Course: LIN 425/525 Typology and Universals
Semester: Spring 2025
Instructor: Jürgen Bohnemeyer
Text: Primary readings made available through UBlearns. For participants interested in buying a book, I recommend Song 2010.
Classes: Tu/Th 2:00-3:20pm in 214 Norton.
Instructor: Dr. Jürgen Bohnemeyer – Office 642 Baldy Phone 645-0127
E-mail jb77@buffalo.edu Office hours Tu/Th 3:30-4:30pm in person (642 Baldy) or on Zoom:
https://buffalo.zoom.us/j/5855202411?pwd=QzlkNFVVc3p3bE8rVTZBcXFOTHdsUT09
Meeting ID 585 520 2411
Passcode **Hoorheh**

Overview – This course aims to familiarize the participants with the manifold manifestations of crosslinguistic variation, the methods typologists apply in order to study crosslinguistic variation, and the possible approaches to explaining patterns of crosslinguistic variation they explore.

The languages of the world display dazzling variation in every aspect – their sound structure, their lexicons and grammars, the practices that govern their use. This variation is the product of tens – and maybe hundreds – of thousands of years of intense cultural evolution. Typologists study this variation, seeking to map it and uncover the forces and historical events that have shaped the currently observable distribution of linguistic properties. The principal questions typologists ask are the following (for any properties p_1 ... p_n of the sound patterns, lexicon, morphosyntax, or usage practices of natural languages; e.g., p_1 could be obstruent voicing, noun-verb distinction, post-nominal relative clauses, evidential modals, a certain kind of speech act, etc.):

- Do all languages have p_1?
- Which other properties p_2 ... p_n do all languages that have p_1 also have?
- Which properties out of $\{p_2, ..., p_n\}$ make a language more likely to have p_1 than it would be in the absence of those properties?
- To the extent that properties p_1 and p_2 tend to co-occur in the languages of the world, is this because their co-occurrence is favored by cognitive and other constraints on communicative interaction, or is it the result of historical accidents, p_1 and p_2 having traveled together in languages related by phylogeny (i.e., common descent) and/or contact?

Generalizations that serve as possible answers to such questions are often referred to as **language** (or linguistic) **universals**. Once potential universals have been obtained from the data, typologists may formulate hypotheses regarding possible underlying explanations and then proceed to test these hypotheses against additional data. Explanatory factors commonly considered in typological research include the following:

- Phylogeny – members of a language family may share properties because they have inherited them from their common ancestor;
- Contact – languages of an area may share properties because multilingual speakers of the area have propagated them from language to language;
- Archaism – certain properties may be widespread among the present-day languages because they have been inherited from (some of) the earliest ancestor(s) of modern human languages or even from earlier forms of communication systems that might not have had all properties we expect of every natural language (and that might have had other properties which languages as we know them do not have);
- Universal Grammar – Scholars working within mainstream Generative Grammar often assume that certain properties are shared by all or most languages because they are entailed or favored by innate aspects of the human faculty for learning and using languages (assuming such innate aspects exist);
- Innate aspects of general cognition – certain properties may be shared by all or most languages because they are entailed or favored by general properties of the human mind;
- Selective adaptation for cognitive or communicative efficiency or learnability – certain properties may be widespread among the languages of the world because they are favored by cultural evolution as they facilitate speech production and/or speech perception/comprehension and/or language acquisition.
- Environmental and demographic variables – Factors external to cognition are also often cited to explain the distribution of linguistic properties, including cultural adaptations to the environment and demographic profiles hypothesized to favor certain properties over others.

In final analysis, typological research is motivated by the desire to understand the cognitive forces and historic events that shape the observable distribution of the properties of human languages.

Attendance – In-person attendance is required. Unexcused absences from class cause a reduction of the participation grade in the aggregate. Attendance is taken during every class. **For a class to count as having attended, you must have attended all of it.** To excuse your absence from a class, email me in advance with a valid reason for your absence. A pattern of multiple (= more than one) unexcused absences reduces the participation grade by a full grade. Six or more unexcused absences result in an F on participation.

