

# *Documenting Languages: The View from the Brazilian Amazon*<sup>1</sup>

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## 1. Introduction

The languages of Amazonia are hard to get to, spoken by small numbers of people, and their study often entails learning to speak them as part of analyzing them, since researcher and language teacher may otherwise have no language in common. It is not surprising, therefore, that they, like languages in similar situations in different parts of the world, have not attracted large numbers of researchers nor have they traditionally played a strong role in the development of linguistic theory. Yet this seems to be changing, as more and more very talented Brazilian researchers, from a variety of theoretical perspectives, begin to seriously engage the need for documentation and description of Amazonian languages. In this brief survey, I want to provide an overview of the history of the study of Amazonian languages, some indication of their theoretical significance, and a discussion of future prospects and needs for Amazonian research. I will focus my discussion here on the Brazilian Amazon, though similar considerations and prospects hold for other countries that contain portions of Amazonia. I will understand an 'Amazonian language' to be one spoken in the river basins of the Amazon or Orinoco systems (these rivers join in the rainy season and thus can be argued to form one system, at least from the perspective of navigation), or which is a member of a linguistic family predominantly spoken in the Amazon-Orinoco river system.

We begin our study with a brief overview of the history of contact and study of Amazonian languages.

## 2. Some history:

### 2.1. Colonial era of Brazil (1500-1822)

On April 22, 1500, a flotilla of ships commanded by Pedro Álvares Cabral appeared off the coast of what is today the city of Porto Seguro, in the current-day state of Bahia. Almost immediately, the sea-weary sailors of Cabral's ships spotted men and women on the shore, looking out at the ships. A group of sailors rowed to shore and were greeted warmly by those people bold enough to remain and not flee into the jungle. Thus occurred one of the first contacts between Europeans and Amazonian Indians, in this case the Tupinambá. Cabral eventually sailed off towards his intended destination of India, around the Cape of Good Hope, finally arriving back in Portugal, with news of the new land, to be called 'Brasil' (for the *pau brasil*, a tropical redwood that came to be highly valued in Europe).<sup>2</sup> As it had since Ignatius of Loyola (1491-1533), the founder of the Jesuits and the modern missionary movement, the Church recruited missionaries to take the gospel to the newly-discovered heathens of Brasil. One of the earliest missionaries to reach Brazil, the Jesuit Padre José de Anchieta (1533-1597), turned out to be a brilliant linguist (and administrator – he was co-founder of both the cities of São Paulo and Rio de Janeiro). Anchieta began his work near what is today the city of São Vicente between Rio de Janeiro and São Paulo.

The original people contacted by the Portuguese explorers, the Tupinambá, whose language (also Tupinambá) belonged to the Tupi-Guarani family. Along with the very

closely related language, Guarani, spoken to the south, in what is today southern Brazil and Paraguay, Tupinambá was spoken along a sizeable portion of the Brazilian coast, from São Vicente to what is today the city of São Luis do Maranhão. Wherever the Portuguese landed their ships north of São Vicente they encountered the Tupinambá, eventually coming to refer to their language as the 'Brazilian language'. It was to this language and people that Anchieta gave the majority of his attention during his missionary career in Brazil. Anchieta produced a grammar, a dictionary, and translations of catechisms. His grammar and dictionary still rank among the best ever produced of a Brazilian language, nearly 500 years later. Although his missionary activity was partially responsible for the complete extinction of the Tupinambá people (largely because the Jesuits increased the size of Tupinambá villages, thus increasing mortality rates when European diseases infected local populations), Anchieta was a dedicated linguist whose work can be considered the beginning of Amazonian linguistics (indeed, it would not be stretching matters too far to call his work the beginning of linguistics in the Americas).

In addition to Anchieta, Tupinambá was also the object of some study by the French Calvinist Jean de Lery (1534-1613), who originally went to Brazil to establish a French Protestant colony. Lery's principal contribution was to record in written form some naturally-occurring Tupinambá conversations. These enhance the picture of the language presented in Anchieta's grammar and reinforce the importance of conversational data in the documentation of endangered languages, since Lery's data is now the only record we have of the living form of this language in use.

Several decades after Anchieta and Lery, another Jesuit, Padre Antonio Ruiz de Montoya (1585-1652) arrived in what is today the border region between Brazil and Paraguay to work among the Guarani people, speakers of a Tupi-Guarani language very closely related to Tupinambá. Like Anchieta, Montoya was a brilliantly talented and dedicated linguist, also producing a grammar and dictionary of the language (Montoya is a partial model for the composite character of the priest played by Jeremy Irons in the movie, *The Mission*).<sup>3</sup>

After these few examples of precious linguistic studies of endangered languages (though Guarani has managed to survive this early troubled history), the field of Amazonian studies was to lay fallow for the next several hundred years, aside from reports and word lists from a succession of European explorers, mainly from Germany, under the influence and example of Alexander von Humboldt (1769-1859).

