

Chapter 12

Languages of the Amazon: Dimensions of diversity

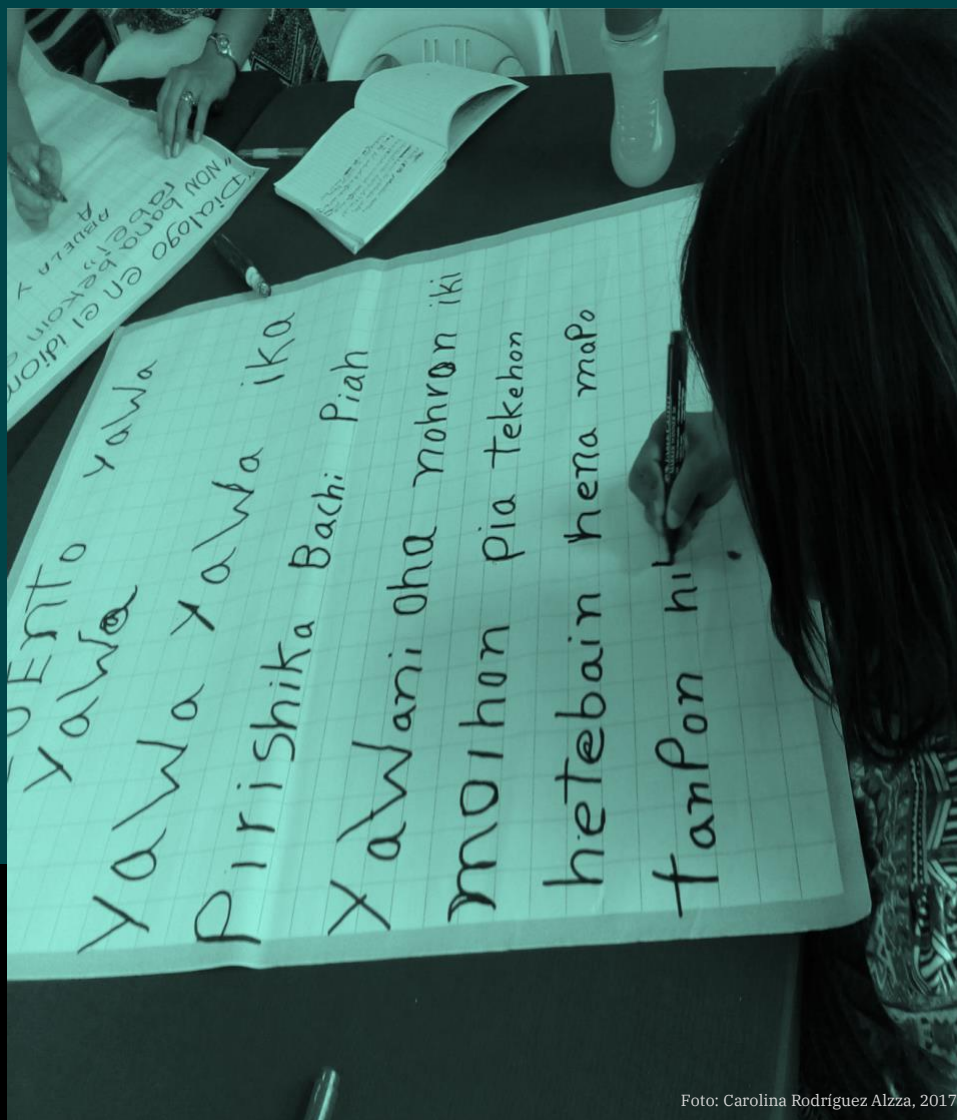


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About the Science Panel for the Amazon (SPA)

The Science Panel for the Amazon is an unprecedented initiative convened under the auspices of the United Nations Sustainable Development Solutions Network (SDSN). The SPA is composed of over 200 preeminent scientists and researchers from the eight Amazonian countries, French Guiana, and global partners. These experts came together to debate, analyze, and assemble the accumulated knowledge of the scientific community, Indigenous peoples, and other stakeholders that live and work in the Amazon.

The Panel is inspired by the Leticia Pact for the Amazon. This is a first-of-its-kind Report which provides a comprehensive, objective, open, transparent, systematic, and rigorous scientific assessment of the state of the Amazon's ecosystems, current trends, and their implications for the long-term well-being of the region, as well as opportunities and policy relevant options for conservation and sustainable development.

