbert Paul 1975. Logic and conversation. In Cole, Peter & Morgan, Jerry L. (eds.), *Syntax and Semantics*. New York, NY: Academic Press. 41-58.
- Grillo, Nino 2008. *Generalized minimality: Syntactic underspecification in Broca's aphasia*. LOT.
- Grünwald, Peter D. 2007. *The minimum description length principle*. Cambridge, MA: MIT Press.
- Guardiano, Cristina & Longobardi, Giuseppe 2016. Parameter Theory and Parametric Comparison. In Roberts, Ian (ed.), *The Oxford Handbook of Universal Grammar*. Oxford, UK: Oxford University Press. 376-398. <doi.org/10.1093/oxfordhb/9780199573776.013.16>.
- Guardiano, Cristina; Longobardi, Giuseppe; Cordini, Guido & Crisma, Paola 2020. Formal Syntax as a Phylogenetic Method. In Janda, Richard D.; Joseph, Brian D. & Vance, Barbara S. (eds.), *The Handbook of Historical Linguistics* (1st ed.). Wiley. 145-182. <doi.org/10.1002/9781118732168.ch7>.
- Guaisti, Maria Teresa 2017. *Language acquisition: The growth of grammar*. Cambridge, MA: MIT Press.
- Guéron, Jacqueline & May, Robert 1984. Extraposition and Logical Form. *Linguistic Inquiry* 15,1. 1-31.
- Gulordava, Kristina; Bojanowski, Piotr; Grave, Edouard; Linzen, Tal & Baroni, Marco 2018. Colorless green recurrent networks dream hierarchically. In Walker, Marilyn; Ji, Heng & Stent, Amanda (eds.), *Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. New Orleans, LA: Association for Computational Linguistics. 1195-1205. <DOI: 10.18653/v1/N18-1108>.
- Haider, Hubert 2023. Is Chat-GPT a grammatically competent informant? <lingbuzz/007285>.
- Hale, John 2001. A Probabilistic Earley Parser as a Psycholinguistic Model.

- Second Meeting of the North American Chapter of the Association for Computational Linguistics*. <aclanthology.org/N01-1021>.
- Hale, John 2011. What a rational parser would do. *Cognitive Science* 35,3. 399-443.
- Hale, John 2016. Information-theoretical Complexity Metrics. *Language and Linguistics Compass* 10,9. 397-412. <doi.org/10.1111/lnc3.12196>.
- Hanson, Kenneth 2025. Tier-based strict locality and the typology of agreement. *Journal of Language Modelling* 13,1. 43-97. <doi.org/10.15398/jlm.v13i1.411>.
- Hanson, Kenneth 2024. Tiers, paths, and syntactic locality: The view from learning. In *Proceedings of the society for computation in linguistics (SCiL) 2024*. 107-116. <doi.org/10.7275/scil.2135>.
- Hao, Sophie 2022. *Theory and Applications of Attribution for Interpretable Language Technology*. PhD dissertation. Yale University, New Haven, CT.
- Hao, Sophie; Angluin, Dana & Frank, Robert 2022. Formal language recognition by hard attention transformers: Perspectives from circuit complexity. *Transactions of the Association for Computational Linguistics* 10. 800-810. <DOI: 10.1162/tacl_a_00490>.
- Hao, Sophie; Mendelsohn, Simon; Sterneck, Rachel; Martinez, Randi & Frank, Robert 2020. Probabilistic predictions of people perusing: Evaluating metrics of language model performance for psycholinguistic modeling. In Chersoni, Emmanuele; Jacobs, Cassandra; Oseki, Yohei; Prévot, Laurent & Santus, Enrico (eds.), *Workshop on Cognitive Modeling and Computational Linguistics*. Online: Association for Computational Linguistics.
- Hao, Sophie & Andersson, Samuel 2019. Unbounded stress in subregular phonology. In *Proceedings of the 16th Sigmorphon workshop on computational research in phonetics, phonology and morphology*. 135-143. <doi.org/10.18653/v1/W19-4216>.
- Hart, Betty & Risley, Todd R. 1992. American parenting of language-learning children: Persisting differences in family-child interactions observed in natural home environments. *Developmental Psychology* 28,6. 1096-1105. <doi.org/10.1037/0012-1649.28.6.1096>.
- Haspelmath, Martin 1993. *A grammar of Lezgian*. Mouton Grammar Library 9. Berlin: Mouton de Gruyter.
- Haspelmath, Martin 2007. Pre-established categories don't exist – consequences for language description and typology. *Linguistic Typology* 11. 119-132.
- Haspelmath, Martin 2008. Parametric versus functional explanations of syntactic universals. In Biberauer, Theresa (ed.), *The limits of syntactic variation*. Amsterdam: Benjamins. Accessed 27 May 2016.
- Haspelmath, Martin 2010a. Comparative concepts and descriptive categories in crosslinguistic studies. *Language* 86,3. 663-687. <doi:10.1353/lan.2010.0021>.
- Haspelmath, Martin 2010b. Framework-free grammatical theory. In Heine,

- Bernd & Narrog, Heiko (eds.), *The Oxford Handbook of Linguistic Analysis*. Oxford: Oxford University Press. 341-365.
- Haspelmath, Martin 2018. How comparative concepts and descriptive linguistic categories are different. In Van Olmen, Daniël; Mortelmans, Tanja & Brisard, Frank (eds.), *Aspects of linguistic variation: Studies in honor of Johan van der Auwera*. Berlin: De Gruyter Mouton. 83-113. <zenodo.org/record/3519206>.
- Haspelmath, Martin 2020. Human linguisticity and the building blocks of languages. *Frontiers in Psychology* 10,3056. 1-10. <doi>10.3389/fpsyg.2019.03056<.
- Haspelmath, Martin 2021. General linguistics must be based on universals (or nonconventional aspects of language). *Theoretical Linguistics* 47,1-2. 1-31. <doi>10.1515/tl-2021-2002<.
- Haspelmath, Martin *to appear*. Breadth versus depth: Theoretical reasons for system-independent comparison of languages. In Nefdt, Ryan (ed.), *Oxford Handbook of Philosophy of Linguistics*. Oxford: Oxford University Press. <ling.auf.net/lingbuzz/008437>.
- Hauser, M. D.; Chomsky, N. & Fitch, W. T. 2002. The faculty of language: What is it, who has it, and how did it evolve? *Science* 298 (5598). 1569-1579. <doi.org/10.1126/science.298.5598.1569>.
- Hawkins, John A. 2014. *Cross-linguistic variation and efficiency*. New York: Oxford University Press.
- Heim, Johannes & Wiltschko, Martina 2025. Rethinking structural growth: Insights from the acquisition of interactional language. *Glossa: A journal of general linguistics* 10,1. <doi.org/10.16995/glossa.16396>.
- Heinz, Jeffrey 2010. Learning long-distance phonotactics. *Linguistic Inquiry* 41. 623-661. <doi.org/10.1162/LING_a_00015>.
- Heinz, Jeffrey 2018. The computational nature of phonological generalizations. In Hyman, Larry & Plank, Frank (eds.), *Phonological typology*. Mouton De Gruyter. 126-195.
- Hewitt, John & Manning, Christopher D. 2019. A structural probe for finding syntax in word representation. In *Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. 4129-4138.
- Hey, Tony; Tansley, Stewart; Tolle, Kristin & Gray, Jim (eds.) 2009. *The Fourth Paradigm: Data-Intensive Scientific Discovery*. Redmond, WA: Microsoft Research.
- Hinton, Geoffrey 2022. The forward-forward algorithm: Some preliminary investigations. <arXiv:2212.13345>.
- Hochreiter, Sepp; Bengio, Yoshua; Frasconi, Paolo & Schmidhuber, Jürgen 2001. Gradient flow in recurrent nets: The difficulty of learning long-term dependencies. In Kremer, S. C. & Kolen, J. F. (eds.), *A Field Guide to Dynamical Recurrent Neural Networks*. IEEE Press.
- Hochreiter, Sepp & Schmidhuber, Jürgen 1997. Long short-term memory. *Neural Computation* 9,8. 1735-1780.