Exceptionally, students may request a Zoom link to attend a class remotely. **They must request a Zoom link for every single class they wish to attend remotely, citing a legitimate reason**. Legitimate reasons include (but are not limited to) feeling unwell or fatigued, showing possible symptoms of infections, quarantining or self-isolating, healthcare visits or other important and unavoidable appointments/commitments. You will not be required to provide documentation. Be sure to email me your link request (with justification) at least 30 minutes prior to the start of the class.[1]

Once again, for a class to count as having attended, you must have attended all of it, even if you are attending remotely.

Coursework – In addition to in-class participation and reading assignments (see below), the coursework includes eight assessments: six homework projects, a midterm exam, and a term paper.

In-class participation: There will be short UBlearns quizzes about the readings assigned for each class. Students will be expected to take the quiz during the class for which it is assigned. The answers will NOT be graded for whether they are correct or not. Every good-faith effort at answering all questions in a quiz will be counted as having taken the quiz.

Students who have a record of 20 or more quizzes taken receive an A as their participation baseline. Students with fewer than 20 completed quizzes receive a reduced participation baseline. Fewer than 10 quizzes taken means a baseline of F.

Unexcused missed classes reduce the participation grade, while a record of frequent active contributions to class will boost a student's participation grade by up to 50%. A pattern of multiple (= more than one) unexcused absences reduces the participation grade by a full grade. Six or more unexcused absences result in an F on participation. Optional additional means of boosting the participation

[1] People attending via Zoom should be aware that Zoom creates a record of the entire time that they are logged in to the class. This record will be monitored continually.

grade are brief presentations or papers discussing two or more readings relevant to the course's learning goals (to be negotiated with the instructor) and participation in an ongoing experiment conducted by a member (graduate student or faculty) of UB Linguistics.

Reading assignments: Several readings are assigned in preparation for each class (see below). Participants are expected to read all of them. "Reading" here means study sufficiently to be able to identify the research questions, data sources, and conclusions of each reading.

Grammar-sampling project: the participants come up with a typological generalization ('universal') and test it in languages from at least 20 different families or genera and linguistic areas on the basis of available descriptions.

Database project: find a correlation between any two variables in typological databases, particularly *APiCS* (Michaelis et al. 2013),[2] *Grambank* (Skirgård et al. 2023),[3] *Phoible* (Moran & McCloy 2019),[4] or *WALS* (Dryer & Haspelmath 2013).[5] Perform a simple statistical test (χ^2, Fisher's Exact, etc.), for now ignoring areal/genealogical dependencies (but see below), to verify the correlation. This project can also be carried out as a grammar-sampling study, in which case the student will receive bonus points. They however will have to consult enough grammars for the test to come up significant. Write up a short discussion focusing on limitations of the evidence (saliently including areal/genealogical dependencies) and on possible explanations for the correlation.

Rara project: Select a typological feature (combination) that has been identified as rare in the literature. Consult in particular the *Rara & Universals Archive* at University of Konstanz.[6] Verify that it does indeed appear to be rare based on *Grambank*, *Phoible*, and/or *WALS*, or on a grammar-sampling study. Propose an explanation for its rarity.

Midterm exam: A take-home exam in the form of a lit review quiz that involves matching studies discussed in class to the correct blurbs describing them.

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[2] http://apics-online.info, accessed on 2024-01-15.
[3] https://grambank.clld.org/, accessed on 2024-01-15.
[4] https://phoible.org/, accessed on 2024-01-17.
[5] https://wals.info/, accessed on 2024-01-16.
[6] https://typo.uni-konstanz.de/rara/, accessed on 2024-01-16.

Typological sketch: Pick a language of your choice and compile a short sketch of its basic typological profile.

Phylogenetics project: Students analyze the genealogical structure of a genus or small family based on Grambank and WALS data.

R project: The students create a data frame in R and perform a series of data visualization analyses. By default, this project will be based on the data the students assembled for the phylogenetics project.

Term paper: A longer write-up (10-20 pages) of any of the earlier projects. Bonus points for doing a new project from scratch.