## 2.2. Modern history

Brazilian linguistics in the modern sense arguably begins with Joaquim Mattoso Câmara Jr. (1904-1970), who dedicated a significant portion of his life to the introduction of modern linguistics into Brazilian university (and pre-university) training. Câmara did not spend much of his illustrious career on the study of Brazilian indigenous languages, but he did encourage their study as part of the development of Brazilian linguistics.

In terms of the study of Amazonian languages *qua* endangered languages, the pioneer in Brazil surely is Darcy Ribeiro (1922-1997), perhaps the first government official of the Americas to invest government resources in the documentation and description (and for him, the 'preservation' of endangered languages. During his tenure as Chefe da Casa Civil for Brazilian President Jânio Quadros in the early 60s, Ribeiro

invited the Summer Institute of Linguistics to Brazil in the late 1950s. Ribeiro states his motive in inviting SIL to Brazil as (my translation, DLE):

**"My objective was to save for linguists of the future, who possibly will know how to study them, the languages as crystallizations of the human spirit, in order that we might learn more about mankind."**<sup>4, 5</sup>

Ribeiro's administrative and anthropological concern for the indigenous peoples in Brazil's survival and welfare was admirable and extremely forward-looking. We return to the mixed results of his initiatives below.

In terms of personally-conducted research, the modern pioneer of the documentation of Amazonian languages was Kurt Unkel (1883-1945) a German, later naturalized Brazilian. This famous explorer, linguist, 'indigenista', and anthropologist, known to most Brazilians as Nimuendaju – the Guarani name he was given in 1906 and used until his death in 1945 (partially) documented and identified a very large number of Amazonian languages. Amazonian languages are still difficult to access physically, culturally, and linguistically today. They were far more so in Nimuendaju's day. Yet he managed to visit the majority of Brazilian Amazonian languages personally, taking competent word lists from the many groups he visited, which have been extremely valuable in the linguistic classification of these languages. Nimuendaju is today perhaps the most revered figure in the history of the study of indigenous languages in Brazil, making tremendous personal sacrifices to both study and support these languages and their peoples. Stories of his life are currently only available in Portuguese to my knowledge and even these are fairly superficial in their coverage. One hopes that one day Nimuendaju's life and contribution to the study of Amazonian languages will receive the attention it deserves. His concern for endangered languages and peoples motivated not only his professional career but his entire life, from about 1906 until his death.

To most linguists, however, the true beginning of modern linguistic studies of Amazonian languages in Brazil, entailing historical and comparative research, emphasis on extensive grammars and dictionaries, begins with Aryon Rodrigues (1925 - ) - who published his first articles on these languages before he was thirteen, as an eighth-grade student in his native city of Curitiba, Paraná. Later Rodrigues was a friend and colleague of Darcy Ribeiro at the University of Brasilia when Ribeiro served as the University's first Rector (Rodrigues currently is a Professor Emeritus at the University of Brasilia). Rodrigues combines most of the positive characteristics of previous figures mentioned above. Administratively, he has founded linguistics programs, with strong emphases on Amazonian studies, at the University of Brasilia, the Federal University of Rio de Janeiro, the National Museum in Rio de Janeiro, and the State University of Campinas (UNICAMP). Although Rodrigues has done little field work of his own, he has supervised countless graduate students' research (including my own MA thesis). Scientifically, Rodrigues has succeeded in reconstructing linguistic relations between many Amazonian languages and is easily the most knowledgeable person alive on Amazonian languages. He has helped capture the popular imagination in Brazil about Amazonian languages in his various newspaper and magazine articles, as well as one popular-level (yet linguistically very useful) introduction (Rodrigues (1986)). There is no

figure, past or present, who has done as much as Rodrigues for the documentation and preservation of Amazonian languages. It is unlikely that there ever will be.

Before completing this history of the study of Amazonian languages in Brazil, however, I should say something about the results of the work of the missionary linguists that Ribeiro invited. Nearly fifty years later, what has been their impact and effect on the documentation of endangered languages?

### 3. Linguists who are missionaries/missionary-linguists

From a personal perspective, since my own interest in Amazonian languages was due to my original affiliation with SIL, it would make little sense for me to ignore its role here. As mentioned previously, SIL came to Brazil in the late 50s at the invitation of Darcy Ribeiro. When he first learned of this, Aryon Rodrigues, then in Hamburg, Germany, wrote Morris Swadesh to ask what one might expect from SIL linguistically. Swadesh advised him not to expect too much since SIL's motivations were principally missionary, not linguistic. But since, through Ribeiro's intervention, Rodrigues was in effect presented with a *fait accompli*, he made the best of the situation and used SIL-collected data for his historical research. Rodrigues never expressed open hostility to SIL, but he never hesitated to express his opposition to missionary work, at the same time that he supported the documentation of endangered Amazonian languages.<sup>6</sup>

