

Curriculum Vitae John A. Goldsmith

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Academic Positions

1984 - present *University of Chicago*
Present position Edward Carson Waller Distinguished Service Professor
(appointed to rank Departments of Linguistics and Computer Science
in 1997) Senior Fellow, Computation Institute
of Argonne National Laboratory and the University of Chicago
Committee on Computational Neuroscience

1991-1995 Chairman of Department of Linguistics
1991-1992 Director, Center for Information and Languages Studies
2003 (Summer) Visiting Professor, Michigan State University/LSA Linguistics Institute
1995-1996,
1997, 1998 (Winters) Visiting Scholar, Microsoft Research, Redmond WA
1976 - 1984 *Indiana University:*
Assistant Professor, Associate Professor, Professor of Linguistics

1987 (Summer) Visiting Professor, Stanford University/LSA Linguistics Institute
1983 (Summer) Visiting Professor, University of California at Los Angeles
LSA Linguistics Institute

1982 (Summer) Visiting Professor, University of Maryland/LSA Linguistics Institute
1982 (Spring) Visiting Professor, University of California at San Diego
1980 (Summer) Professeur invité, Université du Québec à Montréal
1979-1980 Andrew Mellon Faculty Fellow, Harvard University
1977 (Summer) Visiting Professor, McGill University

Awards and grants

- Fellow, Linguistic Society of America, 2008.
- Fellow, American Academy of Arts and Sciences, 2007.
- Poste rouge, Centre national de la recherche scientifique, Groupe MoDyCo, 2006-2007.
- National Endowment for the Humanities grant, *Digital preservation of Mesoamerican linguistic archives*. 2005-2007.
- Subcontract with LCC on ARDA project developing morphologies automatically from raw corpora. 2003-2005.
- Grant from Argonne National Laboratory/University of Chicago for work on applying automatic morphological analysis to information retrieval. 1999-2001.
- Finalist, 1997 *Discover Magazine* Technology Award, for SpeakEasy prosody program.

- Faculty Prize for Excellence in Graduate Teaching, University of Chicago, June 1995.
- National Science Foundation Research Grant. 1990-1992. “Harmonic Phonology.”
- Québécois Faculty Research Grant, 1989. Project: Research on Langue des signes québécoise.
- American Council of Learned Societies, Grant-in-Aid, 1987. Project: Analytic History of Themes in Recent Transformational Syntax
- Award of Faculty Research Grant, Canadian Government, 1987. Project: Research on Langue des signes québécoise.
- Award of Center fellowship at the Center for Advanced Study in the Behavioral Sciences, Stanford, California, 1985.
- National Science Foundation Research Grant. 1984-1987. “Theoretical Consequences of Comparative Bantu Tone Studies”
- Fulbright African Research Faculty Fellowship, 1984 (declined).
- Andrew Mellon Faculty Fellowship, Harvard University. 1979-1980; renewed 1980-1981 (declined).

Academic Degrees

1976: PhD in linguistics, Massachusetts Institute of Technology.

1972: AB with honors in philosophy, mathematics and economics, Swarthmore College.

Professional Activities

- Linguistic Society of America:
 - Language Editorial Advisory Committee: 1991-1994.
 - Language Review Committee: Chair, 1983. Member, 1982.
 - Executive Committee: 1988-1990.
 - Web page committee, 2002 - 2004.
 - Computation committee, chair: 2003 - 2006.
- Board of the University of Chicago Press. 1990-1994.
- Co-editor, *Studies in Contemporary Linguistics*, University of Chicago Press.
- Council for International Exchange of Scholars (Senior Fulbright Awards), Discipline Committee for Linguistics. Chair, 1987. Member, 1985-1986.
- Editor, *Journal of Linguistic Research*, 1980-1983.

- Associate Editor, *Linguistic Inquiry* 1980 - 1987.
Editorial Board
- *Natural Language and Linguistic Theory* (through 1986)
- *Revue québécoise de linguistique* (through 1991)
- *Phonology Yearbook* (Cambridge University Press) (through 1991)
- *Journal of African Languages and Linguistics* (through 1987)
- Former consulting editor, *Cognitive Linguistics*
- Executive Committee, Association for Computational Linguistics, Special interest group in computational phonology, 2001- 2006.

