language



an analysis

How language shapes the world

as experience

ton haarmans

Language, an analysis

How Language Shapes the World as Experience

For my daughter Asha,

who, just like me, loves to play with words.



a **wide open windows** production

Language, an analysis

How Language Shapes the World as Experience

Ton Haarmans

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Colophon

Language, an analysis | How Language Shapes the World as Experience

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Preface

Language is so self-evident that we rarely notice it. It accompanies almost every human activity. We speak to one another, read texts, write messages, think in words. Even when we are silent, there is often a quiet stream of inner language running through consciousness.

Precisely for that reason, a fundamental question often remains out of view: what does language actually do to our experience of the world?

Many disciplines study language. Linguistics examines grammar and structure. Psychology investigates how language is processed in the brain. Anthropology describes the great diversity of languages and their cultural contexts. These approaches yield valuable knowledge, but they largely leave another question untouched.

This book looks at language from a different perspective. It does not primarily approach language as an object of study, but as a force that helps shape the structure of experience. As soon as words appear, the way the world presents itself changes. Things acquire names, events become stories, situations are organized into categories and relations.

In that sense, language is not only a means of describing the world. It also plays a role in how that world is organized and understood.

The perspective used here aligns with what I have elsewhere called a dioramic analysis: a way of inquiry in which different configurations of experience are placed side by side, like scenes in a diorama. Instead of formulating a single definitive theory, a field of perspectives is constructed within which the phenomenon of language becomes visible from multiple angles.

In the chapters that follow, language appears in various forms: spoken language, inner speech, writing, visual and tactile languages such as sign language and braille, the diversity of human languages, and language as artistic material in prose and poetry. Attention is also given to forms of communication beyond human language, such as those found in animals, and to the question of what communication with possible extraterrestrial civilizations might look like.

The aim of this book is not to provide a complete theory of language. Rather, it is an exploration of the landscape in which language appears and operates.

The central question that returns throughout is simple:

how does the world change when language appears?

How to read this book

This book does not present a theory, and it does not move toward a conclusion.

The chapters can be read in sequence, but they do not depend on one another. Each chapter approaches language from a different angle. Together, they form a field rather than a single line of argument.

What is offered here are observations. They are not meant to explain language once and for all, but to make certain aspects visible. There is no final standpoint from which everything is resolved.

Reading does not have to be continuous. It is possible to move back and forth, to pause, to leave something open. The text does not require agreement or resolution.

Some passages may seem familiar, others less so. Not everything needs to be understood immediately. What matters is not that everything becomes clear, but that something shifts in how language is noticed.

There is no need to extract a message.

What is here can remain as it is.

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Prelude

Imagine a world without words.

No names for things.

No sentences.

No stories.

Only colors, sounds, smells, movements.

For many animals, this is not a thought experiment but their everyday reality. A dog moves through a world rich in signals: scents that form a trail, sounds that carry direction and meaning, movements that draw attention. It responds to what appears, but it does not name it. There is no inner voice that says, "this is a tree," or "there is a cat."

This does not mean there is no order or meaning. The world of an animal can be highly differentiated. What for a human is a vague smell may form a complex story for a dog. But that order is not shaped by words and concepts.

For humans, things are different. As soon as language appears, the structure of experience changes. Things acquire names. Events are described. The world is organized into categories and relations.

A tree is no longer just a shape in the visual field. It is a *tree*.

A sound is no longer just a vibration in the air. It is a car, a voice, the wind.

Language therefore seems like a simple instrument for describing the world. But that is only part of the story. Words do not merely describe the world; they also help shape it.

This book explores what happens when language appears in experience. It examines different forms of language: spoken language, inner speech, writing, visual and tactile languages such as sign language and braille, the diversity of human languages, and language as form in prose and poetry. It also considers communication beyond human language, in animals and possibly even in other intelligent beings.

Throughout the book, one question runs like a thread:

what changes in the experience of the world when language appears?

The inquiry begins with the most direct and original manifestation of language: the spoken voice.

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Part 1
Orientation



Language as World-Formation

We are so familiar with language that we usually notice it only when something goes wrong. Someone uses a word incorrectly. A sentence does not land. A conversation derails. A text turns out to be ambiguous. Or we encounter a foreign language in which the most self-evident distinctions suddenly disappear. As long as language functions well, it seems almost invisible. It does not stand between us and the world, but appears simply to coincide with how the world is.

That is precisely its power, and perhaps also its most misleading aspect. Language rarely presents itself as a system that helps shape experience. It presents itself as a conduit, as a medium, as a vehicle for already existing meanings. As if the world were first fully present, then calmly organized by thought, and language merely expressed what was already there. But that picture is too simple. Language is not only a vehicle of descriptions. *It also helps determine what appears as a thing, event, property, cause, intention, identity, or truth.*

When we speak, we do not merely name what is already there. We draw boundaries. We place accents. We introduce distinctions. We turn an unbroken stream of impressions into a manageable reality. Something becomes an object, something else a background.

Something becomes a cause, something else an effect. Something receives a name and thereby comes more firmly into view. What receives no name remains more vague, more elusive, harder to grasp. Language therefore does more than refer. It cuts out, fixes, connects, contrasts, hierarchizes, and stabilizes.

This does not mean that language invents the world in any trivial sense. Mountains do not disappear when no one names them. Pain is not merely a grammatical construction. Hunger, cold, sound, threat, light, movement, and bodily orientation precede speech. There is experience before the sentence. There is involvement before the concept. There is a life that orients itself without first forming theory. But the fact that language does not produce everything does not imply that it is merely a thin layer of varnish on top of an already finished reality. Between brute presence and linguistic articulation there is no hard boundary. As soon as language begins to play a role, the field of what can be noticed, remembered, shared, analyzed, and believed also changes.

An animal moves through a meaningful environment without words. It seeks food, avoids danger, recognizes patterns, responds to signals. There is clearly already a world there, but not necessarily a world as humans know it. Not a world of discrete objects with stable names, of stories, laws, definitions, debts, promises, contracts, ideologies, metaphysics, and history books. Language does not simply add extra labels to experience. It opens an entirely different regime of explicit

distinctions. Through language we can not only fear something, but also speak about fear. Not only desire, but interpret desire. Not only feel pain, but classify pain, legitimize it, exaggerate it, minimize it, medicalize it, symbolize it. We live not only in a perceived world, but also in a named, narrated, negotiated, and interpreted world.

For that very reason, language cannot be understood as purely instrumental. A hammer remains outside the material it works on. Language does not stand outside the world of experience in that way. Whoever speaks already dwells within the distinctions that make speaking possible. We use language, but language also uses us. We form sentences, but are at the same time formed by the syntactic, semantic, and cultural patterns that make those sentences intelligible. Even before we develop a personal opinion, we have already learned what counts as a question, an answer, an explanation, a person, an action, time, possession, guilt, choice, fact, fantasy, and reality. Language is not only something we handle. It is also an environment in which we grow up.

This becomes especially visible when languages differ from one another in ways that cut deeply into what we take for granted. Some languages constantly mark grammatically what remains implicit in others. Some place emphasis on aspect rather than time, on evidentiality rather than subject, on classifications that may seem strange to outsiders. This does not prove that every language is locked within a hermetically sealed worldview. People can learn, translate,

switch, improvise. But it does show that the world is not combed out everywhere in exactly the same way. What one language fixes effortlessly, another leaves more open. What appears here as a discrete thing may elsewhere appear more as a relation, a process, or a context-bound event.

