

- » Exploring what language is
- » Investigating languages scientifically
- » Finding players in the language game
- » Using language to define yourself

Chapter 1

Knowing a Language Versus Knowing What Language Is

When a linguist tells someone what they do, a typical response is, “Really? How many languages do you speak or use?” That’s like asking a mathematician, “How high can you count?” While linguists do work on individual languages such as English, Mandarin, or American Sign Language, they do so to discover how human language is structured.



LINGUIST
LINGO

Linguists use the term *language* to refer to human language in general. When referring to a specific language, linguists use the language’s name.

You may not have thought about how central language is to your daily life; if you have, you’re a natural linguist! Imagine going through a day and not being able to order your morning coffee or describe something that happened over the weekend. Movies, books, and the Internet wouldn’t exist. Even your sense of self would be affected! Language is at the core of what makes humans human, and as far as we know, only humans have language.

Human language is unlike any other form of communication: Humans evolved to use it, and are the only species that can use it. So, a central aim of *linguistics* — the scientific study of language — is to discover what makes us human. The effort to understand how language works goes back more than 2,000 years. There have been a lot of twists and turns in the journey, and for this book, we've picked out what we think are the highlights.

This chapter introduces linguistics and the traits of human language. We show you how linguists study language using a scientific lens and give a quick tour of the rules of the language game, the players, and how they play the game.

Uncovering Language Traits

You can spend a lifetime studying individual languages like German, Hong Kong Sign Language, Tagalog, or Xhosa, but linguists are more interested in the big picture of how language works. Linguists are language detectives, and each sound, sign, word, and sentence provides clues about the mystery of language. Just like detectives can question several suspects, linguists can look at several languages. But sometimes one witness can clinch the case; similarly, one language can provide a lot of information on its own.

Most linguists agree that all human languages share the following traits:

- » Language is used for communication.
- » Language is made up of arbitrary signs.
- » Language is organized in a hierarchy.
- » Language is produced and perceived by humans using a variety of auditory, visual, and tactile signals.
- » Language is used by only one species on Earth: humans.
- » Language is something that humans are genetically programmed for.



Different linguists focus on different aspects of language. A *functionalist* focuses on how language is used to communicate. A *formalist* focuses on how language is organized. While a *speech scientist* focuses on speech production and perception, a *gestural analyst* focuses on gesture production and perception, and a *multi-modal analyst* focuses on speech-gesture integration and audio-visual integration. And while a *biolinguist* focuses on the biological foundations of language, a *psycholinguist* focuses on its cognitive foundations. A *computational linguist* studies how computers process language.

Language is used to communicate

Language does not exist in a vacuum — it requires at least two individuals exchanging ideas and intentions. Using a set of agreed-upon signals, you let others know what you're thinking, and vice versa. For example, if someone asks a friend, "Wanna grab some lunch?", the friend understands the other person is hungry, that they don't have lunch with them, and that they want to spend time with their friend over a meal. If either one has a different idea of what any of the signs mean, the whole thing can fall apart. (The friend doesn't interpret this as literally grabbing someone's lunch!)



A *sign* is a discrete unit of meaning. A *convention* is a set of agreed-upon norms. A *conventional sign* is one that members of a language community agree to use with a certain meaning. For example, the word *cat* is a sign that members of the English language community agree, by convention, to use for those fluffy pets that meow. The general study of signs is called *semiotics*, and it applies to any system where organisms use signs to learn about and navigate their environment — it includes linguistic communication, and also animal communication, and the communicative use of signals from body posture, facial expression, and tone of voice. Some signs persist for generations (the English word *stone* has been around for 1,000 years), while others alter their meaning every generation (or faster). Slang is notorious for having specific meanings at specific times for specific communities.