- Hockenmaier, Julia & Steedman, Mark 2007. CCGbank: A corpus of CCG derivations and dependency structures extracted from the Penn Treebank. *Computational Linguistics* 33,3. 355-396. <DOI: 10.1162/coli.2007.33.3.355>.
- Holmes, V. M. & Forster, K. 1972. Click location and syntactic structure. *Perception and Psychophysics* 12. 9-15. <doi.org/10.3758/bf03212836>.
- Hornik, Kurt; Stinchcombe, Maxwell & White, Halbert 1989. Multilayer Feedforward Networks Are Universal Approximators. *Neural Networks* 2,5. 359-66. <doi.org/10.1016/0893-6080(89)90020-8>.
- Hosseini, Eghbal A. et al. 2024. Artificial neural network language models align neurally and behaviorally with humans even after a developmentally realistic amount of training. *Neurobiology of Language*. Apr 1.5,1. 43-63.
- Hsu, Anne S. & Chater, Nick 2010. The Logical Problem of Language Acquisition: A Probabilistic Perspective. *Cognitive Science* 34,6. 972-1016. <doi.org/10.1111/j.1551-6709.2010.01117.x>.
- Hsu, Anne S.; Chater, Nick & Vitényi, Paul 2013. Language Learning From Positive Evidence, Reconsidered: A Simplicity-Based Approach. *Topics in Cognitive Science* 5,1. 35-55. <doi.org/10.1111/tops.12005>.
- Hu, Jennifer; Gauthier, Jon; Qian, Peng; Wilcox, Ethan & Levy, Roger 2020. A Systematic Assessment of Syntactic Generalization in Neural Language Models. In Jurafsky, Dan; Chai, Joyce; Schluter, Natalie & Tetreault, Joel (eds.), *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics*. Association for Computational Linguistics. 1725-1744. <doi.org/10.18653/v1/2020.acl-main.158>.
- Hu, Michael Y.; Mueller, Aaron; Ross, Candace; Williams, Adina; Linzen, Tal; Zhuang, Chengxu; Cotterell, Ryan; Choshen, Leshem; Warstadt, Alex & Wilcox, Ethan 2024. Findings of the Second BabyLM Challenge: Sample-Efficient Pretraining on Developmentally Plausible Corpora. <doi.org/10.48550/ARXIV.2412.05149>.
- Huang, C.-T. James 1982. *Logical relations in Chinese and the theory of grammar*. Cambridge, MA: MIT Press.
- Huang, Lei; Yu, Weijiang; Ma, Weitao; Zhong, Weihong; Feng, Zhangyin; Wang, Haotian; Chen, Qianglong; Peng, Weihua; Feng, Xiaocheng; Qin, Bing et al. 2023. *A survey on hallucination in large language models: Principles, taxonomy, challenges, and open questions*. <arXiv:2311.05232>.
- Huh, Minyoung; Cheung, Brian; Wang, Tongzhou & Isola, Phillip 2024. Position: The Platonic Representation Hypothesis. In Salakhutdinov, Ruslan; Kolter, Zico; Heller, Katherine; Weller, Adrian; Oliver, Nuria; Scarlett, Jonathan & Berkenkamp, Felix (eds.), *Proceedings of the 41st International Conference on Machine Learning*. 235. 20617-42. Proceedings of Machine Learning Research. PMLR. <proceedings.mlr.press/v235/huh24a.html>.
- Hume, David 1739. *A Treatise of Human Nature: Being an Attempt to Introduce*

- the Experimental Method of Reasoning Into Moral Subjects*. London: John Noon.
- Hume, David 1748. *Philosophical Essays Concerning Human Understanding*. London: A. Millar.
- Hunter, Tim; Stanojević, Miloš & Stabler, Edward P. 2019. The active-filler strategy in a move-eager left-corner Minimalist grammar parser. In *Proceedings of the workshop on cognitive modeling and computational linguistics*. 1-10.
- Ibbotson, Paul & Tomasello, Michael 2016. Evidence rebuts Chomsky's theory of language learning. *Scientific American* 315, 5. 70.
- İdrisoğlu, Işıl & Spaniel, William 2024. *Information problems and Russia's invasion of Ukraine*. *Conflict Management and Peace Science* 41,5. 514-533. <DOI: 10.1177/07388942241238583>.
- Ionin, Tania & Matushansky, Ora 2006. The composition of complex cardinals. *Journal of Semantics* 16. 315-360.
- Jackendoff, Ray 1988. Why are they saying these things about us? *Natural Language and Linguistic Theory* 6,3. 435-442.
- Jardine, Adam 2016. Computationally, tone is different. *Phonology* 33. 247-283. <doi.org/10.1017/S0952675716000129>.
- Ji, Ziwei; Lee, Nayeon; Frieske, Rita; Yu, Tiezheng; Su, Dan; Xu, Yan; Ishii, Etsuko; Bang, Ye Jin; Madotto, Andrea & Fung, Pascale 2023. Survey of hallucination in natural language generation. *ACM Computing Surveys* 55,12. 248:1-248:38. <DOI: 10.1145/3571730>.
- Jurafsky, Dan & Martin, James H. 2008. *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition*. 2nd edition. Russell, Stuart & Norvig, Peter (eds.). Upper Saddle River, NJ: Prentice Hall.
- Kalouli, Aikaterini-Lida 2021. *Hy-NLI: A hybrid system for state-of-the-art natural language inference*. University of Konstanz dissertation.
- Kalouli, Aikaterini-Lida; Crouch, Richard & de Paiva, Valeria 2020. Hy-NLI: A hybrid system for natural language inference. In *Proceedings of the 28th International Conference on Computational Linguistics*. Barcelona, Spain (Online): International Committee on Computational Linguistics. 5235-5249. <aclanthology.org/2020.coling-main.459>.
- Kaplan, Jared; McCandlish, Sam; Henighan, Tom; Brown, Tom B.; Chess, Benjamin; Child, Rewon; Gray, Scott; Radford, Alec; Wu, Jeffrey & Amodei, Dario 2020. *Scaling Laws for Neural Language Models*. <doi.org/10.48550/ARXIV.2001.08361>.
- Kaplan, Ronald M. 1987. Three seductions of computational linguistics. In Whitelock, P.; Wood, M. M.; Somers, H.; Johnson, R. & Bennett, P. (eds.), *Linguistic Theory and Computer Applications*. London: Academic Press. 149-188.
- Kaplan, Ronald M. 2019. Computational psycholinguistics. *Computational Linguistics* 45,4. 607-626. <doi:10.1162/coli_a_00359>. <aclanthology.org/J19-4001>.
- Kaplan, Ronald M.; King, Tracey H. & Maxwell, John T. III 2002. Adapting

- existing grammars: The XLE experience. In *COLING-02: Grammar Engineering and Evaluation*.
- Katz, Phillip 1986. PKZIP. Commercial Compression System, Version 1.1. <www.pkware.com/pkzip>.
- Katzir, Roni 2023. *Why large language models are poor theories of human linguistic cognition. A reply to Piantadosi (2023)* [Lingbuzz]. <lingbuzz/007190>. *Biolinguistics* 17. <doi.org/10.5964/bioling.13153>.
- Kawahara, Shigeto; Noto, Atsushi & Kumagai, Gakuji 2018. Sound symbolic patterns in Pokémon names. *Phonetica* 75,3. 219-244. <DOI: 10.1159/000484938>.
- Kayne, Richard S. 1994. *The antisymmetry of syntax*. Cambridge, MA: MIT Press.
- Keine, Stefan 2020. *Probes and their horizons*. Cambridge, MA: MIT Press.
- Kempson, Ruth; Meyer Viol, Wilfried & Gabbay, Dov M. 2001. *Dynamic Syntax: The Flow of Language Understanding*. Wiley.
- Kennedy, Christopher 2015. A “de-Fregean” semantics (and neo-Gricean pragmatics) for modified and unmodified numerals. *Semantics & Pragmatics* 8. 1-44. <dx.doi.org/10.3765/sp.8.1>.
- Kerr, Dara 2024. How Memphis became a battleground over Elon Musk’s xAI supercomputer. *NPR* 11 September 2024. <www.npr.org/2024/09/11/nx-s1-5088134/elon-musk-ai-xai-supercomputer-memphis-pollution>.
- Kharitonov, Eugene & Chaabouni, Rahma 2021. What they do when in doubt: A study of inductive biases in seq2seq learners. In *ICLR 2021 Conference Track*. Online: OpenReview.
- Kim, Najoung; Patel, Roma; Poliak, Adam; Wang, Alex; Xia, Patrick; McCoy, R. Thomas; Tenney, Ian; Ross, Alexis; Linzen, Tal & van Durme, Benjamin 2019. Probing what different NLP tasks teach machines about function word comprehension. <[arXiv:1904.11544](https://arxiv.org/abs/1904.11544)>.
- Kingma, Diederik P. & Ba, Jimmy Lei 2015. Adam: A method for stochastic optimization. In *ICLR 2015 Conference Track*. San Diego, CA: OpenReview.
- Kirov, Christo & Cotterell, Ryan 2018. Recurrent Neural Networks in Linguistic Theory: Revisiting Pinker and Prince (1988) and the Past Tense Debate. *Transactions of the Association for Computational Linguistics* 6 (December). 651-665. <doi.org/10.1162/tacl_a_00247>.
- Kitaev, Nikita; Cao, Steven & Klein, Daniel 2019. Multilingual constituency parsing with self-attention and pre-training. In *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics (ACL 2019)*. 3499-3505.
- Kitchin, Rob 2014. Big Data, new epistemologies and paradigm shifts. *Big Data & Society* 1,1. <DOI: 10.1177/2053951714528481>.
- Klein, Daniel & Manning, Christopher D. 2003. Accurate unlexicalized parsing. In *Proceedings of the 41st Meeting of the Association for Computational Linguistics*. 423-430.
- Kleyko, Denis; Rachkovskij, Dmitri; Osipov, Evgeny & Rahimi, Abbas