It is tempting to draw radical conclusions from this. As if each language system creates its own world and no common ground remains. But that too is too quick. Language does not operate in a vacuum. It intervenes in an ongoing interplay between body, environment, attention, memory, habit, and social practice. A word gains traction only because it attaches itself to recurring patterns in experience and action. A child does not learn the word "hot" as an abstract label, but within a network of touching, withdrawing, warnings, facial expressions, and repetition. Words do not float freely above life. They are rooted in involvement.

Yet we must be careful not to present that involvement as something purely pre-linguistic onto which language is later added. Experience itself is reorganized by language as soon as a linguistic community becomes active. A child does not merely learn words for already fully distinguished things. Through those words it also learns to attend differently to things. It learns what counts as relevant. It learns that this is a chair and not a random collection of wood and fabric. It learns that an animal is not only a moving presence, but "a dog," with all the cultural expectations attached to it. It learns that certain inner states

are called “sadness,” “shame,” “jealousy,” or “love,” and begins to experience those states partly within that grid. Language therefore does not merely organize communication between already formed subjects. It contributes to the formation of the subject itself.

Once this is seen, it becomes clear how deeply language is embedded in human worlds. Legal systems consist of linguistic fixations. Religions live through stories, interpretations, revelations, commentaries, and liturgical formulas. Science constructs precisely defined objects, units of measurement, classifications, and theories. Love relationships revolve around naming, promise, memory, reproach, confession, and silence. Even inner life is often saturated with language. We speak to ourselves, repeat sentences, anticipate dialogues, pass judgments, tell ourselves who we are. Many people experience an almost continuous stream of inner speech. Yet the very fact that not everyone has this to the same degree makes clear that language is not a universally given inner mechanism. The relation between experience and language is richer, more irregular, and more variable than is often assumed.

Language also organizes time. Without language there is undoubtedly already rhythm, expectation, memory traces, and repetition. But language makes narrative time possible. It connects separate moments into life stories, explanations, histories, and projects. Through language we can not only undergo something, but also reconstruct what has happened, anticipate what may come, compare alternatives,

and situate ourselves within a broader context. The price is that we can also become lost in layers of narrative, rationalization, and fictional continuity. Language makes humans historical, but also neurotic. It makes responsibility possible, but also constructions of guilt. It opens reflection, but equally self-deception.

This brings us to an ambiguity that will accompany the entire book. Language is both liberating and limiting. It makes refinement, abstraction, poetry, science, humor, and philosophy possible. Without language there is no explicit transmission of knowledge, no laws, no libraries, no metaphysics, no literature, no mathematical proof, no philosophical analysis. At the same time, language can harden. It can force fluid experience into coarse categories. It can impose labels that come to dominate what they describe. It can lock people into identities, enemy images, and ideological schemes. It can open a world, but also close it.

An analysis of language must therefore do more than describe grammar or inventory vocabulary. It must show how language functions as a formative force within the whole of human experience. Not only the spoken word belongs here. Writing, symbols, gestures, rhythm, poetry, typography, programming languages, formal languages, inner speech, silences, and edge cases must also be taken into account. For as soon as we understand "language" only as the correct articulation of everyday words, we miss precisely what makes it so fundamental: its capacity to bring worlds into appearance.

The central idea of this chapter is therefore simple, yet far-reaching. Language does not merely represent a given world. It participates in the carving out, stabilization, and transmissibility of what appears to us as a world. This does not mean that everything is linguistic. Nor does it mean that nothing exists outside language. It does mean that a human world cannot be adequately understood without seeing language as a constitutive force. Whoever studies language is therefore not studying a secondary cultural phenomenon, but one of the primary ways in which reality takes shape for human beings.

From this starting point, further questions can unfold. What happens before language, or at its edges? How does language relate to signal, music, gesture, and writing? How do languages differ in the worlds they help articulate? What happens when language breaks down into glossolalia, abstract poetry, semantic satiation, or digital code? And how does human self-understanding change once we see that speaking is not only expression, but also world-formation?

This book begins there: with the recognition that language does not merely say what is, but also helps determine how it can be.

In this book, language will not be examined solely as a grammatical system or a means of communication. The approach followed here can be described as a dioramic analysis, the subject of the next chapter. Instead of treating language as an isolated object, attention is given to the full constellation in which it operates: body, environment,

attention, cultural practices, technology, symbols, and shared frameworks of interpretation. As in a diorama, where different elements together form a scene, language is studied here as part of a broader configuration of experience. The aim is not only to describe what language is, but to investigate how different forms of language help bring different worlds into appearance.

Language is not only a subject.

Language is the medium in which all subjects appear.

This Is Not a Pipe

In 1929, the Belgian artist René Magritte painted a famous image: a carefully rendered pipe, with the sentence beneath it, “Ceci n’est pas une pipe.” — This is not a pipe.

At first glance, this seems absurd. After all, we clearly see a pipe. And yet Magritte is right. What we see is not a pipe, but an image of a pipe. You cannot fill the pipe in the painting with tobacco or light it. It is merely paint on canvas.

Magritte wanted to remind the viewer of a simple but often forgotten distinction: a sign is not the same as the thing it refers to.

A similar insight was formulated by Alfred Korzybski, who became well known for the statement:

> *The map is not the territory.*

A map can describe a landscape, but it is not that landscape. It selects certain features, leaves others out, and simplifies reality into a usable model.

The same applies to language. Words are not things. They are symbols that refer to things. The word tree is not a tree, just as a map is not a landscape and a painting is not a pipe.

But Magritte's painting shows something else that is particularly relevant for a dioramic analysis.

A diorama presents a scene of reality in a reduced or constructed form. It shows something recognizable as a landscape, a city, or an event, but it is not that landscape or event. It is a model, a representation, a constructed depiction.

What is remarkable about a diorama is that we usually understand this immediately. When we look at a diorama in a museum, we know that we are not looking at a real savanna or a real forest. And yet we recognize the scene and are able to interpret it.

Magritte, in a sense, does the same. He presents an image that is immediately recognizable as a pipe, while at the same time stating that it is not a pipe. In doing so, he forces the viewer to become aware of the difference between representation and reality.

In a dioramic analysis of language, it is precisely this difference that is brought to the foreground. Language forms a system of

representations: words, sentences, and stories that refer to things, events, and experiences. But these symbolic structures are not identical to the reality they refer to.

Like a map, a painting, or a diorama, language is a way of making a portion of the world visible and understandable. It selects, structures, and simplifies.

Magritte’s painting can therefore be read as a small visual demonstration of a dioramic insight: what we perceive or describe is often a model of reality, not a direct duplication of it.

The world that appears in language is always a constructed scene. Just as a diorama shows a landscape without being that landscape itself, language shows a world without becoming the world itself.

Languages Without Left and Right

In some languages, the words left and right do not exist. Speakers rely exclusively on absolute directions, such as north, south, east, and west.

A speaker of such a language might say, for example:
“The cup is north of the plate.”

This means that speakers must constantly know where north is. Research has shown that people who speak such languages often develop a remarkably strong sense of direction. Even indoors, they can usually indicate where north is with surprising accuracy.

This phenomenon suggests that language not only describes what the world looks like, but also how we orient ourselves within it.

Untranslatable Words

Some words are difficult to translate precisely. Well-known examples include:

- saudade (Portuguese)
- gezelligheid (Dutch)
- Schadenfreude (German)

This does not mean that the experience itself is unique to a particular culture. People in other languages can have similar feelings. But languages choose different ways of naming and structuring such experiences.