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Graphical Abstract

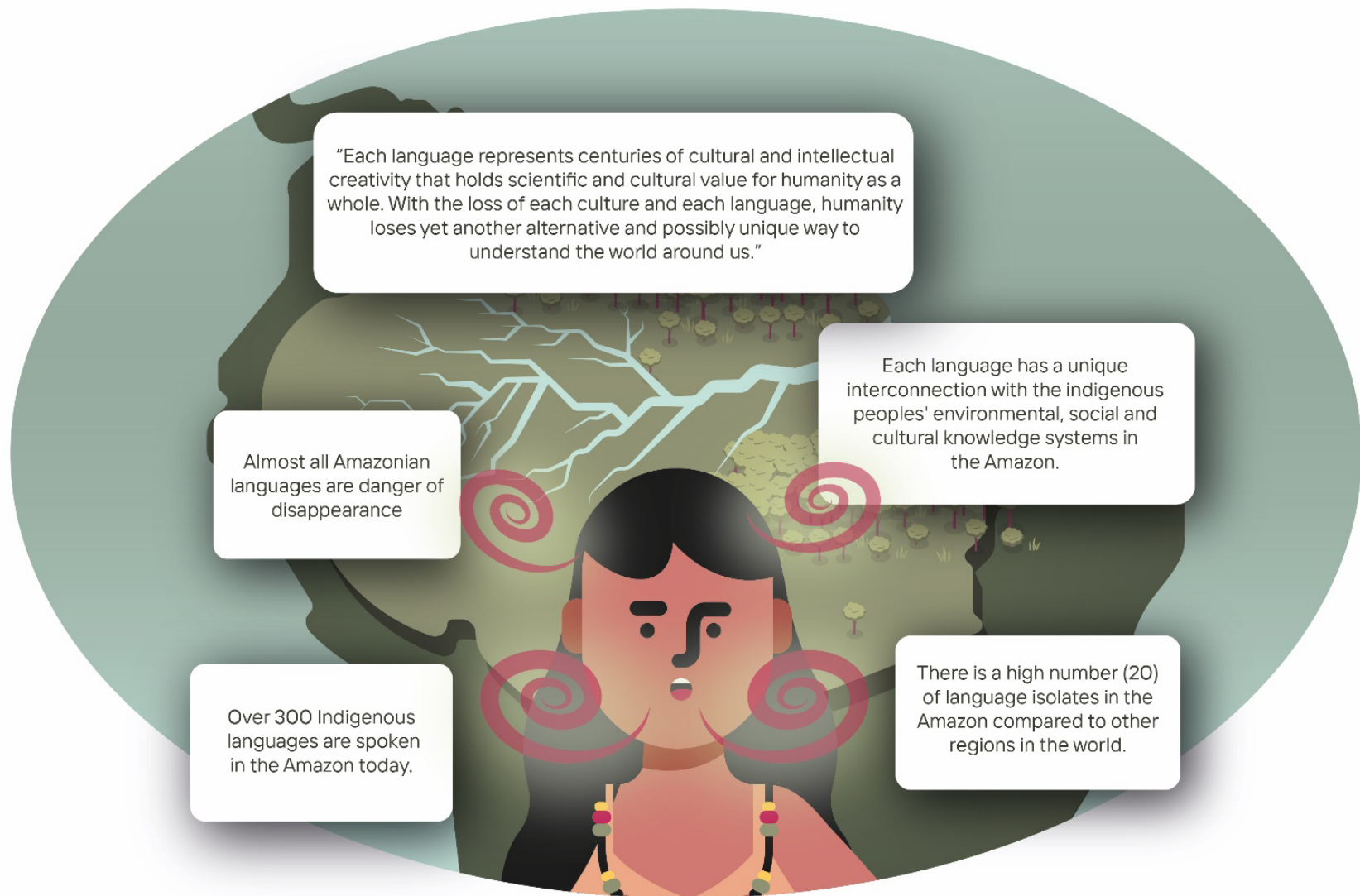


Figure 12.A Graphical Abstract

Languages of the Amazon: Dimensions of Diversity

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Key Messages

- One of the most important dimensions of the linguistic diversity of the Amazon region is its genealogical diversity. With respect to language families and isolates, the Amazon is one of the richest parts of the world, and this diversity is, possibly not coincidentally, mirrored by Amazonian biodiversity. Most Amazonian languages are in danger of extinction, whereas few have been sufficiently documented and studied.
- Each language represents the heritage of centuries of cultural and intellectual creativity that holds scientific and cultural value for humanity as a whole. With the loss of each culture and each language, we lose an alternative and possibly unique way, developed over many centuries, of understanding the world.
- All languages and cultures are permanently subject to change, and all are capable of adapting to new circumstances. However, since the arrival of Europeans five centuries ago, the Amazon region has lost 75% of its languages (Aikhenvald 2012, Rodrigues 1993). The disappearance of linguistic diversity in the Amazon, disintegration of Indigenous societies, extinction of biological species, and destruction of Amazonian ecosystems are parts of the same problem.
- Important components of preventing language extinction are valorization of speakers through the recognition of Indigenous rights, the protection of Indigenous lands, and sustainable economic alternatives to uncontrolled deforestation and mineral prospecting. The active promotion of language rights by governments of Amazonian countries is a relevant measure to decelerate their loss.
- Indigenous peoples themselves are taking advantage of growing connectivity throughout the Amazon and are developing solutions by using language in new ways, such as social media, in which young speakers participate without feeling stigmatized and promote documentation and revitalization of their languages.

Abstract

This chapter is about the extraordinary Indigenous linguistic diversity of the Amazon region. This diversity is presented in terms of its different dimensions: the existence of a relatively large number of languages in the region; how these languages are related among each other, representing an impressive genealogical diversity; its geographical distribution over different Amazonian subregions; the effects of language contact that have resulted in several linguistic areas; the different levels of endangerment and the different social circumstances that contribute to it; and, finally, what is lost when languages disappear. The loss of linguistic diversity entails the disappearance of Indigenous knowledge systems concerning environment and social organization, and parallels biodiversity loss.

Keywords: Amazonian languages, language diversity, language vitality, endangered languages, drivers of change

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12.1 Introduction

This chapter presents the dimensions that make the Amazon region a place of extraordinary linguistic diversity. The first reports by European colonizers, missionaries, travelers, adventurers, and scientists mentioned the remarkable multitude of languages spoken by the various peoples of the region. They also highlighted the fact that these languages seemed to be radically different from each other. The number of languages that were spoken at that time far exceeds the over 300 languages that are counted today. These remaining languages are classified in around 50 language families and isolates, resembling a patchwork quilt when indicated by colors on a map (Figure 12.1).

Linguistic research has increasingly refined our understanding of this diversity, not only with respect to genealogical classification, traces of contact, and typological characteristics. Languages also differ due to historical, social, and cultural factors. Furthermore, at the present juncture, languages differ conspicuously with regard to levels of vitality. While some languages enjoy a high degree of vitality and may have the support of national and local language policies, others are at serious risk of extinction. Nevertheless, all Amazonian languages can be considered in some degree of danger, due to the pressures of national and global societies. The ongoing loss of linguistic diversity involves the disappearance of Indigenous knowledge systems concerning environment and social organization, and parallels biodiversity loss.

12.2 Linguistic diversity

In spite of difficulty in establishing the exact number of different languages spoken on the planet, linguists agree that it is at least 6,000. Some of those languages have hundreds of millions of speakers and 20 of those languages are spoken by about half the world's population. This implies that all other languages are spoken by the other half of humanity. It is furthermore estimated that half of the world's more than 6,000 languages are spoken

by not more than 0.2% of the world's population. Most of these languages are to some degree endangered (Moseley ed. 2010).

The density of languages is not distributed evenly across the globe. In some regions few languages are spoken, and in other regions the number of different languages is extreme. As an example, one single Inuit language is spoken, in several different dialects, along the coast of Greenland, down from the northwest, rounding the southern tip, up to the east, covering a stretch of 4,000 kilometers. By contrast, in New Guinea, which is about half the size of Greenland, an estimated 1,000 different languages are spoken. In terms of language numbers, New Guinea is extremely diverse.

The Amazon region is also highly linguistically diverse in quantitative terms. It is estimated that over 300 Indigenous languages are spoken in the Amazon today. This number, however, is a fraction of the over 1,000 languages that were spoken when European colonizers arrived. Over the past five centuries, exogenous diseases, colonial violence, slavery, and dispossession have diminished Indigenous populations, and in the process many languages became extinct. Even though Indigenous populations have been rising for the past 50 years, most of their languages are in danger of extinction.

In order to establish what is lost when languages disappear and what are the causes of this process, we will have to explain the nature of language diversity in the Amazon and where it comes from. In the above paragraphs, we have considered language diversity in terms of numbers of languages. There are also other ways to look at language diversity, which are related to the way in which languages emerge and die out again.

12.3 The emergence of genealogical language diversity

All living languages change over time and therefore show variation. Language change can be caused by different internal and external factors.

Languages change through time, which is why we may have difficulty understanding earlier stages of a language as laid down in written form from centuries ago, or sometimes even as spoken by our grandparents. Furthermore, when different populations speaking the same language live separately in distant geographical locations, separate linguistic developments through time give rise to contemporary variations of the same language, known as dialects. If enough time passes, say, a thousand years, dialects may become so different as to no longer be mutually intelligible, and can be considered different languages. Because such languages originate from a common ancestor, they are considered genealogically related.

The emergence of new dialects and languages through historical diversification results in language families. A well-known example is the Romance language family, which consists of Spanish, French, Portuguese, Italian, and other languages, and which developed out of an earlier language known as Vulgar Latin. In fact, the Romance languages are part of just one branch of a bigger and older family, the Indo-European languages, which includes Celtic, Germanic, Slavic, Indo-Iranian, and other language families. The hundreds of Indo-European languages are therefore all genealogically related. There are several very big language families in the world, such as the Austronesian family, the Niger-Congo family, and the Sino-Tibetan family. Three big language families are widely represented in the Amazon region: Arawakan, Cariban, and Tupian.

There are perhaps 250 different language families in the world today, some of which are very small, containing only two or three languages, many of which are found only in South America. Some languages are isolates; they do not belong to any known family and can be considered as single-language families. A European example is Basque, which even after centuries of linguistic research has not been classified in any known family (but

see Bakker 2020). There are about 125 isolates in the world, and the Amazon region harbors a disproportionate number of those (Seifart and Hammarström 2018). To explain this high number of isolates represents a challenge for Amazonian linguistics and related areas of research.

Table 12.1¹ shows that the Amazon region has a relatively low number of languages when compared to some other regions. However, the number of families and isolates represented by those relatively few languages is very high. In terms of genealogical units, the linguistic diversity of the Amazon is quite exceptional.

Table 12.2² looks more in-depth at this diversity, considering each country in the Amazon basin. The numbers shown are rough approximations. Most of

Table 12.1 Some indicators of linguistic diversity¹

	Languages	Families	Isolates
World	6,000+	250	125
North America	400	35	20
South America	500	45	40
Amazon	300+	25	20
New Guinea	1,000+	50	20

Table 12.2 Number of languages, families and isolates in the Amazon²

Country/territory	Languages	Families	Isolates
Brazil	120	14	7
Bolivia	34	11	8
Colombia	49	13	6
Ecuador	9	4	2
French Guiana	6	3	-
Peru	48	19	5
Venezuela	37	5	4

¹ Based on Moseley (ed. 2010), Hammarström et al. (2021), Campbell (ed. 2018) and other general resources

² Based on Crevels (2012) and Moore (2007).

the languages belong to one of the major linguistic families (Tupi, Arawak, Carib, Macro-Jê). The literature on these families is vast. For general overviews see, e.g., Campbell and Grondona eds. (2012), Dixon and Aikhenvald eds. (1999), Epps and Michael eds. (in prep).

The classification of languages into families requires careful historical comparative linguistic research and depends on reliable and well-analyzed descriptive linguistic data. Especially in the Amazon, such data are not always available, and in view of the endangered situation of most Amazonian languages, researchers face a race against time. The scientific relevance of the genealogical linguistic diversity of the Amazon has ramifications for other fields of science, such as archaeology.