Grading

- In-class participation: 15%
- Grammar sampling project: 10%
- Database project: 10%
- *Rara* project: 10%
- Midterm exam: 10%
- Typological sketch: 10%
- Phylogenetics project: 10%
- R project: 10%
- Term paper: 15%

Undergraduate students (LIN425) and graduate students from non-LIN programs will have their point scores **multiplied by a factor of 1.5**. The complete grade scale:

Letter grade	Percentage score	Letter grade	Percentage score	Letter grade	Percentage score
A	≥90%	B-	[74%, 78%[	D+	[58%, 62%[
A-	[86%, 90%[[7]	C+	[70%, 74%[	D	[54%, 58%[
B+	[82%, 86%[	C	[66%, 70%[	F	<54%
B	[78%, 82%[	C-	[62%, 66%[		

[7] Not a typo: https://en.wikipedia.org/wiki/Interval_(mathematics)#Notations_for_intervals.

Incomplete policy: Incomplete grades must be requested by the student and will be granted in compliance with the University at Buffalo's policies on Incompletes. Please review here:

https://catalog.buffalo.edu/policies/explanation.html

Assessments, course goals, and program learning outcomes – The specific training goals of the course are as follows:

- *Variability appreciation*: participants develop advanced awareness and appreciation for the variability of natural human languages in both qualitative and quantitative terms.
- *Grammar literacy*: participants acquire facility with the extraction of information from language descriptions for comparative/typological purposes (including understanding the tension between descriptive adequacy and typological comparability).
- *Database literacy*: participants practice the use of typological databases.
- *Ontology/epistemology*: participants develop a working understanding of the ontology and epistemology of language description and typological generalizations.
- *Secondary data study design*: participants familiarize themselves with the methods of typological research based on secondary data theoretically and practically.
- *Primary data study design*: participants learn to design and execute studies involving the collection of primary language data for typological research purposes.
- *Statistics literacy*: participants acquire theoretical and practical knowledge of methods of quantitative data analysis appropriate for typological research.
- *Interpreting typological correlations*: participants learn to evaluate typological correlations against the potential explanatory factors listed above.

The following table provides information regarding how these course goals map to the assessments on the one hand and to the UB Linguistics Ph.D. program learning outcomes (see Appendix) on the other:

Assessment	Course goals	Undergraduate program learning outcomes	Graduate program learning outcomes
Grammar sampling project	Variability appreciation; grammar literacy; ontology/epistemology	Language diversity awareness; core concepts; critical thinking; problem solving	Similarities and differences across languages; research methodologies; theoretical foundations
Database project	Variability appreciation; database literacy; statistics literacy; interpreting correlations	Language diversity awareness; grasp of cognitive/social aspects of language; problem solving; data collection	Similarities and differences across languages; research methodologies
Rara project	Variability appreciation; secondary data design; grammar/database literacy; interpreting correlations	Language diversity awareness; grasp of cognitive/social aspects of language; problem solving	Similarities and differences across languages; research methodologies
Typological sketch	Variability appreciation; secondary data design; ontology/epistemology; grammar/database literacy	Language diversity awareness; grasp of cognitive/social aspects of language; data collection	Similarities and differences across languages; theoretical foundations; professional communication skills
R project	Variability appreciation; statistics literacy; primary/secondary data study design	Language diversity awareness; problem solving; data collection	Similarities and differences across languages; research methodologies
Phylogenetics project	Variability appreciation; primary data study design; statistics literacy; ontology/ epistemology; interpreting correlations	Language diversity awareness; grasp of cognitive/social aspects of language; problem solving; data collection	Similarities and differences across languages; research methodologies
Midterm exam	Variability appreciation; ontology/ epistemology; interpreting correlations	Language diversity awareness; core concepts; grasp of cognitive/social aspects of language; critical thinking	Similarities and differences across languages; theoretical foundations
Term paper	Variability appreciation; primary data study design; statistics literacy;	Language diversity awareness; core concepts; grasp of	Similarities and differences across languages; research

	ontology/ epistemology; interpreting correlations	cognitive/social aspects of language; critical thinking; communication skills	methodologies; theoretical foundations; professional communication skills

Paperless class: Readings and lecture notes will be posted on UBlearns/Course Documents ahead of class. Homework projects will be posted on UBlearns/Assessments/Assignments. Students upload their personalized copy of the assignment doc with their responses filled in. Accepted formats: MS Word doc and PDF.