Publications

Books

- *The Chicago Guide to Your Academic Career: A Portable Mentor for Scholars from Graduate School through Tenure.* John Goldsmith, John Komlos, and Penny Schein Gold. 2001. The University of Chicago Press.
- *Phonological Theory: The Essential Readings.* 1999. Edited by J. Goldsmith. Oxford: Basil Blackwell.
- *Handbook of Phonological Theory.* 1995. Edited by J. Goldsmith. Oxford: Basil Blackwell.
- *Ideology and Linguistic Theory: Noam Chomsky and the Deep Structure Debates.* 1995. With Geoffrey Huck. London: Routledge.
- *The Last Phonological Rule: Reflections on Constraints and Derivations.* 1993. Edited, and with two chapters by JG. University of Chicago Press.
- *Syntax and Human Experience,* by Nicolas Ruwet: translated and edited by J. Goldsmith. 1991. University of Chicago Press.
- *Autosegmental and Metrical Phonology.* 1990. Oxford: Basil Blackwell, Ltd.
- *Autosegmental Studies in Bantu Tone,* ed. G.N. Clements and John Goldsmith. 1984. Dordrecht: Foris Press.
- *Autosegmental Phonology.* 1979. Garland Press. Published version of MIT dissertation, 1976; also circulated by Indiana University Linguistics Club, 1976-date. Korean translation published, 1991, Seoul.

Articles

To appear

- Information theoretic approaches to phonology: the case of Finnish vowel harmony. With Jason Riggle. Submitted for review. (Also appeared as Technical report TR-2008-07, Department of Computer Science, University of Chicago.)
- Learning phonological categories (with Aris Xanthos). To appear in *Language* in 2009.
- Morphological analogy: Only a Beginning. To appear in James P. Blevins and Juliette Blevins (eds.), *Analogy in Grammar: Form and Acquisition*. Oxford: Oxford University Press (2008).
- Generative phonology: its origins, its principles, and its successors (with Bernard Laks). To appear in *The Cambridge History of Linguistics*, edited by Linda Waugh and John E. Joseph.

2008

- Generative phonology in the late 1940s. *Phonology* 25:1-23.

2007

- Towards a New Empiricism. *Recherches linguistiques à Vincennes* 36:9-36.
- Learning inflectional classes *Language Learning and Development* 24(4): 219-250.
- Probability for linguists. *Mathématiques et Sciences Humaines* 180.4:5-40, 2007

2006

- Lectures on Bubblemint and Grinding. *Style* 40(1-2), 74-83. August 2006.
- An algorithm for the unsupervised learning of morphology. *Natural Language Engineering* 12(3): 1-19. (Also appeared as Technical report TR-2005-06, Department of Computer Science, University of Chicago.)
- Autosegmental Phonology and Underspecification Theory (with M. Noske). In *History of the Language Sciences*, edited by S. Aurox, K. Koerner, H.-J. Niederehe, and K. Versteegh. Berlin, New York: Walter de Gruyter.
- Exploring variant definitions of pointer length in MDL. (with Aris Xanthos and Yu Hu). To appear in *Papers from the 2006 Meeting of the Special Interest Group in Phonology*.

2005

- Review article on *The Legacy of Zellig Harris: Language and information into the 21st century*. In *Language* 81(3): 719-736.

- The SED heuristic for morpheme discovery: a look at Swahili (with Yu Hu, Irina Matveeva, and Colin Sprague). In *Papers from the Workshop on Psychocomputational Models of Human Language Acquisition* (ACL-2005), Ann Arbor MI.
- Using morphology and syntax together in unsupervised learning (with Yu Hu, Irina Matveeva, and Colin Sprague). In *Papers from the Workshop on Psychocomputational Models of Human Language Acquisition* (ACL-2005), Ann Arbor MI.
- A heuristic for morpheme discovery based on string edit distance (with Yu Hu, Irina Matveeva, and Colin Sprague). Technical report TR-2005-04, Department of Computer Science, University of Chicago.

2004

- From Signatures to Finite State Automata (With Yu Hu) *Midwest Computational Linguistics Colloquium*. Bloomington IN. June 25-26. Technical report TR-2005-05, Department of Computer Science, University of Chicago.
- From algorithms to generative grammar and back again. *Papers from the 40th Meeting of the Chicago Linguistics Society*.