The geographical distribution of language families can be shown on a map by using different colors and can help to reconstruct patterns of prehistoric demography and migrations. Figure 12.1 shows the linguistic diversity of the Amazon.

Furthermore, the greater the diversity within a language family in a specific region, the more likely it is that language family originated there. Hence, the center of origin of the Tupi language family is estimated to be in the border region of the Brazilian states of Mato Grosso and Rondônia (Galucio *et al.* 2015). Classification of languages involves the reconstruction of sound changes and words, such as terms for material and immaterial culture, subsistence technology, and features of nature and the landscape. Hence comparative linguistics can teach us not only about where people lived but also about how they lived (Campbell 1998).

Comparative linguistics also involves establishing relative time depth between languages of the same family. The historical comparative method can look back in time perhaps up to 7,000 years. Beyond that, languages may have changed so much that it is not possible to establish any family relationship. This is also one of the factors that can explain the existence of language isolates. Another

possible explanation of isolates is that all other languages of the same family have died out.

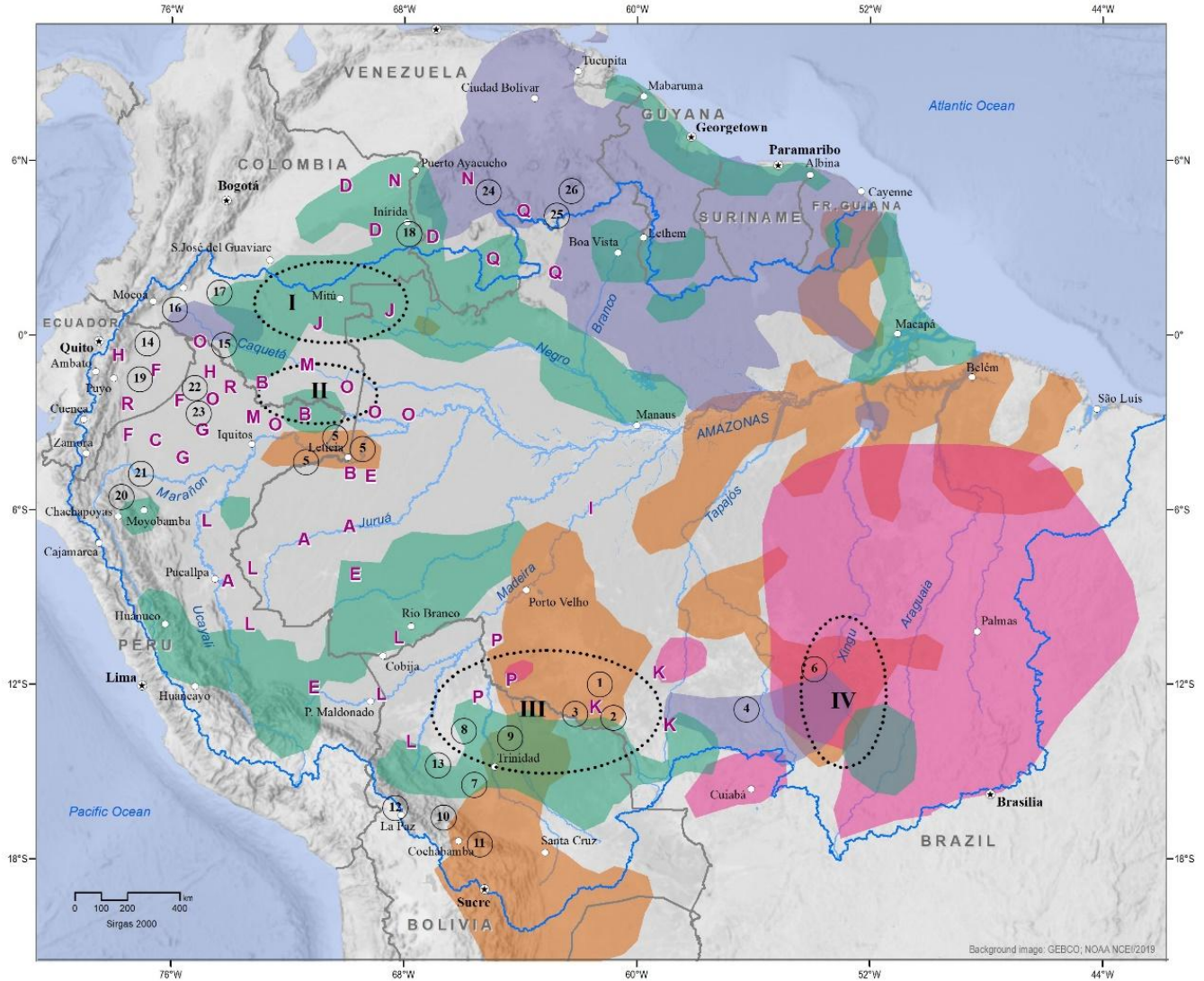
With over 10 language isolates on the headwaters of the Guaporé and Mamoré rivers, a region the size of Germany, the southwestern Amazon harbors one of the greatest concentrations of linguistic isolates on the planet.

By definition, language isolates do not share a common ancestor with any other known languages and are thus genealogically unique. Consequently, their vocabularies tend to be completely different and they may display structural properties that have never been attested for any other language. On the other hand, the fact that any language, including isolates, also shares properties with other languages may also be the result of language contact, or may point to traits, tendencies, or limits that are universal in human language. Therefore, the research of grammatical structures of all languages is not only relevant for the typological study of language, but may also have great significance for the study of cognition and the human brain.

12.4 Language diversification and change through contact

Languages can change through contact with other languages. Language contact occurs in situations of bi- or multilingualism, or when people who do not speak each other's language are in contact (Thomason 2001; Winford 2003). Prime indicators of language contact are loanwords, but languages can also undergo influence in their sound systems and grammar. Due to contact, languages can display specific similarities with other languages even though they are not genealogically related. One of the challenges of comparative linguistics lies in distinguishing the contact signal from the genealogical signal (Campbell 1998). Vestiges of language contact and knowledge about the directionality of linguistic influence can be highly relevant for our understanding of present and past cultural, societal, and trade relationships between populations.

LINGUISTIC DIVERSITY OF THE AMAZON



SPA, 2021

- Amazon basin
- National border
- ⊙ National capital
- Main cities

Sources: based on Crevels, 2012, Hammarström et al. 2021; Moore 2007 (Linguistic Families); RAISG (referente boundaries, cities); WCS (new classification Amazon basin)

Language Isolates

- | | |
|----------------------|----------------------------|
| 1 Aikanã | 14 Cofán |
| 2 Kwaza | 15 Andoque |
| 3 Kanoé | 16 Kamsá |
| 4 Iranxe / Mynky | 17 Tinigua |
| 5 Tikuna | 18 Wãnsöhót / Puinave |
| 6 Trumai | 19 Wão Tededo |
| 7 Canichana | 20 Muniche |
| 8 Cayubaba | 21 Urarina |
| 9 Itonama | 22 Aewa / Vacacocha |
| 10 Mosetén / Tsimane | 23 Taushiro |
| 11 Yurakare | 24 Hodí / Joti |
| 12 Leko | 25 Uruak / Awaké / Arutani |
| 13 Movima | 26 Sapé / Kalliana |

Smaller Language Family

- | | |
|-----------------------|------------------|
| A Arawan | J Naduhupan |
| B Bora-Huitotoan | K Nambikwaran |
| C Candoshi-Shapra | L Pano-Takanan |
| D Guajiboan | M Peba-Yaguan |
| E Harakmbut-Katukinan | N Saliva-Piaroan |
| F Jivaroan | O Tukanoan |
| G Kawapapanan | P Txapakuran |
| H Kichwa | Q Yanomaman |
| I Muran | R Zaparoan |

Large Linguistic Family

- Arawakan
- Cariban
- Macro Gean
- Tupian

Linguistic Areas

- ⊙ I Upper Rio Negro
- ⊙ II Caquetá-Putumayo
- ⊙ III Guaporé-Mamoré
- ⊙ IV Upper Xingu

Figure 12.1 Linguistic diversity of the Amazon. Sources: Crevels (2012), Hammarström et al. (2021), Moore (2007), RAISG (2020), Venticinque et al. (2016).

