

## Joyce Mary McDonough

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CURRENT POSITION	Department of Linguistics Professor, Departments of Linguistics and Brain and Cognitive Sciences	2004 - present 2015 - present 2003 - present
CONTACT INFORMATION	Department of Linguistics Lattimore 505 University of Rochester Rochester New York USA 14627	<i>office:</i> (585) 275-2895 joyce.mcdonough@rochester.edu www.ling.rochester.edu/people/
CURRENT AFFILIATIONS	Center for the Language Sciences (CLS), College of Arts and Sciences, University of Rochester. Center for Navigation and Communications Sciences (CNCS), University of Rochester Medical Center. Faculty Affiliate, Linguistics Program, University of Montana.	
RESEARCH INTERESTS	Phonetic fieldwork, phonetic documentation and phonological and phonetic analyses of field data, laboratory phonology. Word and Paradigm Morphology.  I focus particularly on the phonetic and phonological structure of endangered languages, especially languages with complex morphologies, and the representation of linguistic forms in the brain. A related research interest focuses on linguistic aspects of pitch, meter and rhythm, spoken word performance and their interface with music.	
EDUCATION	<b>University of Massachusetts at Amherst, Ph.D.</b> 1990 Dissertation: "The morphology and phonology of Navajo verbs" Advisors: Emmon Bach (UMass at Amherst), Ken Hale (MIT)  <b>University of Massachusetts at Amherst, BA Japanese and Linguistics</b> Japanese Ministry of Education Fellowship at <i>Hokkaido Imperial University</i> , Sapporo Japan.  <b>UCLA Phonetics Lab</b> , Department of Linguistics 1991 - 1993 NIH Postdoc, under Peter Ladefoged for <i>Sounds of the World's Languages</i>	
PREVIOUS POSITIONS	<b>University of Rochester, Department of Linguistics</b> 2004 - 2014 Associate Professor and Chair <b>University of Rochester, Department of Linguistics</b> 1997 - 2003 Assistant Professor <b>Ohio State University Medical School</b> , College of Dentistry 1994 - 1997 Research Scientist, Adjunct Faculty <b>Ohio State University</b> , Linguistics Department 1993 - 1994 Visiting Assistant Professor <b>UCLA, Linguistics, Phonetics Lab</b> , Postdoc, Lecturer 1991 - 1993 <b>University of Montana</b> , Linguistics Program 1990 - 1991 Visiting Assistant Professor	

## PUBLICATIONS

L Carney, T Li, JM McDonough. (2015). Speech Coding in the Brain: Representation of Vowel Formants by Midbrain Neurons Tuned to Sound Fluctuations. *eNeuro*. DOI: <http://dx.doi.org/10.1523/ENEURO.0004-15.2015>.

A Stasenko, C Bonn, A Teghipco, F Garcea, C Sweet, M Dombovy, J McDonough, B Mahon. (2015) A causal test of the motor theory of speech perception: A case of impaired speech production and spared speech perception. *Cognitive Neuropsychology*

D Whalen, JM McDonough. (2015). Adaptable models: Taking the laboratory into the field. *Annual Review of Linguistics* V1:14.114.21.

M Schellenberg, JM McDonough. (2015) Using discrete cosine transforms to characterize tones in two Dene (Athabaskan) languages. *Canadian Acoustic Association*

JM McDonough. (2014) The Dene verb: how phonetics supports morphology. *In Proceedings of 18th Workshop on Structure and Constituency in the Languages of the Americas* University of California, Berkeley, April 5-7, 2013

K Carbary, M Brown, C Gunlogson, JM McDonough, A Fazlipour, M Tanenhaus. (2014) Anticipatory Deaccenting in Language Comprehension. *Language and Cognitive and Neuroscience*, published online, February 2014

*The Dene Speech Atlas: Seeds of the Future*. Online, June 2013, update, June 2014  
<http://www.ling.rochester.edu/DeneSpeechAtlas/>

C Bowern, JM McDonough, K Kelliher (2012) The phonetics of Bardi (Nyulnyulan) *Journal of the International Phonetic Association*, volume 42, issue 03, pp. 333-351.

LH Carney, JM McDonough (2012) Predicting discrimination of formant frequencies in vowels with a computational model of the auditory midbrain, *IEEE Proceedings*, Conference on Information Sciences and Systems, Princeton NJ.