2002

- Using eigenvectors of the bigram graph to infer morpheme identity. With Mikhail Belkin. *Proceedings of the Morphology/Phonology Learning Workshop of ACL-02*. Association for Computational Linguistics.
- Access to an intermediate level for tonal constraints: tone in Mituku. In *Cognitive Phonology*, edited by Jacques Durand and Bernard Laks, pages 80-95. Cambridge University Press.
- Probabilistic models of grammar: phonology as information minimization. *Phonological Studies* #5: 21-46.

2001

- Unsupervised Learning of the Morphology of a Natural Language. *Computational Linguistics* 27:2 pp. 153-198.
- Editors' introduction to special issue on the History of Phonology in the 20th century (with Bernard Laks). *Folia Linguistica* XXXIV/1-2 1-10.
- On information theory, entropy, and phonology in the 20th century. *Folia Linguistica* XXXIV/1-2 85-100.
- Automatic Language-Specific Stemming in Information Retrieval (with Derrick Higgins and Svetlana Soglasnova). In Carol Peters (ed.). *Cross-Language Information Retrieval and Evaluation: Proceedings of the CLEF 2000 Workshop*, pages 273-283. Lecture Notes in Computer Science. Springer Verlag.

2000

- Las unidades subsegmentales en la fonología española: enfoque autosegmental. In *Panorama de la fonología española actual*, edited by Juana Gil Fernández, pp. 337-356. Translation of "Subsegmentals in Spanish Phonology: An Autosegmental Approach" (1981) below.
- Linguistica: An Automatic Morphological Analyzer. In Okrent, Arika and John Boyle (eds.). 2000. *The Proceedings from the Main Session of the Chicago Linguistic Society's Thirty-sixth Meeting* Volume 36-1. Chicago: Chicago Linguistic Society.

1999

- Dealing with prosody in a Text to Speech system *International Journal of Speech Technology* 3: 51-63.
- Tone. In *MIT Encyclopedia of the Cognitive Sciences*, edited by Robert A. Wilson and Frank C. Keil, pp. 837-839. Cambridge: MIT Press.
- Automatic Collection and Analysis of German Compounds (with Tom Reutter). In *The Computational Treatment of Nominals: Proceedings of the Workshop COLING-ACL '98*, edited by Frederica Busa, Inderjeet Mani and Patrick Saint-Dizier, pp. 61-69. Montreal: COLING-ACL.
- James D. McCawley (1938-1999) (with Jerrold Sadock). *Historiographica Linguistica* XXVI(3):257-261.

1998

- On Comparing Linguistic Theories. (with Geoffrey Huck). *Historiographia Linguistica* 25(3): 345-372.
- Review of *Noam Chomsky: A Life of Dissent* by Robert Barsky. *Journal of the History of the Behavioral Sciences* 34.2: 173-180.

1997

- The Marvelous Richness of Language. *Actas Finales of the 1996 SON-APLES Meeting* (Iquique Chile), pp. 15-29. Iquique: Universidad Arturo Prat.

1996

- Whistler: A Trainable Text-To-Speech System (with Xuedong Huang Alex Acero, Jim Adcock, Hsiao-Wuen Hon, Jingsong Liu, and Mike Plumpe. In *Proceedings of the Fourth International Conference on Spoken Language Processing* (pp. 2387-2390).
- La Théorie Phonologique. In *Fondements et Perspectives en Traitement Automatique de la Parole*, edited by Henri Méloni, pp. 175-184. Agence francophone pour l'enseignement supérieur et la recherche (AUPELF-UREF): diffusion Hachette.
- Tone in Mituku: How a Floating Tone Nailed Down an Intermediate Level. In *Current Trends in Phonology: Models and Methods*, edited by Jacques Durand and Bernard Laks. CNRS, Paris-X and University of Salford. University of Salford Publications. (A revised version published, as noted above, in 2002.)

1995

- Grammar within a Neural Net. In *The Reality of Linguistic Rules*, edited by Pamela Downing, Sue Lima, and Gregory Iverson, pp. 95-113. Philadelphia: John Benjamins.
- Phonological Theory. In *The Handbook of Phonological Theory*, ed. John Goldsmith, pp. 1-23. Oxford: Basil Blackwell.