Academic integrity: Students must be familiar with and abide by the university's policies and procedures on Academic Integrity, available at the following link:

https://catalog.buffalo.edu/policies/integrity.html

These policies define and penalize as academic dishonesty the following activities: aiding in academic dishonesty; cheating; falsifying academic materials; misrepresenting documents; plagiarizing; purchasing or selling academic assignments; and submitting previously submitted work. Plagiarizing in particular is defined as *Copying or receiving material from any source and submitting that material as one's own, without acknowledging and citing the particular debts to the source (quotations, paraphrases, basic ideas), or in any other manner representing the work of another as one's own.* Students are very welcome to consult among each other when completing assignments. However each student must submit personal answer sheets with their name on it. Note that identical passages across answer sheets may be examined for plagiarism! Plagiarism constitutes an infringement of Academic Integrity and will not be tolerated. Plagiarism will at the very least invalidate your answers to the problem sets concerned. It may lead to disqualification of your entire answer sheet(s), and may have much more serious consequences on top of that. You may freely quote from textbooks and other academic publications - but do cite the sources in the appropriate fashion! If unsure about how to cite academic publications, the instructor will be happy to provide the relevant information.

Zero-tolerance policy on generative AI: The only permissible use of generative AI tools in this course is as (part of) search engines. Assignments submitted with text produced wholly or in part by generative AI are invalidated if the use of the AI tool is disclosed and considered a violation of UB's Academic Integrity policy if undisclosed. **Any such violation will be reported to UB's Office of Academic Integrity without exception.**

Accessibility: If you have any disability which requires reasonable accommodations to enable you to participate in this course, please contact the Office of Accessibility Resources in 60 Capen Hall, 716-645-2608 and also the instructor of this course during the first week of class. The office will provide you with information and review appropriate arrangements for reasonable accommodations, which can be found on the web at:

http://www.buffalo.edu/studentlife/who-we-are/departments/accessibility.html

Sexual violence: UB is committed to providing a safe learning environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic and dating violence and stalking. If you have experienced gender-based violence (intimate partner violence, attempted or completed sexual assault, harassment, coercion, stalking, etc.), UB has resources to help. This includes academic accommodations, health and counseling services, housing accommodations, helping with legal protective orders, and assistance with reporting the incident to police or other UB officials if you so choose. Please contact UB's Title IX Coordinator at 716-645-2266 for more information. For confidential assistance, you may also contact a Crisis Services Campus Advocate at 716-796-4399.

Mental health: As a student you may experience a range of issues that can cause barriers to learning or reduce your ability to participate in daily activities. These might include strained relationships, anxiety, high levels of stress, alcohol/drug problems, feeling down, health concerns, or unwanted sexual experiences. Counseling, Health Services, and Health Promotion are here to help with these or other issues you may experience. You can learn more about these programs and services by contacting:

- *Counseling Services:*
    - 120 Richmond Quad (North Campus), 716-645-2720
    - 202 Michael Hall (South Campus), 716-829-5800
- *Health Services:*
    - Michael Hall (South Campus), 716-829-3316
- *Health Promotion:*
    - 114 Student Union (North Campus), 716-645-2837

Outline – I think of this course as focusing on methods for typological research. However, I also believe that people learn best going from the concrete to the more abstract, from examples to generalizations. So I divided the outline into three larger sections (preceded by a one-week general intro). The first and largest of these three major sections gives an overview of domains of typological research, thereby providing the students with a bunch of examples that the

following two sections then reference and build upon. The second section is dedicated to methods of data collection and analysis. I plan to cover a lot of the most controversial issues in the field today. The final section of the course, which is compressed into just two weeks, is dedicated to explanation in linguistic typology.