2023. A survey on hyperdimensional computing aka vector symbolic architectures, parts 1 and 2. *ACM Computing Surveys* 55. 130. <doi.org/10.1145/3538531>.
- Klimova, Blanka; Pikhart, Marcel & Al-Obaydi, Liqaa Habeb 2024. Exploring the potential of ChatGPT for foreign language education at the university level. *Frontiers in Psychology* 15. <DOI: 10.3389/fpsyg.2024.1269319>.
- Knight, Chris 2016. *Decoding Chomsky: Science and Revolutionary Politics*. New Haven, CT: Yale University Press. <DOI: 10.12987/9780300222159>.
- Kobele, Gregory M. 2023. Minimalist Grammars and Decomposition. In Kleanthes, Grohmann & Leivada, Evelina (eds.), *The Cambridge Handbook of Minimalism*. Cambridge University Press.
- Kobele, Gregory M.; Gerth, Sabrina & Hale, John T. 2013. Memory resource allocation in top-down Minimalist parsing. In Morrill, Glyn & Nederhof, Mark-Jan (eds.), *Formal grammar: 17th and 18th international conferences, FG 2012, Opole, Poland, August 2012, Revised selected papers, FG 2013, Düsseldorf, Germany, August 2013*. 32-51. Berlin / Heidelberg: Springer. <doi.org/10.1007/978-3-642-39998-5_3>.
- Kodner, Jordan; Payne, Sarah & Heinz, Jeffrey 2023. Why linguistics will thrive in the 21st century: A reply to Piantadosi (2023). <arxiv.org/abs/2308.03228>.
- Koerner, Konrad 1983. The Chomskyan 'revolution' and its historiography: A few critical remarks. *Language & Communication* 3,2. 147-169. <DOI: 10.1016/0271-5309(83)90012-5>.
- Kojima, Takeshi; Gu, Shixiang (Shane); Reid, Machel; Matsuo, Yutaka & Iwasawa, Yusuke 2022. Large language models are zero-shot reasoners. In Koyejo, S.; Mohamed, S.; Agarwal, Al; Belgrave, D.; Cho, K. & Oh, A. (eds.), *Advances in Neural Information Processing Systems 35 (NeurIPS 2022) Main Conference Track*. New Orleans, LA: Curran Associates, Inc. 22199-22213.
- Kolmogorov, Andrey N. 1963. On Tables of Random Numbers. *Sankhyā: The Indian Journal of Statistics, Series A (1961-2002)* 25,4. 369-376.
- Kuhn, Thomas 1962. *The Structure of Scientific Revolutions*. Chicago, IL: University of Chicago Press.
- Kwon, Diana 2024. AI is complicating plagiarism. How should scientists respond? *Nature*. <DOI: 10.1038/d41586-024-02371-z>.
- Lake, Brenden M. & Baroni, Marco 2023. Human-like systematic generalization through a meta-learning neural network. *Nature* 623. 115-121. <doi.org/10.1038/s41586-023-06668-3>.
- Lakretz, Yair; Hupkes, Dieuwke; Vergallito, Alessandra; Marelli, Marco; Baroni, Marco & Dehaene, Stanislas 2021. Mechanisms for handling nested dependencies in neural-network language models and humans. *Cognition* 213. 1-24. <DOI: 10.1016/j.cognition.2021.104699>. <www.sciencedirect.com/science/article/pii/S0010027721001189>.

- Lakretz, Yair; Kruszewski, German; Desbordes, Theo; Hupkes, Dieuwke; Dehaene, Stanislas & Baroni, Marco 2019. The emergence of number and syntax units in LSTM language models. In Burstein, Jill; Doran, Christy & Solorio, Thamar (eds.), *Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. Vol. 1. Minneapolis, MN: Association for Computational Linguistics. 11-20. <DOI: 10.18653/v1/N19-1002>.
- Lan, Nur; Chemla, Emmanuel & Katzir, Roni 2024. Large language models and the argument from the poverty of the stimulus. *Linguistic Inquiry*. 1-28. <doi.org/10.1162/ling_a_00533>.
- Lan, Nur; Geyer, Michal; Chemla, Emmanuel & Katzir, Roni 2022. Minimum Description Length Recurrent Neural Networks. *Transactions of the Association for Computational Linguistics* 10 (July). 785-99. <doi.org/10.1162/tacl_a_00489>.
- Landman, Fred 2003. Predicate-argument mismatches and the adjectival theory of indefinites. In Coene, M. & d'Hulst, Y. (eds.), *From NP to DP: The syntax and semantics of noun phrases*. Volume 1. 211-237. Amsterdam: John Benjamins.
- Lasnik, Howard & Lidz, Jeffrey L. 2016. The argument from the poverty of the stimulus. In Roberts, Ian (ed.), *The Oxford Handbook of Universal Grammar*. Oxford: Oxford University Press. 221-248.
- Latour, Bruno 1984. *Les Microbes: Guerre et paix, suivi de Irréductions*. Paris, France: A. M. Métailié.
- Law, John & Lodge, Peter 1984. *Science for Social Scientists*. London: Palgrave Macmillan UK. <DOI: 10.1007/978-1-349-17536-9>.
- Lawson, Alex 2024. Google to buy nuclear power for AI datacentres in 'world first' deal. *Guardian* 15 October 2024. <www.theguardian.com/technology/2024/oct/15/google-buy-nuclear-power-ai-datacentres-kairos-power>.
- Lee, So Young & De Santo, Aniello. A computational view into the structure of attachment ambiguities in Chinese and Korean. In *Proceedings of the north east linguistics society*. 189-198.
- Levesque, Hector J. 2014. On our best behaviour. *Artificial Intelligence* 212. 27-35. <doi.org/10.1016/j.artint.2014.03.007>.
- Levshina, Natalia 2023. *Communicative efficiency: Language structure and use*. Cambridge: Cambridge University Press.
- Levy, Roger 2008. Expectation-based syntactic comprehension. *Cognition* 106,3. 1126-1177.
- Li, Jixing; Bhattasali, Shohini; Zhang, Shulin; Franzluebbers, Berta; Luh, Wen-Ming; Spreng, R. Nathan; Brennan, Jonathan R.; Yang, Yiming; Pallier, Christophe & Hale, John 2022. *Le Petit Prince* multilingual naturalistic fMRI corpus. *Scientific Data* 9. 530. <doi.org/10.1038/s41597-022-01625-7>.
- Li, Jixing & Hale, John 2019. Grammatical predictors for fMRI time-courses.

- In Berwick, Robert C. & Stabler, Edward P. (eds.), *Minimalist Parsing*. Oxford, UK: Oxford University Press. 159-173. <doi.org/10.1093/oso/9780198795087.003.0007>.
- Li, Ming & Vitányi, Paul 2008. *An Introduction to Kolmogorov Complexity and Its Applications*. New York: Springer. <doi.org/10.1007/978-0-387-49820-1>.
- Lidz, Jeffrey & Gleitman, Lila R. 2004. Argument structure and the child's contribution to language learning. *Trends in Cognitive Sciences* 8,4.
- Lillicrap, Timothy P.; Santoro, Adam; Marris, Luke; Akerman, Colin J. & Hinton, Geoffrey 2020. Backpropagation and the Brain. *Nature Reviews Neuroscience* 21,6. 335-46. <doi.org/10.1038/s41583-020-0277-3>.
- Lin, Stephanie; Hilton, Jacob & Evans, Owain 2022. TruthfulQA: Measuring how models mimic human falsehoods. In Muresan, Smaranda; Nakov, Preslav & Villavicencio, Aline (eds.), *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics*. Vol. 1. Dublin, Ireland: Association for Computational Linguistics. 3214-3252. <DOI: 10.18653/v1/2022.acl-long.229>.
- Ling, Jacqueline 2001. Power of a human brain. In *Physics Factbook*. <hypertextbook.com/facts/2001/JacquelineLing.shtml>.
- Link, Godehard 1983. The logical analysis of plurals and mass terms: A lattice-theoretical approach. In Bauerle, Rainer; Schwarze, Christoph & von Stechow, Arnim (eds.), *Meaning, Use, and the Interpretation of Language*. Berlin / New York: de Gruyter. 302-323.
- Linzen, Tal & Baroni, Marco 2021. Syntactic structure from deep learning. *Annual Review of Linguistics* 7. 195-212. <DOI: 10.1146/annurev-linguistics-032020-051035>.
- Linzen, Tal; Dupoux, Emmanuel & Goldberg, Yoav 2016. Assessing the Ability of LSTMs to Learn Syntax-Sensitive Dependencies. *Transactions of the Association for Computational Linguistics* 4. 521-535. <doi.org/10.1162/tacl_a_00115>.
- Liu, Lei 2023. Processing advantages of end-weight. *Proceedings of the Society for Computation in Linguistics* 6. 250-258.
- Lohninger, Magdalena & Wurmbrand, Susi 2025. Typology of Complement Clauses. In Benz, Anton; Frey, Werner; Gärtner, Hans-Martin; Krifka, Manfred; Schenner, Mathias & Žygis, Marzena (eds.), *Handbook of clausal embedding*. Berlin: Language Science Press.
- Longobardi, Giuseppe 1994. Reference and proper names: A theory of N-movement in syntax and logical form. *Linguistic Inquiry* 25. 609-665.
- Manning, Christopher D.; Clark, Kevin; Hewitt, John; Khandelwal, Uravashi & Levy, Omer 2020. Emergent linguistic structure in artificial neural networks trained by self-supervision. In Gavish, Matan (ed.), *Proceedings of the National Academy of Science of the United States of America* 117. 30046-30054. <DOI: 10.1073/pnas.1907367117>.
- Manzini, Maria Rita 1983. Syntactic conditions on phonological rules. *MIT Working Papers in Linguistics* 5. 1-9.

