

Language in the Americas: Out of Beringia

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Linguistically, the Western Hemisphere harbors a great typological diversity, by some estimates, the greatest in the world. Controversy regarding classification aside, much work lies ahead to identify the movements up through to include the final leg of the journey of modern humans, in terms of distance travelled from our continent of origin, to Tierra del Fuego. This article will briefly summarize the advances that the language sciences have made in describing these migrations and the languages that accompanied them, to then discuss viable proposals for collaboration with other fields. Such an interdisciplinary program of study is necessary because the tools of linguistics do not suffice. Continuing work on the processes of origin, dispersion and convergence will help us better understand fundamental properties of language. Research on the description of individual languages and how they can be classified will contribute to this understanding. For speakers and students of the American languages, these advances will also contribute to the recovery of the cultural heritage that is associated with historical language change.

Keywords: linguistic typology, human evolution, language evolution, language universals.

Las lenguas en América: el éxodo de Beringia. Lingüísticamente, el hemisferio occidental alberga una gran diversidad tipológica, según algunas estimaciones, la más importante en el mundo. La controversia sobre las clasificaciones aparte, queda por delante mucha investigación para identificar los movimientos, incluyendo el último tramo de la migración de los humanos modernos, en términos de distancia transcurrida desde nuestra región de origen, hasta Tierra del Fuego. El presente artículo esbozará los avances en las ciencias del lenguaje en el estudio del movimiento de poblaciones y las lenguas que hablan, para luego abordar de tema de las propuestas para la colaboración con investigadores en otros campos. Tal programa de investigación interdisciplinario se perfila como necesario porque las herramientas de la lingüística no son suficientes. Futuros trabajos sobre los procesos de origen, dispersión y convergencias ayudarán a entender mejor las propiedades fundamentales del lenguaje. La investiga-

ción descriptiva sobre las lenguas individuales aportará una perspectiva complementaria. Para los hablantes y estudiantes de las lenguas americanas, dichos avances contribuirán al rescate de la herencia cultural, ligada con el cambio lingüístico histórico.

Palabras clave: tipología lingüística, evolución humana, evolución del lenguaje, universales lingüísticos.

1. Introduction: Research on language evolution and language change

One of the memorable murals of the Museo Nacional de Antropología in Mexico City is “El paso de Bering” (Iker Larrauri 1964) portraying the first migration of *homo sapiens* to the New World.¹ Whether it consisted of a single founding population of fewer than 100 individuals, or of larger successive populations over the years, the resulting linguistic diversity of the Western Hemisphere is noteworthy, even surprising. What can the different historical processes of language change tell us about other aspects of human culture and about the knowledge of language itself? The movement of speech communities is among the most important motors of these processes.

Continuing research from the different subfields of linguistics will find points of contact with the findings of other disciplines, helping to point the way toward which avenues of new research will be most productive. Eventually all of the allied fields, coming together around the same conclusions of origin, exodus and the routes of expansion, will find some measure of common ground under an overarching evolutionary science perspective. While most researchers of language and culture do not take into account the research on evolution (the present author included), this focusing of our work does not represent a failing or irretrievable contradiction because the opportunity for inclusive discussion and open-ended comparison of concepts has, in reality, never been closed off. With this goal in mind, Pinker and Jackendoff (2005) and Kinsella (2009) propose the outlines of one model of language evolution:

“The computational linguistic system is complex by virtue of its consisting of many interacting parts, and is adaptive by virtue of it appearing to have been designed to fulfill a particular function – to communicate complex propositions.” In turn, each of the component properties of the language faculty is adaptive for similar reasons.

“Each component of the system, domain of semiautonomous emergence,...is tailored specifically” [to fulfill its function]. “The language

faculty is, then, a composite interaction of multiple elements, each playing its part in the adaptive whole.” (Kinsella 2009: 72-73).

This approach to language evolution is consistent with an important proposal by Mairal and Gil (2006) in their paper “A first look at universals” that we will revisit in Sections 7 and 8. Their proposal promises to bring into a converging discussion points of view that have been presented (prematurely, as the authors believe) as sharply opposing on all questions. It argues that striking a “balance between linguistic and more general cognitive capabilities should be the rationale behind research in universals since the choice between the two trends leads to unjustified dispute” (p. 67).

Simplifying greatly, an alternative model posits a much “narrower” language faculty to Kinsella’s complex faculty consisting of the core property of syntax: recursion. In addition to forming the essential property of language competence, recursion (according to this view) is not an outcome of adaptation. On the other hand, functionalist, or Usage-Based, theories tend to favor the view that the interacting components of language are exclusively domain-general, as opposed to some or many being specialized and domain-specific; see Hauser et al. (2014) and Tomasello (2008), respectively.