K Iskarous, JM McDonough, DH Whalen (2012) A gestural account of velar contrast: the back fricatives in Navajo, *Laboratory Phonology* 3.1: 195-210 .

JM McDonough, B Tucker (2012) Replicating PE Goddard: A contemporary airflow and EGG study of Dene Suline. *University of Rochester Working Papers in the Language Sciences* (WPLS: UR) Volume 4:1. P 45-56.

*The Dene Speech Atlas*. Beta version. Online, August 2011.

JM McDonough, H Lenhert-LeHouiller, N Bardhan (2009) The perception of Nasalized Vowels in American English: An investigation of online use of vowel nasalization in lexical access, in *University of Rochester Working Papers in the Language Sciences* (WPLS: UR) Volume 5:1.

JM McDonough, V Wood (2008) The stop contrasts of the Athabaskan languages *Journal of Phonetics*. V36.3, 427-449.

JM McDonough, D.H. Whalen (2008) The phonetics of native North American languages *Journal of Phonetics*. V36.3, 423-426.

M Jacob, H Lehnert-LeHouillier, S Bora, S McAleavey, D Dialecki, JM McDonough (2008) Speckle Tracking for the Recovery of Displacement and Velocity Information from Sequences

of Ultrasound Images of the Tongue. *Proceedings of the 8th International Seminar on Speech Production*, Strasbourg France, 53-57.

J Diehl, D Watson, L Bennetto, JM McDonough, C Gunlogson (2008) An Acoustic Analysis of Prosody in High-Functioning Autism *Applied Psycholinguistics*.

Diehl, J. J., L. Bennetto, D. Watson, C. Gunlogson and JM McDonough (2008) Resolving ambiguity: A psycholinguistic approach to understanding prosody processing in high-functioning autism *Brain and Language*. Aug;106(2):144-52.

Salverda, A.P., Dahan, D., Tanenhaus, M.K., Crosswhite, K., Masharov, M., JM McDonough, (2007) Effects of prosodically modulated sub-phonetic variation on lexical competition. *Cognition*, 105(2), 466-476.

McDonough, J., H. Danko, J. Zentz (2007) "Rhythmic structure of music and language: an empirical investigation of American jazz masters Louis Armstrong and Jelly Roll Morton". *University of Rochester Working Papers in the Language Sciences* (WPLS: UR) Volume 3:1. P 45-56.

McDonough, J., R. Sussman (2005) "A preliminary methodology for the investigation of speakers knowledge of structure in Athabaskan" *BLS 2004*

McDonough, J. (2003) **The Navajo Sound System**. Kluwer Academic Press.

McDonough, J. (2002) "The intonation of Navajo focus and interrogative constructions", in *Formal Approaches to Functional Phenomena*, eds. Carnie, Harley and Willie. Amsterdam: John Benjamins.

McDonough, J. (2001) "Incorporating onsets in Navajo: the d-effect", *Papers in honor of Ken Hale*, ed. by Carnie, Jelinek and Willie, MIT Working Papers in Linguistics:177-88.

McDonough, J. (2000) "On the bipartite model of the Athabaskan verb" *The Athabaskan Languages: Perspectives on a Native American Language Family*. T. B. Fernald and P. R. Platero. Oxford University Press: 139-166.

McDonough, J. (2000) "Athabaskan redux: Against the position class as a morphological category", In *Morphological Analysis in Comparison* edited by Dressler, Pfeiffer, Pochtrager and Rennison. Amsterdam: John Benjamins: 155-78

McDonough, J. (2000) "How to use Young and Morgan's "The Navajo Language"" In K. M. Crosswhite and J. S. Magnuson (Eds.), *University of Rochester Working Papers in the Language Sciences*, 1 (2), 23-42.

McDonough, J., Mary Willie (2000) "Allowable variability: A preliminary investigation of word recognition in Navajo", *University of Rochester Working Papers in the Language Sciences* (WPLS:UR), vol. Spring 00-1:1-23

McDonough, J. (1999) "Tone in Navajo", *Anthropological Linguistics*. V41.4, 503-539.

McDonough, J., K. Johnson. 1998. "Tamil liquids: an EPG and perceptual study of the five liquid consonants in the Brahmin dialect of Tamil", *Journal of the International Phonetic Association* 27.1.

