Workshop 1: Multidisciplinary Approaches to the Amazonian Past

Session 1: Tuesday, June 29, 10:00am to 12:00pm
Session 2: Tuesday, June 29, 12:30pm to 2:30pm
*all times are EDT/UTC -4

Organizers / Chairs:
Nicholas Q. Emlen (n.q.emlen@hum.leidenuniv.nl)
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Abstract:
In recent years, a number of new multidisciplinary research collaborations have begun to examine the history of Amazonia in novel ways. These efforts—which bring together the work of linguists, geneticists, cultural anthropologists, historians, archaeologists, geographers, biologists, and others—hold great promise for uncovering new insights about the South American past. In particular, the new era of large datasets and sophisticated quantitative methods has put them on increasingly rigorous scientific footing. However, these collaborations also present a number of methodological and interpretive challenges, including how to weave the findings of such disparate and technical disciplinary perspectives into a single, integrated account. Situating these findings within the robust ethnohistorical literature about South America presents perhaps an even greater challenge. This workshop brings together scholars involved in such multidisciplinary research projects (either as individuals or as representatives of their teams), at any time depth, to consider the possibilities and challenges that such collaborations present. Each paper will be circulated before the workshop.

Abordagens multidisciplinares sobre o passado amazônico

Nos últimos anos, uma série de novas colaborações de pesquisas multidisciplinares começaram a examinar a história da Amazônia a partir de maneiras inovadoras. Esses esforços - que reúnem o trabalho de lingüistas, geneticistas, antropólogos culturais, historiadores, arqueólogos, geógrafos, biólogos e outros - são uma grande promessa para a descoberta de novos insights sobre o passado sul-americano. Em particular, uma nova era de grandes conjuntos de dados e métodos quantitativos sofisticados colocou esse tipo de investigação em bases científicas cada vez mais rigorosas. No entanto, essas colaborações também apresentam uma série de desafios metodológicos e interpretativos, incluindo como entrelaçar as conclusões de tais perspectivas disciplinares técnicas e díspares em uma visão única e integrada. Situar essas descobertas na robusta literatura etno-histórica sobre a América do Sul talvez seja um desafio ainda maior. Este workshop reúne acadêmicos envolvidos em tais projetos de pesquisa multidisciplinares (como indivíduos ou como representantes de suas equipes), lidando com fatos de diferentes

profundidades temporais, para avaliar as possibilidades e desafios que tais colaborações apresentam. Cada artigo que será apresentado será compartilhad entre os participantes antes do workshop.

Abordajes multidisciplinares sobre el pasado Amazónico
En los últimos años, un número creciente de colaboraciones científicas multidisciplinares ha empezado a examinar la historia de la Amazonia de formas novedosas. Estos esfuerzos, los cuales reúnen el trabajo de lingüistas, genetistas, antropólogos culturales, historiadores, arqueólogos, geógrafos, biólogos, y otros; prometen generar nuevas perspectivas sobre el pasado Sudaméricano. Particularmente, la nueva era de macrodatos y sofisticados métodos cuantitativos ha posicionado estos abordajes sobre una base científica cada vez más rigurosa. Sin embargo, estas colaboraciones también presentan varios desafíos metodológicos e interpretativos. Por ejemplo, cómo entretejer los hallazgos de perspectivas disciplinares tan dispares y técnicas en una narrativa única e integrada. Situar estos hallazgos dentro de la robusta literatura etnohistórica de Sudamérica tal vez representa el más grande desafío. Este workshop reúne académicos involucrados en dichos proyectos multidisciplinares (ya sea cómo individuos o representantes de sus respectivos equipos), trabajando en diferentes profundidades temporales, para considerar las posibilidades y desafíos que dichas colaboraciones representan. Cada artículo será circulado antes del workshop.