Importantly, despite their important differences, all three proposals are evolutionary models that try to explain the emergence of the language capacity in humans even though it is characterized differently in each case. Favoring one or another should have no bearing on the principal arguments of the present discussion because all three conceive of a cognitive structure of some kind for acquiring language and deploying language ability that only modern humans possess. In addition, all agree that the migrants who undertook the many generations long journey from Africa to Beringia, then to colonize the New World, were in full possession of this capacity. This idea of deep continuity among all human populations will bring us back to the discussion of language universals.

In previous years, our project has primarily focused on aspects of language contact and bilingualism in the modern period, when populations from Europe and the Americas came into contact. The learning dimension of this contact has involved two languages, one of American origin and the other of European origin. Only recently have we considered the factor of historical movement further back in time, as it came to present itself suddenly in debates related to the work of documentation and preservation (Francis 2017, 2019).

Language learning in real time (that often incorporates processes of language replacement) and language change historically are usually about research problems for different subfields; but they are related in

ways that should be taken into account more often. The shift in the project toward problems of documentation and preservation brought into sharper focus the historical questions because of the greater importance of better understanding language replacement (often termed: first language attrition).²



Figure 1: El Paso de Bering (Iker Larrauri 1964)

2. The passage through Beringia

The first Central Asian nomads whose descendants would eventually initiate the migration southward into the New World began their journey travelling northeast toward what today are Eastern Chukotka and Western Alaska approximately 30 – 35,000 years ago. Genetic evidence³ from some studies suggests that most Native Americans are descendants of a population that remained isolated in Eastern Siberia or Beringia during the Last Glacial Maximum (LGM) (28,000 – 18,000 BP). Graf and Buvit (2017) summarize the extensive research on this aspect of the relationship between the “Old World” and the “New”: data from present-day human DNA link all Native American ancestors to the Asian continent. The migrant population from Central Asia entered the Beringia region prior to the LGM, became genetically isolated from its “home” population for a period of thousands of years (according to the Beringia Standstill Hypothesis), then to begin dispersion throughout the Americas. An ecosystem of shrub tundra zone would have provided a survivable environment during these years (Hoffecker et al. 2014). An alternative hypothesis might place the “standstill” further to the southwest (warmer) from Beringia toward the region around Sakhalin

(Buvit and Terry 2016). From analysis of mitochondrial DNA and Y chromosome variation, researchers in one study estimate the founding lineages of modern Native Americas to share a recent common ancestor with inhabitants of Southern Altai (Russian Federation, bordering with Mongolia, China and Kazakhstan) at about 20-25,000 years BP. The estimates of shared ancestry suggest when the settlers of the New World left their “homeland” as they travelled toward northeast Siberia (Dulik et al. 2012).

As the glaciers began to recede, the long Beringian sojourn, dependent on the hunting of large mammals, gradually came to an end. Along the Pacific coast a pathway opened approximately 16–17,000 years BP followed by separation of the Laurentide and Cordilleran ice sheets a few thousand years later allowing for movement inland into the heartland of North America. The 5,000–8,000 year standstill, facing the bottleneck in Beringia, or further southwest, was the gateway and antesala for the human colonization of the Americas. Logically, during this long period, some Beringians must have also undertaken back-migration to Asia proper, supposition supported by analysis of linguistic data (Sicoli and Holton 2014).

An interesting finding from mitochondrial DNA analysis has been about the reconstructing of population size history showing that the ancestors of Native Americans passed through a severe founder event. A very small number of individuals, from only five founding maternal lines, may have given rise to a very large number of descendants as they dispersed throughout the New World. The celebrated sequencing of the genome of Anzick-1 (remains of a child from western Montana, dated 12,600 years BP) revealed that all of his ancestry was derived from the same founding population as that of Central and South Americans. The different patterns of “deep ancestry” may be related to the two routes out of Beringia: the early coastal and the later ice-free corridor, in the direction of western Montana (Skoglund and Reich 2016).

The two pathways of exodus from Beringia are consistent with results of archaeological investigation that has been controversial until recently. The hypothesis of coastal exploration and settlement in particular might help to explain the discovery of the early occupation of a site in Southern Chile, Monte Verde at 14,500 years BP, too early for populations that travelled through the inland route many years after a possible coastal migration (Becerra-Valdivia and Higham 2020; Zegura et al. 2009). The finding of similar types of projectile points of distinctive design in Japan, mainland northeast Asia, western North America and South America is consistent with this model of New World colonization (Braje et al. 2017; Waters 2019). Finally, while not favored by the evidence at hand, the spectacular possibility of a very early passage by

homo sapiens through Beringia just prior to the high point of the LGM cannot be categorically rejected (Meltzer 2013). Consideration of the early passage hypothesis, still speculative, is another reason for keeping research access open to archaeological artifacts.