Language is made up of arbitrary signs

The signs languages use are *arbitrary*. There's no reason why that big green thing that converts sunlight, water, and carbon dioxide into sugar and oxygen in your yard is called *tree* in English, *arbol* in Spanish, *ağaç* in Turkish, or ຄົ້ນໄມ້ in Lao. In American Sign Language (ASL), TREE is signed by laying one arm flat, holding up the other arm at 90 degrees to the first, extending all five fingers, and twisting the wrist twice. If signs weren't arbitrary — that is, if there were some reason it had to be called a *tree* — then every language would use the same set of signs. That's boring, and it's not how languages are. Linguists describe language as having "an arbitrary sign-meaning relation." This means that languages represent things with signs by convention; if enough people started calling trees *blisblaps*, there's no reason why they couldn't (except that only those people would understand it).

Some words are exceptions to the idea that language is arbitrary — the ASL Tree example is *iconic* (it looks like the thing it represents), but iconicity is not more common in sign languages than spoken ones. Onomatopoeic words like *quack* and *meow* sound like the things they represent, and all spoken languages use *sound symbolism*. For example, many English words related to the mouth and nose start

with ‘sn-’, such as *sneeze*, *snort*, *snicker*, and *sneer*. The sound ‘n’ comes out of the nose (see Chapter 3), and ‘s’ is a hissing breath of air. Together, they represent actions that involve the nose and mouth.



LINGUIST
LINGO

Linguists call the lack of a connection between the form of a conventional sign and its meaning the *principle of arbitrariness*; see Chapter 2 for discussion.

Language is organized in a hierarchy

Language is made up of smaller units, and there are rules (called *grammar*) about how they can be put together. All languages start small and systematically build up larger units. As an added bonus, this means that languages can swap out units for each other to change meaning.

Combining units to form larger units

A big part of linguistics is understanding how language combines small units into progressively larger ones:

- » **Atoms:** Atoms are the smallest language units — we can’t break them down any smaller and still have meaning. In spoken languages like Thai or Arapaho, *sounds* are the smallest units. In sign languages like Brazilian Sign Language or Chinese Sign Language, *parameters* are the smallest units. Different languages use different inventories of sounds or parameters: /p/, /t/, and /æ/ (the vowel sound in *cat*) are all English sounds, but /æ/ is not used in Indonesian. Similarly, the same handshapes are not used in all sign languages (see Chapters 4 and 5 on handshapes).
- » **Syllables:** Sounds combine to form spoken syllables. For example, English /p/, /t/, and /æ/ can combine to form /pæt/, /tæp/, and /æpt/, but not */ptæ/, */tpæ/, or */ætp/. (* represents an ungrammatical form.) Each language has its own syllable rules: Some spoken languages, like English, allow consonant sounds to cluster at the start and end of syllables; other languages, like Hawaiian, don’t. Sign languages often organize syllable structure around *movement*, which is the parameter for how *manual articulators*, like the hands and arms, move.
- » **Words:** Syllables or parameters combine to form words. Some words are *monosyllabic*, like *pat*, *tap*, and *apt*. Every word needs to have at least one syllable. For example, in Finnish Sign Language, numbers produced without other words are given a movement to make them *monosyllabic*. Words with two or more syllables — like *mo.ther* and *bi.cy.cle* — are called *polysyllabic* (the period (.) is used to separate syllables).

- » **Phrases:** Words combine to form phrases. English speakers put adjectives before nouns, like in the phrase *red apples*. But French speakers place adjectives after nouns, so they say *pommes rouges*, literally ‘apples red’.
- » **Sentences:** Phrases combine to create sentences. In English, *The dog* can combine with *fell asleep* to create *The dog fell asleep*.
- » **Discourse:** Sentences combine to create discourse. *The dog chased the squirrel* can combine with *He didn’t catch it* to tell a story in English. We often use words like *and* or *but* to chain sentences together: *The dog chased the squirrel, but he didn’t catch it*.



TECHNICAL
STUFF

In written language, groups of sentences are called *paragraphs*, and sentences end with a period. When you write, you put spaces between words. But some languages, like Mandarin, don’t use spaces in writing. And when you speak or sign, there are no periods or whitespace! For more on writing, see Chapter 18.



TECHNICAL
STUFF

Linguists debate what a word is; this is because different criteria define wordhood in different languages. The criteria can be based on audible sound or visible parameters (phonology, Chapter 5), word structure (morphology, Chapter 6), or meaning (semantics, Chapter 8).