Language thus forms a kind of conceptual grid through which experiences are organized.

Semantic Drift

The meaning of words changes gradually over time.

A well-known example is the English word awful. Originally, it meant “full of awe” or “impressive.” In modern usage, it usually means “terrible.”

The word silly once meant “happy” or “blessed,” but today it means “foolish.”

These shifts show that language is not a static system. The

world of words is constantly changing, as people continue to use them in new contexts.

Categorization Through Language

Languages do not all divide the world in the same way. What forms a single category in one language may be split into multiple categories in another.

For example:
• some languages have multiple words for different types of snow
• others distinguish between different kinds of rice
• color categories vary across languages

This means that language not only describes what we perceive, but also determines which differences become significant.

The Narrative Self

People often describe their lives in the form of stories. We tell how we arrived somewhere, what has happened, and where we think our lives are heading.

These stories form an important part of our identity. The self that appears in such narratives is not merely a collection of memories, but also a linguistic construction in which events acquire meaning.

Language thus shapes not only our description of the world, but also our description of ourselves.

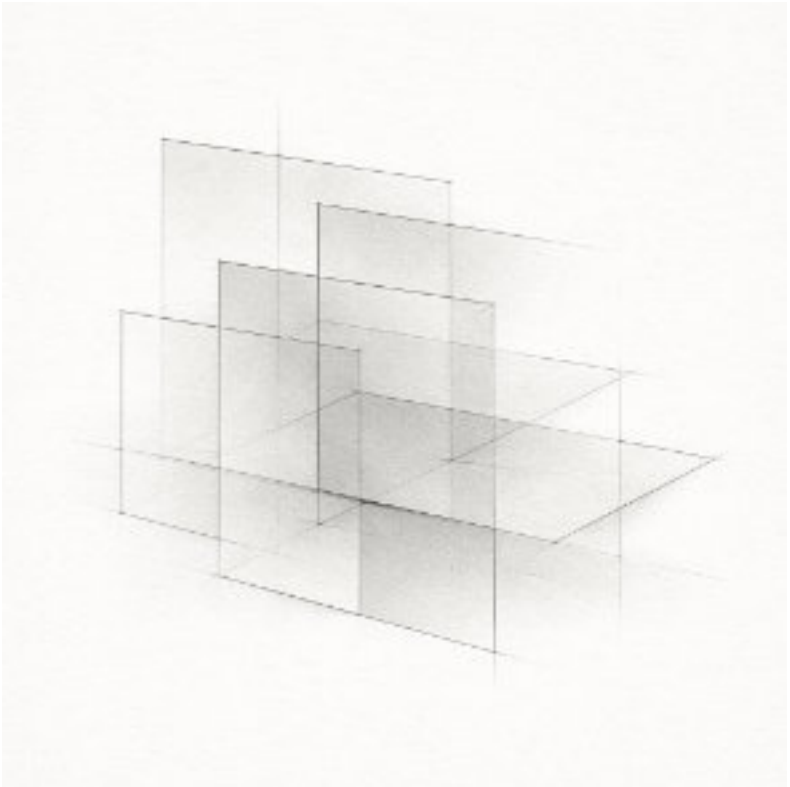
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What Is Dioramic Analysis?

When we try to understand a phenomenon, we tend to isolate it. We turn it into an object of study. We define it, analyze it, break it down into parts, and then attempt to explain how it works. This method has yielded enormous successes. The natural sciences, linguistics, psychology, and many other disciplines owe their strength precisely to this form of analytical reduction.

But there is also a price. When a phenomenon is too strongly detached from the context in which it functions, what often disappears is precisely what makes it meaningful. What remains is an abstract model that may be sharp and controllable, but no longer shows the full field in which the phenomenon actually appears.

The approach followed in this book seeks to avoid that problem. Instead of isolating language as a self-contained object, it is examined here within the total set of conditions in which it functions. This approach is called dioramic analysis.

The name refers to the familiar museum object: the diorama. In a diorama, no element is shown in isolation. Figures, landscape, light, perspective, and background together form a single scene. Each

component derives its meaning from the way it relates to the others. An animal in a natural history diorama is not simply an object standing next to a tree. It is part of a complete environment: a specific terrain, a specific lighting, a particular position in a food chain, a particular relation to other animals.

A dioramic analysis approaches phenomena in a similar way. Instead of isolating an element, it looks at the *configuration in which it appears*. The central object of study is then no longer a single thing, but a *field of relations*.

When we look at language in this way, the perspective immediately shifts. Language is no longer just a system of words and grammatical rules. It appears as part of a broader configuration that includes, among other things:

- bodily experience
- perception and attention
- social interaction
- cultural practices
- technology and media
- memory and expectation

• symbolic systems

Within such a configuration, language acquires its functioning. Words do not operate in a vacuum. They intervene in an ongoing stream of experience, action, and interpretation. At the same time, they reorganize that stream. Language is therefore not merely an element within the scene; it is also a force that helps shape the scene.

It is important to see that dioramic analysis is not an attempt to formulate a new theory of language that replaces existing theories. It operates at a different level. Instead of presenting a single explanatory model, it seeks to make visible *how different models themselves form part of different dioramas*.

A linguist may analyze language as a grammatical structure.

A psychologist may describe it as a cognitive process.

A sociologist may understand it as a social instrument.

A philosopher may investigate it as a carrier of meaning.

None of these approaches is necessarily incorrect. Each, however, places language within a different configurational field and thereby brings different aspects into view. Dioramic analysis does not attempt to decide which of these perspectives is definitively correct. Rather, it examines *how each perspective constructs a particular diorama*.

This means that scientific descriptions themselves become part of the field of investigation. Science no longer appears as a neutral mirror of reality, but as a specific way of placing phenomena within a particular configuration. The instruments, concepts, and models of a discipline form part of the diorama it investigates.

The method therefore has a strongly reflexive character. It looks not only at the phenomenon, but also at *the way in which the phenomenon is made visible*.

This is especially important for a subject such as language. Language is, after all, the medium in which many analyses themselves are formulated. When we investigate language, we inevitably do so again in language. The instrument, in a sense, looks at itself.

A dioramic approach makes this situation explicit. It seeks to show that every analysis already takes place within a particular configuration of concepts, assumptions, and practices. By placing different dioramas side by side, a richer image of the phenomenon emerges.

The aim of this method is therefore not to provide a single definitive description of language. Rather, it seeks to make visible *a landscape of possible configurations*.

Throughout this book, a number of these configurations will be explored. We will examine language as signal, as a music-like pattern,

as a social instrument, as a system of writing, as a carrier of stories, as a formal system in mathematics and computer science, and as an inner activity of consciousness. Each of these perspectives forms, in a sense, its own diorama.

By exploring these different scenes, a layered image of language emerges. Some dioramas overlap, others clash, and still others open unexpected connections.

The advantage of this approach is that it leaves room for complexity. Language is a phenomenon that extends across many levels at once: biological, psychological, social, cultural, and technological. A single theory can hardly encompass this multiplicity in full. A dioramic analysis therefore does not attempt to reduce everything to one explanatory principle. It examines how different levels relate to one another within a larger configuration.

In this respect, the method aligns with a broader philosophical intuition: that phenomena are often better understood when seen as *patterns of relation* rather than as isolated objects.

A word gains meaning within a sentence.