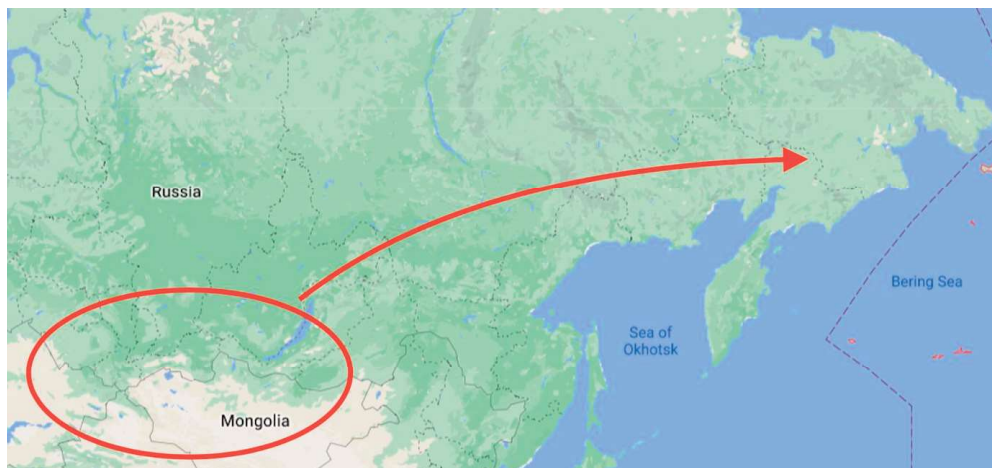


Figure 2: Migration northeast from Central Asia toward Beringia (adapted from Zegura et al. 2009)

3. Comparing research findings across disciplines

However, as it turns out, the study of origin (in evolutionary time), historical movement of populations, and indicators of population genetics have not easily coincided with the patterns of historical language change. As we will see, the mixed results from the attempt to find significant correlations between markers of genetics and markers of linguistic typology have been disappointing to some, but closer reflection suggests that they should not have been.

Actually, for many years a growing consensus had been gathering from early evidence that Asian populations had populated the New World, long before the decisive results became available from recent archaeological and genetic studies on migration from the Old World (Campbell 1997). This conclusion today has become virtually unassailable. The vast number of scientific reports confirm the overriding facts, known from previous periods of work following years of informed speculation: that the modern humans who began to populate the Americas during a period between 20,000 and 12,000 B.P. were the first to do so—no population of the genus *homo* had independently emerged in the Western Hemisphere. As the previous section outlined, continuing work now brings forward pending research questions of great inter-

est: about the precise timing of movements, the number of different migrating populations that entered North America at different times, estimates of their absolute number, communities that undertook back-migration, and routes of subsequent passage (inland and/or coastal).

For this work, a comprehensive assessment of the research by Campbell (2015), delves into one aspect of the interdisciplinary collaboration that points to the possibility of further dialogue. For its importance to our topic, a review of the main arguments is necessary. The comparison in question centers on, as alluded to above, the results from research on language typology/language change and population genetics. The reason why findings have not reliably coincided, as many had perhaps hoped, resides in that the dimensions and time-course of change (on a more fundamental level) and the consistency of available data from competing research approaches do not lend themselves to a straightforward comparison. On the one hand, the indices are of biological change, in the genome, measured for example from samples of bodily fluid. Recent historical language change is not reflected in the genome, and completely different methods of estimation are applied yielding different kinds of data. On the other hand, languages of speech communities in movement and in contact with other communities, undergo change rapidly. The clearest example involves bilingualism and language shift within a gene pool, in this case a population that corresponds to a speech community, speakers of a language or a language family (Campbell 2005: 204-207). The incidence of language *replacement* (crucially, not *extinction* of the population, which presents a different problem) is extensive and its onset rapid.⁴ In a given bilingual community an ethnolinguistically vital language, acquired by children of each generation as their first language, can easily pass through the stages of language replacement and become an endangered language in three or four generations. On the other hand, complicating even more the potential comparison, gene flow occurs from speakers of one language to speakers of another as in regions of widespread multilingualism and especially where linguistic exogamy is widespread. (pp. 208—210). Even language change unaffected by contact is surprisingly productive—see the illustrative examples by McWhorter (2001). Taking the hypothetical exodus from Beringia toward Mesoamerica of one or a few migrant speech communities, 14,000 years (at the inside) transpired before the contact of their descendants with Spanish almost 8,000 kilometers away.

There exists between genes and language a kind of “parallel development,” but the diversification of one does not necessarily track that of the other – the mismatches abound. Confounding the calculation of relation even further is the ongoing controversy on linguistic categories:

which variants are separate languages then to fall under which hypothesized family and phylum. Navajo and Western Apache (Athabaskan family) are considered as separate languages despite preserving, over the years of geographical separation and cultural divergence, some degree of mutual intelligibility (among native speakers there are interesting differences of opinion on this estimation). A better example is perhaps the close linguistic relationship between Mayo and Yaqui (Uto-Aztecan). In the Americas alone, the divergences among the proposed typology models are wide-ranging and the controversy ongoing:

- Na-Dene (to which belongs Athabaskan), Eskimo-Aleut, and one family, Amerind, that encompasses the remaining languages, countered by the majority of linguists who propose
- up to 180 different phylogenetic units (between families and isolates).