SIL has arguably done more than any other organization in the world to document endangered languages, including Amazonian languages. However, this has largely come as a by-product of its sectarian objectives. These latter objectives have led the majority of Brazilian linguists and others around the world to argue that SIL and related organizations are not scientific in the normal understanding of the term, and that their participation in the study of Amazonian languages should come to an end, to be replaced by non-sectarian motivated research and researchers. Some recent developments in this regard are discussed below. However, in assessing this issue, one should at least ask two linguistic questions about SIL, namely, what is the quality of the work that it has produced in, say, the Brazilian Amazon, and how has it contributed to the training of Amazonian researchers? With regard to the second question, the results are not good. Originally, SIL in Brazil accepted a charge from Darcy Ribeiro to train Brazilian linguists at courses it offered at the Museu Nacional. However, in the mid-60s SIL pulled out of the Museu Nacional and signed a contract with the FUNAI, the new government agency responsible for indigenous studies. It developed a Curso de Metodologia Lingüística, through which it offered initial training to Brazilian linguists for a number of years, but this training was very basic and in any case was eventually turned over to the ALEM missionary organization which promptly restricted participation to potential Christian missionaries. In answer to the first question, an overall assessment must be that SIL's academic output is heterogeneous. Although there has been a large number of first-rate studies produced by SIL linguists on Amazonian languages since the 50s, the bulk of the studies have been superficial and hard to follow, often hidden behind thickets of Tagmemic terminology. Thus my overall assessment of SIL's purely linguistics contributions is mixed, though all-in-all it has produced some extremely important studies. And its recent efforts to make its scientific production more accessible through a website are to be applauded, though they are severely underfunded.<sup>7</sup>

#### 4. Reasons for language death in Amazonia

There are two common reasons for language extinction in the Amazon (see Everett 2002). First, there is the switch to Portuguese or Spanish or another indigenous language. These switches happen for various reasons, largely socioeconomic. Concerned linguists and anthropologists can attempt to promote bilingualism as an alternative to language shift/abandonment, but ultimately this is the decision of the people involved. Second, language death can result from the death of all the speakers of the language.

For example, the Oro Win language has largely died off as a result of the enslavement of the Oro Win people by rubber traders over fifty years ago. Although a few Oro Win eventually escaped, to settle among the Wari' people (speakers of a related Chapakuran language), by the time that I discovered that this was a distinct language and not merely one of the eight Wari' subgroups (all of which likewise begin with the collective word **oro**), only three people could be found who claimed to speak the Oro Win language (see Popky 1999 for a study of Oro Win based on data I collected in 1995). These speakers had already forgotten much of their language, since they were now using either Portuguese (learned quite imperfectly from the rubber traders and other Brazilians) or Wari' in their day to day interactions. As I conducted linguistic interviews with these three Oro Win in the town of Guajará-Mirim in 1995, I was struck by the fact that they were not native speakers of any language, speaking a mixture of Oro Win, Wari', and Portuguese, even among themselves (I use 'mixture' to indicate that the people switch between each of these three languages in almost every sentence. Moreover, the three speakers I interviewed often had to stop to discuss whether or not they were speaking Oro Win or Wari', a good sign that the Oro Win is nearly dead).

Another example of language death due to the death of the speakers is the case of the Juma people. At the time the Juma were contacted in the late 1950s by SIL missionaries, they were believed to speak a distinct Tupi-Guarani language. At the time of contact it was estimated that there were 250 speakers of Juma. But within months of this contact, the Juma were ambushed by 'pistoleiros' hired by Brazilian ranchers during one of their semi-annual inter-village migrations and all but eight out of the approximately 250 were massacred. Today these eight remaining Juma are still alive, scarred by the memories of that massacre, and have refused to have children all these years. The language will survive after the death of these speakers only because it turns out that although the Juma were originally thought to speak an independent Tupi-Guarani language, in fact they speak Kawahiv, which is also spoken by the Tenharim (who are switching to Portuguese themselves), the Parintintin, and the more recently contacted Uru Eu Wau Wau, whose name is in fact a pejorative term used to describe them by a Wari' employee of the expedition led to contact them. (The 'uru' is just the Wari' collective term seen above, **oro**, and the rest of the phrase means 'flatus' – literally and colloquially, 'those who fart'.) Many other examples could be given.

At the same time, there are groups like the Pirahã who, although they were contacted before 1784 and have had regular intercourse since that time with Brazilians, are still monolingual, calling all other languages 'crooked heads' (**?apagáiso**) (theirs is called 'straight head' - **?apaitíiso**). It would be interesting to conduct studies of groups whose language has continued to be highly valued and spoken.

This last suggestion is prompted also by work of Dell Hymes (1974), who suggested that the relative position of a group's language in its system of values is often a

matter of assumption when it ought to be a matter of research. That is, different peoples value their language more or less highly in the overall system of cultural values of the people.