- Marantz, Alec 2019. What do linguists do? In *The Julius Silver, Roslyn S. Silver, and Enid Silver Winslow Dialogues in Arts and Science*, New York University. <as.nyu.edu/content/dam/nyu-as/as/documents/silverdialogues/SilverDialoguesMarantz.pdf>.
- Marcus, Gary 2022. Noam Chomsky and GPT-3 [Blog post]. *Marcus on AI*. <garymarcus.substack.com/p/noam-chomsky-and-gpt-3>. Last accessed 24/02/2025.
- Marcus, Mitchell *et al.* 1994. The Penn Treebank: Annotating predicate argument structure. In *Human Language Technology: Proceedings of a Workshop held at Plainsboro, New Jersey*.
- Marr, David 1982. *Vision: A computational investigation into the human representation and processing of visual information*. San Francisco, CA: Freeman.
- Marr, David & Poggio, Tomaso 1976. *From Understanding Computation to Understanding Neural Circuitry*. Cambridge, MA: MIT Press.
- Martinetz, Julius; Linse, Christoph & Martinetz, Thomas 2024. Rethinking generalization of classifiers in separable classes scenarios and over-parameterized regimes. *International Joint Conference on Neural Networks 2024*. 1-10. <doi.org/10.1109/IJCNN60899.2024.10650680>.
- Marvin, Rebecca & Linzen, Tal 2018. Targeted Syntactic Evaluation of Language Models. *Proceedings of the 2018 Conference on Empirical Methods in Natural Language Processing*. 1192-1202. <doi.org/10.18653/v1/D18-1151>.
- May, Robert 1985. *Logical form: Its structure and derivation* (Vol. 12). Cambridge, MA: MIT Press.
- Mayer, Connor & Major, Travis 2018. A challenge for tier-based strict locality from Uyghur backness harmony. In Foret, Annie; Kobele, Greg & Pogodalla, Sylvain (eds.), *Proceedings of formal grammar 2018*. Berlin: Springer. 62-83.
- McCawley, James D. 1976. Introduction. In McCawley, James D. (ed.), *Notes From the Linguistic Underground*. New York, NY: Academic Press. 1-19.
- McClelland, James L. & Rumelhart, David E. 1991. *Explorations in Parallel Distributed Processing: A Handbook of Models, Programs, and Exercises*. 2nd print. Computational Models of Cognition and Perception. Cambridge, MA: MIT Press.
- McCoy, Richard; Frank, Robert & Linzen, Tal 2018. Revisiting the poverty of the stimulus: Hierarchical generalization without a hierarchical bias in recurrent neural networks. In *Proceedings of the Annual Meeting of the Cognitive Science Society*. Madison, WI: Cognitive Science Society. 2096-2101.
- McCoy, R. Thomas; Yao, Shunyu; Friedman, Dan; Hardy, Matthew & Griffiths, Thomas L. 2023. Embers of autoregression: Understanding large language models through the problem they are trained to solve. <arxiv.org/abs/2309.13638>.
- McCullough, Gretchen 2019. *Because Internet: Understanding the New Rules of Language*. New York, NY: Riverhead Books.

- McGee, Thomas & Blank, Idan 2024. Evidence against syntactic encapsulation in large language models. *Procs. Cognitive Science Society* 46.
- McKenzie, Ian R.; Lyzhov, Alexander; Pieler, Michael Martin; Parrish, Alicia; Mueller, Aaron; Prabhu, Ameya; McLean, Euan; Shen, Xudong; Cavanagh, Joe, Gritsevskiy, Andrew George *et al.* 2023. Inverse scaling: When bigger isn't better. *Transactions on Machine Learning Research*.
- McNally, Louise & Boleda, Gemma 2004. Relational adjectives as properties of kinds. *Empirical Issues in Syntax and Semantics* 5. 179-196. <doi.org/ISSN1769-7158>.
- Merrill, William; Sabharwal, Ashish & Smith, Noah A. 2022. Saturated transformers are constant-depth threshold circuits. *Transactions of the Association for Computational Linguistics* 10. 843-856. <DOI: 10.1162/tacl_a_00493>.
- Michaelis, Jens 2001. Derivational Minimalism Is Mildly Context-Sensitive. In Moortgat, Michael (ed.), *Logical Aspects of Computational Linguistics* (Vol. 2014). Berlin / Heidelberg: Springer. 179-198. <doi.org/10.1007/3-540-45738-0_11>.
- Mikolov, Tomáš 2012. *Statistical Language Models Based on Neural Networks*. PhD dissertation. Brno University of Technology, Brno, Czech Republic.
- Milewski, Bartosz 2020. *Category Theory for Programmers*. <bartoszmilewski.com>.
- Miller, George A. & Chomsky, Noam 1963. Finitary Models of Language Users. In Luce, D. (ed.), *Handbook of Mathematical Psychology*. John Wiley & Sons. 2-419.
- Milway, Daniel 2023. A response to Piantadosi (2023). <lingbuzz/007264>.
- Mishra, Swaroop; Khashabi, Daniel; Baral, Chitta & Hajishirzi, Hannaneh 2022. Cross-task generalization via natural language crowdsourcing instructions. In Muresan, Smaranda; Nakov, Preslav & Villavicencio, Aline (eds.), *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics*. Vol. 1. Dublin, Ireland: Association for Computational Linguistics. 3470-3487. <DOI: 10.18653/v1/2022.acl-long.244>.
- Mitchell, J.; Kazanina, Nina; Houghton, Conor J.; Bowers, Jeffrey S. 2019. Do LSTMs know about Principle C? In *2019 Conference on Cognitive Computational Neuroscience*.
- Mollica, Frank & Piantadosi, Stephen 2019. Humans store about 1.5 megabytes of information during language acquisition. *Royal Society Open Science* 6,3.
- Mollica, Frank & Piantadosi, Stephen 2022. Meaning without reference in large language models. <arXiv:2208.02957>.
- Momma, Shota & Phillips, Colin 2018. The Relationship Between Parsing and Generation. *Annual Review of Linguistics* 4,1. 233-254. <doi.org/10.1146/annurev-linguistics-011817-045719>.
- Moro, Andrea 2023. Embodied syntax: Impossible languages and the irreducible difference between humans and machines. *Sistemi intelligenti* 2.

- 321-328. <doi.org/10.1422/108132>.
- Moro, Andrea; Greco, Matteo & Cappa, Stefano F. 2023. Large languages, impossible languages and human brains. *Cortex* 167. 82-85. <doi.org/10.1016/j.cortex.2023.07.003>.
- Müller, Stefan 2024. Large language models: The best linguistic theory, a wrong linguistic theory, or no linguistic theory at all. *Zeitschrift für Sprachwissenschaft*.
- Mullins, Nicholas C. 1975. A sociological theory of scientific revolution. In Knorr, Karin D.; Strasser, Hermann & Zilian, Hans Georg (eds.), *Determinants and Controls of Scientific Development*. Dordrecht, Netherlands: Springer Netherlands. 185-203.
- Murray, Stephen O. 1994. *Theory Groups and the Study of Language in North America*. Amsterdam, Netherlands: John Benjamins.
- Murty, Shikhar; Sharma, Pratyusha; Andreas, Jacob & Manning, Christopher D. 2022. Characterizing intrinsic compositionality in transformers with tree projections.
- Naveed, Humza; Asad Ullah Khan; Shi Qiu; Saqib, Muhammad; Anwar, Saeed; Usman, Muhammad; Akhtar, Naveed; Barnes, Nick & Mian, Ajmal 2024. A comprehensive overview of large language models. <arxiv.org/abs/2307.06435>.
- Newmeyer, Frederick J. 1980. *Linguistic theory in America: The first quarter century of Transformational Generative Grammar*. New York: Academic Press.
- Newmeyer, Frederick J. 1986. Has there been a 'Chomskyan revolution' in linguistics? *Language* 62,1. 1-18. <DOI: 10.2307/415597>.
- Newmeyer, Frederick J. 2004. Against a parameter-setting approach to typological variation. *Linguistic Variation Yearbook* 4,1. 181-234. <doi:10.1075/livy.4.06new>.
- Newmeyer, Frederick J. 2021. Complexity and relative complexity in generative grammar. *Frontiers in Communication* 6. <doi:10.3389/fcomm.2021.614352>.
- Newmeyer, Frederick J. & Emonds, Joseph 1971. The linguist in American society. In *Papers from the Seventh Regional Meeting of the Chicago Linguistic Society*. Chicago, IL: Chicago Linguistic Society. 285-303.
- Nivre, Joakim; Agić, Željko; Ahrenberg, Lars; Antonsen, Lene; Aranzabe, Maria Jesus; Asahara, Masayuki; Ateyah, Luma; Attia, M.; Atutxa, A.; Augustinus, L. et al. 2017. *Universal Dependencies 2.1*.
- Norvig, Peter 2017. On Chomsky and the two cultures of statistical learning. In Pietsch, Wolfgang; Wernecke, Jörg & Ott, Maximilian (eds.), *Berechenbarkeit der Welt? Philosophie und Wissenschaft im Zeitalter von Big Data*. Wiesbaden, Germany: Springer Fachmedien. 61-83.
- Nosengo, Nicola 2014. *I robot ci guardano: Aerei senza pilota, chirurghi a distanza e automi solidali*. Bologna: Zanichelli.
- Noy, Shakked & Zhang, Whitney 2023. Experimental evidence on the productivity effects of generative artificial intelligence. *Science* 381, 6654. 187-192. <DOI: 10.1126/science.adh2586>.
- Nvidia n.d. meta/llama-3.1-405b-instruct. *Nvidia API reference*. <docs.api.nvidia.com/nim/reference/meta-llama-3_1-405b>.