Language contact can lead to the emergence of new languages. When different groups do not understand each other's languages, they may create a grammatically simplified language with a limited vocabulary, known as a *pidgin*. Pidgin languages are not spoken as a mother tongue and are used in specific contexts, such as for the purpose of trade. In more profound or dramatic situations of intercultural contact, a pidgin language may be the only language available to the new generation and result in a new language that is spoken as a first language. In the context of the Atlantic slave trade many *creole* languages have emerged; these are languages with a lexicon that tends to originate from the dominant languages involved in the contact and a grammar that cannot be traced back to any specific language, but that may reflect universal traits. An Amazonian example of a creole language is Kheúól, which is based on French lexicon and spoken by the Karipuna do Amapá and the Galibi-Marworno Indigenous peoples (Ferreira and Alleyne 2007).

Another type of new language is an *intertwined* or *bilingual mixed language*. Such a language may arise under rare social circumstances when a new ethnic group emerges out of two different ethnic groups and feels the need to have a language of its own. Such mixed languages tend to be composed of the grammatical and lexical components of the contributing languages. A South American Indigenous example is Island Carib, which is a language with Arawak grammatical structure and Carib lexicon that emerged when Carib speaking men massacred the men of an Arawak speaking group and married their women. Their children acquired the grammar from their mothers and the lexicon from their fathers (Hoff 1994).

Pidgins, creoles, and mixed languages cannot be satisfactorily classified in families, because they do not have a clear single ancestor. Creoles and mixed languages are very rare in the Amazon region. However, such languages are spoken natively and undergo processes of linguistic change through time like any other language. Therefore, the possi-

bility cannot be excluded that certain known Amazonian language families or isolates started out as creoles or mixed languages many centuries ago. There exists hardly any documentation and research of Indigenous Amazonian pidgin languages. One explanation for the relative absence of contact-induced new languages in the Amazon combines the enormous language diversity of certain regions with widespread traditions of multilingualism.

Situations of long-term language contact and multilingualism in a specific region can result in the diffusion of lexical, phonological, and grammatical traits among languages irrespective of their genealogical classification (Hickey ed. 2017; Matras *et al.* 2006; Muysken ed. 2008). Over time, say, several centuries, the languages involved may come to resemble each other and form a so-called *linguistic area* or *Sprachbund*. A classic example is the Balkans region, where the Slavic, Albanian, Rumanian, Turkish, Romani, and Greek languages have certain traits in common that are unknown among other Slavic, Romance, and Turkic languages outside the region. The Amazon region contains several linguistic areas (indicated in dotted circles in Figure 12.1). The most famous and striking is the Upper Rio Negro region where the Tucanoan, Arawakan, Naduhup, and Kakuá-Nukak languages share grammatical traits that are not shared with genealogically related languages outside of the region (Aikhenvald 2002; Epps and Stenzel eds. 2013; Epps and Michael 2017).

12.5 Language variation

Both historical language change and contact-induced language change are kinds of linguistic variation. In fact, variability is an important characteristic of any language. What is usually called a “language” is not a clearly definable entity. A living language may vary through time; by region; across social strata; according to occupation, gender, or age; depending on audience; etc. The documentation and description of widely-spoken European languages, such as Spanish, English, or German, co-

vers hundreds of years of social, regional, and other kinds of variation. The study of these languages occupies large portions of archives and libraries, and results in many new books and digital projects each year. The contrast with Amazonian languages could not be greater. We are lucky if an Amazonian language can boast of a single comprehensive grammatical description, and many Amazonian languages are underdocumented. Nevertheless, Amazonian languages are as rich and variable as any other language, and fortunately the documentation and study of dialectal variation, speech styles, specialized language use, and verbal art are beginning to receive the attention they deserve (e.g. Beier *et al.* 2002; Hildebrandt *et al.* 2017).

Concrete examples include the Hup (Naduhup) language of the Brazilian-Colombian border, which has three dialect areas where pronunciation, the meaning of words, and grammar may differ. The Mondé (Tupian) languages of the Zoro, Cinta Larga, Gavião, and Aruá ethnic groups of Brazil are in fact different dialects of the same language. They are mutually intelligible, even though each group may insist that the other group “speaks differently”. Several Amazonian languages have separate speech varieties for men and women. In Kukama-Kukamiria (possibly creolized Tupi-Guaranian) of Peru and Colombia, for example, men and women use different personal pronouns. Many Indigenous groups, for example the Yanomami of Brazil and Venezuela, the Kalapalo (Cariban) of Brazil, and the Nanti (Arawakan) of Peru, perform ceremonial dialogues in greeting rituals, storytelling, news reports, and other special occasions. These are just a few examples of language variation in the Amazon region. One of the first signs of language endangerment is the loss of such variation. The further a population shifts to another language, or the more its social customs are under outside pressure, the less possibilities and opportunities there will be for dialectal, social, or other variation in the original language.

12.6 Language vitality and endangerment

As mentioned above, many Amazonian languages have become extinct during the past few centuries. Languages can become obsolete and disappear in different ways. This may happen when languages change in a gradual historical process. Alternatively, people may abandon their native language and switch to another existing language, usually for economic, political, or other reasons. Languages may also become extinct when their speakers die out, for example due to natural disasters or genocide.

The emergence and extinction of languages can be regarded as a natural process that has always existed. However, since the onset European colonization in the 15th century the cycle has been definitively broken and many more languages are becoming extinct than new languages emerge. During the last century, this process has even accelerated. This has led to a dramatic decline of language diversity and of the immaterial cultural and historical heritage contained in it.

Nevertheless, many languages in the Amazon Basin survive today. Up to 200 isolated or recently contacted Indigenous groups (IACHR 2013; Loebens and Neves eds. 2011; Ricardo and Gongora eds. 2019) continue to speak their languages. Amazonian Indigenous groups struggle to maintain their languages inside as well as outside of their own territories. In cities, for example, the national language is dominant and the use of Indigenous languages is often stigmatized. The development of language policies may counteract prejudice and support the use of Indigenous languages as a fundamental right. Such policies can encourage people to speak their local language. However, socio-economic factors may diminish the impact of such policies.

There are different proposals to measure the degree of language endangerment or vitality (Wurm ed. 1996; Krauss 2007; Brenzinger 2007; Moseley 2009; Lewis and Simons 2010; Campbell 2017; Hammarström *et al.* 2018; Lee and Van Way 2018). Most of them have created categories for different

Table 12.3 Evaluative factors for language vitality (UNESCO 2003)

Factor	Characteristic
1	Intergenerational language transmission
2	Absolute number of speakers
3	Proportion of speakers within the total population
4	Shifts in domains of language use
5	Response to new domains and media
6	Availability of materials for language education and literacy
7	Governmental and institutional language attitudes and policies including official status and use
8	Community members' attitudes towards their own language
9	Type and quality of documentation

Table 12.4 Proportional representation (5%) of the endangerment situation of Amazonian languages (partially adapted from Crevels 2012)

LANGUAGE	FAMILY	COUNTRY	POPULATION	SPEAKERS	DANGER LEVEL
Cayubaba	ISOLATE	BO	1,424	< 2	critical
Záparo	ZAPAROAN	EC	346	2	
Kanoé	ISOLATE	BR	310	4	
Akuriyo	CARIBAN	SU	50	3	
Latundê	NAMBIKWARAN	BR	22	18	severe
Pisamira	TUKANOAN	CO	61	25	
Lokono	ARAWAKAN	GY/GF/VE/SU	19,500	2,500	
Miraña	WITOTOAN	CO	715	<100	
Machiguenga	ARAWAKAN	PE	11,238	5,000	endangered
Cavineña	TACANAN	BO	2,005	601	
Rikbaktsa	MACRO-JEAN	BR	1,323	1,085	
Shiwiar	JIVAROAN	EC	1,198	942	
Emérillon	TUPIAN	GF	400	400	
Kuiva	GUAHIBOAN	CO/VE	1,840	1,840	
Matsés	PANOAN	PE/BR	6,500	6,500	
Tikuna	ISOLATE	BR/CO/PE	50,000	50,000	relatively safe

degrees of endangerment, such as vital, vulnerable, in serious danger, and critically endangered.

