

## **LUKE S. PREMO, Ph.D.**

Short Vitae (July 2015)

Assistant Professor  
Department of Anthropology  
Washington State University  
Pullman, WA 99164-4910  
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### **POSITIONS HELD**

2011 – present: Assistant Professor, Department of Anthropology, Washington State University  
2011 – present: Affiliated researcher, Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany  
2006 – 2010: Postdoctoral researcher, Department of Human Evolution, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany

### **EDUCATION**

2001 – 2006: University of Arizona, Anthropology, PhD, August 2006  
1999 – 2001: University of Arizona, Anthropology, MA, May 2001  
1995 – 1999: Colorado State University, Anthropology, BA, May 1999

### **RESEARCH INTERESTS**

- Evolutionary anthropology
- Cultural transmission theory
- Cultural evolution and diversity
- Structured populations
- Multi-level selection and the evolution of altruism
- Gene-culture coevolution
- Life history
- Agent-based and mathematical simulation of hominin behavior, genetics, and archaeology
- Spatially explicit evolutionary models

### **TEACHING**

#### **Washington State University, Department of Anthropology (2011-)**

Instructor

- Anth 101, General Anthropology (5)
- Anth 260, Introduction to Physical Anthropology (4)
- Anth 490, Integrative Themes in Anthropology: Evolution of Cooperation in Humans (2)
- Anth 465/565, Human Evolution (2)
- Anth 547, Models and Simulation in Anthropology (2)
- Anth 548, Hunters and Gatherers: Past and Present (1)
- Anth 562, Evolutionary Method and Theory in Anthropology and Archaeology (1)

#### **Centre for the Evolution of Cultural Diversity, University College London (2010)**

Instructor, AHRC CECD Summer School

- Modeling spatial diffusion and dispersal processes in social science (with Anne Kandler)

#### **Max Planck Institute for Evolutionary Anthropology (2009-2010)**

Lecturer, Leipzig School of Human Origins

- Introduction to Agent-based Modeling (1, with Volker Grimm)
- Time-averaging Seminar (1)

#### **University of Arizona, Department of Anthropology (2000-2006)**

Instructor

- Trad 104, Origins of Human Diversity (3)
- Anth/Ecol 597M, Agent-based Modeling in the Biological and Social Sciences (1, with J. Pepper)

## **PUBLICATIONS**

### **a) Peer-reviewed journals**

**Premo, L. S.** (2014) Cultural transmission and diversity in time-averaged assemblages. *Current Anthropology* 55(1):105-114.

**Premo, L. S.** (2013) What serves as evidence for the presence (or absence) of Pleistocene language? *Journal of Anthropological Sciences* 91:257-259.

Kachel, A. F. and **L. S. Premo** (2012) Disentangling the evolution of early and late life history traits in humans. *Evolutionary Biology*: 39:638-649.

**Premo, L. S.** (2012) Hitchhiker's guide to genetic diversity in socially structured populations. *Current Zoology* 58:287-297.

**Premo, L. S.** (2012) Local extinctions, connectedness, and cultural evolution in structured populations. *Advances in Complex Systems* 15:1150002:1-18.

**Premo, L. S.** (2012) The shift to a predominantly logistical mobility strategy can inhibit rather than enhance forager interaction. *Human Ecology* 40:647-649.

Kachel, A. F., **L. S. Premo**, and J-J. Hublin (2011) The effects of weaning age on length of female reproductive period: Implications for the evolution of human life history. *American Journal of Human Biology* 23:479-487.

Kachel, A. F., **L. S. Premo**, and J-J. Hublin (2011) Grandmothering and natural selection revisited. *Proceedings of the Royal Society, B* 278:1939-1941.

Kachel, A. F., **L. S. Premo**, and J-J. Hublin (2011) Grandmothering and natural selection. *Proceedings of the Royal Society, B* 278:384-391.

**Premo, L. S.** and J. B. Scholnick (2011) The spatial scale of social learning affects cultural diversity. *American Antiquity* 76:163-176.

**Premo, L. S.** and S. L. Kuhn (2010) Modeling effects of local extinctions on culture change and diversity in the Paleolithic. *PLoS ONE* 5(12): e15582.

**Premo, L. S.** and J-J. Hublin (2009) Culture, population structure, and low genetic diversity in Pleistocene hominins. *Proceedings of the National Academy of Science USA* 106(1):33-37.

Bezanson, M. F., P. Garber, J. T. Murphy, and **L. S. Premo** (2008) Patterns of Subgrouping and Spatial Affiliation in a Community of Mantled Howling Monkeys (*Alouatta palliata*). *American Journal of Primatology* 70:282-293.

**Premo, L. S.** (2004) Local spatial autocorrelation statistics quantify multi-scale patterns in distributional data: an example from the Maya Lowlands. *Journal of Archaeological Science* 31(7):855-866.