Presentations:

Session 1:
Tuesday, June 29, 10:00am to 12:00pm

Mark Sicoli, University of Virginia

Convergence science as an approach to multidisciplinary integration: Parallel hybridities in the linguistics and genetics of South American Indigenous peoples

Convergence science brings questions, methods, and findings of multiple disciplines into dialogue, seeking to more holistically approach in integration what cannot be satisfactorily approached through separate disciplines alone. Questions of population history, culture contact, and hybridization are the subject matter of several disciplines providing partial and sometimes conflicting perspectives. Studies of anatomical morphology have claimed evidence for at least two founding populations for Indigenous South Americans, and dental anthropologists have been divided on the question. Reigniting debate, multiple labs working with South American whole genome analysis recently presented evidence for a ghost population termed “Population Y” standing out from the more general Native American population for greater affinity to

Australasians. However, the genetic signal has been questioned as a “false positive” error, potentially an artifact of the statistical analysis. To test whether traces of Population Y could be found in Native American language data this research independently inferred Bayes consensus networks for linguistic typology of genetically-sampled populations, and then overlaid the networks with the statistical indices of biological affinity. Multiple parallels between linguistic hybridity and genetic admixture converge to support the validity of Population Y, and to propose that the biological admixture developed along with the late-Holocene history of language-contact between South American language families. The recency of the hybridizations suggest that traditional historical linguistic research attuned to the question of multiple founders will be important for understanding Population Y, and supports efforts to develop convergence methods where trace evidence from multiple historical sciences are amplified in their integration.

Patience Epps, University of Texas at Austin (lead presenter)
Emily Luedke (co-author)
Karolin Obert (co-author)
Mark Simmons (co-author)

Following the footprints of pre-Columbian trade networks: Linguistic clues from Nadëb

Early colonial records suggest that an extensive trade network linked the two major branches of the Amazon River, the Rio Negro and the Solimões, with the Jurubaxí River and adjacent southern tributaries of the Rio Negro playing a key role as connecting interfluvial routes. The area of the Rio Negro was dominated by Arawakan peoples, most notably the powerful Manao, who controlled the lower to middle reaches of the Rio Negro, as well as by allied groups inhabiting the upper reaches and various tributaries (Sweet 1975, Wright 2005). The Solimões, in turn, was controlled nearly to its mouth by the Tupi-Guaranian Omagua and Yurimagua peoples. However, the degree to which these exchange networks incorporated local peoples is not well understood, and most of the groups involved had already been decimated and absorbed into the local caboclo population by the mid-18th century, in the wake of epidemics, slaving, and wars of extermination carried out by the Portuguese. Similarly, the majority of the languages once spoken throughout this region have had no speakers for centuries, and disappeared with no or minimal documentation. A key exception is the Nadëb, a people who still inhabit the interfluvial zone in the region of the Jurubaxí and neighboring rivers, and whose language belongs to the Naduhup family, associated with forest-dwelling hunters throughout the region. In this paper, we draw on our current work with Nadëb to consider linguistic clues to their role as intermediaries in past systems of exchange, informed by triangulation with historical and ethnohistorical evidence. As we explore, indications of extensive lexical and grammatical borrowing from Tupi-Guaranian and Arawakan sources suggest that the Nadëb were deeply involved in local networks, and provides further insights into the dynamics of those networks themselves.

Luís Cayón (lead presenter)
Thiago Chacon, Universidade de Brasília (co-author)

Abordagens lingüísticas, arqueológicas e etnológicas sobre a história do sistema regional multilíngue e interétnico do Alto Rio Negro

The Alto Rio Negro multiethnic and multilingual regional system is made up of more than thirty languages from the Eastern Tukano, Arawak, Nadahup, Kakua-Nɨkak, Karib (Carijona) and Tupi-Guarani (Nheengatu) language families. This regional diversity is based on long-lasting socio-historical processes, for at least two millennia, which allowed the construction of a system with unique characteristics in the Amazon context. In this regional system, there are currently different levels of autonomy and hierarchy associated with a mythical and ritual complex, and with social and linguistic exchanges and interactions. The analysis of this formative process needs an interdisciplinary look that allows to clarify the ways in which people from different linguistic families interacted and originated this system. To this end, we seek to articulate the views of historical linguistics on the interactions between the peoples speaking Eastern Tukano, Arawak, Nadahup and Kakua-Nɨkak languages, with some ethnological analyzes on the structural functioning of this sociolinguistic system and with the data from archaeological research in the Amazon Central and on the Caquetá River, which bears evidence of the interaction of ceramic phases and different forms of settlement at the time when hierarchical structures and landscape manipulation in the Rio Negro were emerging.