W	D	Topics	Readings (optional advanced in parenthesis) **(to be updated!)**
1	2	**Intro** – Four notions of linguistic typology: typology as the study of language types (19th Century typology); typology as the classification of linguistic properties; typology as the study of the distribution of linguistic properties; typology as the population science of language; what it means to "type" a language.	Croft 2003: 1-19; (Graffi 2010; Nichols 1997; Ramat 2010)
2	1	**Intro** – Distributional typology as an inherently quantitative science; logical forms of typological generalizations and the evidence that supports them; the "trialectic" of description, typology, and theory.	Comrie 1989: 15-23; Moravcsik 2010; Dryer 2006
	2	**Domains: Phonetic/phonological typology** – The nexus between phoneme inventory, syllable structure, and root shape; clicks, human migrations, and linguistic prehistory; inventories, migrations, founder effects;	Maddieson 2010; Güldemann & Stoneking 2008; Atkinson 2011; (Cysouw et al. 2012; Maddieson 2006; Maddieson et al. 2011)
3	1	**Domains: Phonetic/phonological typology** – Possible environmental influences on sound systems; a genetic marker associated with (non-)tone languages?; intonation and its uses across languages.	Everett 2013; Dediu & Ladd 2007; (Collins 2017; Di Canio et al. 2018)
	2	**Domains: Morphological typology** – Types of bound morphemes/morphological techniques and their typological distribution; distance and iconicity in morphology.	Brown 2010; Comrie 1989: 42-52; Bybee 1985: 11-48; (Bybee et al. 1991)
4	1	**Domains: Morphological typology** – The prefixing/suffixing asymmetry; templates: a constructionist perspective on morphological typology; a look at sign language morphology; irregularity and the intersection of morphological	Bybee et al. 1990; (Asao 2015; Guzmán Naranjo & Becker 2022) Good 2016: 1-39; Sandler et al. (2005); (Trudgill 2009; Dingemanse

		typology and sociolinguistics; ideophones and interjections. **Grammar sampling project out.**	2012; Dingemanse et al. 2013)
	2	**Domains: Syntactic typology I** – Constituent order, implicational generalizations, and the Greenbergian paradigm; branching direction and head-dependent ordering; lineage-specificity.	Song 2010; Dryer 1992; Verkerk et al. 2023[8] (Dunn et al. 2011)[9]
5	1	**Domains: Syntactic typology I** – Correlations and motivations of constituent order patterns. **Grammar sampling project due; database project out.**	Dryer 2019; Hawkins 2014 (90-115); Givón (1979: 271-277); (Gell-Mann & Ruhlen 2011; Goldin-Meadow et al. 2008; Roberts & Levinson 2017; Ferrer-i-Cancho 2017)
	2	**Domains: Syntactic typology II** – Head vs. dependent marking; head-marking, agreement, and argument realization.	Nichols (1992: 45-96); Haspelmath (2019)
6	1	**Domains: Syntactic typology II** – Interactions of word order typology and 'locus' typology; The Polysynthesis Puzzle: beyond morphological technique. **Database project due; *rara* project out.**	Nichols (1992: 97-115); Cysouw (2002); (Bresnan & Mchombo 1987; Austin & Bresnan 1996; Bohnemeyer et al. 2015; Nichols (2016); Mattissen (2004))
	2	**Domains: Syntactic typology III** – Argument marking and alignment typology; a typology of grammatical relations.	Bickel (2010); Croft (2003: 142-157); Van Valin (2005: 89-127);
7	1	**Domains: Syntactic typology III** – Morphological and syntactic ergativity; lexical categories, the noun-verb distinction, and omnipredicativity. ***Rara* project due; midterm out.**	Evans & Osada (2004)/Haspelmath (2012); (Launey 2004)
	2	**Domains: Lexical typology – The lexicon-syntax interface:** Transitivizing and detransitivizing languages; causatives, inchoatives, and the spontaneity scale; colexification; semantic maps and techniques for generating them.	Nichols et al. (2004)/Haspelmath (1993)/Haspelmath (2016); François (2008) (Bohnemeyer 2007; Bellingham et al. 2020)
8	1	**Domains: Semantic typology – Lexical meaning:** etic grids and their pitfalls; color terms and evolutionary interpretations of implicational	Evans (2010)/Moore et al. (2015); Haspelmath (2003); (Bohnemeyer et al. (ms.);

[8] https://www.youtube.com/watch?v=zyT0G-mILyk; accessed 2024-01-17.