The assessment of endangerment for each of the 2,464 languages included in the UNESCO *Atlas of the world's endangered languages* (Moseley ed. 2010) has been based on nine evaluative factors of linguistic vitality. These factors, listed in Table 12.3, were established by an UNESCO (2003) ad hoc expert group of linguists.

The number of speakers (Factor 2) and their proportion with respect to the total population (Factor 3), are important criteria for evaluating language vitality. Unfortunately, these numbers are often not clearly specified, which may lead to confusion and unreliable figures as observed by Moore (2007). The Yawalapiti people of Brazil comprise 262 individuals, whereas the Ocaina people of Peru number only 150. However, the Yawalapiti language has at most 5 speakers (Troncarelli and Viveiros de Castro 2021), whereas about 50 persons speak the Ocaina language (Crevels 2012). This means that only 2% of the Yawalapiti population speak the language, whereas 33% of the Ocaina population speak the language.

Besides speaker numbers, the evaluation of language vitality must also include other factors. Transmission of a language between generations (Factor 1) is a crucial component. A language with a thousand speakers is not necessarily a vital language if its speakers are limited to older generations, with few or no young speakers. Interruptions in transmission to the next generation usually results from chronic oppression of Indigenous populations and stigmatization of their languages. One consequence of a break with the linguistic heritage is the loss of the oldest speakers' historical, social, cultural, and environmental knowledge. Some of the reasons that younger generations prefer to learn major national languages over Indigenous languages will be discussed in the sections below.

All Amazonian languages are threatened with extinction in one way or another. Perhaps only 20 of the over 300 Amazonian languages can be consid-

ered relatively safe in terms of the degrees of endangerment distinguished by UNESCO (see Moseley 2012). About 150 languages are endangered (ranging from vulnerable to definitely endangered), around 75 are seriously endangered, and no less than 75 are critically endangered. Table 12.4 is intended as an illustrative sample of 16 Amazonian languages proportionally distributed over the different degrees of endangerment.

Amazonian populations have always been part of extensive social networks. Coexistence and sharing of social activities; such as rituals, festivities, and intermarriage; have encouraged people to learn more than one language. The Colombian “People of the Center” represent a cultural complex in which seven ethnolinguistic groups converge, speaking different languages from three linguistic families, and one isolate: Murui-Muina, Ocaina and Nonuya (Witotoan), Bora-Miraña, Muinane (Boran), Resígaro (Ara-wakan), and Andoque (isolate). Despite the linguistic differences, communication is possible thanks to a common socio-cultural background underlying the oral traditions (mythical heroes, similar discursive genres). In healing ceremonies or festivals, for example, each community uses its own language; the success of communication lies in mutual knowledge, active or passive, partially supported by inter-ethnic marriages and alliances. Increasing contact with Western society has also motivated people to learn national languages, such as Spanish or Portuguese. Nevertheless, part of the population is still monolingual in an Indigenous language, especially those belonging to older generations. Young people and adults are often bilingual or even multilingual.

Despite the multilingualism that characterizes many Amazonian populations, Indigenous languages are progressively used in fewer domains (Factor 4). Depending on the particular context, this can be due to a language ideology that associates Indigenous languages with a low educational level, poverty, or rurality, and national languages with social, cultural, and economic development. This fosters discrimination and shaming of local

language speakers, leading them to avoid speaking their language in public, for example. Furthermore, the dominant linguistic domains of work opportunities and socioeconomic advancement motivate the shift to a national or global language. For either of these reasons, speaking one or several Indigenous languages is not seen as an advantage (Factor 8), and those languages may lose domains of use.

In spite of such adverse tendencies and attitudes, Indigenous peoples themselves are increasingly concerned about the predicament of their languages, and are demanding effective policies to protect their linguistic rights. It is a hopeful development that they are organizing on national and international levels to stem the tide of language loss. Indigenous peoples are now taking the lead in initiatives, such as the Latin American Work Group that aims to develop strategies within the framework of the United Nations proclamation of 2022-2032 as the International Decade of Indigenous Languages.

12.7 Official policies supporting language maintenance

Governments tend to have different policies, depending on whether they consider language diversity as a problem or as a right (Factor 7). In Bolivia, Indigenous languages are officially recognized at the national level through Article 2 of the Constitu-

tion. Likewise, according to the Peruvian and Colombian Constitutions, languages are officially recognized in the territories where they are spoken. Other countries, such as Ecuador and Venezuela, state in their Constitutions that Indigenous languages are official for the groups who speak them. Only Bolivia requires the use of at least two languages in its government activities by law. While one of them must be Spanish, the other can be an Indigenous language according to convenience. In other Amazonian countries, the use of Indigenous languages is officially recognized only where they are predominant. In the Brazilian municipality of São Gabriel da Cachoeira, the Nheengatú, Baniwa, and Tukano languages have co-official status.

As Table 12.5 shows, some Amazonian countries have developed additional laws with regard to Indigenous languages. Brazil includes the constitutional right to maintain native languages and has a language policy in its education law. In recent years, Ecuador opened a debate around the relevance of having a national language policy. Furthermore, Indigenous organizations around the Amazon have undertaken initiatives to further the recognition of their languages as part of Indigenous rights.

In Peru, the Autonomous Territorial Government of the Wampis Nations declared the necessity of continuing to transmit the Wampis language and to guarantee education in it. Despite such advances,

Table 12.5 Selected laws with regard to Indigenous languages

Country	Title	Year
Bolivia	Constitution	2009
	General law of linguistic rights and policies (N° 269)	2012
Brazil	Constitution	1988
	Education Guidelines and Bases Law (N° 9.394/96)	1996
	National Inventory of Linguistic Diversity (N° 7.387/10)	2010
Colombia	Constitution	1991
	Law of languages (N° 1381)	2010
Ecuador	Constitution	2008
Peru	Constitution	1993
	Law that regulates the use, preservation, development, recovery, promotion and dissemination of the original languages of the Peru (N° 29735)	2011
Venezuela	Constitution	1999
	Law of Indigenous languages	2008

Indigenous language speakers continue to face severe difficulties in using their language in public places or when trying to access government services.

Indigenous language teaching at schools is one of the language maintenance strategies that is supported by policies in some countries. Around the mid-20th century, Amazonian states began to develop bilingual education plans with the participation of the evangelical Summer Institute of Linguistics (SIL). After official agreements with the states and education ministries, SIL missionary linguists were deployed throughout several countries and established bases close to Indigenous lands. One of their methods was the placement of Indigenous teachers in order to open schools in communities and to start teaching in their own language as well as in the national one. Later, the educational sectors of Amazonian countries assumed responsibility for Indigenous education and the creation of pedagogical materials. For example, in Ecuador a bilingual intercultural education system (DNEIB) was created in 1988. The Peruvian government has proposed to extend bilingual intercultural education to high schools in its plan towards 2021.

Governments often lack detailed knowledge about minority languages spoken in their countries. Especially with regard to Indigenous languages, access to reliable information is difficult, if it is available at all. When the Brazilian government realized that its high linguistic diversity represented intangible cultural heritage it decided to develop a policy towards protection. This resulted in an initiative to set up a National Inventory of Linguistic Diversity. With the help of professional linguists, pilot projects have now been initiated with a number of languages, aiming to collect basic linguistic and ethnohistorical information, detailed knowledge of the actual sociolinguistic situation of each language, and of speakers' demands for language protection and revitalization (see Galucio *et al.* 2018). The ultimate goal of a complete inventory will be a solid basis for informed governmental language policies.