McDonough, J. 1997. Review of Phonology and Phonetic Evidence: Papers in Laboratory

Phonology IV, eds. Connell and Arvanti, Cambridge, for *Phonology* 14(1).

McDonough, J. 1996. Epenthesis in Navajo. In *Athabaskan Papers for Robert Young*, eds. Jelinek, Rice and Saxon. Albuquerque: University of New Mexico Press.

McDonough, J., P. Ladefoged. 1994. Stop contrasts in Navajo in *Holland Institute of Linguistics: Phonology*. eds. Nespor and Smith. Mouton.

McDonough, J., H. George. 1994. "The Sounds of Navajo: An instructional HyperCard stack" *Journal of Navajo Education* X.3, 16-21.

McDonough, J., M. Austin. 1994. "Vowel enhancement and dispersion in Western Navajo: a acoustic study of the vowel space of traditional Navajo speakers" *UCLA Working Papers in Linguistics*, vol. 86.

McDonough, J. , P. Ladefoged, H. George. 1992. "Navajo vowels and universal phonetic tendencies", **Fieldwork Studies of Targeted Languages**. *UCLA Working Papers in Phonetics*, vol. 84. (Also in *JASA* 92 (4, Pt 2):2416, 4aSP15 )

MULTIMEDIA  
ON WEBSITE

**Dene Speech Atlas**. Product of NSF-DEL project *Online: July 2013*. Website demonstrating the sounds of the Dene language communities in the Mackenzie River Basin Drainage and environs (NSF 0853929). <http://www.sas.rochester.edu/lin/DeneSpeechAtlas/>

Google Earth interface for **Dene Speech Atlas** (.kmz file).

J McDonough, June 2015. How to Use Young and Morgan's 1987 *The Navajo Language: Part 1* (Revised 2015). <http://www.sas.rochester.edu/lin/joycemarymcdonough/htouym-june2015.pdf>.

J McDonough, January 2016. How to put together a Navajo verb. Video. Youtube.

J. McDonough, & J. Lachler, 2011 *The Toy Game: a technique for collecting natural conversation and prosody in the field*.

RECENT  
INVITED TALKS  
AND  
WORKSHOPS

*SSILA, Symposium in Honor of for Emmon Bach*. Young and Morgan's *The Navajo Language*. LSA, Washington DC, January 2016.

*TOPIQQ* (Volkswagon Foundation) w M Schellenberg. Dene Tone. Glasgow, August 2015.

*Workshop on System Typology*. ALT11, University of New Mexico, August 2015.

*Quantitative Morphology Meeting*. University of Belgrade, July 2015.

Dene morphology and the role of paradigms: processing and representation. *Dene Verb Paradigm Workshop*, University of Toronto, September 22-24, 2014.

The Dene verb again, again. *Emmonfest*. Festschrift for Emmon Bach, Goethe University, Frankfurt. June 2014.

Dene Speech Atlas. *Symposium on Linguistics and the Native Languages of the Ameri-*

cas. Rochester Institute of Technology. March, 2014.

What phonetics can tell us about morphological structure. *18th Workshop on Structure and Constituency in the Languages of the Americas* (WSCLA 18), UC Berkeley, April 2013.

Workshop. Dene Speech Atlas. *World Oral Literature Project*, Cambridge University, CRASSH, June 2012.

Workshop. *Prosody in the Wider World (ProWW)*, University of Cologne, May 2012.

Linguistic Diversity, Cultural Identity and the Role of Small Communities. Rochester Institute of Technology, *Conable Distinguished Lecture Series in International Studies*, May 2012.

Paradigmatic variation in Dene verbal morphology. Carleton University, Ottawa. March 2011.

The Athabaskan tonogenesis hypothesis. University of Chicago, May 2010.

Morphology/phonology interface in the Dene verb. *Workshop on the Interface between Syntax and Phonology/Morphology*, Syracuse University, April 2010.

Language documentation: Experimental and instrumental data collection in the field, Special session on language documentation, LSA, Baltimore, 2010.

Word and paradigm analysis of the Dene verb as a lexical compound. Linguistics Department, University of Alberta, Edmonton, March 2009.

The structure of the Dene verb. Linguistics Program, University of Montana, Missoula, February 2009.