- Nye, Maxwell; Andreassen, Anders Johan; Gur-Ari, Guy; Michalewski, Henryk; Austin, Jacob; Bieber, David; Dohan, David; Lewkowycz, Aitor; Bosma, Maarten; Luan, David; Sutton, Charles & Odena, Augustus (2022). Show your work: Scratchpads for intermediate computation with language models. In *ICLR 2022 Workshop DL4C*. Online: OpenReview.
- Oepen, Stephan; Toutanova, Kristina; Shieber, Stuart; Manning, Christopher; Flickinger, Dan & Brants, Thorsten 2022. The LinGO Redwoods treebank: Motivation and preliminary applications. In *COLING 2002: The 17th International Conference on Computational Linguistics: Project Notes*. Taipei, Taiwan: Association for Computational Linguistics.
- Oerter, Robert 2006. *The theory of almost everything: The Standard Model, the unsung triumph of modern physics*. New York: Pi Press.
- Oh, Byung-Doh & Schuler, William 2023. Why does surprisal from larger transformer-based language models provide a poorer fit to human reading times? *Transactions of the Association for Computational Linguistics* 11. 336-350. <DOI: 10.1162/tacl_a_00548>.
- OpenAI 2023. *GPT-4 Technical Report* <arxiv.org/abs/2303.08774>.
- Ouyang, Long; Wu, Jeff; Jiang, Xu; Almeida, Diogo; Wainwright, Carroll L.; Mishkin, Pamela; Zhang, Chong; Agarwal, Sandhini; Slama, Katarina; Ray, Alex *et al.* 2022. Training language models to follow instructions with human feedback. <arXiv:2203.02155>.
- Ozaki, Satoru; Santo, Aniello De; Linzen, Tal & Dillon, Brian 2024. CCG parsing effort and surprisal jointly predict RT but underpredict garden-path effects. *Society for Computation in Linguistics* 7. 362-364. <doi.org/10.7275/scil.2229>.
- Papineni, Kishore; Roukos, Salim; Ward, Todd & Zhu, Wei-Jing 2001. BLEU: A Method for Automatic Evaluation of Machine Translation. In *Proceedings of the 40th Annual Meeting on Association for Computational Linguistics - ACL '02*, 311. Philadelphia, Pennsylvania: Association for Computational Linguistics. <doi.org/10.3115/1073083.1073135>.
- Park, Peter S.; Goldstein, Simon; O'Gara, Aidan; Chen, Michael & Hendrycks, Dan 2024. AI deception: A survey of examples, risks, and potential solutions. *Patterns* 5,5. 100988. <DOI: 10.1016/j.patter.2024.100988>.
- Pascanu, Razvan; Mikolov, Tomas & Bengio, Yoshua 2013. On the difficulty of training recurrent neural networks. In Dasgupta, Sanjoy & McAllester, David (eds.), *ICML'13: Proceedings of the 30th International Conference on International Conference on Machine Learning*. Vol. 28. Atlanta, GA: Proceedings of Machine Learning Research. 1310-1318.
- Pasternak, Robert & Graf, Thomas 2021. Cyclic scope and processing difficulty in a Minimalist parser. *Glossa* 6. 1-34. <doi.org/10.5334/gjgl.1209>.
- Pasteur, Louis 1876. Études sur la bière, ses maladies, causes qui les provoquent, procédé pour la rendre inaltérable, avec une théorie nouvelle de la fermentation. Paris: Gauthier-Villars.

- Pasteur, Louis 1880. De l'extension de la théorie des germes à l'étiologie de quelques maladies communes. In *Comptes rendus hebdomadaires des séances de l'Académie des sciences*. Vol. 90. Paris: Gauthier-Villars. 1033-1034.
- Pasteur, Louis; Joubert, Jules & Chamberland, Charles 1878. La théorie des germes et ses applications à la médecine et à la chirurgie. In *Comptes rendus hebdomadaires des séances de l'Académie des sciences*. Vol. 86. Paris: Gauthier-Villars. 1037-1043.
- Pater, Joe 2019. Generative linguistics and neural networks at 60: Foundation, friction, and fusion. *Language* 95. 41-74. <doi.org/10.1353/lan.2019.0009>.
- Pearl, Lisa 2022. Poverty of the stimulus without tears. *Language Learning and Development* 18,4. 415-454. <DOI: 10.1080/15475441.2021.1981908>.
- Pennington, Jeffrey; Socher, Richard & Manning, Christopher D. 2014. Glove: Global vectors for word representation. *Proceedings of the 2014 conference on empirical methods in natural language processing (EMNLP)*. 1532-1543.
- Pereira, Fernando 2000. Formal grammar and information theory: Together again? *Philosophical Transactions: Mathematical, Physical and Engineering Sciences* 358,1769. 1239-1253.
- Perez, Ethan; Huang, Saffron; Song, Francis; Cai, Trevor; Ring, Roman; Aslanides, John; Glaese, Amelia; McAleese, Nat & Irving, Geoffrey 2022. Red teaming language models with language models. In Goldberg, Yoav; Kozareva, Zornitsa & Zhang, Yue (eds.), *Proceedings of the 2022 Conference on Empirical Methods in Natural Language Processing*. Abu Dhabi, United Arab Emirates: Association for Computational Linguistics. 3419-3448. <DOI: 10.18653/v1/2022.emnlp-main.225>.
- Pesetsky, David 2024. Is there an LLM challenge for Linguistics? Or is there a Linguistics challenge for LLMs?. Paper presented at the Academia Română, Bucarest, 22 May 2024.
- Petroni, Fabio; Rocktäschel, Tim; Riedel, Sebastian; Lewis, Patrick; Bakhtin, Anton; Wu, Yuxiang & Miller, Alexander 2019. Language models as knowledge bases? In Inui, Kentaro; Jiang, Jing; Ng, Vincent & Wan, Xiaojun (eds.), *Proceedings of the 2019 Conference on Empirical Methods in Natural Language Processing and the 9th International Joint Conference on Natural Language Processing (EMNLP-IJCNLP)*. Hong Kong, China: Association for Computational Linguistics. 2463-2473. <DOI: 10.18653/v1/D19-1250>.
- Phillips, Colin 1996. *Order and structure*. PhD dissertation. Cambridge, MA: MIT Press.
- Phillips, Colin 2003. Linear order and constituency. *Linguistic Inquiry* 34. 37-90.
- Piantadosi, Steven T. 2023. Modern language models refute Chomsky's approach to language. <lingbuzz.net/lingbuzz/007180>.
- Piantadosi, Steven T. 2024. Modern language models refute Chomsky's approach to language. In Gibson, Edward & Poliak, Moshe (eds.), *From*

- fieldwork to linguistic theory: A tribute to Dan Everett*. Berlin: Language Science Press. 353-414.
- Pinker, Steven 1984. *Language Learnability and Language Development*. Cambridge, MA: Harvard University Press.
- Plate, Tony A. 1994. *Holographic Reduced Representation*. Stanford: CSLI.
- Plato 380 BCE. *Meno*.
- Poggio, Thomas; Rifkin, Ryan; Niyogi, Partha & Mukherjee, Sayan 2004. General conditions for predictivity in learning theory. *Nature* 428. 419-422. <doi.org/10.1038/nature02341>.
- Pollard, Carl & Sag, Ivan A. 1994. *Head-Driven Phrase Structure Grammar*. Chicago, IL: University of Chicago Press.
- Pollock, Jean Yves 1989. Verb movement, universal grammar, and the structure of IP. *Linguistic inquiry* 20,3. 365-424.
- Popper, Karl 1934. *Logik der Forschung*. Berlin: Springer. <doi.org/10.1007/978-3-7091-4177-9>.
- Prasanna, Sai; Rogers, Anna & Rumshisky, Anna 2020. When BERT plays the lottery, all tickets are winning. In Webber, Bonnie; Cohn, Trevor; He, Yulan & Liu, Yang (eds.), *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Online: Association for Computational Linguistics. 3208-3229. <DOI: 10.18653/v1/2020.emnlp-main.259>.
- Pullum, Geoffrey K. & Scholz, Barbara C. 2002. Empirical assessment of stimulus poverty arguments. *The Linguistic Review* 18,1-2. 9. <DOI: 10.1515/tlir.19.1-2.9>.
- Purnell, Thomas; Idsardi, William & Baugh, John 1999. Perceptual and phonetic experiments on American English dialect identification. *Journal of Language and Social Psychology* 18,1. 10-30. <DOI: 10.1177/0261927X99018001002>.
- Quine, Willard Van Orman 1960. *Word and Object*. Cambridge, MA: MIT Press. <doi.org/10.7551/mitpress/9636.001.0001>.
- Quinlan, Philip T. (ed.) 2004. *Connectionist Models of Development* (0 ed.). Psychology Press. <doi.org/10.4324/9780203494028>.
- Radford, Alec; Narasimhan, Karthik; Salimans, Tim; Sutskever, Ilya *et al.* 2018. *Improving language understanding by generative pre-training*.
- Radford, Alec; Wu, Jeffrey; Amodei, Dario; Clark, Jack; Brundage, Miles & Sutskever, Ilya 2019a. Better language models and their implications [Blog post]. *OpenAI Research*. <openai.com/index/better-language-models>. Last accessed 24/02/2025.
- Radford, Alec; Wu, Jeffrey; Child, Rewon; Luan, David; Amodei, Dario & Sutskever, Ilya 2019b. *Language Models Are Unsupervised Multitask Learners*. Technical report. San Francisco, CA: OpenAI.
- Radford, Andrew 1997. *Syntax: A Minimalist Introduction*. Cambridge: Cambridge University Press.
- Radford, Andrew 2016. *Analysing English Sentences, Second Edition*. Cambridge: Cambridge University Press.