Parker VanValkenburgh, Brown University (lead presenter)
Courtney Shadik (co-author)
Carol Rojas Vega (co-author)
Alexis Reategui Diaz (co-author)
Mark Bush (co-author)
Daniel Plekhov (co-author)
Bethany Whitlock (co-author)

Examining Long-term Histories of Land Use in Peru's Chachapoyas Region

Recent archaeological and paleoecological fieldwork in the Chachapoyas region of Amazonas, Peru, demonstrates deep histories of deforestation and agriculture stretching back up to 6000 years. In this paper, we discuss the potentials and challenges of bringing together the interpretation of lake core records with excavations of archaeological sites and terraced landscapes, including Optically Stimulated Luminescence dating and topographic modeling. Based on indirect evidence obtained from lake cores and excavations, we suggest that portions of the Chachapoyas region were extensively terraced as early as 2000 years ago, rather than the

more conventionally accepted hypothesis that much of the region's landscape modification occurred after 1100 CE.

Session 2:

Tuesday, June 29, 12:30pm to 2:30pm

Leonardo Arias Alvis, Leiden University Centre for Linguistics (lead presenter)
Nicholas Q. Emlen (co-author)
Sietze Norder (co-author)
Nora Julmi (co-author)
Magdalena Lemus Serrano (co-author)
Thiago Chacon, Universidade de Brasília (co-author)
Jurriaan Wiegertjes (co-author)
Austin Howard (co-author)
Rik van Gijn (co-author)

Interpreting mismatches between linguistic and genetic patterns among speakers of Tanimuka (Eastern Tukanoan) and Yukuna (Arawakan)

The Miriti-Parana and Apaporis valleys of Southern Colombia present an interesting example of mismatching linguistic and genetic patterns. Here, speakers of Tanimuka (Eastern Tukanoan) and Yukuna (Arawakan) live side-by-side, and these languages have undergone notable contact effects. Genome-wide SNP data reveals a history of extensive contact between both groups, to the extent that Tanimuka's genetic profile is more similar to that of Yukuna than to other Eastern Tukanoan groups. Our presentation explores some explanations for this mismatch between the linguistic and genetic data. One possibility is that today's Tanimuka speakers descend from an Arawakan group related to Yukuna, and that they adopted an Eastern Tukanoan language more recently. Another possibility is that Tanimuka speakers descend from Eastern Tukanoans, but that extensive intermarriage with Yukuna speakers resulted in their notable resemblances in language, culture, and genetic structure. We propose some methods for testing each of these hypotheses on the basis of linguistic and genetic data, which is an important step towards understanding the complex population dynamics that have taken place in the region. We present this as a test case for a broader analysis of the Upper Amazon, and as a demonstration of the challenges and opportunities that arise from multidisciplinary collaborations.

Marine Vuillermet, University of Zürich (lead presenter)
Natalia Chousou-Polydouri (co-author)
Kellen Parker van Dam (co-author)
David Inman (co-author)
Shelece Easterday (co-author)
Françoise Rose (co-author)
Balthasar Bickel (co-author)

Mapping linguistic areas: a preliminary case study in Amazonia

Both the large number of new grammars published in the past 20 years and better access to now digitized older literature offer a great opportunity to investigate and re-evaluate linguistic areas in the world. Part of a larger interdisciplinary project on the history of the Americas, this study focuses on Amazonia. Our quantitative approach aims at discovering linguistic areas taking into account multiple independent typological features. Our dataset is based on a fine-grained survey of both well-established and more recently identified typological features with areal potential. It includes a variety of phonological features (e.g. ejectives, tone, syllable structure), as well as morphosyntactic features (SG-PL stem alternation, apprehensional morphology, demonstratives, personal pronouns). Our genetically and geographically balanced language sample covers 101 South American languages (38 families and 20 isolates). For the quantitative analysis, we use a geographically informed Bayesian clustering approach to find linguistic areas in Amazonia. In contrast to simple clustering, this approach also controls for possible confounding effects due to inheritance and universal preference (features being similar due to being globally common). Our results offer an additional line of evidence to understand the complex contact history of Amazonia, and complements genetic, archaeological, and cultural data.