For example, the Surui (Mondé family) were contacted in 1967, about two hundred years later than the Pirahã. Though they still use their language daily in community life and in their homes, the majority of Surui men (and many women) have learned to speak Portuguese and often use it among themselves. What has caused the Surui and Pirahã to differ so strongly in their adoption of Portuguese? This is an important research question for linguistic anthropologists and one which should be discussed in general terms, along lines suggested by Hymes, by field researchers in each specific field situation.

##### 5. Size of documentation task

After all these years of study, where are we at in efforts to document and describe Amazonian languages? The immediate answer, in terms of numbers of studies, is mixed. For one thing, we still lack consensus on the classification of Amazonian languages. These languages are split into a surprising number of different families. Greenberg (1987) offered a full classification of these languages, but his research methodology, the quality of his data, and the ultimate soundness of his conclusions were challenged by most researchers on Amazonian languages (indeed by most researchers on languages of the Americas generally). In Everett (2003), I argue that his work is unhelpful for the languages I have worked on most.

In terms of completed grammars and dictionaries, the news is also mixed, but improving. Most of the grammars produced to date are cursory overviews of major structures, far from the kind of exhaustive and professional treatment found in the grammars of Montoya and Anchieta. On the other hand, news here is beginning to change. Lucy Seki (UNICAMP) has produced an excellent grammar of Kamaiurá, published by UNICAMP (Seki (2000)). Alexandra Aikhenvald is publishing a grammar of Tariana. R.M.W. Dixon is publishing a grammar of Yarawara. Barbara Kern and I published a grammar of Wari'. But the main news is that from Brazilians, in addition to Seki, there has been a veritable explosion of grammars, all of them of high quality. For example, Nilson Gabas Jr.'s 1999 grammar of Karo, Guirardello's 1999 grammar of Trumai (honorable mention for the Mary Haas Award of the Society for the Study of Indigenous Languages of the Americas (SSILA)) Sergio Meira's 1999 grammar of Tiriyo (2000 winner of the Mary Haas Award), Sidney Facundes's 2000 grammar of Apurinã, and Galucio's 2001 grammar of Mekens. And, much more encouraging, numerous new Brazilian researchers are producing detailed studies and grammars in progress as part of their doctoral research. Many of these researchers have benefitted from periods of research at the Museu Goeldi in Belem, working under the direction of Dr. Denny Moore from the Museu's Linguistics Sector. And the quality and quantity of Amazonian-related submissions to international journals such as *IJAL* have also been improving. So in spite of the fact that so many Amazonian languages are in dire need of documentation, the documentation curve is on the rise.

On the other hand, much of the older data (e.g. Nimuendaju's files and records collected by earlier explorers and linguists) at the Museu Nacional in Rio de Janeiro is deteriorating and becoming less and less useful. There is a tremendous need for the

digitization of the Museu Nacional (and other Latin American) archives to ensure their long-term usefulness to the international linguistics community.

#### 6. Institutions with long-term research commitments to Amazonian languages

In Brazil there are several institutions with a history of research on Amazonian languages. Outside of Brazil, there are small pockets of researchers at the University of Nijmegen (these are financed on a short-term research project to Pieter Muysken), in France (especially Colette Grinevald), one or two individuals in Germany, and some new researchers and established programs in Amsterdam and Leiden. In the UK, the University of Manchester has a faculty interest in Amazonian research. In the USA, the Departments of Linguistics at the University of Oregon and the University of Texas have individuals who have or are conducting research on Amazonian languages of Brazil, Peru, and Bolivia. Also there are archiving projects such as **AILLA** (Archive of the Indigenous Languages of Latin America, at the University of Texas, Austin) and the **Dobes** documentation project funded by the VolkswagenStiftung at the Max Planck Institute in Nijmegen. There are some scholars conducting Amazonian research of course at universities in Venezuela, Columbia, Peru, and elsewhere, but these tend to lack critical mass, significant financial research support, etc. In Australia, both R.M.W. Dixon and Alexandra Aikhenvald are conducting research on Amazonian languages, via their Research Centre for Linguistic Typology at Latrobe University. But since the bulk of research on Amazonian languages is done in Brazil at Brazilian institutions, I will focus on those here.

**Museu Nacional:** Historically, due to its original mission assigned by the Brazilian government, as well as through its long association with the work of Nimuendaju, mentioned above, the central institution for the study of Amazonian languages in Brazil has been the Museu Nacional in Rio de Janeiro. This is the Brazilian equivalent of the Smithsonian Institution in the US. However, like most Brazilian academic institutions, the Museu Nacional staff and faculty labour under critical financial, material, and personnel shortages. Although the Museu academic staff is highly competent and dedicated, they are unable to maintain their archives well, even in hardcopy, and have chronic difficulties in conducting new fieldwork due to lack of research funds.