A re-analysis of the aspirated affricate contrast in the Dene languages. Linguistics Program, University of Montana, Missoula, February 2009.

Rhythm in speech. With Harold Danko, Provost's Seminar, University of Rochester. December, 2008

Speech Cadence of Armstrong and Morton. With Harold Danko, *Mannes Institute for Advanced Studies in Music Theory*, June 2008.

Speech Cadence as Gesture. With Harold Danko, *Universitat de Autònoma de Barcelona*, April 2008.

The Athabaskan lexicon: the sound grammar and the role of paradigms in polysynthesis. University of New Mexico, March 2005. **LSA** 2004, Tutorial on Phonetics, special session.

Connections between music and language: prominence and meter in language *Music Cognition Seminar*, Eastman School of Music, November 2002.

Mini-course on Navajo phonetics and phonology, Department of Theoretical and Applied Linguistics, University of Edinburgh, April 2001.

CONFERENCES

- J McDonough (2014) Modeling the polysynthetic verb. *The 9th International Conference on the Mental Lexicon*, Niagara on the Lake, September, 2014.
- JM McDonough, L Carney (2014) The pre-lexicon: the coding of vowel contrasts in mid-brain input to the cortex. *The 9th International Conference on the Mental Lexicon*, Niagara on the Lake, September, 2014
- LH, Carney, KS Abrams, JM McDonough, DM Schwarz, and F Idrobo. (2014) Formant-frequency discrimination for synthetic single-formant vowel-like sounds: Comparison of budgerigar and human thresholds, *Association for Research in Otolaryngology*.
- LH Carney, T Li, JM McDonough. (2013) Amplitude-modulation tuning in the auditory midbrain provides a robust mechanism for vowel coding, *Soc. for Neuroscience*.
- LH Carney, T Li, JM McDonough. (2013) Using a computational model for the auditory midbrain to explore the neural representation of vowels. *Proceedings, Acoustical Society of America and International Congress on Acoustics, Montreal*. JASA 2013;133(5):3245.
- JM McDonough, J O'Loughlin. (2013) An investigation of the three tone system in Tsuut'ina (Dene). *Acoustical Society of America and International Congress on Acoustics, Montreal*. JASA 2013;133(5):3245.
- JM McDonough. (2013) The areal properties of tone in the Mackenzie Basin Dene (Athabaskan) languages. *Conference on Language Documentation and Conservation, University of Hawai'i*.
- K Bixby, E Marvin, JM McDonough. (2012) Musical Effects of Perceptual Grouping. 11th Annual Auditory Perception, Cognition and Action Meeting (APCAM 2012) Minneapolis.
- LH Carney; JM McDonough. (2012) Neural representations of vowels and vowel-like sounds. *Acoustic Society of America (ASA) Hong Kong*. *Acoust. Soc. Am.* 131, 3309.
- K Carbary; C Gunlogson; JM McDonough, A Fazlipour; S Glacken; R Goldstein; M Tanenhaus. (2011) Deaccenting in Language Comprehension: a Phonemic Restoration Study. *Experimental and Theoretical Advances in Prosody2, Montreal*. Talk.
- JM McDonough. (2011) The Speech Atlas of the Mackenzie Basin Dene: language conservation and identity in the Mackenzie Basin. *Conference on Language Documentation and Conservation, University of Hawai'i*.
- JM McDonough, P Platero. (2011) Parsimonious Intonation: an AM analysis of intonational events in Navajo, *LSA Pittsburgh*.
- JM McDonough. (2010) Reconsidering Dene tonogenesis. *Workshop on Phonetic Universals, Max Plank, Leipzig*.
- K Iskarous, JM McDonough, DH Whalen. (2010) A gestural account of velar contrast in a coronal heavy inventory: the back fricatives in Navajo. *12th Conference on Laboratory Phonology, Talk*.
- H Lehnert-Lehoullier, JM McDonough. (2010) Prosody Ultrasound. *12th Conference on Laboratory Phonology. Poster*.
- JM McDonough, B Tucker. (2010) Experimental field phonetics: Replicating Goddard's

1905 kymographic study of the sounds of Dene Suline. LSA, Baltimore.