[9] Dunn et al. (2011) will be discussed in more detail in Week 11 Day 2 and Week 14 Day 2.

		generalizations; semantics, cognition, and cultural evolution. **Midterm due; typological sketch out.**	Lucy 1997; Saunders & van Brakel 1997)
	2	**Methods: Study designs and assumptions** – Categories, comparative concepts, and categorical particularism; comparative concepts and etic grids – comparison.	Dryer (1997); Haspelmath (2010) (Haspelmath 2007; Spike 2020)
9	1	**SPRING BREAK**	
	2		
10	1	**Methods: Study designs and assumptions** – Other approaches: principles and parameters, canonicity, prototypes, onomasiological and semasiological classifications. **Typological sketch due; phylogenetics project out.**	Baker 2003; Croft (2003: 158-193); (Baker & McCloskey 2007; Corbett 2005; Lehmann 2004; van der Auwera & Gast 2010)
	2	**Methods: Sources of data** – Primary vs. secondary data; typological databases and maps; quality criteria for primary and secondary data.	Levshina et al. (2023)/Levshina (2019); Moore et al. (2015); (Dryer 2009; Bellingham et al. 2020)
11	1	**Methods: Sources of data** – Validity and reliability; a classification of elicitation techniques; elicitation and experimentation; crowdsourcing in typological research. **Phylogenetics project due; R tutorial out.**	Bohnemeyer (2015); Bohnemeyer (In press Section 4.5)
	2	**Methods: The causal inference problem I: Stratified sampling.** Sampling, bias, and the independence assumption; a survey of sampling techniques. Sampling in primary data typology.	Dryer 1989; Cysouw 2005; (Bickel 2008)
12	1	**Methods: The causal inference problem II: The dynamic (co-evolutionary) approach.** Stratified sampling vs. phylogenetic inference. Dynamic and non-dynamic regression modeling. **R tutorial "due";[10] R project out.**	Maslova (2000) (Dunn et al. 2011; Bickel 2013; Cysouw 2011; Verkerk et al. 2023[11]; Jäger & Wahle 2021; Guzmán Naranjo & Becker 2022)[12]

[10] The R tutorial isn't a for-credit assignment. It provides training for the following R project. So students should complete it before they tackle the R project.

[11] https://www.youtube.com/watch?v=zyT0G-mILyk; accessed 2024-01-17.

[12] Several of these papers will be revised in Week 15 as part of the discussion of diachronic approaches to explanation.

	2	**Methods: Descriptive data analysis** – Types of variables in typological studies; graphing typological data.	Kirkegaard (2016); Cysouw (2005)
13	1	**Methods: Descriptive data analysis** – Multivariate descriptive analysis: multi-dimensional scaling, principal component analysis, factor analysis, correspondence analysis, hierarchical cluster analysis; phylogenetic statistical analysis. **R project due; term paper topics survey out.**	Cysouw (2007); (Croft & Poole 2008; Dunn et al. 2008; Moore et al. 2015)
	2	**Methods: Inferential data analysis** – A roundup of inferential tests that have been used in typological studies: t-test, χ^2, Fisher's Exact, Mann-Whitney, correlation coefficients.	Baayen (2008: 47-91)
14	1	**Methods: Predictive modeling** – ANOVA, regression; collinearity, sparsely populated cells, overfitting - typical problems with typological datasets and workarounds: random forests, classification and regression trees, conditional inference trees. **Term paper topics survey due.**	Tagliamonte & Baayen (2012); Cysouw (2003) (Baayen 2008: 181-328)
	2	**Explanation I:** Non-evolutionary explanations - monogenesis, innateness.	Christiansen & Chater (2008); Evans & Levinson (2009); (Pinker & Bloom (1990); Hauser et al. (2003); Pinker & Jackendoff (2005))
15	1	**Explanation II:** Non-evolutionary explanations - basic design features; phylogeny, inertia, contact.	Maslova (2000); Nichols (2003); (Dediu & Levinson 2012; 2013; Evans 2017)
	2	**Explanation III:** Evolutionary explanations – theories of evolutionary language change	Beckner et al. (2009); Croft (2013: Ch2); (Levinson (2017); Nichols (2018); Bohnemeyer (ms. Ch5))
16	1	**Explanation IV:** Evolutionary explanations – applications: physiological, cognitive and communicative factors	Hawkins (2014: Ch5); Bohnemeyer (ms. Ch2); (Goldin-Meadow et al. 2008; Roberts & Levinson 2017; Ferrer-i-Cancho 2017)
	2	**Optional term paper presentations on Zoom**	
Term paper drafts due 5/14; final versions due 5/16 if no draft, 5/20 with prior draft.			