A sentence gains meaning within a conversation.

A conversation gains meaning within a social situation.

A social situation gains meaning within a culture.

The whole forms a layered scene in which each element depends on the context in which it appears.

Dioramic analysis seeks precisely to make such layered scenes visible.

This approach has a second advantage. It makes it possible to investigate the *boundary areas of language*. Phenomena that are often left outside traditional linguistics such as music, gesture, animal communication, glossolalia, abstract poetry, programming languages, can, within a dioramic perspective, become highly relevant. They show how language transitions into other forms of meaning-making.

When we no longer regard language as a strictly bounded system, but as a node within a broader configuration of signals and symbols, it becomes clear that its boundaries are more fluid than is often assumed.

The ultimate aim of this book is therefore not to provide a definition of language that replaces all others. It is to build a series of dioramas in which different aspects of language become visible.

Each chapter will open a new scene. Some will focus on the origin of language, others on its cultural forms, and still others on its technological extensions. Together they form an exploratory landscape in which language appears as one of the central structures through which human worlds take shape.

Dioramic analysis is thus not a doctrine, but a way of seeing. It invites us not to reduce phenomena to a single principle, but to view them in the rich configurations in which they actually function.

In the case of language, this means looking at the full stage on which speaking, listening, writing, and understanding take place. Only within that broader setting does it become clear how language not only describes what is, but also helps determine how the world appears to us.

The dioramic method shows how different worlds appear as coherent configurations of experience, without reducing them to a single underlying truth.

The Map and the Territory

Once again, the Polish philosopher Alfred Korzybski formulated a well-known statement: “The map is not the territory.”

This simple insight is crucial for dioramic analysis. When someone presents a theory, a story, or a description, they are in effect presenting a map of a world.

Dioramic analysis therefore examines not only the landscape being discussed, but also the map itself: how it is constructed, what it shows, and what it leaves out of view.

The Museum Diorama

In natural history museums, one often finds dioramas: three-dimensional scenes in which animals are placed within a landscape.

A savanna, a forest, or a polar environment is recreated in miniature.

Visitors immediately recognize what is being depicted. Yet they also know that they are not looking at a real savanna. It is a constructed scene that highlights certain elements and omits others.

A philosophical theory often works in a similar way. It constructs a scene in which certain aspects of reality are brought to the foreground.

Dioramic analysis seeks to make such scenes visible.

Frame

People describe the same situation in different ways, depending on the frame they use.

For example:
“tax reduction”
“loss of government revenue”

Both describe the same measure, but they place it within a different interpretive framework.

This shows that language does not only present facts, but also frames in which facts acquire meaning.

Metaphors as Models

Many abstract ideas are understood through metaphors.

Examples:
• arguments are won or lost
• time is spent or invested

In such cases, one domain of experience (for example, war or economics) is used as a model to understand another domain.

Metaphors thus function as mini-dioramas that offer a particular perspective on reality.

Conceptual Categories

When we name something, we immediately place it within a category:
• animal
• plant
• vehicle
• emotion

These categories seem self-evident, but they are partly cultural constructions. Other languages and cultures may divide the world differently.

Dioramic analysis examines how such categories make a particular structure of the world visible.

Theories as Worlds

Scientific and philosophical theories do not merely describe isolated facts. They organize facts into a coherent whole.

A theory thus forms a kind of worldview in which phenomena are connected to one another.

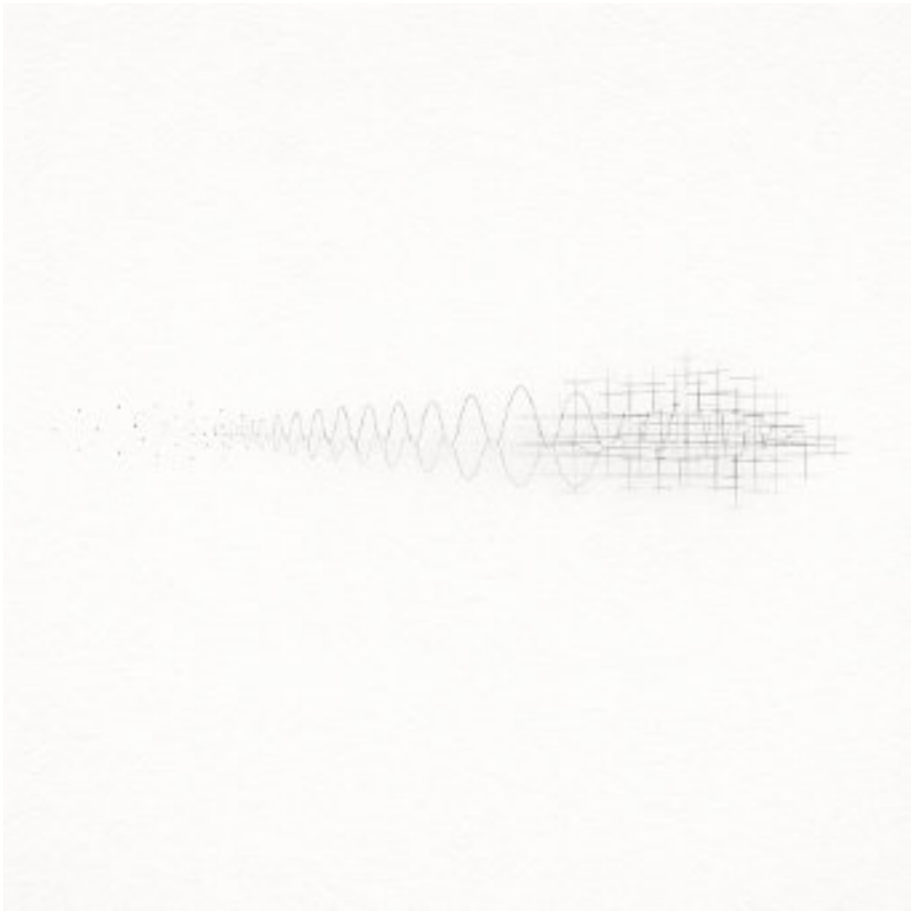
In dioramic analysis, such a theory is viewed as a diorama of reality: a constructed scene in which certain relationships are made visible.

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Signal, Music, and Language

When we try to understand language, it is tempting to look immediately at words and sentences. After all, language seems primarily to consist of meaningful expressions. But before there are words, there is something else: *signal*.

A signal is the most elementary form of communication. It is a perceptible event that acquires meaning for another organism. A bird's alarm call, the scent of a plant, a flash of light, a sudden movement of an animal—all can function as signals. They carry no complex grammar, no abstract concepts, and no stories. Yet they can be highly effective. A single sound can set an entire group of animals in motion.

Signals work directly. They usually refer to something in the immediate environment: danger, food, presence, territory. Their meaning is not fixed within an elaborate symbolic system, but within a practical relation between organism and environment. The signal elicits a response.

In this sense, communication is older than language. It exists wherever living beings are sensitive to patterns in their environment and respond to them. Many animals possess extensive signaling systems.

Some primates, birds, and cetaceans can combine and vary different types of signals. Yet an important difference remains between these systems and human language: signals typically refer to concrete situations and are closely tied to immediate actions.

Between signal and language, however, lies another domain that is often overlooked: *music-like structure*.

Sounds can do more than simply convey a direct signal. They can display rhythm, repetition, and variation. Think of birdsong, the songs of whales, or even the rhythmic chanting of human groups during work or ritual. In such patterns, a certain organization of sound already appears, but not necessarily a clear system of words.