### **b) Peer-reviewed book chapters**

Tennie, C., D. Braun, **L. S. Premo**, and S. McPherron (in press) The Island Test for cumulative culture in the Paleolithic. In *The Nature of Culture*, edited by M. Haidle, N. Conard, and M. Bolus for the *Vertebrate Paleobiology & Paleoanthropology* series by Springer Press, Berlin.

**Premo, L. S.** (2015) Mobility and cultural diversity in central-place foragers: Implications for the emergence of modern human behavior. In *Learning Strategies and Cultural Evolution during the Palaeolithic*, edited by Alex Mesoudi and Kenichi Aoki, pp. 45-65. Springer Press, Tokyo.

**Premo, L. S.** (2013) Multilevel selection and the evolution of food sharing in fragmented environments: A spatially explicit model and its implications for Early Stone Age behavior. In *Computational Approaches to Archaeological Spaces*, edited by A. Bevan and M. Lake, pp. 127-150. Left Coast Press, Walnut Creek.

**Premo, L. S.** (2010) On the role of agent-based modeling in post-positivist archaeology. In *Simulating Change: Archaeology into the 21st Century*, edited by A. Costopoulos and M. Lake, pp. 28-37. University of Utah Press, Salt Lake City.

**Premo, L. S.** (2007) Exploratory Agent-based Models: Towards an Experimental Ethnoarchaeology. In *Digital Discovery: Exploring New Frontiers in Human Heritage*, edited by J. T. Clark and E. M. Hagemester, pp. 29-36. CAA 2006. Computer Applications and Quantitative Methods in Archaeology. Archeolingua Press, Budapest.

**Premo, L. S.** (2005) Patchiness and Prosociality: An Agent-based Model of Plio/Pleistocene Hominid Food Sharing. In *Multi-Agent and Multi-Agent-Based Simulation*, edited by P. Davidsson, K. Takadama, and B. Logan, pp. 210-224. Lecture Notes in Artificial Intelligence, Volume 3415. Springer-Verlag, Berlin.

### **c) Non-refereed publications**

**Premo, L. S.** (2008) Exploring behavioral *terra incognita* with archaeological agent-based models. In *Beyond Illustration: 2D and 3D Technologies as Tools of Discovery in Archaeology*, edited by B. Frischer and A. Dakouri-Hild, pp. 46-56. British Archaeological Reports International Series 1805. ArchaeoPress, Oxford.

**Premo, L. S.**, and J. B. Mabry (2008) Modeling Landscape Use by Early Farmer-Collectors in the Tucson Basin: A GIS Approach. In *Las Capas: Early Irrigation and Sedentism in a Southwestern Floodplain*, edited by J. B. Mabry, pp. 283-292. University of Arizona Press, Tucson.

**Premo, L. S.** (2006) Agent-based models as behavioral laboratories for evolutionary anthropological research. *Arizona Anthropologist* 17:91-113. (Edward P. Dozier Award-winning paper)

**Premo, L. S.**, J. T. Murphy, J. B. Scholnick, B. M. Gabler, and J. Beaver (2005) Making a Case for Agent-based Modeling. *Society for Archaeological Sciences Bulletin* 28(3):11-13.

### **SUBMITTED MANUSCRIPTS**

**Premo, L. S.** (under review) Cultural evolution and effective population size. *American Antiquity*.

### **DISSERTATION, THESIS, AND TECHNICAL REPORTS**

**Premo, L. S.** (2006) Patchiness and Prosociality: Modeling the Evolution and Archaeology of Plio-Pleistocene Hominin Food Sharing. Ph.D. Dissertation, Department of Anthropology, University of Arizona. University Microfilms, Ann Arbor.

**Premo, L. S.** (2001) A Predictive Model of Late Archaic Period Site Locations in the Tucson Basin. Unpublished MA Thesis, Department of Anthropology, University of Arizona. University Microfilms, Ann Arbor.

**Premo, L. S.** and J. L. Eighmy (1997) A Reanalysis of Archaeomagnetic Samples Collected for the Mimbres Foundation Project. Colorado State University Archaeometric Laboratory, Technical Series, No. 10. Fort Collins, Colorado.

#### **PUBLISHED ABSTRACTS**

**Premo, L. S.** (2102) Energetics, power laws, and Paleolithic mobility. *American Journal of Physical Anthropology* 147(S54):239-240.

Kachel A. F., **L. S. Premo**, and J-J. Hublin (2010) Grandmothering and the strength of selection. *American Journal of Physical Anthropology* 141(S50):138.

**Premo, L. S.** and Jean-Jacques Hublin (2008) Culturally mediated migration lowers genetic diversity: A metapopulation model with implications for modern humans, Neandertals, and their common ancestor. *PaleoAnthropology* A24-25.