**Museu Goeldi** (Museu Paraense Emilio Goeldi): In the early 80s, when I was an Assistant Professor at the University of Campinas (UNICAMP), I received a phone call from Denny Moore, who had just finished his PhD at CUNY. He had decided to move to Brazil and accept a research position at the Museu Goeldi, under the direction of Adélia de Oliveira Rodrigues, head of Goeldi's Anthropology Department. At the time Moore said that, like our group at UNICAMP, it was his goal to train Brazilian researchers. Over the subsequent years Moore has been able to gather a group of some of the most talented new Brazilian researchers and offer them excellent field experiences. Many of these Brazilian researchers have gone on to train at prestigious international universities (e.g. University of Chicago, Massachusetts Institute of Technology, University of California at Santa Barbara, University of Oregon, Leiden University, and elsewhere). In addition to this, in the late 90s, Moore received a MacArthur Foundation Grant, tremendously helping him and his students in their research. This of course ultimately supports the entire linguistics and anthropological communities because such support guarantees, in

Moore's hands, a solid return of field research and documentation and description of many endangered Amazonian languages.

**Brazilian Universities** also continue to play a significant role in the study of indigenous languages of the Amazon. UNICAMP has in recent years, through personnel losses, lost its pre-eminence in Amazonian studies. However, Lucy Seki, a dedicated researcher with a long history of work on Amazonian languages has remained at UNICAMP and has nurtured and trained many Brazilian linguists over the years and still has a strong nucleus of bright new linguists. The University of Rio de Janeiro's staff are mostly associated with the Museu Nacional, but there are others there with an interest in Amazonian languages. Aryon Rodrigues and Ana Suely Cabral at the University of Brasilia are also building up a nucleus of students, as Rodrigues does wherever he goes. At the Universidade Federal de Pernambuco, my former PhD classmate, Adair Palacio, has been working for years on the study of Guató and other languages and has managed to also build up a core of Amazonian researchers.<sup>8</sup> Other universities in Brazil with faculty-led research interests in Amazonia include UFPa (Universidade do Pará), and UFGO (Universidade Federal de Goiás).

I should emphasize that the list above is not intended to be exhaustive. There are many more researchers at various other institutions. Rather, the list is meant to be representative.

## 7. Linguistic lessons from Amazonian languages

As a linguist I am concerned with the theoretically significant lessons Amazonian languages have to teach us and the many lessons we will fail to learn if any of these languages are lost without careful documentation. So I want to consider here just a few of the lessons they have taught us (my choices reflecting my own biases, of course). In *phonetics* at least two sounds have been discovered in Amazonian languages that exist nowhere else in the world. These are the voiceless bilabial trill + alveolar stop in Chapakuran languages, tB, described in detail in Ladefoged and Everett (1996) and the linguo-labial vibrant of Pirahã described in Everett 1982 and also in mentioned in earlier publications (though neither carefully described nor recognized explicitly as *sui generis*) by Arlo Heinrichs. Such sounds are important when discovered because they raise questions for the understanding of the articulatory possibilities of *Homo sapiens* and the theory of how to capture these possibilities (e.g. both of the sounds just mentioned raise serious problems for distinctive feature theory).

*Phonologically*, the vowel systems of Pirahã and Wari' show a fascinating distribution of small groups of segments in unusual 'spaces', as described in Everett & Kern (1997), Everett (1986), and Ladefoged, Everett, and Kern (1996). For example, in its six-vowel system, Wari' has two front rounded vowels [i, e, ø, y, a, o], a highly unusual arrangement. And though Pirahã has only three vowels, it has very little vocalic complementary distribution or variation - surprising behaviour (to some theoreticians) from a three-vowel inventory.

In *prosodic phonology*, Amazonian languages manifest an extremely interesting array of features that I and others have documented for a wide variety of languages. To give two examples here, Paumari and Suruwahá (Arawan family) have rightward, quantity-insensitive iambic feet, otherwise unattested in the world's languages (though I suspect that other similar systems will be found in the Amazon and elsewhere). Since

Everett & Everett (1984) Pirahã's onset-sensitive stress system has been considered by numerous researchers. In recent work, Matthew Gordon of UCSB has offered the first phonetic theory of onset-sensitive stress, based on Pirahã (and some other languages from the Amazon and elsewhere), seen in various papers on his UCSB website and his 1999 ULCA PhD dissertation. The idea of onset-sensitive syllable weight challenges many classical ideas in syllable theory. Such information is, again, likely to be found in other endangered languages of the Amazon and elsewhere which have not been well studied.

In *morphology* theory, there have likewise been various discoveries in the Amazon of note, such as findings on classifiers by Doris Payne, Desmond Derbyshire, Diana Green, Alexandra Aikhenvald, and others. Amazonian agreement systems, clitic behaviour, evidentials, periphrastic morphological expressions, verb serialization and compounding, have all also shown unusual characteristics causing typologists and theoreticians to reconsider some of their basic theoretical premises.