Thus, based on language data, there is no way to adjudicate among the alternative arrival and separation scenarios: entry from Beringia of one speech community or successive entries of numerous populations at different times, then to disperse and populate the entire hemisphere (Campbell 2005: 211-216).

Another way to think about findings from the two fields is to recognize that regarding the consensus on the colonization by modern humans of the Americas, there is in reality no decisive contribution from language typology. The consensus on the major research problems of migration and first colonization has been settled science for some time now. Inconsistent and confusing attempts at correlating disparate and non-comparable data sets will only result in sidetracking subsequent discussion of important pending questions. Not a direct or pressing concern of working scientists, but the confusion generated by failure to find expected correlation, where one should not have been expected to begin with, may only serve to extend the life of fringe theories among denialists of the different creationist and post-modernist currents. From among the radical social constructivist theories in North American cultural anthropology, it is precisely opposition to the idea of evolutionarily related capacities that leads to the rejection of the concept of language and cognitive universals. For linguistics, nevertheless, the contributions of the allied fields will help refine hypotheses within its different sub-fields: cognitive science approaches to first language acquisition, second language learning and language contact of all kinds, including the all-important sub-fields of language replacement (shift) and convergence/creolization (i.e., new language creation).

4. Movement and interaction of cultures within the Americas

Then on the sociolinguistic and anthropological level, as Campbell projects, dialogue with population genetics and archaeology will come to avoid the above-mentioned misunderstandings of concept and method. In fact, the mismatches from expected co-development are a valuable source of information; they present an opportunity to explain them. For example, language change across history is not only about homology; and differentiation and distribution of speech-communities does not always coincide with cultural change and cultural grouping. At the same time, in this exchange it is important to keep in mind what kind of evidence should be taken into account for each hypothesis or proposal. For discussions of language classification it is linguistic data that is the kind of information that is relevant above all others (pp. 216-217).

The discussion on the classification of the Uto-Aztecan languages and their precursor Proto-Uto-Aztecan is pertinent to our topic as the family shows a remarkably wide geographical expanse, from the northern regions of the present United States to Costa Rica. Research on the migration of speakers of Uto-Aztecan (UA) languages is especially interesting given the historical importance of Nahuatl and the Imperial culture of the Aztecs (or Mexicas), with its center in the great metropolis of Tenochtitlan. In part a consequence of its advanced urban development prior to the European conquest, that included institutions of higher education, legendary accounts of an ancestral homeland have been preserved: a combination of pictographic documents and ideographic texts that included the first stages of a transition toward phonetic representation and, post-1521, written recording of oral tradition testimony in alphabetic Nahuatl script. While the accounts cannot be simply accepted at face value, as Hill (2001) has pointed out, select portions might be able to be confirmed or disconfirmed when and if new data from other fields becomes available. Two hypotheses, among others that are related, can be considered, that Proto-Uto-Aztecan (PUA):

- emerged in an area encompassing the border between Mexico and the United States, (the Northern Origin Hypothesis). PUA formed as a linguistically diverse dialect chain covering a wide geographical expanse. Communities at the southern range were drawn further south, coming to dominate Central Mexico.
- The origin of the family can be located further south in Central Mexico in contact with Oto-Manguean language communities—

the Southern Origin Hypothesis (Hill 2001, 2012), viewed today as representing a minority point of view among specialists. But as we will see the difference may not be as sharp as it appears.

The Northern Origin Hypothesis presents evidence from the arid US-Mexico borderlands, of plants and animals for which PUA terms can be reconstructed and of plants and animals for which terms cannot. In addition, the Northern Origin Hypothesis rests on evidence of patterns of linguistic separation and differentiation comparing northern and southern varieties of PUA as it diversified. It appears that foraging bands of the PUA speech communities began migrating southward during a period of increasingly dry conditions (Merrill et al. 2010), coinciding roughly with the division between two branches of UA, northern (NUA) and southern (SUA). The Uto-Aztecs on their movement southward were the first contingent to encounter maize cultivation (a cultural diffusion from Mesoamerica). A counter-claim of the Southern Origin Hypothesis is that the early communities of PUA, of Mesoamerica, were already cultivators. Evidence suggests that lexical items associated with agriculture show etymologies internal to Uto-Aztec, as opposed to having been borrowed (Hill 2001).