Here, an interesting intermediate domain emerges. Music-like patterns can convey emotions, direct attention, and coordinate group behavior. They can build tension, bring relaxation, create a sense of cohesion. Yet their meaning remains largely implicit. A melody can move or excite without saying anything specific.

Many researchers have suggested that human language may have developed out of such a musical or rhythmic stage. Before words acquired stable meanings, human ancestors may already have used complex vocal patterns to attract attention, express emotions, and strengthen social bonds. Rhythm and intonation still play a major role in modern language. Even when we do not understand the words of

an unfamiliar language, we can often still hear whether someone is speaking angrily, kindly, or inquisitively.

The boundary between music and language is therefore less sharp than is often assumed. In poetry, song, and ritual, the two constantly overlap. The same holds for child language. Young children often respond first to tone and rhythm before they understand the precise meaning of words. The melody of a sentence can sometimes be more important than its content.

Language emerges only when patterns of sound become systematically linked to relatively stable meanings. Words then function as symbols that not only indicate an immediate situation, but can also refer to absent things, memories, plans, and abstract ideas. With this step, the communicative world changes radically.

Where a signal primarily elicits a response, a word can evoke a *representation*. Where music can carry a mood, language can build a structure of meaning. Sentences can describe causes, tell stories, explore hypothetical situations, and formulate rules. The communicative space is thereby enormously expanded.

Yet signals and music do not disappear when language appears. They remain present within speech. Intonation, rhythm, and timbre influence how words are understood. An ironic tone can completely reverse the meaning of a sentence. A pause can say more than an extra

word. Gestures and bodily posture also remain part of the communicative whole.

From a dioramic perspective, language is therefore not an isolated system that suddenly appears. It is part of a broader continuum of expressive means. At one end we find simple signals. At the other end, complex symbolic systems. In between lie many intermediate forms in which rhythm, sound, and meaning overlap.

This continuum also helps explain why language can be so versatile. It still carries traces of its origins in signal and music. At the same time, it has developed into an instrument capable of constructing abstract worlds: science, law, philosophy, literature.

In the following chapters, we will see how this development takes further shape. We will first look at worlds in which language is not yet present or only partially appears. Then we will examine how spoken language itself is structured.

But the starting point remains the same: language grows out of a field of signals, rhythms, and responses. It does not stand apart from that field, but forms a complex continuation of it.

Whistled Language

On the Canary Island of La Gomera, a remarkable form of communication exists: **Silbo Gomero**. In this language, words are not spoken but whistled.

The whistled tones follow patterns that correspond to the sound structure of Spanish. As a result, speakers can convey complete messages over long distances. In mountainous landscapes, a whistled message can sometimes travel for kilometers.

To outsiders, Silbo Gomero sounds like a series of melodic signals. For experienced speakers, however, it forms a fully developed system of communication.

The existence of such languages shows how flexible human language can be. What is normally expressed through consonants and vowels can also be conveyed through differences in pitch.

Onomatopoeia

Some words seem to imitate the sound of an event.

Examples include:
• boom
• tick
• buzz
• meow

These words form an interesting boundary area between sound and meaning. They suggest that the relationship between sound and meaning is sometimes less arbitrary than is often assumed.

The Bouba/Kiki Effect

In a well-known experiment, participants are shown two shapes: one round and one sharp. When asked which shape is called *bouba* and which *kiki*, a large majority spontaneously makes the same pairing:
• bouba → round shape

• kiki → sharp shape

This phenomenon suggests that certain sounds are intuitively associated with particular forms.

Reduplication

In many languages, repetition is used to express a particular meaning.

Examples include:
• bye-bye
• zig-zag
• chit-chat

Some Dutch words also suggest repetition in their sound structure, such as:
• hinkelen
• huppelen
• hobbelen

Here, the form of the word seems to reflect the nature of the movement.

Prosody

Prosody refers to the melody and rhythm of speech.

Elements such as:
• pitch
• tempo
• stress
• pauses

play an important role in how an utterance is interpreted.

The sentence “That is nice,” for example, can express admiration, sarcasm, or disappointment, depending on the intonation.

The Speech-to-Song Illusion

When a short spoken sentence is repeated multiple times, it can suddenly begin to sound like music.

The words remain the same, but the listener starts to perceive the sound structure differently. Rhythm and pitch

come to the foreground, and the sentence seems to transform into a melodic fragment.

This phenomenon shows how thin the boundary between speech and music can be.

Chant and Recitation

In many religious and literary traditions, speech exists at the boundary with music.

Examples include:
• Gregorian chant
• Qur’anic recitation
• mantras
• epic recitation

The words remain intelligible, but their delivery acquires a distinctly rhythmic and melodic character.

Here, language appears in a form that is half spoken, half sung.

The Rhythm of Conversation

In conversation, speakers continuously adjust their rhythm to one another.

Pauses, overlapping sentences, and small acknowledgments such as “yes,” “hm,” or “okay” together form a kind of interactive timing structure.

As a result, conversations often have a rhythm that can almost be described as musical.

Laughter and Crying

Not all human expression takes place through words. Laughter, crying, groaning, or sighing often carry clear meaning without being grammatically structured.

They occupy a boundary zone between emotional signal and communication.

Vocal Play in Children

Babies and young children often produce long sequences of sounds without clear words.

This so-called vocal play contains rhythm, repetition, and variation. It sometimes resembles singing more than speech.

Many researchers suspect that such sound play plays an important role in the development of language.

Sound Associations

In some forms of speech, one word follows another not because of meaning, but because of sound. A speaker may utter a word and then continue with rhyming or phonetically related words.

This phenomenon is known as sound association. It occurs in poetry and wordplay, but also in certain psychotic states.

The structure of language then shifts from meaning to sound. Words are no longer primarily chosen for what they

denote, but for how they sound.

This shows that language is not only a system of meanings, but also a system of sound patterns that can generate new sequences on their own.

In psychiatry, this phenomenon is often described with terms such as:
• clang associations
• flight of ideas
• loosening of associations

In clang associations, for example, a speaker follows one word with others that rhyme or sound similar, even when the semantic connection is weak or absent. The structure of language then shifts from semantics to phonology. Sound becomes more important than meaning.

An example might be:
moon – soon – tune – noon – boon – balloon – moon again …

To a listener, the language may then begin to sound somewhat “musical.” Words follow one another in a kind of rhythmic or sonic flow.

Morse Code

In the nineteenth century, a remarkable communication system was developed: Morse code.

Instead of speaking words or letters directly, information is translated into short and long signals. Each letter of the alphabet has its own pattern of dots and dashes.

These signals can be transmitted in various ways: as electrical pulses in a telegraph line, as flashes of light, as sound tones, or even as taps.
For experienced operators, the patterns quickly become recognizable rhythms. They no longer hear individual dots and dashes, but entire letters or words.

Morse code shows that language is not necessarily tied to specific sounds. Meaning can also be conveyed through simple patterns of time and rhythm.

In this way, the system forms a unique bridge between signal and language: an alphabet consisting entirely of rhythmic patterns.

The Continuum of Expression

The different forms of communication discussed in this chapter can be seen as a continuum. At one end are simple signals that directly influence behavior. At the other end are complex symbolic systems capable of describing abstract worlds.

Language occupies a position somewhere in the middle of this spectrum. It builds on older forms of expression, while at the same time developing new possibilities for symbolic articulation.