JM McDonough, H Leherter-LeHouillier, N Bardhan. (2009) The perception of nasalized vowels in American English: an investigation of on-line use of vowel nasalization in lexical access. Nasal 2009, Workshop, Montpellier France.

JM McDonough, J Lachler, S Rice. (2009) The phonetics of the aspirated affricates in the Dene languages. LSA, San Francisco.

H Lehnert-LeHouillier, JM McDonough, S McAleavey. (2009). What is the domain of domain initial strengthening? An ultrasound study. LSA San Francisco.

M Jacob, H Lehnert-LeHouillier, S Bora, S McAleavey, D Dialecki, JM McDonough. (2008) Speckle Tracking for the Recovery of Displacement and Velocity Information from Sequences of Ultrasound Images of the Tongue. International Seminar on Speech Production, Strasbourg, France.

JM McDonough, R Baier. (2008) Stress, tone and intonation in Sherpa (Sino-Tibetan). Experimental and Theoretical Advances in Prosody, Cornell University.

JM McDonough, H Danko. (2008) Speech Cadence as Gesture. Empirical Approaches to Speech Rhythm. University College, London, England.

M Berger, M Clayards, N Bardhan, JM McDonough. (2006) An automated measure of nasality over time in vowels. ASA. 119 (5), 3338 (A).

JM McDonough, R Baier, M Gregory. (2006) Sherpa tone. LSA.

JM McDonough; S Rice and V Wood. (2005) The persistence of fine grained phonetic detail across the Athabaskan languages. LSA. (Linguistic Society of America).

JJ Diehl, D Watson, JM McDonough, C Gunlogson, EC Young, L Bennetto. (2005) Acoustic and Perceptual Analysis of Prosody in Autism. International Meeting For Autism Research, Boston, MA.

JM McDonough. (2004) The differentiation of lexical and postlexical processes in the evolution of the grammatical category "word". Evolution of Language, Max Plank Institute, Leipzig.

JM McDonough. (2004) The function of stem prominence in Athabaskan. Berkeley Linguistics Society.

JM McDonough. (2004) A preliminary methodology for the investigation of speaker's knowledge of structure in Athabaskan. Berkeley Linguistics Society.

K Iskarous, JM McDonough. (2003) An Ultrasound study of the back fricatives in Navajo. Texas Linguistic Society.

## ONGOING WORK

### Language Documentation and Phonetic Field Studies

#### Dene Speech Atlas

An online speech atlas that provides a baseline description of the phonetic structure of five Dene languages in the Mackenzie River Drainage as the languages are spoken in the individual Dene communities. Ongoing. A second aim is construction of a database of spoken word for a Pan Athabaskan Comparative Lexicon Project (PACL) at UAlberta.

#### Dene tone and tonogenesis

Phonetic investigation of tone and prosody in the tonal Dene languages.

#### Dene verbal morphology

The role of paradigmatic variation in the lexicon. Morphological processing and paradigmatic variation. Sublexical compounds. Morpho-phonetic structure. Phonotactic patterns in the lexicon. Modeling the Dene verb.

### Auditory processing

#### Neural coding of speech in the midbrain

With Laurel Carney, Biomedical Engineering (BME), Neurobiology and Anatomy  
Modeling the auditory nerve's response to vowel sounds, and the relationship between this response and shape of vowel spaces in human language. We are investigating the correlates of the phonetic dimensions of vowel harmonics (rather than formants) to the auditory nerve. The goal: understanding the constraints the biology may impose on the patterns in vowel spaces.

### Music and sound

#### Speech / Music in Noise: Perception of music and language through auditory interference

w/ Elizabeth Marvin (ESM) and Anne Luebke (BME, Neurobiology and Anatomy)  
Researchers with expertise in musical pitch perception (Marvin - ESM), linguistic phonological and phonetic analysis (McDonough - Arts and Sciences), and auditory processing (Luebke - Engineering - Neuroanatomy) to investigate the effects of musical aptitude and training on the detection of linguistic phonemic contrasts, including musical and pitch contrasts, in quiet and with interfering auditory signals such as background noise, in speakers of intonation and tone languages. We will develop new language-in-noise (LINT) tests, incorporating pitch in lexical (tone languages) and post-lexical (intonation languages) processing.