#### **PROFESSIONAL CONFERENCE/WORKSHOP PRESENTATIONS**

**Premo, L. S.** (2015) Mobility and Cultural Diversity in Central-Place Foragers: Implications for the Emergence of Modern Human Behavior. Paper presented at the 80<sup>th</sup> Annual Meeting of the Society for American Archaeology, San Francisco, April 17, 2015.

Tostevin, G. and **L. S. Premo** (2015) The “Taskscape” and its Effects on Cultural Diversity: A Spatially Explicit Model of Mobility and Cultural Transmission. Paper presented at the 80<sup>th</sup> Annual Meeting of the Society for American Archaeology, San Francisco, April 17, 2015.

Fisher, P. and **L. S. Premo** (2015) A Spatially Explicit Model of Lithic Raw Material Composition in Archaeological Assemblages. Invited paper in the “Simulating social complexity to understand the archaeological past” symposium at the 80<sup>th</sup> Annual Meeting of the Society for American Archaeology, San Francisco, April 16, 2015.

Miller-Atkins, G. and **L. S. Premo** (2015) Local extinctions, cultural transmission, and the appearance of modern human behavior in the Paleolithic. Poster presented at the 3<sup>rd</sup> Annual Northwest Evolution, Ecology, and Human Behavior Symposium, Boise, Idaho, April 10-12, 2015.

Black, V., B. McIntosh, and **L. S. Premo** (2015) Exploring the effects of population size on cumulative adaptive cultural evolution. Poster presented at the 3<sup>rd</sup> Annual Northwest Evolution, Ecology, and Human Behavior Symposium, Boise, Idaho, April 10-12, 2015.

Tostevin, G. and **L. S. Premo** (2015) Taskscape visibility and its effects on cultural transmission across a landscape. Paper presented at the “Early Upper Paleolithic Landscapes” Workshop, University of Cambridge, March 15-17.

**Premo, L. S.** (2014) Cultural transmission and diversity in time-averaged assemblages. Invited paper in the “Current Research in Evolutionary Archaeology” symposium at the 79th Annual Meeting of the Society for American Archaeology, Austin, TX.

Kuhn, S. L., W. R. Haas, and **L. S. Premo** (2014) Are individual mobility patterns emergent from resource distributions? A modeling approach. Invited paper in the “Moving on: Archaeological Perspectives on Human Mobility” symposium at the 79th Annual Meeting of the Society for American Archaeology, Austin, TX.

**Premo, L. S.** (2012) Investigating the appearance of behavioral modernity with models of cultural evolution in structured populations. Invited paper in session entitled “A sum greater than its parts: Multi-disciplinary perspectives on later human evolution” at the Annual Meeting of the American Anthropological Association, San Francisco.

**Premo, L. S.** (2012) Energetics, power laws and Paleolithic mobility. Poster presented at the Annual Meeting of the American Association of Physical Anthropologists. Portland, OR.

Kachel A.F., **L. S. Premo**, and J-J. Hublin (2011) Can an increased longevity evolve via grandmothering despite the tradeoff between fertility and adult mortality? Poster presented at the 6th annual conference of the European Human Behaviour & Evolution Association, Gießen, Germany.

**Premo, L. S.** (2010) Resilience, connectedness, and cultural evolution in structured populations. Invited paper presented at AHRC Centre for the Evolution of Cultural Diversity conference, “Cultural Evolution in Spatially Structured Populations,” at University College London, UK.

Kachel, A. F. and **L. S. Premo** (2010) Natural selection, length of the reproductive period, and weaning age: Implications for the evolution of human life history. Poster presented at the 5th annual conference of the European Human Behaviour & Evolution Association, Wrocław, Poland.

**Premo, L. S.** (2009) Culturally mediated migration lowers genetic and cultural diversity. Invited paper presented at COST workshop, “Anthropology and Physics: Prospects and Challenges,” at the University of Durham, UK, organized by Alex Bentley.

Kachel, A. F., **L. S. Premo**, and J-J. Hublin (2009) Do Helpful Grandmothers Account for the Evolution of the Postmenopausal Lifespan? Poster presented at the 4th annual conference of the European Human Behaviour & Evolution Association, St. Andrews.

**Premo, L. S.** and J-J. Hublin (2008) Culturally mediated migration lowers genetic diversity: A metapopulation model with implications for modern humans, Neandertals, and their common ancestor. Poster presented at the Annual Paleoanthropology Society Meeting, Vancouver.

**Premo, L. S.** (2008) Routed foragers, favored loci, and environmental fragmentation: An agent-based model of Type C assemblage formation. Invited paper presented in the “Parallel Worlds: Interdisciplinary Agent-based Models of Socioecological Processes and Complexity” symposium at the 73rd Annual Meeting of the Society for American Archaeology, Vancouver.