The continuum can be schematically represented as follows:

Signal → Rhythm → Music → Proto-language → Language → Writing → Formal languages

Signal: Direct stimuli that trigger a response. Alarm calls, scents, movements.

Rhythm: Repetitive patterns that enable attention and group coordination.

Music: Organized sound patterns that can carry emotion and social cohesion.

Proto-language: Vocal or gestural structures in which sound patterns begin to refer to relatively stable meanings.

Language: A symbolic system in which words and grammatical structures can express complex meanings.

Writing: The externalization of language into visual signs, allowing meaning to be stored and transmitted over long distances.

Formal languages: Highly structured symbolic systems such as mathematics, logic, and programming languages.

From a dioramic perspective, these are not strictly separate domains. They overlap and continuously influence one another. Modern language still contains elements of signal and music, while formal languages build on the symbolic capacities of ordinary language.

The whole forms a layered landscape of expression in which different modes of meaning-making coexist.

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Part II
Before and Around Language

Worlds Without Words

When we think about language, we almost inevitably start from our own experience. For humans, language is so self-evidently present that it is difficult to imagine a world without words. We describe what we see, give names to things, tell what has happened, plan what is yet to come, and constantly speak with others and with ourselves. At times, it can seem as if the world itself consists of words.

But the greater part of life on Earth functions without language in this sense. Animals move through their environment, search for food, avoid danger, recognize conspecifics, form social relationships, and learn from experience, without needing a system of words and sentences. Their world is not empty or chaotic. It is meaningful, structured, and full of distinctions. Only these distinctions are not expressed in language.

This raises a fundamental question: *what does a world without words look like?*

To approach this question, we can imagine a simple example: a dog walking through a landscape. For a human, that landscape is usually organized into named objects. We see a tree, a path, a house, a field,

perhaps a bird in the sky. Each of these things has a name, and that name immediately places the object within a network of knowledge and expectations.

For the dog, the same environment likely consists of a very different structure of meaning. Smells, movements, sounds, and traces play a much greater role than visual classifications. What for us is a neutral tree may be, for a dog, a complex node of information: who passed by here earlier, how long ago, whether it was a familiar companion or an unfamiliar intruder.

The dog's world is therefore not poorer than ours. It is differently organized. The relevance of things lies in their practical meaning for the animal: food, danger, territory, play, companionship. That meaning is not named, but directly experienced.

This means that experience is *not dependent on language*. An animal can feel fear without knowing the word "fear." It can desire food without formulating a concept of "hunger." It can remember a route without making a map or a description.

In humans as well, a large part of life consists of such pre-linguistic processes. We recognize faces instantly without first formulating a description. We catch a ball without calculating a theory of motion. We walk through a room without naming each object separately. Many of our skills function at a level that precedes explicit language.

Yet something fundamental changes when language appears. As soon as an organism can not only respond to situations but also *speak about them*, a new layer of experience emerges. Things can then be named, remembered, compared, disputed, and shared. The world is not only lived, but also described.

This difference becomes especially clear when we consider absent or imaginary things. An animal can respond to what is present: a sound, a smell, a movement. But human language makes it possible to speak about what is not there. We can talk about events in the past, plans for the future, hypothetical situations, and abstract ideas.

Language thus opens a space in which experiences can be stabilized and shared. A perception can be turned into a description. A description can be remembered. A memory can be told. A story can form a culture.

But these new possibilities also have a downside. As soon as the world is organized into words and concepts, direct experience can partly recede into the background. We do not only see a tree, but immediately also the concept "tree." We do not only hear a sound, but instantly classify it as something familiar or unfamiliar.

Language can therefore both clarify and obscure. It makes it possible to analyze and share experiences, but can also impose a grid of categories that simplifies the immediate richness of perception.

From a dioramic perspective, it is therefore important to keep both levels in view. The human world consists neither solely of language nor of purely pre-linguistic experience. It is a configuration in which different layers work together: sensory perception, bodily action, emotional response, social interaction, and symbolic articulation.

The existence of worlds without words reminds us that language is not an absolute condition for meaning. Meaning can also arise from direct involvement with an environment. Organisms can understand their world in terms of possibilities for action: eating, fleeing, playing, resting, searching.

The philosopher **Jakob von Uexküll** once described this as the Umwelt of an organism: the specific world of meaning in which a living being functions. For each species, the environment consists of different relevant signals and possibilities. What seems insignificant to a human may be central for an insect or a dog.

In this sense, different species do not simply live in the same world. They live in different configurations of meaning. Language adds to the human Umwelt a particularly powerful layer: a world of symbols in which experiences can be named, organized, and reinterpreted.

The aim of this chapter is not to draw a sharp boundary between animals and humans. Many animals possess complex forms of communication and social intelligence. Some can even learn simple

symbolic systems. The transition between animal communication and human language is likely more gradual than long assumed.

What matters here is the insight that language is *not the starting point of meaning*. It appears within an already existing world of perception, action, and interaction. When language develops, it reorganizes that field, but does not replace it.

The human world is therefore not simply a world of words. It is a world in which words are constantly intertwined with an older layer of experience. We speak, but we also see. We describe, but we also act. We tell stories, but we also live within a stream of events that can never be fully captured in language.

For that very reason, it can be illuminating to occasionally return to the idea of worlds without words. They show that meaning does not begin with grammar, but with involvement in an environment. Language grows out of that involvement and transforms it.

In the following chapters, we will see how this transformation takes further shape in the structure of spoken language itself. For as soon as words appear, a new kind of architecture of meaning emerges: sounds become words, words become sentences, and sentences open worlds that would be unthinkable without language.

A World Without Names

Imagine that all names suddenly disappear.

The trees are still there.

The sky remains blue.

The sea keeps moving.

But nothing is called anything anymore.

There are forms, colors, sounds, and movements. There is proximity and distance. There are places where you like to be and places you avoid.

The world does not disappear when words disappear.

What disappears is a particular way of organizing it.

Language adds a layer to experience.

But the experience itself was already there.

The scent world of a dog

For a dog, the world largely consists of smells. Where humans see a street with houses, trees, and cars, a dog experiences a complex landscape of scent traces.

Each trace contains information: who passed here, how long ago, whether the animal was anxious, healthy, or sick.

What appears to us as an almost empty space is, for a dog, a dense network of signals.

This shows that a world can arise without words. The structure of experience is then not determined by concepts, but by sensory relevance.

Humans without inner speech

Not everyone thinks in words.

Research has shown that some people have little or no inner voice. Their thinking proceeds through images, spatial patterns, or vague intuitive structures.

Yet they function normally: they solve problems, make

decisions, and understand situations.

This suggests that thinking is not necessarily dependent on language. Language can support and refine thought, but thinking itself appears to be an older and broader capacity.

The world of the young child

A newborn child does not yet have words. Yet it responds to faces, voices, and movement.

The child's world consists of rhythms, contrasts, proximity, and distance. There are patterns of safety and unsafety, of familiar and unfamiliar.

Experience is therefore not empty. It is structured, but that structure is not yet linguistic.

Only later are these patterns connected with words.

Intuition

Sometimes we know something before we can say it.

A decision feels right or wrong without a clear reason. A situation immediately gives a sense of trust or unease. A solution appears before any steps have been worked out.

This is often called intuition.

From a dioramic perspective, intuition can be understood as a form of pre-linguistic thinking. It is not the absence of thought, but thought before it takes shape in words.