## GRANTS

**NIH** *Auditory Processing of Complex Sounds*. NIDCD-R01- DC001641-24

Role: Co-I

PI: Laurel Carney, University of Rochester

Modeling coding of vowels and vowel like sounds in the auditory pathway and midbrain.

**Volkswagen Foundation, Germany** *ToPIQQ Tonal Placement - Interaction of Quantitative and Qualitative Factors*

Role: co-PI

Co-ordinator: Martine Grice, University of Cologne, Germany

International collaborative project to study and model the alignment of pitch and tone using field data from under documented languages

**NSF-DEL** *Documentation and Analysis of Stress and Prosody in Blackfoot (Algonquian)*



[bla].

Role: Consultant

PI: Mizuki Miyashita, Linguistics Program, University of Montana

GRANTS (PAST)

**Provost's Multidisciplinary Award.** University of Rochester.

*Perception of Music and Language through Auditory Interference.* with Elizabeth Marvin, and Anne Luebke. 2011-2013

**NSF 1103829** *Workshop and Training for Undergraduates in Field Linguistics*

Role: PI

2011-2013

**NSF 0853929** *An Online Speech Atlas of the Dene Languages of the Mackenzie River Basin*

Role: PI

2009-2013

**NSF 9973765** *Phonetic Study of Navajo*

1999-2001

Role: PI

Monograph and methodology for an instrumental phonetic description and documentation of the sound patterns in Navajo.

**NIH** *Time Course of Spoken Word Recognition.*

2007-2011

Role: co-PI

PI: M. Tanenhaus

Investigation of online speech processing and prosody using the eyetracker.

**NIH** Training grant. *Research Training in the Language Sciences.*

Role: Preceptor

2007-2013

PI: M. Tanenhaus

Interdisciplinary training program for Postdocs and graduate students in the *Center for the Language Sciences* (Computer Science, Linguistics, Brain and Cognitive Sciences, Philosophy)

SERVICE

Audit Committee. Linguistic Society of America

2010-2013

APPOINTMENTS

Program Committee, *13th Conference on Laboratory Phonology*,  
Stuttgart, Germany

July, 2012

EXTERNAL

Organizing Committee, *12th Conference on Laboratory Phonology*,  
Albuquerque, New Mexico

June, 2010

Linguistic Society of America, SIG (Special Interest Group) Phonetic Fieldwork.

2010

Linguistic Society of America, Endangered Languages Committee

2005-2008

American Association of University Women (AAUW), *Women Helping Girls*

2004-2012

Breast Cancer Coalition of Rochester, Research Review Board

2014

SERVICE

Library Advisory Committee

2014-2015

APPOINTMENTS

Co-Chair, Faculty Senate

elected, 2012-13

INTERNAL

Council of Chairs Executive Committee

elected, 2012-13

(UNIVERSITY OF

Committee for Tenure and Promotion

2008-2016

ROCHESTER)

Faculty Senate Executive Committee

elected, 2007-2009, 2011-13

Faculty Senate

elected, 2006-2009, 2011-13

Executive Committee, *Music Cognition Symposium*

2003 - present

Decanal Review Committee, College of Arts, Sciences and Engineering

2010

College Steering Committee: Sound and Music Initiative

2007 - present

Provost's Mutlidisciplinary Advisory Committee

winter 2008

Susan B Anthony Institute for Women and Gender Studies	
Faculty Associate	1999-present
Curriculum Committee	1999-2005
Curriculum Director	2002-2004

HONORS AWARDS	Rockefeller Foundation Fellowship, Bellagio, Italy	July - August 2001
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EDITING AND REVIEWING	<i>Journal of Autism and Developmental Disorders</i> <i>Experimental and Theoretical Advances in Prosody (ETAP) 2</i> <i>12th Conference on Laboratory Phonology</i> <i>Phonology</i> <i>Journal of Phonetics</i> <i>Journal of the International Phonetic Association</i> <i>International Journal of American Linguistics</i> NSF, Linguistics Program North East Linguistic Society (NELS) West Coast Conference on Formal Linguistics (WCCFL) Guest editor: <i>Journal of Phonetics</i>
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ORGANIZATIONS	Acoustical Society of America (ASA) Linguistic Society of America (LSA) Society for Music Perception and Cognition (SMPC) International Phonetic Association (IPA) Society for the Study of the Languages of America (SSILA) Montana Native Plant Society
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