1994

- Tone languages. An entry in *The Encyclopedia of Language and Linguistics*. Edited by R.E.Asher and J.M.Y. Simpson, pp. 4626-4628. New York: Elsevier Science(Pergamon Press).
- Disentangling autosegments: a response. *Journal of Linguistics* 30: 499-507.
- A Dynamic Computational Theory of Accent Systems. In *Perspectives in Phonology*, edited by Jennifer Cole and Charles Kisseberth, pp. 1-28. Stanford: Center for the Study of Language and Information.

1993

- Harmonic Phonology. In *The Last Phonological Rule*, ed. J. Goldsmith, pp. 21-60. Reprinted (i) in French translation, 1993, in *De natura sonorum*, edited by Bernard Laks, Presses universitaires de Vincennes, pp. 221-269; (ii) in *Phonological Theory: The Essential Readings*, 1999; (iii) *Phonology: Critical Concepts in Linguistics*, ed. Charles Kreidler, 2001, Routledge, vol. 3, p. 594.
- Language and learning as properties of our species. *Modern Philology*, Supplement, pp. 34-38
- Secondary Licensing and the Non-dominant Hand in ASL Phonology. With Diane Brentari. In *Current Issues in ASL Phonology: Phonetics and Phonology 3*, edited by Geoffrey Coulter, pp. 19-41. New York: Academic Press.
- Using Networks in a Harmonic Phonology. With Gary Larson. In *Papers from the 28th Annual Meeting of the Chicago Linguistic Society*, vol. 2, pp. 94-125, edited by Costas Canakis, Grace Chan, and Jeannette Denton. Chicago: Chicago Linguistics Society.

1992

- A Note on the Genealogy of Research Traditions in Modern Phonology. *Journal of Linguistics* 28:149-163. An earlier version appeared under the title "Phonological Theory and African Language Phonology," in *Studies in the Linguistic Sciences* 20(1): 49-62. Urbana: Department of Linguistics.
- Local Modeling in Phonology. In *Connectionism: Theory and Practice* edited by Steven Davis, pp. 229-246. Oxford: Oxford University Press.

- Tone and Accent in Llogoori. In *The Joy of Syntax*, edited by D. Brentari, G. Larson, and L. McLeod, pp. 73-94. Philadelphia: John Benjamins

1991

- Phonology as an Intelligent System. In *Bridges Between Psychology and Linguistics: A Swarthmore Festschrift for Lila Gleitman*, edited by Donna Jo Napoli and Judy Kegl, pp. 247-267. Mahwah NJ: Lawrence Erlbaum.
- Distribution et médiation dans le développement de la théorie linguistique. With Geoffrey Huck. *Communications* 53: 51-67.
- Qu'est-ce qu'une phonologie d'une langue des signes? *Revue québécoise de linguistique théorique et appliquée* 10(1): 11-20.

1990

- Tone and Accent in the Xhosa verbal system (with Karen Peterson and Joseph Drogo). *Current Approaches to African Linguistics* (vol. 5), ed. Paul Newman and Robert Botne, pp. 157-177. Dordrecht: Foris Publications.
- Local Modeling and Syllabification. With Gary Larson. In *Papers from the 26th Annual Regional Meeting of the Chicago Linguistic Society, Part Two*, edited by K. M. Ziolkowski, K. Deaton, and M. Noske, pp. 129-142. Chicago: Chicago Linguistics Society.
- Prosodic Trends in the Bantu Languages. In *Autosegmental Studies in Pitch Accent*, edited by N. Smith and H. van der Hulst. Dordrecht: Foris Publications.
- The Complementizer Signature. In *Linguistic Symposium on Romance Languages*. Philadelphia: John Benjamins, edited by Janette DeCesaris, pp. 115-128.

1989

- The KiRundi Verb. With Firmard Sabimana. In *Modèles en tonologie*, edited by Francis Jouannet, pp. 19-62. Paris: Editions du CNRS.
- Autosegmental Licensing, Inalterability, and Harmonic Rule Application. *Papers from the 25th Meeting of the Chicago Linguistics Society*. Pp. 145-156. Chicago: CLS.