The organism registers patterns, relations, and possibilities for action. These do not yet appear as concepts or sentences, but as a direct sense of orientation.

Intuition therefore does not stand outside cognition. It is part of the same field, but operating at a different level.

Language can later translate intuitive insight into explicit reasoning. It can justify, refine, or even question what was first given without words.

But the initial recognition does not depend on language.

This suggests that meaning can arise prior to articulation. What is later expressed in sentences may first appear as a silent alignment with a situation.

Intuition thus marks a point where the older layers of experience remain active within a linguistic being.

We do not only think in words.

Sometimes, thinking happens before words arrive.

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The Emergence of Language

We do not know the exact moment when human language emerged. Language does not leave fossils. There are no direct traces of the first words, no archaeological remains of sentences once spoken.

What we can reconstruct are the conditions under which language likely arose.

Early human communication probably consisted of a combination of signals: sounds, gestures, facial expressions, and bodily postures. Such signals could guide behavior. They could warn, attract, deter, or coordinate. In that sense, they resemble communication systems found in other animals.

But somewhere in this development, a shift occurs.

A signal triggers a response.

A word evokes a *representation*.

That difference is small, but fundamental. An alarm call may indicate danger, but a word can refer to something that is not present. It can

evoke an object, describe an action, reconstruct an event, or suggest a possibility.

With that step, representation emerges.

Sounds are no longer used only to influence behavior, but to stand for something. They gain a relative independence from the immediate situation. What is said no longer has to coincide with what is happening.

This also changes the structure of communication.

Where signals typically function in isolation, words can be combined. They form sequences, patterns, eventually sentences. Through these combinations, a new layer emerges: grammar. Not as a conscious invention, but as an implicit ordering that grows with use.

Language therefore does not develop in a single step, but as a shift in function.

From response to representation.

From immediate situation to possible worlds.

From that moment on, language can describe not only what is, but also what was, what could be, and what may never be.

In that sense, language opens a new dimension.

Not because it creates a second world alongside physical reality, but because it opens, within the same reality, a space in which things can be named, remembered, compared, and imagined.

This space has a peculiar property.

It is not visible, not tangible, and yet constantly present. As soon as words are used, a second layer arises over experience: a layer of meanings, references, and possible interpretations.

A tree is no longer just a tree.

It is also "tree."

This dual structure — thing and name — appears self-evident, but it is not. It forms the basis of what later develops into thought, stories, knowledge, and culture.

Perhaps this is the most profound transformation that language brings about.

Not that humans begin to speak, but that the world begins to appear as something that can be spoken about.

From that moment on, experience is never fully immediate. It becomes permeated by a network of possible descriptions.

That network is not stable. Words shift, meanings change, new combinations arise. Language is not a fixed system, but *a continuously moving field*.

And yet it is precisely this unstable field that makes it possible to experience a relatively stable world.

The emergence of language is therefore not only a biological or evolutionary moment. It is a shift in the way experience is organized.

Where before there was mainly reaction to what presents itself, there now arises the possibility of distance. To refer. To structure.

And with that, a world appears that is not only lived, but also articulated.

The First Word

Imagine a small group of early humans.

Someone points to an animal in the distance.

A sound is made. Perhaps hesitantly, perhaps as an imitation.

The others respond.

When that same sound is later used again for the same animal, something new happens.

The sound becomes a sign.

From that moment on, the group can speak about something that is not present.

A sound has become a word.

Shared attention

A crucial moment in the development of language in children is shared attention.

A child, for example, points to an object while simultaneously looking at an adult.

The adult follows the gaze and names the object.
At that moment, a triangle emerges:

child — adult — object

This simple structure forms an important step toward symbolic communication. Words become possible because multiple individuals can direct their attention to the same point of reference.

Gestures in apes

Research on chimpanzees and bonobos has shown that they use a surprisingly rich repertoire of gestures.
These gestures are often goal-directed: a young animal

may, for example, make a gesture that initiates play.

Some researchers have therefore suggested that human language may have partly emerged from a gestural system that was later supplemented with vocal signals.

The FOXP2 mutation

Genetic research has identified a gene that is important for speech: FOXP2.

When this gene is impaired in humans, severe problems arise in speech production and grammatical processing.

Comparisons with other primates suggest that small changes in this gene may have played a role in the evolutionary development of human language.

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The Social Origin of Language

Language does not arise in isolation. From the beginning, it is a social phenomenon.

Words have meaning only within shared use. A sound becomes a word only when others recognize it, repeat it, and use it in a similar way. Without this mutual attunement, every utterance would immediately disappear.

In that sense, language is not an individual possession, but a collective practice.

This also means that language does not simply arise because an individual names something. A name works only when it is taken up within a network of shared expectations. Speaking is always already a form of participation in a way of living together.

This becomes visible in the simplest situations.

A child does not learn language by understanding definitions, but by participating. By pointing, repeating, responding to the reactions of others. Meaning does not arise here as something that is explained, but as something that takes shape in interaction.

Language therefore does not grow out of a pre-given system, but out of repetition and attunement.

When a particular sound is used in similar situations, stability gradually emerges. What was first a loose utterance becomes recognizable. What is recognizable can be repeated. What is repeated acquires meaning.

That meaning, however, is never fully fixed.

It remains dependent on context, intonation, situation, and the relationship between speakers. The same word can serve different functions: a description, a command, a question, a joke. Language is therefore not only a system of signs, but also a form of action.

To speak is *to do something*.

This social character of language has another consequence.

Language makes it possible to share experiences that are not directly visible. What someone has experienced, thought, or felt can be conveyed to others. In this way, a shared space arises that extends beyond the immediate situation.

This space is not a physical place, but an intersubjective field.

Within this field, stories can arise, memories can be built, and expectations can be formed. What was initially individual is taken up into a shared frame of reference.

This is how culture emerges.

Not as something that floats above language, but as something carried by language and continuously reshaped through it. Habits, rules, beliefs, and values are transmitted, adjusted, and sometimes rejected within linguistic interaction.

In that sense, language is not only a means of communicating culture, but also *a condition for its existence*.

This becomes even clearer when we look at situations in which language is absent.

Without a shared language, communication remains limited to direct signals. One can point, react, perhaps imitate, but it becomes difficult to convey complex experiences or to build abstract structures.

What is missing is not only information, but a shared world.

Language makes it possible to stabilize that world.

By using words for recurring situations, patterns become recognizable. By naming those patterns, they can be discussed. And by speaking about them, they can be confirmed or changed.

The social origin of language therefore does not only mean that language arises between people, but also that it creates a field in which people meet.

Not only physically, but also in meaning.

That field is never fully closed. New words can arise, existing words can shift, meanings can change. Every linguistic community is therefore in motion.

And yet there is enough stability to understand one another.

That balance between stability and change forms the dynamic of language as a social phenomenon.

Perhaps it can be summarized as follows.

Language does not arise because individuals want to speak.

Language arises because people are involved with one another.

And within that involvement, a shared space emerges in which experience is not only lived, but also exchanged, shaped, and understood.

Language Around the Fire

Imagine a group of early humans at the end of a long day.

The fire is burning. The hunt is over. Darkness falls.

Someone begins to tell what happened that day.

Where the game was seen.

Who encountered a dangerous moment.

How another found a clever solution.

Slowly, a story takes shape.

The others listen. They laugh, respond, add details. What was first a single event now becomes shared knowledge.

Perhaps language did not arise only to name objects, but also to share experiences. Around the fire, the world is reconstructed in words.