Ordering units relative to each other

The meanings of larger units can differ, depending on the order in which smaller units are combined. The English examples below help to show this.

- » **Ordering sounds or parameters relative to each other:** The sounds /i/ and /t/ can combine in two ways — /it/ **eat** and /ti/ **tea** — with each combination meaning something different.
- » **Ordering syllables relative to each other:** The syllables /wi/ and /pi/ can combine in two ways — /wi.pi/ **weepy** and /pi.wi/ **peewee** — and each means something different. Word building is discussed in Chapter 6.
- » **Ordering words relative to each other:** The words *sea* and *blue* can combine in two ways, with different meanings: *sea-blue* is a color, a kind of blue; *blue sea* is a kind of sea.
- » **Ordering phrases relative to each other:** The phrases *the dog* and *the squirrel* can be subject or object of the verb *chase*, and the order in which they combine gives different meanings. So *the dog chased the squirrel* describes a situation that differs from *the squirrel chased the dog*. The order of words and phrases is covered in Chapter 7.

- » **Ordering sentences relative to each other:** *I bought a car, and then I had an accident* differs in meaning from *I had an accident, and then I bought a car*. In the first situation, I have a damaged car; in the second, I have a new car. How to make sense of meaning is covered in Chapters 8 and 9.



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Syntagmatic relations refer to the relative order of units in language; *paradigmatic relations* refer to how one unit substitutes for another.

Substituting units for each other

We can also change meaning by substituting one unit for another.

- » **Substituting sounds/parameters:** A /bot/ **boat** will serve you well on the water; a /got/ **goat**, not so much; here /b/ replaced /g/. In Italian Sign Language, a straight movement or a circular movement (with everything else in the sign the same) is the difference between FULL and FAMILY.
- » **Substituting syllables:** Sports fans know the difference between *o.fffense* and *de.fense*, and know that their teams need both to win.
- » **Substituting words:** Anyone who's had their coffee order messed up knows that switching *cream* and *sugar* makes a huge difference! *A coffee with cream* doesn't taste (or look) the same as *a coffee with sugar*.
- » **Substituting phrases:** *Driving a car to Montreal* is different from *driving a car from the dealer*. In one situation, you end up in Montreal; in the other situation, you start out at the dealer.
- » **Substituting sentences:** "*Hey, got a minute?*", "*We need to discuss your performance*", and "*In my office, now!*" might all be messages from the boss asking for a meeting, but they vary in urgency (and seriousness).



LINGUIST
LINGO

Linguists use the term *minimal pair* to describe two words that differ in only one feature — a sound, for spoken language; or a *parameter* (like location, movement, or handshape) for sign language. We use minimal pairs to identify features important for determining meaning. We discuss this more in Chapters 3, 4, and 5.

Language is produced and perceived

Language is *embodied*: The body is a vehicle for language. When someone speaks, they use their lungs, voice box, mouth, tongue, jaw, and nose. It doesn't stop there: They also move their head, do funny things with their eyebrows, wave their hands, and change their body posture. In spoken languages, these actions often accompany speech; in sign languages, how someone uses their hands, arms, face, and torso is the language.

Humans perceive language with their ears, eyes, and fingers (consider writing systems like Braille). You are a language producer and perceiver who processes *novel signals* — signals you’ve never encountered before — all the time. You can do this because humans pick up *contextual cues*: Even though the signal might not be exactly like anything you’ve ever seen or heard, it’s close enough to something you’ve experienced before.

Human language is unique

Many species on the planet communicate in various ways: Bees dance, birds sing, and plants send chemical signals. But is it language? Many linguists would say no. It may seem arrogant for humans to say that only humans use language, but we have our reasons.

Humans are infinitely adaptable, and so too is language. Every new generation adds a bit to a tradition that goes back thousands of years. Computers can create new words if they’re asked to, but they won’t start using new words spontaneously and expect someone to understand from context, the way a kid might. Computers also have limited memory. You might start using a new word in different contexts. Artificial intelligence (AI) systems forget conversations quickly (they don’t have a concept of time, another way they differ from humans), so AI can’t track words from previous conversations. If an AI program uses a word you don’t know, and you ask it how it picked it up, it could not reply, “Oh, I learned it from Lucy.”