1987

- Vowel Systems. *Papers from the Parasession on Autosegmental and Metrical Phonology*, edited by A. Bosch, B. Need, and E. Schiller, pp. 116-133. Chicago: Chicago Linguistic Society.
- The Rise of Rhythmic Structure in Bantu. *Phonologica 1984*, ed. W. Dressler, pp. 65-78 Cambridge: Cambridge University Press.
- Stem Tone Patterns of the Lacustrine Bantu Languages. *Current Approaches to African Linguistics* (vol. 4), ed. David Odden, pp. 175-185. Dordrecht: Foris Publications.

- Tone and Accent and Getting the Two Together. *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics Society*, edited by Jon Aske, Natasha Beery, Laura Michaelis, and Hana Filip, pp 88-104. Berkeley: Berkeley Linguistics Society.

1986

- Comparing extratonicity and extrametricality in KiKongo-type tone systems. *University of Chicago Working Papers in Linguistics* Volume 2. Chicago: Department of Linguistics.
- Tone in KiHunde. *Wiener Linguistische Gazette* Beiheft 5: 49-72. ed. by John Rennison. Vienna: Institut für Sprachwissenschaft der Universität Wien.
- Sur les phrase du type "Elle a de qui tenir" (with Jessie Pinkham) *Revue québécoise de linguistique* 15.2:273-78.

1985

- A Principled Exception to the Coordinate Structure Constraint. *Papers from the 21st Meeting of the Chicago Linguistics Society*, edited by William Eilfort, Paul Kroeber, and Karen Peterson.
- Tone in Sukuma. In *Studies in African and General Linguistics*, ed. D. L. Goyvaerts, pp. 167-87. Amsterdam: J. Benjamins.
- Vowel Harmony in Khalkha Mongolian, Yaka, Hungarian and Finnish. *Phonology Yearbook* 2:253-75. Cambridge: Cambridge University Press.
- Tone in the CiRuri Present Continuous. In *The Phonological Representation of Suprasegmentals*, edited by Koen Bogers, Harry van der Hulst and Maarten Mous, pp. 95-107. Dordrecht: Foris Publications. resolution.

1984

- Causative Verbs in English. In *Parasession on Lexical Semantics*, edited by David Testen, Veena Mishra, and Joseph Drogo, pp. 117-130. Chicago: Chicago Linguistics Society.
- Bantu -a-: The Far Past in the Far Past. In *Studies in African Linguistics*, Supplement 9: Precis from the 1984 African Linguistics Conference, ed. R. Schuh, p. 123-127. Los Angeles: University of California.
- Introduction. In *Autosegmental Studies in Bantu Tone*, edited by G. N. Clements and J. Goldsmith (see citation above in book section), pp. 1-17.
- Tone and Accent in Tonga. In *Autosegmental Studies in Bantu Tone*, edited by G. N. Clements and J. Goldsmith (see citation above in book section), pp. 19-51.
- Las oraciones pseudo-hendidadas en español. In *Aproximaciones a la sintaxis del español: estudios sintácticos del español y el progreso de la teoría lingüística*, ed. M. Garcia-Pinto and M. Rojas. Barcelona: Editorial Puvill. [Translation of "On Spanish Pseudoclefts".]

1983

- Accent in Tonga: An Autosegmental Approach. In *Current Approaches to African Linguistics* (vol. 1). ed. Ivan R. Dihoff, pp 227-234. Dordrecht: Foris Press.

1982

- The Logic of the Progressive Aspect, with Erich Woisetschlaeger. *Linguistic Inquiry* 13(1): 79-89.
Accent Systems. In *The Structure of Phonological Representations*, ed. Harry van der Hulst and Norval Smith, pp. 47-63. Dordrecht: Foris Press.

1981

- Complementizers and Root Sentences. *Linguistic Inquiry* 12(4): 541-74.
- The Structure of Wh-Questions in Igbo. *Linguistic Analysis* 7(4): 367-393.
- La Signature COMP. *Revue québécoise de linguistique* vol. 11(1)135-148.
- On Spanish Pseudoclefts. *Glossa* 15(1): 3-15.
- Subsegmentals in *Spanish Phonology: An Autosegmental Approach*. In Linguistic Symposium on Romance Languages ed. D. Napoli, pp. 1-16. Washington: Georgetown University Press.

1980

- What is Downstep? A Reply to Clark. With G.N. Clements. *Studies in African Linguistics* 11(2): 239-254.
- The Semantics of Positive “Any”. With Erich Woisetschlaeger. *Studies in English Linguistics* 8.
- Meaning and Mechanism in Grammar. *Harvard Studies in Syntax and Semantics* 3. Edited by Susumu Kuno, pp. 423-448. Cambridge: Harvard University Department of Linguistics.