Readings

Asao, Y. (2015). *Left-right asymmetries in words: A processing-based account.* Doctoral dissertation, University at Buffalo.

Atkinson, Q. D. (2011). Phonemic diversity supports a serial founder effect model of language expansion from Africa. *Science* 332: 346-349.

Austin, P. & J. Bresnan. (1996). Non-configurationality in Australian Aboriginal languages. *Natural Language and Linguistic Theory* 14: 215–268.

Baayen, R. H. (2008). *Analyzing linguistic data: A practical introduction to statistics.* Cambridge: Cambridge University Press.

Baker, M. C. (2003). Linguistic differences and language design. *TRENDS in Cognitive Science* 7(8): 349-353.

Bellingham, E., S. Evers, K. Kawachi, A. Mitchell, S.-H. Park, A. Stepanova, & J. Bohnemeyer. (2020). Exploring the representation of causality across languages: integrating production, comprehension and conceptualization perspectives. In E. Bar-Asher Siegal & N. Boneh (eds.), *Linguistic Perspectives on Causation.* Springer Press. Berlin, Germany. 75-120.

Berlin, B., & P. Kay. (1969). *Basic color terms: Their universality and evolution.* Berkeley, CA: University of California Press.

Bickel, B. (2008). A refined sampling procedure for genealogical control. *STUF - Language Typology And Universals* 61: 221-233.

Bickel. B. (2010). Grammatical relations typology. In J. J. Song (ed.), *The Oxford handbook of linguistic typology.* Oxford: Oxford University Press. 399-449.

Bickel, B.(2011). Statistical modeling of language universals. *Linguistic Typology* 15(2): 401-414.

Bickel, B. (2013). Distributional biases in language families. In: B. Bickel, L. A. Grenoble, D. A. Peterson, & A. Timberlake (eds), *Language typology and historical contingency.* Amsterdam: Benjamins. 415-444.

Bohnemeyer, J. (2007). Morpholexical Transparency and the argument structure of verbs of cutting and breaking. *Cognitive Linguistics* 18(2): 153-177.

Bohnemeyer, J. (2015). A practical epistemology for semantic elicitation in the field and elsewhere. In R. Bochnak & L. Matthewson (eds.), *Methodologies in semantic fieldwork.* Oxford: Oxford University Press. 13-46.

Bohnemeyer, J. (In press). *Semantic research: An empirical introduction.* Manuscript, University at Buffalo.

Bohnemeyer, J., L. K. Butler, & T. F. Jaeger. (2015). Head-Marking and Agreement: Evidence from Yucatec Maya. In J. Fleischhauer, A. Latrouite, &

R. Osswald (eds.), *Exploring the syntax-semantics-pragmatics interface*. Düsseldorf: Düsseldorf University Press. 49-87.

Bohnemeyer, J., K. T. Donelson, Y.-T. Lin, R. Moore, H.-C. Hsiao; J. A. Jódar Sánchez; J. Lovegren; J. Olstad; J. Seong. (Ms.). Language, culture, and the environment shape spatial cognition. Manuscript, University at Buffalo.