Konrad Rybka, Leiden University

The potential of multidisciplinary research to decolonize indigenous contributions to science

Recently, a number of collaborations have begun to examine the history of Amazonia, often driven by the promise of reaching new levels of knowing by reassembling information across various disciplines and the development of new quantitative methods to analyze big data. Such research, while challenging, has a great potential to illuminate the history of Amazonia, but it is also an opportunity to decolonize a significant part of our scientific legacy and practices. The rub is that indigenous experts have shared their knowledge with specialists from different fields; a community might even prefer that specific members, often an elder, work with linguists or botanist, lest indigenous knowledge should be represented inadequately. Yet, while modern academia expects, values, and benefits from such pan-disciplinary knowledge, it also continues to segment it into discipline-sized bits fed into the respective fora, running the risk of failing to

properly acknowledge the work of indigenous experts across disciplinary divides. As a result, their contribution becomes fragmented and effectively erased through a form of what Enrique Galván-Álvarez (2010, 12) calls “epistemic violence, that is, violence exerted against or through knowledge”. I discuss this process using the example of Johannes Karwafodi—an early 20th century Lokono expert who worked with linguists, botanists, zoologists, and anthropologists—to suggest that the current bridging of disciplinary divides by multidisciplinary teams offers an opportunity to recenter the work of such experts and rethink how indigenous knowledge is represented.

Lev Michael (lead presenter)
Natalia Chousou-Polydouri, University of Zurich (co-author)
Thiago Chacon (co-author)
Fernando O. de Carvalho (co-author)
Gereon Kaiping (co-author)
Konrad Rybka (co-author)
Andrés Sabogal (co-author)

Interpreting the archaeological record to calibrate Arawakan linguistic phylogenies

The adoption of computational phylogenetic and phylogeographic methods in linguistics has made it possible to develop internal classifications of families with absolute chronologies for splits, as well as quantitatively-grounded proposals for proto-language homelands and migration trajectories. The temporal and geographical specificity of these results bring linguistic results into closer dialogue with those from other fields, such as archaeology and human genetics, and has the potential to contribute significantly to our understanding of the deep social history of regions like Amazonia, where the written historical record and archaeological record are relatively limited. The accuracy of absolute chronologies depends significantly, however, on the ability to calibrate the clock model used in linguistic phylogenetic analyses. This requires restricting the temporal window for some splits in any given tree, which entails relating nodes to independently dated events. In this talk we discuss the use of archaeological findings as the basis for calibration points in developing an absolute chronology for an internal classification of Arawakan and we present a preliminary dated Arawak phylogeny based on a large lexical dataset (65 Arawakan varieties and 850 concepts). In particular, we discuss the importance of identifying plausible connections between the expansions of Arawakan peoples into new areas and the sudden emergence of new ceramic traditions in those areas, and conversely, the use of qualitative estimates of subgroup time-depth to evaluate the plausibility of identifying the emergence of particular traditions with particular subgroups.

Roberto Zariquiey, Pontificia Universidad Católica del Perú (lead presenter)
Matis List, Max Planck Institute for the Science of Human History (co-author)

Pilar Valenzuela, Chapman University (co-author)
Simon Greenhill, Max Planck Institute for the Science of Human History (co-author)
Russell Gray, Max Planck Institute for the Science of Human History (co-author)

Testing new methods for Amazonian phylogenies: a case study on Pano

With some 330 languages corresponding to approximately 75 distinct lineages, Amazonia is one of the most diverse and less studied linguistic regions in the world. Although most language families of Amazonia are widely accepted, they generally lack non-controversial phylogenies. We argue that the real challenge for Amazonian phylogenies comes neither from data accessibility (which is rapidly increasing), nor lineage size (up to 20 Amazonian language families have less than 20 languages), but from the lack of sound archeological record, which is necessary to calibrate phylogenetic analysis based on Bayesian methods (Greenhill et al 2020). Amazonian archeology has achieved significant discoveries that have radically changed our understanding of Amazonian prehistory (Neves 1999), but the intricate relation between the limited archeological evidence available and ethnographic present of Amazonian language families is far for being fully understood (Neves 2011). In this talk, we test a new approach to Amazonian phylogenies conducting a case study on Pano, a well-established language family of Western Amazonia (Peru, Brazil and Bolivia), which comprises roughly 30 extinct and extant languages. Our dataset includes 200-concept Swadesh lists for 24 Pano languages. We present experiments that test the potential of partial cognancy and co-lexification patterns for language subgrouping and implement simulation techniques for Bayesian calibration based on calculating the speed of lexical change in other language families for which sound calibration values are available.