- Rafailov, Rafael; Sharma, Archit; Mitchell, Eric; Ermon, Stefano; Manning, Christopher D. & Finn, Chelsea 2023. Direct preference optimization: Your language model is secretly a reward model. In *ICLR 2023 Conference Track*. Kigali, Rwanda: OpenReview.
- Raman, Raghu *et al.* 2024. Fake news research trends, linkages to generative artificial intelligence and sustainable development goals. *Heliyon* e24727. <DOI: 10.1016/j.heliyon.2024.e24727>.
- Rasin, Ezer; Berger, Iddo; Lan, Nur; Shefi, Itamar & Katzir, Roni 2021. Approaching explanatory adequacy in phonology using minimum description length. *Journal of Language Modelling* 9,1. 17-66. <doi.org/10.15398/jlm.v9i1.266>.
- Rawski, Jonathan & Heinz, Jeffrey 2019. No free lunch in linguistics or machine learning: Response to Pater. *Language* 95. 125-135.
- Raymond, Louise & O'Reilly, Tim 1999. *The Cathedral and the Bazaar* (1st ed.). USA: O'Reilly & Associates, Inc.
- Reinhart, Tanya 1976. *The syntactic domain of anaphora*. Cambridge, MA: MIT Press.
- Retoré, Christian (ed.), *Logical Aspects of Computational Linguistics: Lecture Notes in Computer Science*. Berlin: Springer. 68-95.
- Rickford, John R. & King, Sharese 2016. Language and linguistics on trial: Hearing Rachel Jeantel (and other vernacular speakers) in the courtroom and beyond. *Language* 92,4. 948-988.
- Riesenhuber, Maximilian & Poggio, Tomaso 1999. Hierarchical models of object recognition in cortex. *Nature Neuroscience* 2,11. 1019-1025. <doi.org/10.1038/14819>.
- Riezler, Stefan; Holloway King, Tracy; Kaplan, Ronald M.; Crouch, Richard; Maxwell, John T. III & Johnson, Mark 2002. Parsing the Wall Street Journal using a Lexical-Functional Grammar and discriminative estimation techniques. In *Proceedings of the 40th Annual Meeting of the Association for Computational Linguistics*. Philadelphia: Association for Computational Linguistics. 271-278.
- Rissanen, Jorma 1978. Modeling by shortest data description. *Automatica* 14,5. 465-471. <doi.org/10.1016/0005-1098(78)90005-5>.
- Rissanen, Jorma 1987. Stochastic Complexity. *Journal of the Royal Statistical Society: Series B (Methodological)* 49,3. 223-239. <doi.org/10.1111/j.2517-6161.1987.tb01694.x>.
- Ritter, Elizabeth & Wiltschko, Martina 2014. The composition of INFL. An exploration of tense, tenseless languages and tenseless constructions. *Natural Language and Linguistic Theory* 32. 1331-1386.
- Ritter, Elizabeth 1991. Two functional categories in Noun Phrases: Evidence from Modern Hebrew. *Syntax and Semantics* 25.
- Rizzi, Luigi 1990. *Relativized minimality*. Cambridge, MA: MIT Press.
- Rizzi, Luigi 1997. The Fine Structure of the Left Periphery. In Haegeman, Liliane (ed.), *Elements of Grammar*. Dordrecht: Springer Netherlands. 281-337. <doi.org/10.1007/978-94-011-5420-8_7>.

- Rizzi, Luigi (ed.) 2004. *The structure of CP and IP*. Oxford, UK: Oxford University Press.
- Rizzi, Luigi 2013. Locality. *Lingua* 130. 169-186.
- Rizzi, Luigi 2016. Labeling, maximality and the head-phrase distinction. *The Linguistic Review* 33,1. 103-127.
- Rizzi, Luigi 2021. *Complexité des structures linguistiques, simplicité des mécanismes du langage*, Leçon inaugurale, 2021, Collège de France – Fayard, Paris. English translation: *Complexity of Linguistic Structures, Simplicity of Language Mechanisms* (2024). OpenEdition Books, Collège de France. <DOI: 10.4000/books.cdf.16006>.
- Rizzi, Luigi & Cinque, Guglielmo 2016. Functional Categories and Syntactic Theory. *Annual Review of Linguistics* 2,1. 139-163. <doi.org/10.1146/annurev-linguistics-011415-040827>.
- Rizzi, Luigi & Savoia, Leonardo 1993. Conditions on /u/ propagation in Southern Italian Dialects: A Locality Parameter for Phonosyntactic Processes. In Belletti, A. (ed.), *Syntactic Theory and the Dialects of Italy*. Turin: Rosenberg & Sellier.
- Roberts, Ian 2017. The final-over-final condition in DP: Universal 20 and the nature of demonstratives. In Sheehan, Michelle; Biberauer, Theresa; Roberts, Ian & Holmberg, Anders (eds.), *The Final-over-Final Condition: A Syntactic Universal* (Vol. 76). Cambridge, MA: MIT Press. 151.
- Roberts, Ian 2019. *Parameter Hierarchies and Universal Grammar* (1st ed.). Oxford, UK: Oxford University Press. <doi.org/10.1093/oso/9780198804635.001.0001>.
- Rogers, Anna; Kovaleva, Olga & Rumshisky, Anna 2021. A primer in BERTology: What we know about how BERT works. *Transactions of the Association for Computational Linguistics* 8. 842-866.
- Ross, John Robert 1967. *Constraints on variables in syntax*. Cambridge, MA: MIT Press.
- Rumelhart, David E.; Hinton, Geoffrey E. & Williams, Ronald J. 1986. Learning representations by back-propagating errors. *Nature* 323,6088. 533-536. <DOI: 10.1038/323533a0>.
- Rumelhart, David E. & McClelland, James L. 1986. On Learning the Past Tenses of English Verbs. In *Parallel Distributed Processing*. Cambridge, MA: MIT Press. <doi.org/10.7551/mitpress/5237.003.0008>.
- Rumelhart, David E.; McClelland, James L. & PDP Research Group (eds.) 1999. *Parallel distributed processing. 1: Foundations*. 12th print. Cambridge, MA: MIT Press. <doi.org/10.7551/mitpress/5236.001.0001>.
- Russell, Bertrand 1947. *Human Knowledge: Its Scope and Limits*. New York, NY: Simon and Schuster.
- Sampson, Geoffrey 1997. *Educating Eve: The 'language instinct' debate*. London / Washington, DC: Cassell.
- Sanh, Victor; Webson, Albert; Raffel, Colin; Bach, Stephen; Sutawika, Lintang; Alyafeai, Zaid; Chaffin, Antoine; Stiegler, Arnaud; Raja, Arun;

- Dey, Manan *et al.* 2022. *Multitask prompted training enables zero-shot task generalization*. In *ICLR 2022 Conference Track*. Online: OpenReview.
- Sarlin, Paul-Edouard; DeTone, Daniel; Malisiewicz, Tomasz & Rabinovich, Andrew 2020. Superglue: Learning feature matching with graph neural networks. <arxiv.org/abs/1911.11763>.
- Sartran, Laurent; Barrett, Samuel; Kuncoro, Adhiguna; Stanojević, Miloš; Blunsom, Phil & Dyer, Chris 2022. Transformer Grammars: Augmenting Transformer Language Models with Syntactic Inductive Biases at Scale. *Transactions of the Association for Computational Linguistics* 10 (December). 1423-39. <doi.org/10.1162/tacl_a_00526>.
- Sathish, Vishwas; Lin, Hannah; Kamath, Aditya K. & Nyayachavadi, Anish 2024. LLeMpower: Understanding disparities in the control and access of large language models. <arXiv:2404.09356>.
- Savitch, Walter J. 1993. Why it might pay to assume that languages are infinite. *Annals of Mathematics and Artificial Intelligence* 8. 17-25.
- Shannon, C. E. 1948. A mathematical theory of communication. *The Bell System Technical Journal* 27,3. 379-423. <DOI: 10.1002/j.1538-7305.1948.tb01338.x>.
- Shieber, Stuart M. 1985. Evidence against the Context-Freeness of Natural Language. *Linguistics and Philosophy* 8,3. 333-43. <doi.org/10.1007/BF00630917>.
- Siegelman, Noam; Schroeder, Sascha; Acartürk, Cengiz; Ahn, Hee-Don; Alexeeva, Svetlana; Amenta, Simona; Bertram, Raymond; Bonandrini, R.; Brysbaert, M.; Chernova, D.; Da Fonseca, S. M.; Dirix, N.; Duyck, W.; Fella, A.; Frost, R.; Gattei, C. A.; Kalaitzi, A.; Kwon, N.; Lõo, K.; ... Kuperman, V. 2022. Expanding horizons of cross-linguistic research on reading: The Multilingual Eye-movement Corpus (MECO). *Behavior Research Methods* 54,6. 2843-2863. <doi.org/10.3758/s13428-021-01772-6>.
- Smith, Nathaniel J. & Levy, Roger 2013. The effect of word predictability on reading time is logarithmic. *Cognition* 128,3. 302-319. <DOI: 10.1016/j.cognition.2013.02.013>.
- Smolensky, Paul 1990. Tensor product variable binding and the representation of symbolic structures in connectionist systems. *Artificial Intelligence* 46. 159-216. <doi.org/10.1016/0004-3702(90)90007-m>.
- Solomonoff, Ray J. 1960. *A Preliminary Report on a General Theory of Inductive Inference*. United States Air Force, Office of Scientific Research. <books.google.it/books?id=SUTHtgAACAAJ>.
- Spitale, Giovanni; Biller-Andorno, Nikola & Germani, Federico 2023. AI model GPT-3 (dis)informs us better than humans. *Science Advances* 9, 26. <DOI: 10.1126/sciadv.adh1850>.
- Sprouse, Jon & Almeida, Diogo 2017. Design sensitivity and statistical power in acceptability judgment experiments. *Glossa* 2,1. 1-32. <doi.org/10.5334/gjgl.236>.
- Sprouse, Jon & Hornstein, Norbert (eds.) 2013. *Experimental Syntax and*