12.8 Documentation

All Amazonian languages continue to be endangered to some degree. Therefore, professional language documentation and description are of utmost importance (Factor 9). A language description should consist at least of a comprehensive grammar, dictionary, and collection of texts. In the 1990s, international alarm about the global language extinction crisis caused linguists to step up efforts to document languages. By the turn of the century, documentation had become a subdiscipline of linguistics. This was furthermore encouraged by the digital revolution that created the internet and that enabled high-quality audiovisual registration, using highly portable field equipment available at relatively low cost. Modern linguistic documentation consists of creating a comprehensive, permanent archival record of a language as used in different social and cultural contexts, representing as wide as possible a range of different varieties and types of discourse (Gippert *et al.* 2006; Woodbury 2003). During the past decades, various local and international language and culture documentation programs have supported projects in the Amazon, and a considerable number of languages possess substantial audiovisual records in properly catalogued online digital archives in Europe, the United States, and Brazil. Such material can be used as the basis for pedagogical material and has the potential to feed language revitalization efforts. Some of the complex issues involved in Indigenous language archives include online accessibility, differential rights to usage, and questions of privacy (Seyfeddinipur *et al.* 2019). In spite of these developments, the majority of Amazonian languages still lack adequate description and documentation, whereas this is often one of the principal demands of Indigenous groups with regard to language (Galucio *et al.* 2018). As experience shows, documentation tends to be desperately sought after a language has disappeared. One of the possible solutions would be to create regional documentation centers and language archives, where Indigenous peoples can develop their own documentation initiatives.

12.9 Drivers of change: Some examples

Although change is natural, the Amazon region is losing linguistic diversity at an alarming and accelerating rate. To understand how the drivers of this change operate it is useful to recall that language vitality requires a critical mass of speakers living in the same area, and that this population must have confidence that their language has a future, and that it will be a productive medium of their children's livelihood and as well as their social well-being. Drivers of change are factors that may threaten these conditions.

Christian missionary movements, epidemics, and a succession of extraction booms (*cascarilla*, quinine, rubber, wild animal skins, petroleum, and mining) have been major drivers of language loss. Three religious movements in particular stand out for the extent of their impact: the Catholic Jesuits (1600-1767), the Catholic Salesians (1880-present), and the Protestant Summer Institute of Linguistics / Wycliffe Bible Translators (1945-1970). Despite differences, these groups are similar in that they had well developed language policies, pan-Amazonian strategies, functioned as (quasi-)government institutions, and were motivated by Christian zeal. Significantly, the Jesuits and the Summer Institute were also eventually expelled from the region because their sway over the native population exceeded or rivaled that of the state.

In 1668, Bishop Alonzo de la Peña Montenegro established a language policy for missionary priests working throughout the Kingdom of Quito, which at that time included all Spanish claims in the Amazon, in a massive work entitled *Itinerario para Parachos de Indios*. Although his writings most directly concern what is now Ecuador and Peru, they had implications for the broader region under his jurisdiction. In this work the bishop ruled that all missionary priests must learn an Indigenous language (De La Peña Montenegro 1668: 21). At the same time, he recognized that in some missions there were too many languages for a single priest to

learn. He cites San Jose de Avila on a tributary of the Río Napo where eight different languages were spoken. Since it would be impossible to learn all of these, he ruled that a regional language should be selected and taught to the speakers of smaller languages (De La Peña Montenegro 1668: 32).

The Jesuits' selection of which language to use was based in part on a moral hierarchy grounded in their beliefs about the origins of linguistic diversity. According to Father Bernardo Recio, a first division into 60 primary languages "was ordered by God Our Lord for the good of the human race" at the tower of Babel. These languages correspond to the agrarian civilizations organized into villages governed by reason and natural law which the Jesuits sought to create in their reductions as precursors to a converted Christian society. One of these languages, according to Recio, is the "language of the Inca" which in the dialect of Quito is called "Quichua". Quichua, he writes, "is genuinely, and of itself a language, and as a root and fount of many languages one may suppose that it was among the sixty-two of the tower of Babel" (Recio [1773] 1947: 413-414)³. Although Kichwa was only the language of missions in certain areas of the western Amazon, Recio's exalted opinion of this language is indicative of broader Jesuit attitudes toward the trade languages they selected. By contrast, what Recio calls "the very strange division of the gentile languages" into those spoken by the smaller groups of Amazonian peoples, were not, in his opinion, the work of God, but rather degenerations inspired by the devil, or as he put it, that "enemy of the human race to make the remedy of their health [the preaching of the gospel] more difficult and even impossible" (Recio [1773] 1947: 465) As such, these languages were not believed to be capable of rational, civilized, or moral communication and were not to be preserved. It was morally permissible to capture the speakers of these languages "for their own good" and teach them the rational and moral language of the mission.

³ "Quichua" is the colonial spelling used by Recio for the language now officially written as "Kichwa" in Ecuador.

Indigenous Amazonians did not, of course, change languages just to please the Jesuits. The process was complex. Missionary journals from this period portray a region undergoing great mobility, with speakers of one language often moving into the territory of another group to escape epidemics or slave raiders, sometimes displacing groups who had lived there earlier. Population collapse combined with mobility likely led to marriage between people who spoke separate, smaller languages but shared a trade language in common. Although data is limited it seems clear that the colonial disruption of the Jesuit period led to the loss of many smaller languages. Of the eight languages Peña Montenegro knew were present at the seventeenth century mission of Avila, only Kichwa remained by the nineteenth century. In all of this the Jesuit mission infrastructure played a role in determining which languages survived and came to be seen as more civilized or Christian languages. It is important to note that the beneficiary of this reduction of diversity was not Spanish or Portuguese, but rather regional native trade languages as well as an increase in bilingual ability in these languages. In 1767 the Jesuits were expelled from the Spanish and Portuguese colonies and the missions fell into neglect.

In the 1880s, the rubber boom, which affected so many other aspects of Amazonian life, had a major impact, resulting in the expansion of some languages and the extinction or isolation of many others. International demand for rubber promoted an increasing Indigenous labor force. Many Indigenous people were congregated in rubber settlements where they lived in a precarious situation of overcrowding and poor sanitation. The foremen raided Indigenous communities and kidnapped young people who grew up working on the rubber settlements. Other Indigenous people came to the rubber factories through schemes of indebtedness variously called *habilitación*, *repartos*, or *endeude*. This consisted of a debt that could never be paid off. Tired of the violent treatment, many Indigenous people fled to the forest and became isolated again. Other Indigenous people died from the precarious conditions in which they lived and physical violence. In this way Indigenous people, *fratrias*,

moieties, and clans were decimated or physically eliminated (e.g. the Nonuya and Tinigua in Colombia), thus compromising the system of marriage alliances and the transmission of languages.

Although the Jesuits had been expelled, other Catholic missions continued, sometimes with devastating effects on Indigenous cultures and societies. By the end of the 19th century, mission villages were established in the Rio Negro region. Local Indigenous groups fleeing abuse in rubber settlements were enticed or forced to relocate to missions, where they were forbidden to maintain their religious and cultural traditions. Based on published sources such as Nimuendajú (1950) and Hemming (2003) as well as on personal interviews, Epps (2005) relates how the Salesian missions gained increasing control of the region during the first half of the 20th century. One of the first strategies used to destroy Indigenous lifestyles was to eradicate communal houses, demonizing those as dirty, promiscuous, and infernal. They furthermore campaigned to ridicule and defame shamanic practices and actively destroyed ritual objects and ceremonial musical instruments. They replaced Indigenous traditions with Catholic rituals and doctrines. Initially, the Salesians approached Indigenous languages with disdain, but later saw that the use of a local language would be advantageous, promoting the Tukano language, which then gained prestige and dominance in the region. One of the most devastating and well-tried tactics used against Indigenous language and culture were mission boarding schools, where younger generations were alienated from their families and culture, received corporal punishment for speaking their native language, and were indoctrinated with mission culture and religion (Epps 2005).

As the twentieth century progressed, a significant driver of linguistic and cultural change was the accelerating connectivity of the previously-isolated whitewater regions, such as the headwaters of tributaries in the western Amazon where the greatest concentration of language families and language isolates lie. In the absence of roads and airstrips, the rugged geography of these areas had created

refuge zones limiting contact not only with the state but also between Indigenous languages. Developments around World War II began to break this isolation. In the 1930s, to meet the heightened demands for the war, Standard Oil in Peru and Royal Dutch Shell in Ecuador built roads and airstrips to facilitate extraction in the heart of areas where uncontacted groups lived. A similar dynamic occurred in other countries. The need for Indigenous labor in these industries brought previously isolated groups speaking Indigenous languages into a common workforce.