**Premo, L. S.** (2007) Multilevel selection and the evolution of hominin food sharing in a fragmented environment. Invited paper in session called, “Human Paleoecology: New Advances,” at the 2nd Cátedra Atapuerca International Seminar, Burgos.

**Premo, L. S.** (2007) Equifinality and explanation: Thoughts on the role of agent-based modeling in post-positivist archaeology. Long Paper presented at the 2007 Computer Applications and Quantitative Methods in Archaeology Conference, Berlin.

**Premo, L. S.** (2006) Towards an Experimental Ethnoarchaeology: Agent-based Models as Cultural Laboratories. Long Paper presented at the 2006 Computer Applications and Quantitative Methods in Archaeology Conference, Fargo.

**Premo, L. S.** (2005) SHARE: an Agent-based Model of Plio-Pleistocene Hominin Food Sharing. Poster presented at the 17th Annual Meeting of the Human Behavior and Evolution Society, Austin.

**Premo, L. S.** (2004) Quantifying multi-scale patterns in archaeological data with local spatial autocorrelation statistics: examples from the southern Maya Lowlands and simulated East African savannas. Poster presented at the 1st Archaeological Sciences of the Americas Symposium, Tucson.

**Premo, L. S.** (2004) Patchiness and Prosociality: An Agent-based Model of Plio/Pleistocene Hominin Food Sharing. Paper presented at the 2004 Joint International Workshop on Multi-Agent and Multi-Agent-Based Simulation, New York.

**Premo, L. S.** (2004) Local Spatial Statistics and Terminal Monument Dates: A New Quantitative Method Yields Refined Hypotheses. Poster presented at the 69th Annual Meeting of the Society for American Archaeology, Montreal.

**Premo, L. S.** (2002) Using GIS to Predict Late Archaic Period Site Locations in the Tucson Basin, Southern Arizona. Poster presented at the 67th Annual Meeting of the Society for American Archaeology, Denver.

Lansing, J. S., C. Langton, J. Gulick, R. Carter, J. Murphy, and **L. S. Premo** (2001) Emergence of Cooperation from Human-Environmental Interactions. Poster presented at the National Science Foundation Biocomplexity Meeting, Washington, D.C.

**Premo, L. S.** and J. B. Mabry (2001) Modeling Landscape Use by Early Farmer-Foragers in the Tucson Basin: A GIS Approach. Poster presented at the 66th Annual Meeting of the Society for American Archaeology, New Orleans.

Heilen, M. P., **L. S. Premo**, and S. L. Kuhn (2001) Of Points and Pixels: Digital Image Software and Its Role in the Search for Standardization among Snaketown Ceremonial Projectile Points. Paper presented (by Premo) at the 66th Annual Meeting of the Society for American Archaeology, New Orleans.

**Premo, L. S.** (2000) A Reanalysis of Archaeomagnetic Samples Collected for the Mimbres Foundation Project Provides an Opportunity to Explore Southwest Master Curve Precision and Accuracy. Poster presented at the 65th Annual Meeting of the Society for American Archaeology, Philadelphia.

#### **ORGANIZED SYMPOSIA**

**Premo, L. S.** and R. Alex Bentley (2015) Co-organizers and co-chairs of double session entitled, “Evolutionary Theory and Archaeology, Part I: Cultural Transmission, Cultural Evolution, and Evolutionary Archaeology” at the 80<sup>th</sup> Annual Meeting of the Society for American Archaeology, San Francisco, April 17, 2015.

**Premo, L. S.** (2007) Organizer and Chair of session entitled, “Agent-based models as computational tools for building archaeological inference,” at the 2007 Computer Applications and Quantitative Methods in Archaeology Conference, Berlin, Germany.

#### **EDITORIAL BOARDS**

*Quantitative Archaeology and Archaeological Modelling* (Springer Press series); *Science and Technology in Archaeological Research*

#### **REVIEWER FOR ACADEMIC JOURNALS AND GRANTING AGENCIES**

*American Antiquity*; *Current Anthropology*; *Current Zoology*; *Human Biology*; *International Journal of Evolutionary Biology*; *Journal of Anthropological Archaeology*; *Journal of Anthropological Sciences*; *Journal of Archaeological Method and Theory*; *Journal of Archaeological Science*; *Journal of Human Evolution*; *Philosophical Transactions of the Royal Society, B*; *PLoS ONE*; *Proceedings of the National Academy of Sciences, USA*; *Proceedings of the Royal Society, B*; *Science and Technology in Archaeological Research*; *Structure and Dynamics*; Social Sciences and Humanities Research Council of Canada; The Leverhulme Trust (UK); US National Science Foundation (archaeology division, biological anthropology division, and cultural anthropology division)