Human languages grow and change along with their users, whether it’s needing terms for discoveries or sharing new experiences as humans explore the planet. The adaptive quality of language makes language change inevitable. We see this with each generation. Sometimes, older folk criticize changes introduced by younger folk, to the point of calling them lazy and accusing them of ruining the language. And if groups are separated by distance or time, languages can separate, but still reflect a common ancestry: Speakers of Italian, Portuguese, and Romanian still recognize pieces of Latin, a common ancestor language last spoken some 1,500 years ago.

Language is interactive, so it really shines when people share it. From the moment you interact with a caregiver as a baby to discussions about what happens after death, you use language to share your thoughts, experiences, hopes, and dreams. But language use is also competitive, so sometimes people get hung up on the idea that their language is the best.



A *prestige dialect* is defined by political or social hierarchies that hold at a particular historical moment. A dialect is never inherently prestigious, and what counts as prestigious reflects the political and social context. More on this in Chapter 10.

It's no coincidence that the general public started engaging with AI once the models could interact. Some people think of these models as intelligent because of how closely humans associate language with intelligence. And while these models produce something that looks like human language, they use it differently than people do.

So, is human language unique? As advanced as AI systems are, they still need to process human language to communicate. And while animals, in particular apes, have been taught to communicate with simplified signs, this differs from human sign languages. So, it looks like the human ability to use language is indeed unique.

Language is genetic

All humans are born with an equal capacity to acquire language. Evidence for this genetic, inborn feature includes these facts:

- » Language doesn't depend on intelligence. Someone with severe cognitive impairment can still use language.
- » The acquisition of spoken and sign languages is fast and easy for humans. Young children learn their first languages quickly, from babbling at six months to producing sentences by the age of three. Not even the most advanced computers use language at anything like the level of a young child.
- » Children learning language all follow the same sequence, no matter which language they're learning or which cultural or social group they belong to. And children acquire language more easily than adults learn a new language.
- » People (especially kids) fill in the gaps when, for whatever reason, a language is missing elements needed for communication. This can range from creating new words for new concepts to creating entire new languages, called *contact languages* or *creoles*.
- » Humans acquire language more efficiently than computers. Computers process faster, but to communicate, they need *big datasets* in the form of millions or billions of sentences. If a baby were a computer, and from birth experienced one utterance per second, they would be 30 years old before they could talk. At least.



Many linguists, psychologists, and neuroscientists believe that the capacity to acquire language is part of our genetic code — this is called *the innateness hypothesis*. Like many genetically endowed behaviors, the ability to acquire language decreases after puberty. See Chapter 14 on language learning.

Studying Language Scientifically

Over the last 25 centuries, linguists have developed a procedure for applying the scientific method to the analysis of human language. Typically, this procedure begins by recording language, with linguists collecting enough examples to compare and contrast distinct language phenomena both within and across different languages. This allows them to investigate both the stability (*invariance*) and flexibility (*variance*) of language, investigate what happens when languages come into contact, how languages change through time, and which features are common across all languages.



DOING
LINGUISTICS

Recording can take several forms. Many linguists document languages through textual transcripts, either using the orthography of the language they are studying or a special code developed by linguists. But some aspects of spoken and sign languages are best analyzed via *audio* or *video recordings*. Many linguists use computational tools to transform audio and visual signals into transcripts, and vice versa.

Linguists use a combination of counting (*quantitative*) and observational (*qualitative*) techniques to identify patterns, frequency statistics, sociocultural differences, and many other language tidbits that people don't usually think about (bet you are now, though). Whether you're fascinated by segments and parameters (phonology; Chapter 5), word construction (morphology; Chapter 6), sentence building (syntax; Chapter 7), meaning (semantics; Chapter 8), or discourse (pragmatics; Chapter 9), linguistics has something for you.



LINGUIST
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The observations (the *dataset*) that linguists work with are generally drawn from three sources: corpus, elicitation, or experimentation. A *corpus* is a recording of spontaneously produced language. An *elicitation* is a guided interview that elicits people's judgments about well-formed and ill-formed expressions. *Experimentation* is conducted in a laboratory setting and measures language perception and production as well as brain function related to language.