In the period immediately following World War II, the Summer Institute of Linguistics (SIL or ILV by its acronym in Spanish) formed contracts with ministries of education in various Amazonian countries (Peru 1945, Ecuador 1952, Bolivia 1955, Brazil 1956, Colombia 1962, Surinam 1967) (CEAS 1979). Their mission was to systematically develop orthographies for every Amazonian language, translate the Bible into each of these languages, and teach Indigenous peoples to read them. To do so they created large North American base camps at Yarinacocha in Peru, Limoncocha in Ecuador, Loma Linda in Colombia, Porto Velho in Brazil, and Tumi Chucua in Bolivia. Native consultants from many small languages were brought to live in residence at these bases for the academic year. During the summer months the SIL linguists would then go to live in the consultants' communities. To facilitate travel between the Indigenous group and the base camp they created airstrips in remote locations. This strategy greatly increased communications between language groups at the bases as well as with the state.

SIL's language policy differed from that of the Jesuits in significant ways. Drawing on Martin Luther and John Wycliffe's arguments for translating the Bible into German and English they argued that the Bible could be translated into any language without losing any significant meaning. In practice, this meant that unlike the Jesuits who ascribed higher moral value to regional languages, they saw all languages as morally neutral and interchangeable structures. In fact, they seemed to prioritize the

most remote or even the uncontacted Amazonian languages, such as their most famous mission among the Wao Tededo (Waorani) in Ecuador (Long 2019).

Furthermore, the SIL was religiously motivated to create literate readers in each Amazonian language. This meant that they created not only dictionaries and grammars but also native language didactic materials for grades 1-6. They also used their Amazonian bases to train the first bilingual school teachers in many of the Amazonian languages, all this outside the community context. The legacy of the SIL for Indigenous languages was mixed. On the one hand, the visibility and prestige of the smaller languages was raised. The SIL's contracts with ministries of education gave these language groups a more direct contact with the state, likely slowing their assimilation in favor of regional languages. By systematically creating scripts that resembled Spanish and Portuguese they facilitated bilingual integration with Spanish or Portuguese. However, they also left behind a persistent controversy between older scripts, which resemble Iberian languages and scripts, and those adopted by more recent Indigenous movements which stress difference. SIL surveys of Amazonian language diversity increased the number of recognized languages and dialects. They also created the Ethnologue (Eberhard *et al.* 2021), which many rely on for statistics on the variety and vitality of Amazonian languages. At the same time, the SIL is a conservative North American missionary organization dedicated to undermining traditional Indigenous ceremonial practices, declaring them demonic and converting Indigenous groups still living in voluntary isolation. Because these practices were eventually seen as incompatible with serving as an arm of ministries of education in lay states, the SIL lost their contracts across the region by the 1980s. Nevertheless, the SIL continues to represent a key partner in an international network of evangelical organizations that are very active in religious proselytism across the Amazon.

As communication with remote language areas opened up in the first half of the twentieth century,

speakers from these smaller languages gradually became more integrated as voting members of the state. Service in the national military brought young men from different language groups into sustained contact with each other and helped to forge a common linguistic identity as, for instance, Peruvians, Brazilians, or Ecuadorians who spoke the language of the state. For young women during this period it was often marriage to a mestizo man or the experience of working as a live-in domestic in a regional town that provided sustained contact with the national language.

In these new contexts, the parents of the contemporary generation often experienced serious language discrimination, causing them to encourage their children to speak Spanish or Portuguese to avoid suffering what they had suffered. The languages of the state are not the only beneficiaries of language discrimination. Accelerating connectivity also created hierarchies between native languages. Smaller, more recently contacted languages were often seen as backward or savage when compared to the larger, more cosmopolitan languages of the missions, such as Kichwa or *Língua Geral*. As a result, smaller native languages lost speakers to larger native languages and these to the languages of the state.

Perhaps the greatest driver of language loss, however, is a change in the type of employment young people aspire to. Because land loss, deforestation, and the depletion of game animals have made sustaining a family in Indigenous territories more difficult, many seek jobs outside, such as seasonal work in oilfields in Ecuador, or in agriculture. For administrative jobs, formal education is required and although governments throughout the Amazon have committed to providing native language education, serious difficulties remain. For example, many native communities are too small to meet the threshold of the number of children required to make a school economically or administratively viable and there is often a scarcity of qualified teachers willing to serve in remote areas. As a result, many families in Ecuador, Brazil, and elsewhere send their children to regional high schools

where the language of instruction is Portuguese or Spanish. As a result, these languages tend to become the preferred means of social communication between teenagers, as well as exemplifying the kind of educated speech most likely to lead to the desired employment. When combined, these linguistic domains represent what many speakers perceive as the language of a good future. The children who attend these high schools speak better Spanish or Portuguese and may get better jobs than do their cousins who remained in their communities without attending high school. Too often, however, the expectation of a better future turns out to be a mirage. Many Indigenous youth who have completed high school are unable to continue further education due to poverty, substandard high schools, discrimination, and a general lack of scholarships. Many become Spanish or Portuguese language dominant without receiving the advantages of employment in the national or global marketplace. As a result, some feel alienated from the urban centers to which they migrate without a viable path for permanent return to their communities of origin.

In contrast to the increasing prestige of global languages, native languages become increasingly associated with domains of use perceived as having a more limited future. For example, girls may associate their native language with being an expert manioc gardener or *chicha* maker. Men associate their native language with being an expert hunter. Although these skills used to make a person highly desirable, the livelihood they provided has become less sustainable. As a result, increasing numbers of young people aspire to marry someone with a high school or college degree and proficient in the language of professional employment.

12.10 What exactly is being lost? Some examples

What is being lost when languages disappear? That is the topic of a wonderful book by linguist Nicholas Evans (2010). In this section we will only mention a few examples from the Amazon. It is easy to underestimate the extent of language loss because it oc-

curs not only in numbers of speakers, but also less visibly in the functions, domains, and ways in which languages are used. What is actually being lost? The broader work of the SPA examines threats to the biodiversity of the region as a whole. The loss of language diversity is interconnected with environmental destruction and the broader loss of species in the micro-environments where languages are spoken. Amazonians often identify their languages as the speech of a particular place, such as “the speech of Pastaza River people.” Within this river basin speakers may further break down their language as the speech of a more minor tributary. This tributary language is believed to be the speech not only of people but of the local plants and animals, who are thought to have spoken this language before acquiring their animal bodies. Hence, local plants and animals are included in the language of the place as audience, interlocutors, tropes, and metaphors (Swanson and Reddekop 2017). Ritual songs are sung to manioc plants, peccaries, or woolly monkeys. Humorous word plays imitate their sounds. Sound symbolic and evidential markers are used to evoke their presence in conversation. Bird songs, wind, and water carry love songs from wives to husbands over distances. Even where environments are similar, the distinct languages of neighboring tributaries engage the environment differently. As deforestation and local extinction of animals increases, the places become impoverished and the forms of speech that engaged them disappear. Similarly, when languages disappear so does a whole history of human cultural engagement with these places.

A clear example is the loss of species names. These names vary greatly from one river to another and carry a wealth of knowledge. For example, bird names are often onomatopoeic representations of the sound these species first uttered on being transformed from a previously human state. When the names are lost so is this reference to their origin stories and history. These names also carry with them systems of biological relation and classification (Berlin, 2014). In some languages, plants have animal names that evoke symbiotic relations or complex behavioral qualities used in healing.

For example, one of the anthurium species is called ‘trumpeter leaf’ in Kichwa, because it resembles the tail of a trumpeter bird raised in its marching gait. Because the bird steps high as it marches, the leaf is applied as a poultice to cure the legs of children with difficulty walking. Through the poultice the bird behavior is transferred to the child, not only through the similarity in the leaf but also through the species name. When the plant species name is lost, so is the behavioral analogy to the bird as well as its use in medicine. Related to these losses is the distinctive Amazonian relation to nature embedded in native languages. For example, while native languages use the same terms to portray animal and human bodies, European languages embed ideas of human superiority to nature by using separate terms to distinguish the cultural quality of the human body (hands, fingernails) from those of animals (English: paws, claws; Spanish: patas, garras) (Nuckolls and Swanson 2020: 71). When a European language replaces a native language the distinctive relation to nature it carried is lost as well. So embedded are Amazonian languages in their micro-environments that the loss of species impoverishes language diversity and vice versa. Another area of loss are the place names of rivers and mountains, which carry with them a long history of local geographical knowledge.