Here it is important to clarify that the different legendary versions of settlement by migrants arriving to Central Mexico from the north (accounts interpreted from the codices and transcribed oral tradition during the 16th Century) are entirely compatible with both hypotheses. There is no way to identify exactly from how far north the ancestors of the Aztec migrated. The Southern Origin Hypothesis, while it places the emergence of PUA in Mesoamerica, also claims that populations of Uto-Aztecs migrated north during a period between 4500 and 3000 B.P. corresponding to the northward spread of maize cultivation eventually into the U.S. Southwest (Hill 2001). According to this view, years later, UA communities begin to “return,” migrating south. In regard to the issue of legendary accounts, readers will recall that Tenochtitlan was founded only about 200 years before the arrival of Hernán Cortés, UA migrants beginning to populate Central Mexico and specifically the Valley of Mexico approximately 900 to 1000 years prior to the culminating ascendancy of the Mexica. The actual settlements of the mythical Chicomoztoc and Aztlan could have been inhabited by ancestral populations in any series of localities at some distance from the final destination, currently Mexico City and its environs. Oral tradition legend could even have narrated events occurring during years not long before the founding of the metropolis – Mexica migrants arrived in waves during different time periods (Smith 1984). In other words, the legendary accounts might correspond to very recent history counting backwards

from the post-1521 bilingual Spanish-Nahuatl documentation. The discussion in this section about migration within the New World leads us to the important question of how we evaluate empirical findings of research, and what counts as empirical finding in the first place.

5. Standards of evidence

The preceding considerations on the “origin” and migration of Uto-Aztec communities are important for the broader discussion of how languages and cultures are related in regard to a common descent and to other questions of migration and evolution. For this discussion, in this section, “origin” is written in quotes. In general, there should be no objection to using the term to refer to events associated with the emergence (for example, a potentially verifiable divergence) of a language variety or language family or a cultural group. At the same time, reference to the idea when we are thinking about the languages of the Americas and the precedence of their speakers should acknowledge that it refers to a proximal emergence, part of a long line of “origins,” result of historical changes, separations and convergences. The evolutionary roots of language, in contrast, point to the distant past, an ancient emergence at the dawn of our species.

Hill, in her (2001) report, was careful, correctly so, in her assessment of the Aztlan legend. The documents that narrate the migrations covering hypothetical northern routes toward the Valley of Mexico may never garner empirical support as investigators continue to uncover evidence of early settlements of the different lineages of the colonization of the Americas. Nevertheless, it is interesting that they are extensive and detailed. At the same time, speculation by historians regarding the localities chronicled and the circumstances of passage described in *Crónica Mexicayotl*, *Historia Tolteca-Chichimeca* and represented graphically in records such as the *Códice Bottonini* and other documents, will continue to only consider events that are potentially naturally occurring. In general terms, miscellaneous details aside, this subset of the account could in principle correspond to possible events that could be associated with previous settlements. It would not be reasonable to dismiss out of hand all of the possible scenarios that can occur in nature, these including an abbreviated and abstracted approximation of the accounts that the 16th century Nahuatl-speaking scholars were tasked to reconstruct. Material evidence may someday shed light on an aspect of an important event or series of events alluded to in the chronicles. To this overall impression we should acknowledge the possibility of a certain degree of consistency that might appear from one source to another describing population movements that

eventually founded the capital of the Aztec civilization (Smith 1984). In this regard we could surmise that the reference in the chronicles to the “origin” of founding populations would probably be to a specific lineage. Obviously not including populations associated with speakers or ancestors of UA languages as a whole, it is not likely that they referred to all Nahuatl-speaking populations that settled in Central Mexico either. Excluded might be some communities that came to reside outside the boundaries of the Aztec empire. In addition, we have to remember that the Aztec, or Mexica, chronicle is not the only pre-conquest legendary account of migration to the Valley of Mexico. As mentioned above, language and culture do not always coincide on the same population, potential mismatch also related to the discussion of other kinds of potential correlation in Campbell’s (2015) paper.

At the same time, it is important not to confound the accepted model of initial colonization of the Americas that departed from Beringia travelling south, with migrations of recent periods, during the years after the invention of agriculture to the founding of Tenochtitlan (c. 1325) when the entire Hemisphere had been already populated. Migration and language/cultural contact in both north-south and south-north directions was continuous and multitudinous all during these years.