TECHNICAL
STUFF

While some computational models work with speech or sign languages, most only work with text. Even when someone is speaking with an AI system, a hidden mechanism often converts what they've said into text. A key component of automatic language recognition is *normalization*, which removes the minor linguistic irregularities characteristic of spoken language and unique to each human.

STUDYING LANGUAGE WITHOUT PREJUDGING IT

Syntacticians consider sentences from nonstandard varieties, like the following two sentences from English varieties, to be *well-formed* and *grammatical*:

Alice saw Mary in the park. (Grammatical)

I just ain't got no money! (Grammatical)

To a syntactician, *well-formed* or *grammatical* means that the sentence follows the patterns and rules for sentence-building of a particular language or variety. As long as the sentences are used by speakers or signers, whether they use a standard or a nonstandard variety, linguists believe the sentences are grammatical in the syntax of that dialect. In other words: If people use it, syntacticians don't judge it as wrong.

Sentences that a syntactician describes as *ill-formed* or *ungrammatical* (indicated by *) are ones like the following, which aren't used by any speaker of any English variety:

* *Saw Alice park Mary in the.* (Ungrammatical, even to a syntactician)

* *No money man just haven't I got.* (Ungrammatical, even to a syntactician)

When you first start studying syntax, the way syntacticians use the terms *grammatical* and *ungrammatical* can be confusing. That's because you might be used to teachers telling you that sentences like the first pair, though used by many speakers, are bad, ungrammatical, or ill-formed. Those teachers want a person to learn a standard variety of English, and they're teaching you to avoid nonstandard rules. They have a *prescriptive* approach, whereas syntacticians, who describe and understand all varieties, have a *descriptive* approach.

Playing the Language Game

Language is a win-win game that works best if both sides collaborate. Each participant aims to get a message across and scores when their partner understands the message. Linguists are language pros — they get paid to play the language game, but no game on Earth has as many amateurs. The game has thousands of variants — at least 7,400! — and all the players know the rules.

Abiding by the rulebook

If language is a game, there must be rules! Language rulebooks all include the same sections. They have rules about sound and parameter patterns: This is the focus of *phonetics* (how atomic units are produced) and *phonology* (how units combine). They also have rules about word-building (*morphology*), sentence structure (*syntax*), meaning (*semantics*), and conversation (*pragmatics*). We discuss these rules in Part 2 of this book.



Linguists recognize two types of rules: *prescriptive* and *descriptive*. *Prescriptive* rules are judgy about what is good and bad, and tell you how you should use the language. School teachers often delight in prescriptive rules. By contrast, *descriptive* rules tally up speakers' and signers' use of language, with no value judgment. For linguists, describing usage gives a more accurate picture of language. This doesn't mean that you can break any rule you want, but clever players apply new strategies to create new usages, which lead to language change.

To understand the spoken language rulebook, you need to know the alphabet linguists use for the sounds of spoken languages. Figure 1-1 lists symbols from the International Phonetic Association (IPA) to represent the 600 consonant sounds and 200 vowel sounds of spoken languages. For the specific sounds used in this book, refer to this chart to see how they fit into the set of language sounds. Sign languages use different notation systems for transcription of signs (check out Chapter 4).



Don't worry if you aren't sure what the symbols in Figure 1-1 represent. This chart is like a cheat sheet that linguists use to help them at the game. You don't need to know it to win, but it helps make things easier to understand. Different spoken languages use different sets of sounds (*sound inventories*), but they are all represented in this chart. See Chapter 3 to make sense of this table.

Getting along with other players

Playing the language game with others can be fun, but once other people are involved, there's often competition. You might not know it, but every time you play the game, you use cues from other players to show off. When texting with your friends, you're informal — you might even break language rules; it's like having house rules for a board game. However, at a job interview, if you want to make a good impression on your prospective employer, you're more careful about vocabulary choice and language style.