Amazonian languages' importance to linguistic theory was first observed, however, in regard to *syntax*. In particular, the very important and pioneering work by Derbyshire & Pullum (1979) on object-initial languages was extremely important to theoretical, typological and functional syntax models. In some cases, these findings in syntax were responsible for the interest in Amazonian languages of several of the newer researchers mentioned earlier. Of course, in the intervening years, many new findings have resulted from Amazonian research. For example, Yagua's pattern of subject agreement in VSO order but no subject agreement in SVO order contradicts several claims on V-initial languages (e.g. the papers in Carnie and Guilfoyle (2000)); as described in Everett (1989) and Payne & Payne (1989). Valenzuela's (2003) recent findings from Shipibo on adverbial agreement with main clause arguments is important, as are various results on clitics, clause-structure, ergativity, etc. Amazonian languages have shown themselves to contain robust challenges and confirmations of a variety of theoretical syntactic claims over the years.

I have heard it reported that modern interest in *discourse* was sparked by a paper on discourse structure in Shipibo, an Amazonian language of Peru, over forty years ago, by James Lloriot of the SIL. I do not know if this is correct, but Lloriot's work was discussed as the 'opening salvo of the discourse revolution' by Robert Longacre in a syntax class I took some 27 years ago. In any case, Amazonian languages have demonstrated their importance to studies of discourse now in a long series of studies (e.g. in the UCLA PhD dissertations by Tom & Doris Payne in the early 80s, and the work that has launched through the University of Oregon where Doris Payne holds a faculty appointment).

One little-studied, but highly intriguing aspect of discourse and its relation to culture and linguistic structures has emerged from the study of Pirahã, namely, the concept, originally proposed by Hymes (1974) of discourse 'channels'. Everett & Everett (1984), Everett (1985), Everett (1988), and K. Everett (1998) have documented various aspects of the strikingly complex prosody of Pirahã. It turns out that this complexity is exploited by the language and culture in fascinating ways, through the existence of distinct prosodic *channels* of discourse.

Hymes (1974) defines a channel as a 'sociolinguistically constrained physical medium from the source to the receiver.' Pirahã employs at least five distinct channels, each for a distinct cultural purpose. However, to understand how these channels are

possible, it is necessary to restate here the following facts about Pirahã prosodic structures, as well as the simplicity of its segmental inventory.

PIRAHÃ SEGMENTAL INVENTORY (Consonants () = missing from women's speech)

**Pirahã Consonants**

|          |          |            |             |
|----------|----------|------------|-------------|
| <b>p</b> | <b>t</b> | * <i>k</i> | ? (glottal) |
| <b>b</b> |          | <b>g</b>   |             |
|          | (s)      |            | <b>h</b>    |

**Pirahã Vowels**

|          |          |            |
|----------|----------|------------|
| <b>i</b> |          |            |
|          |          | <b>o/u</b> |
|          | <b>a</b> |            |

Figure One

(1) **Pirahã stress rule:** stress the rightmost token of the heaviest syllable type in the last three syllables of the word.

As pointed out in Everett & Everett (1984) and further argued in Everett (1988), (1) is based on the weights in (2), themselves partially dependent on the weight differential between voiceless and voiced onsets. This latter differential is just this: *voiceless consonants are always longer than voiced consonants*. (Phonetically, see K. Everett (1998).

(2) Pirahã's five syllable weights: CVV>GVV>VV>CV>GV (where C = voiceless consonant and G = voiced consonant)

In the examples in (3), tone is independent of stress. ´ = high tone; no mark over vowel = low tone. The stressed syllable is marked by !. There are no secondary stresses (7=glottal stop).

- (3) a. !tígí 'small parrot'
- b. !pigì 'swift'
- c. !sàbí 'mean, wild'
- d. !7ábi 'to stay'
- e. tí!híí 'bamboo'
- f. 7i!ti 'forehead'
- g. tí!7í 'honey bee'
- h. tí!hì 'tobacco'

This prosodic richness provides many clues/cues for parsing words. And other prosodic cues are available. For example, as K. Everett (1998, 114ff) states: "The vowels of unstressed syllables have a significantly greater duration than the vowels of stressed

syllables..." This too, though not part of the input/phonemic structure of a Pirahã word - is an important phonetic cue.<sup>9</sup>

Example (4) is designed to show how this prosodic information is exploited to create segment-independent channels. The inventory in Figure One above, also partially shows how little the segments contribute to the total set of phonological information in a given Pirahã word.

- (4) a. **kái?ihí?ao -?aagá gáihí**  
 paca poss/exist-be there  
 'There is a paca there.'



What is interesting about (4) is that all channels must include the information in (4b), but only one channel, the ‘Segmental Speech channel’, needs the information in (4a). The notes in (4b) represent syllables, with 'ties' indicating unbroken falls/rises in whistle speech.