The approach that scientific investigation takes to the above UA-related questions, legitimate and interesting, but perhaps in the end not highly controversial or pivotal regarding major research problems in the field, is important to take the time here to review. It draws a line of clear contrast in a controversy that in fleeting appearance seems to pose similar questions: the neo-creationist critique with roots in North American academic circles that rejects the theory of founding migration to and peopling of the Americas via Asia. Specifically, the neocreationist critique rejects the results of the research summarized in Section 2. While this view is entertained largely outside of the fields of archaeology, population genetics and scientific linguistics, it nevertheless forms part of instructional programs, widely, in university departments across the United States. On the most basic level, it requires the total upending of the now established theory of African human origin, replacing it with an impossible idea of a Western Hemisphere separation of *homo sapiens* from the rest of the hominid line, failing this notion, challenging the account of biological evolution itself. With no data to present in opposition to the findings of population genetics and archaeology (Becerra-Valdivia and Higham 2020; Graf and Buvit 2017; Waters 2019), the dismissal of the theory of founding Asian migration might attempt to appeal to selective interpretations of traditional narrative. To be clear, on this last point there can be no comparison to the kind of information presented regarding migration toward Tenochtitlan during the recent

historical epoch preceding its founding, recorded in pictographic and Nahuatl-language historical documents, albeit all of them difficult to verify. To reiterate, in the end, specific and detailed accounts narrated in the Aztec documents may never be confirmed. But the portion of them that might refer to general tendencies of recent events could one day have historical value if corroborated by empirical research.

On the other hand, interpretation of oral tradition cannot be reasonably linked to “origin” events from the very far distant past for the purpose of challenging findings of research on human evolution and migration. Oral tradition versions of events claimed to have been witnessed by humans who had allegedly occupied the Western Hemisphere for many thousands of years prior to the Beringia passage cannot meaningfully contradict these findings. As alluded to in Sections 3 and 4, time-scale and what can count as verifiable evidence for a claim are matters of fundamental importance.

Here, in regard to the application of research method, it is important to emphasize that researchers in Mexico working on the different lines of evidence for migration in the Aztec and early colonial era Nahuatl-language documents proceed within the framework of the current scientific consensus on the peopling of the Americas—evoked by Larrauri’s National Museum of Anthropology mural. Their starting point is the consideration of the strong theory of migration of *homo sapiens* out of Africa. What follows from this assumption of evolutionary continuity is the consideration of the possibility (as opposed to its *a priori* rejection) of the above mentioned universals at some level or within some domain yet to be discovered.

6. The Mayan documents

The importance of the groundbreaking discoveries in the deciphering and analysis of Classical Mayan writing cannot be overstated. The final confirming of its orthographic design as a fully morphosyllabic system has led to important discoveries that only a system that encodes the phonology of the language allows for. In this way, the role of the language sciences differs significantly from that in the case of Nahuatl studies. Researchers have been able to align the writing system with the ancestral variant of one of the modern Mayan languages spoken in Mexico and Guatemala today. Because of this language-script alignment, current native speakers of Ch’olan were able to participate in the deciphering project, their ancestral, precursor, language during the Classic Period (250-800 CE) being the language of the scribes (Houston et al. 2000).

The early colonial-era attempts to represent the Mayan script alphabetically, by Bishop Diego de Landa, and then dismissal of the idea of a systematic phonological component contained in the characters, during the 20th century, frustrated efforts to analyze the design features of what by inspection alone suggested a complete language-based writing system. To be fair, de Landa's "alphabet" was a helpful observation serving in the end as an important key to a successful solution. The design of the Mayan characters turns out to be similar to that of the hybrid Japanese morphosyllabic system, making the language-script alignment possible (Coe 1992). The identification of syllables and morphemes in the Mayan character system has also suggested evidence of language contact during specific historical periods with speakers of other languages (Macri andLooper 2003).

Data from decipherment has helped to form a consensus on the geographical emergence of proto-Mayan and its initial diversification (2200–2400 BP) in the southern highlands of Guatemala, and provide a more detailed picture of early agricultural production (Law 2013). As noted above, the important evidence of language contact starting from the pre-classical period will contribute to our understanding of the interactions with the other cultural centers of Mesoamerica.

7. Across time: Inheritance and heritage

Now, taking us back to the Introduction, in Section 1, another important distinction is important to make following a suggestion by Mendivil-Giró (2016) about two different kinds of change involving language, related, by the way, to the point of clarification that came up in the conclusion to Section 5:

- (1) taking into account an evolutionary time-scale, the transitions in the cognitive foundation of *language as it emerged in evolution*, and
- (2) the subsequent course of *historical language development*.

For (1), it is the origin of a mental capacity for language acquisition that came to be encoded in the genome, coinciding with the emergence of modern humans. This acquisition capability might correspond to cognitive structures that serve as a universal template of some kind for how language is actually structured, a template that is shared by all humans. In contrast (2), the classification of languages for the purpose of understanding the great diversity of spoken varieties, and how these varieties develop over historical time, focuses on the diversity of surface expressions, then to ask if we can identify systematic patterns of com-

monality across historical time. These patterns, revealed in actual speech performance, may even point to evidence of underlying language universals. Recall that this comparison of two kinds of universal is related to our theme of functionalist-formalist dialogue, taken from Mairal and Gil (2006).

Tracing the cultural heritage of modern speech communities can now incorporate the continuities not only among ancestral populations within the Americas, but maybe even with the ancestor migrant populations in Asia. This research question remains an objective of future work. Careful comparison will look for parallels between markers first within the same category, and then more carefully when crossing categories (e.g., ancestral language grouping and inferences about culture from archaeology).