THE INTERNATIONAL PHONETIC ALPHABET (revised to 2015)

CONSONANTS (PULMONIC)

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	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b		t d			ʈ ɖ	c ɟ	k ɡ	q ɢ		ʔ
Nasal	m	ɱ	n			ɳ	ɲ	ŋ	ɴ		
Trill	ʙ		r						ʀ		
Tap or Flap		ⱱ	ɾ			ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative			ɬ ɮ								
Approximant		ʋ	ɹ			ɻ	j	ɰ			
Lateral approximant			l			ɭ	ʎ	ʟ			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

CONSONANTS (NON-PULMONIC)

Clicks	Voiced implosives	Ejectives
◌Ꞥ Bilabial	◌ɓ Bilabial	◌ʼ Examples:
◌ǀ Dental	◌ɗ Dental/alveolar	◌pʼ Bilabial
◌ǃ (Post)alveolar	◌ɟ Palatal	◌tʼ Dental/alveolar
◌ǁ Palatoalveolar	◌ɠ Velar	◌kʼ Velar
◌ǁ Alveolar lateral	◌ɣ Uvular	◌sʼ Alveolar fricative

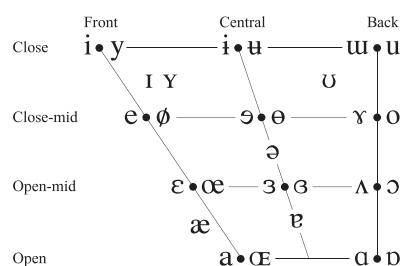
OTHER SYMBOLS

ʌ	Voiceless labial-velar fricative	ʑ ʒ	Alveolo-palatal fricatives
ʋ	Voiced labial-velar approximant	ɭ	Voiced alveolar lateral flap
ɥ	Voiced labial-palatal approximant	ɥ	Simultaneous ɥ and ɣ
ħ	Voiceless epiglottal fricative		Affricates and double articulations
ʕ	Voiced epiglottal fricative		can be represented by two symbols
ʡ	Epiglottal plosive		joined by a tie bar if necessary.

DIACRITICS Some diacritics may be placed above a symbol with a descender, e.g. $\dot{n}$

◌ Voiceless	<u>ɲ</u> <u>ɖ</u>	◌ Breathy voiced	<u>ɸ</u> <u>ɗ</u>	◌ Dental	<u>ɬ</u> <u>ɮ</u>
◌ Voiced	<u>ɳ</u> <u>ɢ</u>	◌ Creaky voiced	<u>ɸ̰</u> <u>ɗ̰</u>	◌ Apical	<u>ɬ̪</u> <u>ɮ̪</u>
◌ Aspirated	<u>ɬʰ</u> <u>ɮʰ</u>	◌ Linguolabial	<u>ɭ</u> <u>ɯ</u>	◌ Laminal	<u>ɬ̺</u> <u>ɮ̺</u>
◌ More rounded	<u>ɔ̹</u>	◌ Labialized	<u>ɭʷ</u> <u>ɯʷ</u>	◌ Nasalized	<u>ẽ̃</u>
◌ Less rounded	<u>ɔ̜</u>	◌ Palatalized	<u>ɭʲ</u> <u>ɯʲ</u>	◌ Nasal release	<u>ɖ̃ⁿ</u>
◌ Advanced	<u>ɯ̟</u>	◌ Velarized	<u>ɭˠ</u> <u>ɯˠ</u>	◌ Lateral release	<u>ɮ̥ˡ</u>
◌ Retracted	<u>ɐ̠</u>	◌ Pharyngealized	<u>ɭˤ</u> <u>ɯˤ</u>	◌ No audible release	<u>ɖ̥</u>
◌ Centralized	<u>ẽ̞</u>	◌ Velarized or pharyngealized	<u>ɭ̤</u>		
◌ Mid-centralized	<u>ẽ̜</u>	◌ Raised	<u>ɛ̠</u> (<u>ɟ̠</u> = voiced alveolar fricative)		
◌ Syllabic	<u>ɲ̩</u>	◌ Lowered	<u>ɛ̞</u> (<u>ɟ̞</u> = voiced bilabial approximant)		
◌ Non-syllabic	<u>ɐ̯</u>	◌ Advanced Tongue Root	<u>ɛ̟</u>		
◌ Rhoticity	<u>ɐ̯̃</u> <u>ɐ̯̃ː</u>	◌ Retracted Tongue Root	<u>ɛ̠</u>		

VOWELS



Where symbols appear in pairs, the one to the right represents a rounded vowel.