In the nonsegmental form of (4) there is a falling tone, followed by a short low, with a preceding break in the whistle (where the glottal stop would have been in **kai**/?**hi**), followed by another short break (where the **h** would be) and a short high tone, and so on. Thus, the syllable boundaries are clearly present in whistle (humming, and yelling) channels, even though the segments themselves are missing. The syllable in this case indicates length, offers an abstract context for tone placement, and the overall word is stressed according to syllable weight (see Everett (1988) for details). The syllable in these cases is vital to communication in differing channels, primarily in parsing the input. The channels in Pirahã then are given in (5), along with what is currently known about their functions:

- (5) CHANNEL  
 a. **HUM SPEECH**

- FUNCTIONS  
 Disguise  
 Privacy  
 Intimacy  
 Mouth is full  
 Child language acquisition relation

- b. **YELL SPEECH**

- Long distance  
 Rainy days  
 Most frequent use – between huts & across river

- c. **MUSICAL SPEECH** ('big jaw')

- New information  
 Spiritual communication  
 Dancing, flirtation

Women produce this in informant sessions more naturally than men. Women's musical speech shows much greater separation of high and low tones, greater volume.

d. **WHISTLE SPEECH** (sour or 'pucker' mouth' – same root as 'to kiss' or shape of mouth after eating lemon)

Hunting  
Men-only (as in ALL whistle speeches!)  
One unusual melody used for aggressive play

e. **SEGMENTAL SPEECH**

No emotive or special function in focus, the 'default' channel.

Now let us consider one immediate application of this knowledge to Pirahã segmental phonology. The phenomenon in question is what I call the 'Sloppy Phoneme Effect' (described in Everett (1985)), illustrated in (6) – (7):

- (6) **tí pái ~ kí pái ~ kí kíai ~ pí pái ~ ?í pái ~ ?í ?íai ~ tí pái, etc. (\*tí tíai, \* gí gíai, \*bí bíai)** 'me too'
- (7) **?apapá ~kapapá ~papapá ~?a?a?ái ~kakaká ~(\*tapapá, \* tatataí, \* bababá, \* gagagá)** 'head'
- (8) **?ísihoái ~kísihoái ~písihoái ~píhihoái ~kíhihoái ~** (alternations with /t/s or involving different values for [continuant] or [voicing] are unattested) 'liquid fuel'

Consider this effect in light of Pirahã's discourse channels. The ungrammatical examples in (6)-(8) show that the features [continuant] and [voice] are linked in the sense that they may never vary in the effect. Only place features may vary. With no reference to channels this is without explanation. But in light of the channels this follows because [continuant] and [voice] are necessary for stress placement (Everett (1988)) which in turn must be preserved in every discourse channel, or the constraint in (9) is violated:

- (9) *Constraint on functional load and necessary contrast* (Everett (1985)):
- a. Greater Dependence on the Channel  Greater Contrast Required
  - b. Lesser Dependence on the Channel  Less Contrast Required

Notice that I am not claiming that the absence of variation for different values of [continuant] is predicted by 'channels' alone. There is no claim that ethnography replaces phonology! But I am claiming that without the study of channels and their role in Pirahã culture, even an understanding of Pirahã's segmental phonology is not possible.

There are various other contributions in the literature arising from the study of Amazonian languages. The point of the preceding section was not to provide an exhaustive list of Amazonian contributions to linguistic theory, but, rather, to reinforce the claim that the documentation and description of endangered languages is not entirely

altruistic – linguistic theory should be concerned about the disappearance of these languages for the tremendous vacuum their disappearance would produce in many domains of linguistic knowledge and our understanding of Homo sapiens sapiens.

#### 8. Prospects and needs

Latin American scholars work under extremely difficult and volatile circumstances. They are underpaid, underfunded in their research, and work with infrastructure that would be utterly unacceptable to researchers in North America and Europe. Yet, as alluded to above, the number of first-class Latin American researchers is growing very fast. The day is long past when the best linguists working on Amazonian languages are from Europe or North America. These days the best group of linguists anywhere in the world working on Amazonian languages are working in Latin America. Thus the model of research which involves an expatriate linguist travelling to Brazil, Venezuela, etc. and doing his/her own 'thing', allowing Latin linguists to learn of his/her research only through journal publications should no longer be tolerated. It is bad research methodology, not to mention extremely ethnocentric. Rather, the linguist working on Amazonian languages should link her/himself to local institutions, receiving sponsorship and partnership from networks of local scholars and cooperating with them in co-authoring, sharing of external funding 'wealth', mutual training of students from one another's institutions, etc. Although the number of Latin American field linguists is growing, the number of endangered languages in need of study still dramatically outstrips the number of linguists available to work on them. A recent estimate of the **Ethnologue** suggests some 200 languages in Brazil alone, of which more than two-thirds are still in urgent need of documentation and description (this itself is a simplification since the other third of Brazilian Amazonian languages that have been studied to some degree, like all languages, need to be continually studied so that our analyses and understanding of them can be refined. No single study is ever enough for any language though, given the reality of personnel and funding resources, this is all we are likely to get for many).