Thinking in terms of evolutionary time, the converging and diverging lineages, within the Americas and within populations nearby on either side of the Bering Strait, are also about relatively recent ancestors. In some ways “New World” is a misnomer: for thousands of years Beringia measured approximately 1000 kilometers from North to South. New research is still needed to formulate more clearly the idea of a fundamental continuity for all populations (not just within the Americas) with the very first community of modern humans who set out to populate the remaining continents. For this idea, the language sciences might be able to play an important auxiliary role in educating the new generation of students of culture and history on the basic concepts of human evolution. For this objective, the conception of linguistic universal needs to be refined along the lines just mentioned, distinguishing first of all between the acquisition capacity that all humans share and, at the same time, patterns of commonality in the specific languages of the world as they are spoken.

Greenberg’s approach to universals (the second perspective), even taking into account the objections of most of his colleagues, was motivated by a theory that, in general terms, was on the right track. Today, a growing consensus points to Southern or East Africa as the cradle of language genesis. The emergence of a fully formed grammatical faculty marked the final stages of the formation of *homo sapiens* itself, according to one hypothesis, an incremental evolution building upon precursor proto-language capabilities (the Pinker and Jackendoff 2005, and Kinsella 2009, hypothesis). Alternative claims propose a saltationist (single mutation) origin hypothesis, but also coinciding in a resulting specialized cognitive capacity (Hauser et al. 2002).⁵ Functionalist theories don’t posit a specialized language faculty, but coincide on the general time-frame.

8. Two conceptions of universal

Considering the proposal in the previous section, it remains an interesting question why there is a greater typological diversity in the Americas than in any other region of the world (Campbell 1997). For now we can set aside the Eskimo-Aleut and Na-Dene families, for which there seems to be agreement about separate, later, migrations into North America. Then we could accept, for argument sake, as a theoretical possibility, a single early migration of one lineage out of Beringia that gave origin to the vast variation within the Amerind family (one family nonetheless), hypothesis that Greenberg and Ruhlen (1992) and Ruhlen (2009) support. After all, as was presented as an hypothesis in Section 1, the capacity for a fully formed language faculty had a single evolutionary origin;⁶ and it is not out of the question that the mental capacity in question coincided during this emergent stage with one community of speakers, one spoken language, in principle describable. To be sure, what “in principle” means here is that such description today is in practice out of reach.

The single evolutionary origin of language would coincide then with the emergence of the fully formed cognitive architecture of *homo sapiens*; it could be argued that it counts as a defining property (Henn et al. 2012). Modern humans themselves, according to the theory, trace their ancestry to a single evolutionary emergence/separation. Hypothetically still, as a natural language, even as the first one, it must have evidenced an internal variation, from one individual to another, among groups of individuals, and among dialects more or less mutually intelligible. In fact, in addition to postulating a single Amerind family for the Americas (Eskimo-Aleut and Na-Dene aside), the notion of a hypothetical Proto-World language, or family, was supported by Greenberg (as a schema or guiding idea, taking up the idea from proposals from early 20th century linguists) that attempted to capture the idea of the single evolutionary origin. To reiterate, most linguists do not favor developing a research program to actually describe specific features of a common grammatical or lexical trunk of language of this kind.

Nevertheless, in their proposal for a convergence on the concept of universals, Mairal and Gil (2006) present the possibility of bringing together for discussion opposing models in a way that doesn't imply the complete disqualification of one side or the other. Taking the approach outlined above of Pinker, Jackendoff and Kinsella as a starting point, their proposal consists in working toward a dialogue between UG-oriented conceptions of language universal and Usage-Based conceptions. Approximately, we could include Greenberg's method of identifying

patterns of universal with the latter: the descriptive analysis of a large selection of language samples in search of generalizations, a kind of “external” and inductive method, looking at potential evidence “from the outside” with minimum recourse to abstraction.

To recap, in the comparison between the two major paradigms in the field, a key dichotomy is related to the role played by domain-specific and domain-general capabilities. While UG, generally, assumes a Faculty of Language (FL) that has at its core a domain-specific knowledge base (specific to linguistic competence), Usage-Based models seek universals that can be explained entirely by cognitive-general processes and the operations of conceptual structure (semantics and pragmatics). Thus for the latter, core semantic representations should have corresponding “equivalents” in all languages – “universal conceptual primitives” (Mairal and Gil 2006: 22–23). The UG “deductive,” so to speak, approach will differ from the descriptive, inductive “data-driven” approach in that the attested absence of a proposed universal feature (e.g. in an exhaustive study of performance within the speech community) does not necessarily contradict the universal because speakers possess the underlying knowledge of it. Such knowledge, not evident in a given corpus of the language, could be demonstrated in different ways: ability to process the pattern in comprehension or successful second learning that requires it. From this point of view, actual spoken languages are all instantiations of the FL in which one or another feature may not come to be implemented.