With regard to the connection between Indigenous languages and knowledge of the medical uses of plants in the western Amazon, recent research by Cámara-Leret and Bascompte (2021) indicates that such knowledge tends to be linguistically specific. Compared to North America and New Guinea, the “linguistic uniqueness” of Indigenous medical plant use is highest in the Amazon region; 91% of knowledge of medical use of plants is limited to a single particular language. In other words, in 91% of the cases observed by Cámara-Leret and Bascompte, the medical use of a particular plant is not shared by speakers of different languages, but unique to one language, and therefore also highly culturally specific. The research has shown that this is independent of the level of endangerment of a particular plant or language, or to what clade or

language family they respectively belong. However, this high degree of language specificity of Indigenous medicinal plant knowledge implies that when a language disappears, such knowledge is lost forever.

Another important area of loss is the language of social relations. Amazonian languages also helped maintain social order and cohesion through the use of kinship terms, evidential markers that recognize the speech of others, and grammatical elements that express emotional delicacy, politeness, and endearment. As the social environment came to include more complex relations to unrelated citizens of the state, this language of tenderness and refinement came to sound inappropriate, diminished, and disappeared. With the loss of such ways of expression, entire systems of conviviality that developed over centuries are lost (Gow 2000). Finally, contact with other languages may influence not only the vocabulary, but also the grammar and sound system of a language. Consequently, Indigenous languages may nowadays lose some of their most distinctive features through Spanish or Portuguese influence. For example, the Amazonian language Kichwa tends to favor verbs and adverbs more than nouns. Although Kichwa uses a small set of verb roots, this is amplified by an impressive range of sound symbolic ideophones and gestures that further qualify the events expressed by verbs (Nuckolls 1996). This gives the language a highly developed capacity for evocation, ambiguity, subtlety, multivalence, and nuanced use of perspective. At the same time, although it has impressive grammatical possibilities for the nominalization of verbs, it lacks the abstract nouns now common in technical, scientific, and business discourse; as well as the broad range of illocutionary verbs such as ‘threaten,’ ‘promise,’ ‘order,’ ‘conclude,’ which facilitate precise legal and technical communication in European languages (Nuckolls and Swanson 2018: 179). Through sustained contact with European language education, the native language of especially younger speakers may suffer the loss of certain specific phonological distinctions, such as tone and laryngealization, and grammatical distinctions, such as evidentials and perspectival

markers. For example, the elaborate noun case system used by older Wao Tededo (isolate) speakers in Ecuador is rapidly disappearing in the speech of younger people. Younger people accustomed to writing are also much less likely to use the gestures and ideophones that characterized the story telling of their elders.

12.11 Importance of Indigenous languages in new contexts

Among the many drivers of language change there are also some that favor the flourishing of native languages. In recent years, the Amazon has seen a surge of connectivity through social media, particularly Facebook and WhatsApp. Many young members of even remote groups now have accounts. In fact, it may be that the more isolated the communities, the more avidly young people seek the connectivity that these media afford. While social media are certainly creating a flood of messages in national languages, they also provide a new forum for native languages. Whereas migration drives language loss by taking away a public domain where an Indigenous language can be dominant and free of discrimination, social media counter this trend by creating a new private spaces that may connect communities of speakers without fear of discrimination. Furthermore, because social media are informal and not used by older monolinguals, Indigenous language speakers text each other without having to worry about mixing in Spanish or Portuguese, or even switch to these languages in mid-sentence.

Another driver of language change countered by social media is the hegemony of national languages in broadcasting news, arts, entertainment, and sports. While cost and government licensing previously limited native access to the airwaves, native broadcasters are now flourishing on social media, avoiding these controls. Most Amazonian countries now have networks of native language communicators active on social media, even in smaller languages like Wao Tededo, Secoya, or Kofán in Ecuador. In some cases, these may be informal but also

include more formal institutional voices such as the communication directors of the Indigenous Nations or organizations. A Shipibo migrant, for example, can now tune in to a variety of Facebook offerings featuring local sports news, church services, community meetings, ceremonies, and traditional music all streamed in Shipibo through the *Red de comunicadores indígenas del Perú, filial Ucayali* with names like *Shipibo Communications* and *Radio TV digital Shipibo*. Furthermore, pan-Indigenous activists in the western Amazon now typically have Facebook friends from Brazilian groups as far away as the Xingu. Hence, they are aware of native language pride and revitalization across the Amazon. To some degree social media are also countering the loss of older forms of language. Just as there are now citizen scientists recording biological species counts on cell phones, there are also young citizen documenters recording their grandparents' origin stories, songs, or other forms of ritual speech with cell phones and posting them to YouTube, Vimeo, or Facebook. Although inadequate for documentation and the creation of a lasting record, cell phone recording and posting may raise awareness of endangered forms of speech among other young activists who may follow the example. Finally, the internet opens up important new avenues for Indigenous language education in the territories, limiting migration. For example, smaller schools may use distance education. Native language YouTube videos recorded by elders in neighboring communities can be used in classes where the teacher may have limited knowledge of the local language.

Thus, although most drivers of change associated with modernity work to decrease language diversity, there is hope that others may counter these forces by providing new avenues for its preservation and revitalization.

12.12 Conclusions

This chapter presents some of the amazing diversity of Amazonian languages, their vitality, and their vulnerability to loss. Most of the Amazon's linguistic diversity is concentrated in the west, with

fewer language families in the east. Coincidentally or not, this difference corresponds roughly to geological divisions, with the western Amazon covering younger Andean alluvial soils with greater biodiversity, and the eastern Amazon older, more weathered soils with less biodiversity. The striking correlations between biological and linguistic diversity are discussed in Chapter 10.

The linguistic diversity of the Amazon is highly endangered, perhaps even more so than biodiversity. The accelerated disappearance of languages can be attributed to five centuries of colonization by Europeans and their descendants, who brought disease, poverty, violence, and genocide to local populations. After the 1970s the effects of globalization were added.

Each language represents the heritage of centuries of cultural and intellectual creativity that holds scientific and cultural value for humanity as a whole. With the loss of each culture and each language, humanity loses yet another alternative and possibly unique way to understand the world around us. The survival of a language is interdependent with the integrity of its community of speakers, which again is often tied to the legal and ecological protection of their lands. With the loss of a language the sense of being a distinct people with the right to a territory is often weakened. It is hard to overestimate what is lost when an Amazonian language disappears.

To counter these losses, Indigenous peoples are calling on linguists to help them document and codify their languages by audiovisual registration, creating orthographies, and compiling dictionaries. Furthermore, Indigenous organizations throughout the region have pressured their governments to guarantee rights and formal recognition of their languages and to establish bilingual education programs. This has resulted in substantial progress in gaining legal status and bilingual education rights, especially for the larger languages. Sobering challenges remain, however. Often policies remain mostly on paper, with initiatives to

protect the Indigenous languages greatly underfunded and understaffed.

12.13 Recommendations

In order to turn the tide on the disappearance of Amazonian language diversity, the factors that endanger its survival should be confronted. This section contains a number of recommendations that are directly or indirectly beneficial to language maintenance in the Amazon.

- Reliable national censuses on languages, including population and speaker numbers, proficiency levels, and sociolinguistic situation, carried out by professional linguists, can help governments know which languages exist and what is their situation. Such knowledge is essential for public policies and awareness campaigns.
- Indigenous communities should be consulted about their priorities with regard to language policies, and their demands should be met.
- Bi- or multilingualism should be valued rather than considered an obstacle, both by society at large and by Indigenous communities themselves. One does not have to abandon one's native language in order to learn a national language.
- Indigenous education should be improved and high-quality educational material in Indigenous languages should be developed.
- The professional study and documentation of Indigenous languages should be supported by governments, because the results of such work also form a necessary basis for the development of adequate educational materials and improve the chances for successful public policies with regard to languages.
- Indigenous territories must be protected against ecological degradation and the presence of outsiders should have the informed consent of their populations.
- Unsustainable development should be avoided and economic alternatives should be offered instead.

- Isolated Indigenous populations should not be contacted unless they themselves take the initiative.
- Indigenous languages, cultures, religions, and other aspects of Indigenous life should be respected by society in general. This requires adequate educational curricula, awareness campaigns, and replacing stereotypes and myths with reliable information. Only a public informed about diversity and its advantages is in a position to value, defend, and help preserve it.

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