Bresnan, J. & S. Mchombo. (1987). Topic, pronoun, and agreement in Chichêwa. *Language* 63: 741–782.

Brown, D. (2011). Morphological typology. In J. J. Song (ed.), *The Oxford handbook of linguistic typology*. Oxford: Oxford University Press. 487-503.

Bybee, J. (1985). *Morphology: A study of the relation between meaning and form*. Amsterdam: Benjamins.

Bybee, J. L., W. Pagliuca, & R. Perkins. (1990). On the asymmetries in the affixation of grammatical material. In W. Croft, K. Denning and S. Kemmer (eds.) *Studies in diachronic typology for Joseph H. Greenberg*. Amsterdam: John Benjamins. 1-42.

Bybee, J. L., W. Pagliuca, & R. Perkins. (1991). Back to the future. In E. Traugott and B. Heine (eds.) *Approaches to grammaticalization, Vol. II*. Amsterdam: John Benjamins. 17-58.

Christiansen, M. H. & N. Chater. (2008). Language as shaped by the brain. *Behavioral And Brain Sciences* 31: 489–558.

Collins, J. (2017). Real and spurious correlations involving tonal languages. In N. J. Enfield (ed.), *Dependencies in language*. Berlin: Language Science Press. 129–140. DOI:10.5281/zenodo.573776.

Comrie, B. (1989). *Language universals and linguistic typology. Second edition*. Chicago, IL: University of Chicago Press.

Croft, W. (2003). *Typology and universals. Second edition*. Cambridge: Cambridge University Press.

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Appendix II: Undergraduate Program Learning Outcomes

1. Core concepts

Students will comprehend the core concepts of linguistics (including ones those in phonetics, phonology, morphology, syntax, or semantics), as well as the basic literature that assumes such concepts.

2. Grasp of cognitive/social aspects of language

Students will achieve an awareness of language in its broader cognitive and social context.

3. Language diversity awareness

Students will develop an awareness of linguistic diversity and variability.

4. Critical thinking

Students will master the ability to construct arguments for choosing between alternative analyses of linguistic phenomena and to identify relevant data bearing on the analyses.

5. Problem solving
Students will be able to analyze linguistic data from English or other languages and to construct descriptions of particular linguistic phenomena in particular languages.

6. Data collection
Students will be able to develop basic collection and analysis skills.

7. Communication skills
Students will attain the skills necessary to prepare written and oral presentations on linguistic topics.

8. Life skills
Students will comprehend and appreciate cultural differences among speakers of different languages, be capable of applying the analytic skills acquired through the study of linguistics to other areas of life, and ascertain the importance of language in human endeavors.

Appendix III: Graduate Program Learning Outcomes

1. Similarities and differences across languages (M.A. and Ph.D.)
Languages vary in their grammars, lexicons, sound systems, and practices of language use. Students will demonstrate understanding of phonetic, phonological, morphological, syntactic, and semantic similarities and differences among the world's languages.

2. Theoretical foundations (M.A. and Ph.D.)
Students will demonstrate that they understand central questions that have formed the basis for various approaches to the description and modeling of human languages, as well as current issues specific to the core subfields within linguistics.

3. Research (M.A. and Ph.D.)

Students will be able to articulate hypotheses about linguistic phenomena, identify and assemble relevant data, and analyze and assess the results.

4. Methodologies (M.A. and Ph.D.)
Linguistic research involves data from a variety of sources, including gathering of acceptability or semantic judgments, lab experiments, field research, corpus studies, interviews, and use of secondary sources such as reference works. Students will be exposed to several of these methodologies and master at least one of them.

5. Ethical issues (Ph.D.)
Students will demonstrate understanding and respect of the ethical norms involved in linguistic research.

6. Professional communication skills
A. M.A. and Ph.D.: Students will attain the skills necessary to prepare written presentations on linguistic topics.
B. Ph.D: Students will acquire the professional skills needed to communicate the results of their research at academic conferences and other forums, and write up their results in preparation for submission to proceedings and journals.