1979

- On the Thematic Nature of *See*. *Linguistic Inquiry* 10(2): 347-352.
- The Aims of Autosegmental Phonology. In *Current Approaches to Phonological Theory*, ed. D. Dinnsen, pp. 202-222. Bloomington: Indiana University Press. Also in *Phonology Part II: Generative Phonology* ed. P. Riszkievica, p. 261-285. University of Silesia Press.

1978

- Le principe ‘Pas de complémenteur’. *Recherches linguistiques à Montréal* 4: 15-21.
- *Que, c’est quoi? Que, c’est quoi.* *Recherches linguistiques à Montréal* 3: 1-13.

- English as a Tone Language. *Communication and Cognition* 11:3-4, pp. 453-76. Reprinted in *Phonology in the 1980s*, ed. D. Goyvaerts [1981], Story-Scientia, pp. 287-308.

1977

- Complementizers and Root Sentences. *Proceedings of the Eighth Meeting of the North East Linguistics Society*, pp. 86-96. Amherst: University of Massachusetts.

1976

- An Overview of Autosegmental Phonology. *Linguistic Analysis* 2(1): 23-68. Reprinted in (i) *Phonological Theory: The Essential Readings*, Blackwells, 1999; (ii) *Phonology: Critical Concepts in Linguistics*, ed. Charles Kreidler, 2001, Routledge, vol. 3, p.382-425.
- A propos de l'inversion du sujet clitique en français. With Colette Dubuisson. *Proceedings of the Sixth Meeting of the North East Linguistic Society*, pp. 103-112. Montreal: Université de Montréal.

1975

- An Autosegmental Typology of Tone: and how Japanese fits in. *Proceedings of the Fifth Meeting of the North East Linguistics Society*. Pp. 172-182. Cambridge: Harvard University.
- French Causatives, the Constituent Constraint, the Specified Subject Condition, and Traces. *Recherches linguistiques à Montréal* 1: 27-55.
- Tone Melodies and the Autosegment. *Proceedings of the 1975 Conference on African Linguistics*, ed., R. Herbert, pp. 135-147. Columbus: Ohio State University.

Reviews

- Review of *Programming for Linguists*, by Michael Hammond. *Language* 80(4):857-9. 2004.
- Review of *Computational Phonology*, by Steven Bird. *Phonology* 14: 133-141. 1997.
- Review of *Phonology: a cognitive view*. *Journal of Linguistics* 27:517-525. 1991.
- Review of *Introduction to the Theory of Syntax*, by van Riemsdijk and Williams, in *Language* 65:1150-159, March 1989.
- Review of *Nkore-Kiga*, by Charles Taylor. *Language*, 63(2): 439-40. 1987.
- Review of *Semantics and Syntax*, by J. Miller. *Journal of Linguistics* 22: 485-489, 1986.
- Review of *La finale verbale ide et l'imbrication en bantou*, by Y. Bastin. *Journal of African Languages and Linguistics* 8:169-171, 1986.

- Review of *Prosody: Models and Measurements*, edited by Anne Cutler and D. Robert Ladd. *Language* 61(2): 497. 1985.
- Review of *Studies in Compensatory Lengthening*, edited by Engin Sezer and Leo Wetzels. *Language* 63(2): 401-07.
- Review of *The Structure of Intonational Meaning*. *Language* by Robert Ladd. *Language* 58(2): 422-4. 1982.
- Review of *Tone: A Linguistic Survey* edited by Victoria Fromkin. In *Language* 56: 413-418 June 1980.

Patents

1999: Patent 5,905,972 Prosodic databases holding fundamental frequency templates for use in speech synthesis (with X.D. Huang and James Adcock).

2002: Patent 6,405,161 Method and apparatus for learning the morphology of a natural language.

Languages

Near native ability in French.

Conversational abilities in Spanish, American Sign Language.

Reading and more restricted conversational abilities in German, Norwegian, Haitian Creole.

Primary research on Igbo, Swahili, Tonga, CiRuri, KiHunde, KiRundi, Ndebele, CiCewa, KiLangi, Langue des signes québécoise.