The prospects for productive dialogue on the nature of universals rests on the prolific interaction between domain-general and domain-specific components, and following Pinker and Jackendoff, the inclusion of the former within the Faculty of Language (pp. 39-41). For Greenberg, even though his method is external, inductive and descriptive, the objective is to discover the universal structures of language. In addition, Greenberg’s method shares with generativists the hypothesis of monogenesis⁶ and African origin-exodus.

9. Conclusion

Over 100,000 years ago, modern humans embarked on the great migration, dispersing in waves of migration, the last population of nomads finally crossing into the Americas. We refer to Old World and New World, but in effect it was, and is, from the point of view of our shared biological inheritance, One World.

The research on the migrations and diversification within the Americas has revealed a wide linguistic variation. At the same time, the contact

among the different languages (interestingly, after languages divide and separate) has revealed core properties of deep compatibility in the highly productive language acquisition capacity shared by all speakers, child and adult. Evidence of this productivity we find in bilingual phenomena of mixing, convergence and acquisition, then beginning in the 16th Century, with no difference in capability or creativity, to include the European languages. Language acquisition capacity is a kind of universal that is different from the one we have been discussing, but it is related. Current investigations on the pre-conquest movements and interactions by anthropologists working in Latin America will lead to new discoveries in this field; review the examples from Sections 4-6 in Mexico from the Uto-Aztecan and Mayan families. In this work, tracing the different aspects of continuity with the Central and East Asian populations will eventually be of vital importance. Here the rules of research evidence will help us from getting distracted by non-scientific incentives and passing fashionable ideologies.

If from the point of view of UG-oriented approaches the FL includes, in addition to an acquisition capability, a template for language structure, then functionalist-oriented approaches that emphasize inductive methods of description are complementary to some degree. We could say that they are especially complementary in regard to the question of universals. The converse should also be true: Among the functionalist approaches to the study of language that view the identification of universals as important⁷ the concept of an underlying core grammatical framework is also partially complementary. Thus, research from each of the approaches can to some degree complement the other in the study of language origin and language change. In other words, there might be an area of overlap or common ground on certain research questions.

The proposal of some early 20th Century linguists of a single proto-language, diversifying and giving rise to the entire linguistic variation of today is not implausible, along with the idea of an enduring linguistic unity. On a deep level, in some way, all human language families and language isolates are probably still encompassed by it in some way. But the patterns and structures will not likely be found in the details of the typology, but rather on a more abstract level. Description of grammars and lexicons will continue to play a role in this research program because we can also work from the bottom up to consider features that correspond to higher order categories.

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Notes

- ¹ An unfortunate controversy surrounding the misuse of the muralist's work by the Secretaría de Educación Pública clouded the generally positive effect over the many years in disseminating the relevant concepts that Larrauri depicted. For example, public educational content, on this one point of evolutionary science, has compared more favorably overall to that in the United States, marked to a certain degree by equivocation. A partial record of the dispute, interesting in its own right, can be consulted in *La Jornada* beginning on August 26, 2009:
<https://www.jornada.com.mx/2009/08/27/politica/005n1pol>
<https://www.jornada.com.mx/2009/08/26/portada.pdf>
- ² The project on language documentation is designed to be entirely compatible with the objectives of community-based language revitalization. The latter in particular is a complex problem, beyond the scope of this paper, that faces challenges at the regional and national levels involving at the same time the building of a viable and effective cultural/social mobilization of speech communities.
- ³ In this paper, just to avoid confusion, the term “genetic” is only used to refer to biological inheritance and to genes.
- ⁴ The factor of language replacement (often termed “attrition” or “loss,” even though “replacement” describes the process more clearly) has been under-emphasized not only in the field of historical language change. In the field of second language learning and bilingualism its incidence has also been underestimated and poorly understood (Chireac and Francis 2016).
- ⁵ The interesting gesture-primacy hypothesis (Corballis 2002) presents the possibility that spoken language evolved as an adaptation of gestural communication, a claim that would not be incompatible, necessarily, with any of our three alternatives.
- ⁶ The alternate hypothesis to the African origin of *homo sapiens* is the multiregional hypothesis: An *erectus*-era exodus from Africa led to the founding of independent populations throughout the world (perhaps excluding the Western Hemisphere). Multiple independent origins led to separate and parallel evolutionary origins of modern human populations (Wolpoff and Caspari 2000). Continuous gene flow, among all lineages presumably, maintained the biological integrity of a single species, keeping variation in check.
- ⁷ As Mairal and Gil (2006) point out, among the very strong socio-cultural/social constructionist theories of language, understanding the nature and scope of universals is not an important research question.

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