- Island Effects* (1st ed.). Cambridge University Press. <doi.org/10.1017/CBO9781139035309>.
- Strivastava, Aarohi; Rastogi, Abhinav; Rao, Abhishek; Shoeb, Abu Awal Md; Abid, Abubakar; Fisch, Adam; Brown, Adam R.; Santoro, Adam; Gupta, Aditya; Garriga-Alonso, Adrià *et al.* 2023. *Beyond the Imitation Game: Quantifying and extrapolating the capabilities of language models*. *Transactions on Machine Learning Research*.
- Stabler, Edward 1991. Avoid the pedestrian's paradox. In Berwick, Robert C.; Abney, Steven P. & Tenny, Carol (eds.), *Principle-based Parsing: Computation and Psycholinguistics*. Dordrecht: Kluwer. 199-238. <doi.org/10.1007/978-94-011-3474-3_8>.
- Stabler, Edward 1997. Derivational minimalism. In Retoré, Christian (ed.), *Logical Aspects of Computational Linguistics*. Berlin / Heidelberg: Springer. 68-95.
- Stabler, Edward 2011. Computational Perspectives on Minimalism. In Boeckx, Cedric (ed.), *The Oxford Handbook of Linguistic Minimalism*. Oxford, UK: Oxford University Press. <doi.org/10.1093/oxford-hb/9780199549368.013.0027>.
- Stabler, Edward 2013. Two Models of Minimalist, Incremental Syntactic Analysis. *Topics in Cognitive Science* 5,3. 611-633. <doi.org/10.1111/tops.12031>.
- Starke, Michal 2001. *Move Dissolves into Merge: A Theory of Locality*. PhD dissertation. Université de Genève.
- Steedman, Mark & Baldridge, Jason 2006. Combinatory categorial grammar. In Brown, Keith (ed.), *Encyclopedia of Language & Linguistics*. 2nd edition. Oxford: Elsevier. 610-621.
- Steuer, Julius; Mosbach, Marius & Klakow, Dietrich 2023. Large GPT-like Models are Bad Babies: A Closer Look at the Relationship between Linguistic Competence and Psycholinguistic Measures. *Proceedings of the BabyLM Challenge at the 27th Conference on Computational Natural Language Learning*. Singapore: Association for Computational Linguistics. 114-129. <doi.org/10.18653/v1/2023.conll-babylm.12>.
- Stowe, Laurie A.; Kaan, Edith; Sabourin, Laura & Taylor, Ryan C. 2018. The sentence wrap-up dogma. *Cognition* 176. 232-247. <doi.org/10.1016/j.cognition.2018.03.011>.
- Strubell, Emma; Ganesh, Ananya & McCallum, Andrew 2019. Energy and policy considerations for deep learning in NLP. In Korhonen, Anna; Traum, David & Màrquez, Lluís (eds.), *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*. Florence, Italy: Association for Computational Linguistics. 3645-3650. <DOI: 10.18653/v1/P19-1355>.
- Sulger, Sebastian; Butt, Miriam; Holloway King, Tracy; Meurer, Paul; Laczkó, Tibor; Rákosi, György; Bamba Dione, Cheikh M.; Dyvik, Helge; Rosén, Victoria; De Smedt, Koenraad; Patejuk, Agnieszka; Çetinoglu, Özlem; Arka, I Wayan & Mistica, Meladel 2013. ParGramBank: The

- ParGram parallel treebank. In *Proceedings of the 51st Annual Meeting of the Association for Computational Linguistics*, vol. 1. Sofia: Association for Computational Linguistics. 550-560. <www.aclweb.org/anthology/P13-1054.pdf>.
- Sutton, Rich 2019. The bitter lesson [Blog post]. *Incomplete Ideas*. <www.incompleteideas.net/IncIdeas/BitterLesson.html>. Last accessed 24/02/2025.
- Svenonius, Peter 2016. Significant mid-level results of generative linguistics. <blogg.uit.no/psv000/2016/08/30/significant-mid-level-results-of-generative-linguistics>.
- Swanson, Logan 2024. Syntactic learning over tree tiers. In *Proceedings of ESSLLI 2024*. 187-196.
- Taylor, Wilson L. 1953. "Cloze Procedure": A New Tool for Measuring Readability. *Journalism Quarterly* 30,4. 415-433. <doi.org/10.1177/107769905303000401>.
- Torr, John 2017. Autobank: A semi-automatic annotation tool for developing deep Minimalist grammar treebanks. In *Proceedings of the demonstrations at the 15th conference of the European chapter of the Association for Computational Linguistics*. 81-86.
- Torr, John 2018. Constraining MGbank: Agreement, L-selection and supertagging in minimalist grammars. In Gurevych, Iryna & Miyao, Yusuke (eds.), *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics*. Vol. 1. Melbourne, Australia: Association for Computational Linguistics. 590-600. <DOI: 10.18653/v1/P18-1055>.
- Torres, Charles & Futrell, Richard 2023. Simpler neural networks prefer sub-regular languages. In *Findings of the association for computational linguistics: EMNLP 2023*. 1651-1661.
- Torres, Charles; Hanson, Kenneth; Graf, Thomas & Mayer, Connor 2023. Modeling island effects with probabilistic tier-based strictly local grammars over trees. In *Proceedings of the Society for Computation in Linguistics (SCiL) 2023*. 155-164. <doi.org/10.7275/nz4q-6b09>.
- Tran, Tu-Anh & Miyao, Yusuke 2022. Development of a multilingual CCG treebank via Universal Dependencies conversion. In Calzolari, Nicoletta; Béchet, Frédéric; Blache, Philippe; Choukri, Khalid; Cieri, Christopher; Declerck, Thierry; Goggi, Sara; Isahara, Hitoshi; Maegaard, Bente; Mariani, Joseph *et al.* (eds.), *Proceedings of the Thirteenth Language Resources and Evaluation Conference*. Marseille, France: European Language Resources Association. 5220-5233.
- Trinh, Trieu H. & Le, Quoc V. 2019. A simple method for commonsense reasoning. <[arXiv:1806.02847](https://arxiv.org/abs/1806.02847)>.
- Trotta, Daniela; Guarasci, Raffaele; Leonardelli, Elisa & Tonelli, Sara 2021. Monolingual and Cross-Lingual Acceptability Judgments with the Italian CoLA corpus. *Findings of the Association for Computational Linguistics: EMNLP 2021*. Punta Cana, Dominican Republic: Association for Computational Linguistics. 2929-2940. <doi.org/10.18653/

- v1/2021.findings-emnlp.250>.
- Turing, Alan M. 1937. Computability and λ -definability. *Journal of Symbolic Logic* 2. 153-163. <doi.org/10.2307/2268280>.
- Turing, Alan 1950. Computing machinery and intelligence. *Mind* 59. 433-460. <DOI: 10.1093/mind/lix.236.433>.
- van Fraassen, Bas C. 1980. *The Scientific Image*. Oxford: Oxford University Press. 97-157.
- van Riemsdijk, Henk & Williams, Edwin 1986. *Introduction to the Theory of Grammar*. Cambridge, MA: MIT Press.
- van Rooij, Iris; Guest, Olivia; Adolphi, Federico; de Haan, Ronald; Kolokova, Antonina & Rich, Patricia 2024. Reclaiming AI as a theoretical tool for cognitive science. *Computational Brain and Behaviour*.
- Vaswani, Ashish; Shazeer, Noam; Parmar, Niki; Uszkoreit, Jakob; Jones, Llion; Gomez, Aidan N.; Kaiser, Lukasz & Polosukhin, Illia 2017. Attention Is All You Need. In Guyon, I.; Luxburg, U. V.; Bengio, S.; Wallach, H.; Fergus, R.; Vishwanathan, S. & Garnett, R. (eds.), *Advances in Neural Information Processing Systems 30 (NIPS 2017)*. Long Beach, CA: Curran Associates, Inc. 5998-6008. <arxiv.org/abs/1706.03762>.
- Vermeerbergen, Myriam; Leeson, Lorraine & Crasborn, Onno Alex (eds.) 2007. *Simultaneity in signed languages: Form and function*. Amsterdam: John Benjamins.
- Voldoire, A.; Sanchez-Gomez, E.; Salas y Mélia, D.; Decharme, B.; Cassou, C.; Sénési, S.; Valcke, S.; Beau, I.; Alias, A.; Chevallier, M. et al. 2013. The CNRM-CM5.1 global climate model: Description and basic evaluation. *Climate Dynamics* 40,9. 2091-2121. <DOI: 10.1007/s00382-011-1259-y>.
- von Humboldt, Wilhelm 1836. *Über die Verschiedenheit des menschlichen Sprachbaues und ihren Einfluß auf die geistige Entwicklung des Menschengeschlechts*. Berlin, Prussia: Druckerei der Königlichen Akademie der Wissenschaften.
- Wadler, Philip 1990. Deforestation: Transforming programs to eliminate trees. *Theoretical Computer Science* 73. 231-248. <doi.org/10.1016/0304-3975(90)90147-A>.
- Warstadt, Alex & Bowman, Samuel R. 2022. What artificial neural networks can tell us about human language acquisition. In Lappin, Shalom & Bernardy, Jean-Phillipe (eds.), *Algebraic Structures in Natural Language*. Boca Raton: CRC Press, Taylor & Francis. 17-60.
- Warstadt, Alex; Mueller, Aaron; Choshen, Leshem; Wilcox, Ethan; Zhuang, Chengxu; Ciro, Juan; Mosquera, Rafael; Paranjabe, B.; Williams, A.; Linzen, T. & Cotterell, R. 2023. Findings of the BabyLM Challenge: Sample-Efficient Pretraining on Developmentally Plausible Corpora. *Proceedings of the BabyLM Challenge at the 27th Conference on Computational Natural Language Learning*. Singapore: Association for Computational Linguistics. 1-6. <doi.org/10.18653/v1/2023.conll-babylm.1>.
- Warstadt, Alex; Parrish, Alicia; Liu, Haokun; Mohananey, Anhad; Peng, Wei; Wang, Sheng-Fu & Bowman, Samuel R. 2020. BLiMP: The