SUPRASEGMENTALS

	Primary stress	founə'tɪʃən
	Secondary stress	
:	Long	eː
˙	Half-long	e˙
˘	Extra-short	ɛ̘
	Minor (foot) group	
	Major (intonation) group	
.	Syllable break	ti.ækt
ˌ	Linking (absence of a break)	

TONES AND WORD ACCENTS

LEVEL		CONTOUR	
ě	or ǃ Extra high	ě	or ǃ Rising
é	ǃ High	ê	ǃ Falling
ē	ǃ Mid	ẽ	ǃ High rising
è	ǃ Low	ẽ	ǃ Low rising
ẽ	ǃ Extra low	ẽ	ǃ Rising-falling
↓	Downstep	↗	Global rise
↑	Upstep	↘	Global fall

FIGURE 1-1:
The International
Phonetic
Alphabet.

International Phonetic Alphabet in IPA Kiel, www.internationalphoneticassociation.org/IPAcharts/common_files/pdfs/pdfs_IPA_charts_E/IPA_Kiel.pdf, available under a Creative Commons Attribution-ShareAlike 4.0 International Deed. Copyright © 2026 International Phonetic Association.

People from different places — like Nigeria, Canada, and Scotland — speak English differently. Some people change their accent to be easier or harder for outsiders to understand. Kids change up language to be more like their friends (and less like adults in their lives). And in comparing the languages of the world, linguists find that, just as personality types differ, so do language types. The social force of language is seen in how human language emerges, as well as in the ebbs and flows in the vitality of individual languages.



LINGUIST
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Every speaker and signer has an accent; this is neither good nor bad, it just is. Your language experience leads you to have an individualized language use. Linguists call this an *idiolect*, and it includes your accent, vocabulary, and grammar.

Using your brain

The human brain is wired for language. Humans have a biological brain, and playing the language game uses a lot of cognitive real estate. You need to learn the rules that make your language work, and when it's okay to break them. You need to recognize cues, know the important ones, and know which ones to ignore. You also need to transform thoughts into words (for spoken language) or signs (for sign language) — all at the speed of thought!



TECHNICAL
STUFF

Computers don't have a physical brain, but their processors transform information fast and perform many tasks at once. Even though computer processing differs from human processing, computer engineers use what they know about human language processing to design models that leverage computation to achieve similar effects (but in different ways).

Taking shortcuts with text

Language processing takes up a lot of brain power. Long ago, some clever people found a solution to this challenge: They discovered how to store language and access it later by making marks that substitute for spoken language; it's called *writing*. The invention of writing is recent (about 10,000 years ago), and even now, most of the currently existing 7,400 human languages aren't written. Writing is technology, and other forms of technology — such as phones and computers — allow language to be stored for long spans of time and shared with vast numbers of people. An increase in the use of communication technology means there's an exponential growth in the amount of language data, a boon for the large language models that are the basis of AI systems. We discuss writing and computers in Part 5.

Tuning in to Language: The Password to Community

Science backs up something you already know: Nobody uses language in the same way — it literally defines who you are. How you use language is a password to gain inclusion in all sorts of social groups. Language use signals your hometown, age, education, and hobbies. It flags information that you might like to keep secret, but don't worry — most people won't pick up on this unless they're specially trained.



LINGUIST
LINGO

Linguists have a word for linguistic cues that identify you as belonging to a group: It's *shibboleth*. Some people are good at copying shibboleths. While group-identifying linguistic cues can have negative vibes — it's how stereotypes are created — they can also be used creatively. For example, voice coaches use such cues to teach accents. It's why an Englishman like Daniel Day-Lewis can portray an American President like Abraham Lincoln, and why Australian Elizabeth Debicki can take the role of a British Royal like Princess Diana.