If I were to state a global priority for immediate research in the Amazon, other than the obvious one of documentation (grammar, text collection, and dictionary) of each Amazonian language, it would be for a major linguistic and sociolinguistic **SURVEY** to determine more effectively how many languages are actively spoken in the Amazon, as well as languages in greatest danger of disappearance, etc. Survey should be undertaken with partnership between external funding agencies, local institutions, and international teams of scholars. Such a survey should involve in-depth comparative research on linguistic structures and sociolinguistic attitudes. We are unable to evaluate the total number of truly endangered languages or even the full meanings of linguistic maps that have been done without more survey.

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## Notes

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<sup>2</sup> Anyone with a serious interest in the peoples of Amazonia should read the two excellent books by John Hemming, **Red Gold: The Conquest of the Brazilian Indians** (Hemming 1978) and **Amazon Frontier: The Defeat of the Brazilian Indians** (Hemming 1987)

<sup>3</sup> Years ago, when advising a Brazilian PhD student studying Guarani, I had occasion to look in some detail at Montoya's grammar. In one section he discusses noun-incorporation and notes that the morphological case originally assigned to the incorporated noun (e.g. a possessor in a noun phrase) can be assigned to a non-incorporated noun. He accounts for this by saying that the incorporated noun no longer needs the case itself and thus that it is free to be assigned to the possessed noun, an insight that predates a very similar claim by Mark Baker (1988) by roughly 400 years (not to take anything away from Baker, but merely to underscore the brilliance of these early Jesuit linguists, since their work was done without anything like modern linguistics training and largely the fruit of their individual reflection, rather than a modern university research environment).

<sup>4</sup> The original reads as follows:

*"Eu me interessei pelo instituto porque, tendo convivido muito com os índios, sofria vendo que muitos povos estão ameaçados de desaparecimento e quase nenhum tem sido bem estudado lingüisticamente ou tem sua língua bem escrita. Facilitei o ingresso do instituto no Brasil, a fim de que realizassem seu trabalho. A primeira lingüista que veio, eu a mandei para salvar a língua dos Ofaié, um grupo de dez índios que iria desaparecer em breve. Ela conseguiu um dicionário de 5 mil palavras e algumas horas de texto. A língua Ofaié está salva. Depois, pedi ao instituto que fosse aos Guató, e assim fui determinando os povos que eles deviam estudar... **Meu objetivo era salvar para os lingüistas do futuro, que possivelmente saberão estudá-las, as línguas como cristalizações do espírito humano, para aprendermos mais sobre os homens.**"*

<sup>5</sup> It should be emphasized that this quotation is neither an endorsement of the Summer Institute of Linguistics nor of missionary linguists in general. This is a rather complex ethical issue and I take it up in detail in Everett (in progress). Likewise, this quote is not intended as an endorsement of the quality of the work by the SIL on Ofaié/ Ofayé. Eduardo Ribeiro is conducting a detailed study of Ofayé which will include an assessment of the original SIL work on this language commissioned by Darcy Ribeiro (no relation).

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<sup>6</sup> During my graduate work under Rodrigues, I began to appreciate for the first time the ethical problems of missionary linguistics. Though I did not leave SIL for many years thereafter for a variety of personal reasons, it was Rodrigues, in his non-confrontational and extremely reasonable manner who led me to conclude that I could not remain in a missionary organization. As I discuss in Everett (in progress) there are missionary linguists that actually do solid science and are careful not to impose their own views about religion in their relations on indigenous Amazonian peoples or otherwise engage in proselytizing. But it is nevertheless true that the majority of missionary linguists are motivated mainly by the desire to 'convert' indigenous peoples to a fundamentalist form Christianity, an enterprise whose adverse effects on the self-identity and cultures of fragile Amazonian groups outweigh its benefits, which were never quite as important as Ribeiro had originally hoped (see below).

<sup>7</sup> It is perhaps appropriate to mention here that with regard to SIL International, its pioneering development of inexpensive software for fieldwork, its **Ethnologue**, and various other contributions to language documentation and description are of fundamental importance and ought not to be overlooked nor denigrated.

<sup>8</sup> Adair was the second PhD in Linguistics ever awarded by the University of Campinas. I was the first.

<sup>9</sup> As K. Everett (1998,116) says, "Increased duration is an acoustic correlate of stress in Piraha. However, the increase in duration is not due to an increase in the vowel length. Stressed vowels are significantly shorter than unstressed. This contrasts with English and other European languages... Fry (1968) makes the general statement that stressed syllables regularly contain vowels of greater length than of corresponding unstressed syllables. For Piraha this would need to be modified to include onsets in duration measurements as it is only when onsets are included that the stressed syllable is significantly longer than the unstressed syllable."

<sup>10</sup> The length of the notes is determined by the relative lengths of the syllables, as is the height of the notes. The wedges under the lines indicate stress. The values are CVV = whole note; GVV = dotted half; VV = half; CV = dotted quarter; GV = quarter.