- Benchmark of Linguistic Minimal Pairs for English. *Transactions of the Association for Computational Linguistics* 8. 377-392. <doi.org/10.1162/tacl_a_00321>.
- Warstadt, Alex; Singh, Amanpreet & Bowman, Samuel R. 2018. Neural Network Acceptability Judgments. <arXiv:1805.12471>.
- Warstadt, Alex; Singh, Amanpreet & Bowman, Samuel R. 2019. Neural network acceptability judgments. *Transactions of the Association for Computational Linguistics* 7. 625-641. <aclanthology.org/Q19-1040>.
- Warstadt, Alex; Zhang, Yian; Li, Xiaocheng; Liu, Haokun & Bowman, Samuel R. 2020. Learning Which Features Matter: RoBERTa Acquires a Preference for Linguistic Generalizations (Eventually). *Proceedings of the 2020 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. 217-235. <doi.org/10.18653/v1/2020.emnlp-main.16>. <aclanthology.org/2020.emnlp-main.16>.
- Waskan, Jonathan; Harmon, Ian; Horne, Zachary; Spino, Joseph & Clevenger, John 2014. Explanatory anti-psychologism overturned by lay and scientific case classifications. *Synthese* 191,5. 1013-1035. <DOI: 10.1007/s11229-013-0304-2>.
- Wei, Jason; Bosma, Maarten; Zhao, Vincent; Guu, Kelvin; Yu, Adams Wei; Lester, Brian; Du, Nan; Dai, Andrew M. & Le, Quoc V. 2022a. Finetuned language models are zero-shot learners. In *ICLR 2022 Conference Track*. Online: OpenReview
- Wei, Jason; Wang, Xuezhi; Schuurmans, Dale; Bosma, Maarten; Ichter, Brian; Xia, Fei; Chi, Ed; Le, Quoc V. & Zhou, Denny 2022b. Chain-of-thought prompting elicits reasoning in large language models. In Koyejo, S.; Mohamed, S.; Agarwal, A.; Belgrave, D.; Cho, K. & Oh, A. (eds.), *Advances in Neural Information Processing Systems 35 (NeurIPS 2022) Main Conference Track*. New Orleans, LA: Curran Associates, Inc. 24824-24837.
- Wexler, Kenneth & Culicover, Peter W. 1980. *Formal Principles of Language Acquisition*. Cambridge, MA: MIT Press.
- Wickelgren, Wayne A. 1969. Context-Sensitive Coding in Speech Recognition, Articulation and Developments. In *Information Processing in The Nervous System: Proceedings of a Symposium Held at the State University of New York at Buffalo 21st-24th October, 1968*. Springer. 85-96.
- Wilcox, Ethan; Futrell, Richard & Levy, Roger 2024. Using Computational Models to Test Syntactic Learnability. *Linguistic Inquiry*. 55,4. 805-848. <doi.org/10.1162/ling_a_00491>.
- Wilcox, Ethan; Gauthier, Jon; Hu, Jennifer; Qian, Peng & Levy, Roger 2020. On the predictive power of neural language models for human real-time comprehension behavior. In *Proceedings of the Annual Meeting of the Cognitive Science Society*. Online: eScholarship.
- Wilcox, Ethan; Levy, Roger; Morita, Takashi & Futrell, Richard 2018. What do RNN Language Models Learn about Filler-Gap Dependencies? In

- Proceedings of the 2018 EMNLP Workshop BlackboxNLP: Analyzing and Interpreting Neural Networks for NLP*. Brussels: ACL. 211-221. <arxiv.org/abs/1809.00042>.
- Wilkenfeld, Daniel A. 2014. Functional explaining: A new approach to the philosophy of explanation. *Synthese* 191,14. 3367-3391. <DOI: 10.1007/s11229-014-0452-z>.
- Wilkenfeld, Daniel A. & Lombrozo, Tania 2020. Explanation classification depends on understanding: Extending the epistemic side-effect effect. *Synthese* 197,6. 2565-2592.
- Wilkinson, Mark D.; Dumontier, Michel; Aalbersberg, IJsbrand Jan; Appleton, Gabrielle; Axton, Myles; Baak, Arie; Blomberg, Niklas *et al.* 2016. The FAIR Guiding Principles for Scientific Data Management and Stewardship. *Scientific Data* 3,1. 160018. <doi.org/10.1038/sdata.2016.18>.
- Williams, Edwin S. 1977. Discourse and Logical Form. *Linguistic Inquiry* 8,1. 101-139.
- Wiltschko, Martina 2008. The syntax of non-inflectional plural marking. *Natural Language and Linguistic Theory* 26,3. 639-694.
- Wiltschko, Martina 2014. *The universal structure of categories. Towards a formal typology*. Cambridge: Cambridge University Press.
- Wiltschko, Martina 2018. Discovering syntactic variation. In Hornstein, N.; Lasnik, H.; Patel-Grosz, P. & Yang, Ch. (eds.), *Syntactic Structures after 60 Years. The Impact of the Chomskyan Revolution in Linguistics*. Studies in Generative Grammar [SGG] 129. 427-460.
- Wiltschko, Martina 2021a. *The grammar of interactional language*. Cambridge: Cambridge University Press.
- Wiltschko, Martina 2021b. Universal underpinnings of language-specific categories. A useful heuristic for discovering and comparing categories of grammar and beyond. In Alfieri, Luca; Ramat, Paolo & Arcodia, Giorgio Francesco (eds.), *Linguistic Categories, Language Description and Linguistic Typology*. 59-99.
- Wiltschko, Martina 2022. Language is for thought and communication. *Glossa: A Journal of General Linguistics* 7,1. <doi.org/10.16995/glossa.5786>.
- Wiltschko, Martina & Heim, Johannes 2016. The syntax of confirmationals. A neo-performative analysis. In Kaltenböck, Gunther; Keizer, Evelien & Lohmann, Arne (eds.), *Outside the Clause. Form and function of extra-clausal constituent*. John Benjamins. 303-340.
- Wiltschko, Martina & Heim, Johannes 2020. Grounding Beliefs: Structured Variation in Canadian English Discourse Particles. In Achiri-Taboh, B. (ed.), *Exoticism in English tag questions: Strengthening arguments and caressing the social wheel*. Cambridge: Cambridge Scholars Publishing.
- Yang, Andy; Chiang, David & Angluin, Dana 2024. Masked hard-attention transformers recognize exactly the star-free languages. In Globerson, A.; Mackey, L.; Belgrave, D.; Fan, A.; Paquet, U.; Tomczak, J. &

- Zhang, C. (eds.), *Advances in Neural Information Processing Systems 37 (NeurIPS 2024) Main Conference Track*. Vancouver, BC, Canada: Curran Associates, Inc. 10202-10235.
- Yang, Charles D. 2016. *The price of linguistic productivity: How children learn to break the rules of language*. Cambridge, MA: MIT Press.
- Yang, Yuan & Piantadosi, Steven T. 2022. One model for the learning of language. *Proceedings of the National Academy of Sciences* 119,5. e2021865119. <doi.org/10.1073/pnas.2021865119>.
- Yi, Sanghyun; Goel, Rahul; Khatri, Chandra; Cervone, Alessandra; Chung, Tagyoung; Hedayatnia, Behnam; Venkatesh, Anu; Gabriel, Raefer & Hakkani-Tur, Dilek 2019. Towards coherent and engaging spoken dialog response generation using automatic conversation evaluators. In van Deemter, Kees; Lin, Chenghua & Takamura, Hiroya (eds.), *Proceedings of the 12th International Conference on Natural Language Generation*. Tokyo, Japan: Association for Computational Linguistics. 65-75. <DOI: 10.18653/v1/W19-8608>.
- Zhang, Chiyuan; Bengio, Samy; Hardt, Mortiz; Recht, Benjamin & Vinyals, Oriol 2021. Understanding deep learning (still) requires rethinking generalization. *Communications of the ACM* 64. 107-115. <doi.org/10.1145/3446776>.
- Zhang, Yian; Warstadt, Alex; Li, Haau-Sing & Bowman, Samuel R. 2021. When Do You Need Billions of Words of Pretraining Data? In Zong, Chengqing; Xia, Fei; Li, Wenjie & Navigli, Roberto (eds.), *Proceedings of the 59th Annual Meeting of the Association for Computational Linguistics and the 11th International Joint Conference on Natural Language Processing. Vol. 1*. Online: Association for Computational Linguistics. 1112-1125. <DOI: 10.18653/v1/2021.acl-long.90>. <arxiv.org/abs/2011.04946> (2020).
- Zhao, M.; Golaz, J. C.; Held, I. M.; Guo, H.; Balaji, V.; Benson, R.; Chen, J. H.; Chen, X.; Donner, L. J.; Dunne, J. P. *et al.* 2018a. The GFDL global atmosphere and land model AM4.0/LM4.0: 1. Simulation characteristics with prescribed SSTs. *Journal of Advances in Modeling Earth Systems* 10,3. 691-734. <DOI: 10.1002/2017MS001208>.
- Zhao, M.; Golaz, J. C.; Held, I. M.; Guo, H.; Balaji, V.; Benson, R.; Chen, J. H.; Chen, X.; Donner, L. J.; Dunne, J. P. *et al.* 2018b. The GFDL global atmosphere and land model AM4.0/LM4.0: 2. Model description, sensitivity studies, and tuning strategies. *Journal of Advances in Modeling Earth Systems* 10,3. 735-769. <DOI: 10.1002/2017MS001209>.
- Zymła, Mark-Matthias 2024. Ambiguity management in computational Glue semantics. In Butt, Miriam; Findlay, Jamie & Toivonen, Ida (eds.), *Proceedings of the LFG'24 Conference*. Konstanz: PubliKon. 285-310. <lfg-proceedings.org/lfg/index.php/main/article/view/59>.

Printed in June 2025
by Industrie Grafiche Pacini Editore Srl
Via A. Gherardesca • 56121 Ospedaletto • Pisa • Italy
Tel. +39 050 313011 • Fax +39 050 3130300
www.pacineditore.it