From that moment on, an event no longer belongs only to the one who lived it. It becomes part of the memory of the group.

Language Around the Fire

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Language as social glue (Dunbar)

The British anthropologist Robin Dunbar proposed a striking hypothesis about the origin of language.

In many primates, social cohesion is maintained through grooming. Animals sit close together and care for each other's fur. This strengthens social bonds.

But as human groups grew larger, individual grooming became too time-consuming.

Dunbar therefore suggested that language became a form of "vocal grooming." Through talking, people can maintain social bonds with multiple group members at the same time. In this sense, a large part of human conversation is not primarily informational, but social.

Gossip

Research into everyday conversations shows that a surprisingly large part of human communication consists of gossip.

People talk about:
• who did what
• who is trustworthy
• who has broken rules
• who belongs to which group

Such conversations help to organize social networks.

Gossip therefore has an important evolutionary function: it makes it possible to track reputations and to stabilize cooperation within larger groups.

Names

A striking step in human communication is the use of names.

A name makes it possible to speak about an individual who is not present.

Once names exist, it becomes possible to speak about absentees, to form stories, to organize relationships, and to build hierarchies.

Names thereby change the structure of social worlds.

Individuals are not only recognized, but also represented in language.

From Signal to Language

Communication does not appear all at once as language. It takes shape along a series of forms that flow into one another.

An animal emits an alarm call. There is danger. The meaning lies directly in the signal itself and is closely tied to the situation in which it occurs. There is little to combine, little to vary. The signal points, and that is enough.

In other species, something more complex appears. Birdsong, for example, unfolds in patterns that can be repeated and varied. Motifs return, structures build up, and young birds learn these forms from older ones. Yet this does not seem to constitute a system that describes events. The song marks presence and territory. It organizes, but does not refer beyond itself. In that sense, it is closer to music than to language.

Some animal species move further in the direction of what might be called communication. Dolphins and great apes use signals that are individually recognizable and sometimes combined. Information is shared within a social context. But even here, the range remains limited. What is possible is largely fixed within the system itself. The step toward open combinations and abstract reference does not occur.

With human language, the situation changes profoundly. Words do not function only as signals, but as references that can detach from the immediate situation. They can be combined into ever new sentences, creating a practically unlimited variation. It becomes possible to speak about what is absent, about what has been, about what is yet to come, and even about what will never exist.

Communication thus shifts from indicating situations to forming worlds. Language does not only describe what is, but opens a space for what can be thought, imagined, or questioned.

Where exactly the boundaries of this spectrum lie remains open. It is conceivable that forms of communication exist that do not fit within this progression, or that take place in media we barely recognize. But within what can be observed, a continuum becomes visible: from signals that directly indicate something, through patterns and forms of exchange, to language that not only transmits, but also creates.

Human language therefore does not stand outside nature, but it does occupy a distinctive position. Not because it is completely separate from what precedes it, but because it introduces a possibility not yet present there: the capacity not only to convey meaning, but to form it.

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Part III
Spoken language



The Architecture of Speech

When we speak, it seems as if words effortlessly follow one another. Sentences arise without visible effort and disappear again as soon as they are spoken. Yet this apparent simplicity rests on a complex and largely invisible structure. Speech has an architecture, but one that is not visible like a building, rather audible in the ordering of sounds and the patterns in which they appear.

At the most basic level, speech consists of sounds, but these sounds are not arbitrary noises. They are specific configurations of air, vibration, and articulation that function as recognizable and distinctive elements within a language. These sounds are combined into syllables, syllables into words, and words into sentences. At each level, implicit patterns apply that speakers intuitively master without being explicitly aware of them. A native speaker does not have to think about which sound combinations are possible and which are not; that knowledge is present as a kind of immediate sensitivity to what "fits."

Speech is therefore not a loose collection of elements, but a structured flow. This structure is determined not only by the sequence of sounds, but also by timing, stress, and grouping. Pauses, rhythm, and emphasis give direction to what is being said and make it possible to segment and understand speech. Without this organization, a sentence would fall apart into an indistinct series of sounds.

In addition, the ordering of words plays a crucial role. The meaning of a sentence depends not only on the individual words, but also on their position within the whole. By rearranging words, the same content can take on a different nuance, or even a different meaning. The architecture of speech is therefore not only phonetic, but also syntactic: it organizes both sound and meaning.

What makes this structure remarkable is that it usually remains invisible. When we speak, we focus on what we want to say, not on the underlying patterns that make it possible. The architecture operates in the background, as an implicit framework within which speech can unfold.

Yet this hidden structure becomes briefly visible each time we speak. When someone speaks, an invisible system becomes audible. As soon as the sound fades, that structure withdraws again. Speech is thus a continuous appearing and disappearing of form, a temporary realization of an underlying pattern that constantly reorganizes itself.

The Flow of Speech

Listen to someone speaking a language you do not know.

The words seem to blend into one another. There are no clear boundaries between syllables or sentences. What you hear is an uninterrupted stream of sounds.

Yet a speaker of that language experiences something entirely different. For them, the stream consists of recognizable units: words begin and end at clear points, sounds follow patterns that feel familiar.

What sounds like a continuous flow of sound to an outsider appears to the speaker as a structured landscape.

The architecture of speech is therefore not immediately audible. It becomes visible only when we learn where the boundaries and patterns are located.

Hearing word boundaries

When we hear a foreign language, it is often difficult to determine where words begin and end.

In spoken language, there are rarely clear pauses between words. Speakers link sounds together, drop certain sounds, and sometimes even add extra sounds to make pronunciation more fluid.

Yet native speakers usually have no difficulty recognizing words. They have unconsciously learned which sound patterns are possible in their language and which are not.

A listener uses this knowledge to automatically segment the stream of sound into recognizable units.

This ability shows that speech does not consist only of separate sounds, but of patterns that are actively interpreted by the listener.

Tongue twisters

A well-known form of play with speech is the tongue twister.

Sentences such as:

She sells seashells by the seashore.

are difficult to pronounce because they contain sounds that must be produced in rapid succession with very small changes in the position of the tongue and lips.

Tongue twisters reveal how precise the coordination of the speech organs actually is. What happens automatically in normal speech can suddenly become difficult when sounds appear in an unusual order.

They thus make the mechanical side of speech audible: a finely tuned interplay of muscles and timing.

Recognizing words despite letter chaos

It turns out to be surprisingly difficult to make text unreadable by simply changing the order of letters.

When the first and last letter of a word remain in place, many readers can still understand the text fairly easily. For example:

Aoccdrnig to rscheearch at an Elgnish uinervtisy, it deos not mttaer in waht oredr the ltteers in a wrod are, as long as the frist and lsat ltteer are in the rghit pclae.

The reason is that we usually do not decode words letter by letter. During reading, we mainly recognize patterns and overall word shapes.

Even when vowels are removed, a text often remains understandable:

Ths sntnc stll rmsns prtty rdbl, vn f th vwls r mssng.

Our brains automatically fill in the missing information based on:

• context

• word shape
• expectation

This phenomenon shows that language processing is strongly based on pattern recognition. Both in reading and in listening, we continuously reconstruct the most likely words from incomplete signals.

AI models typically recognize words as token patterns frequently encountered during training. When letters are randomly shuffled, these familiar patterns largely disappear. As a result, it can sometimes become even more difficult for a model than for humans.

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The Physical Production of Sound

When we speak, we rarely experience it as a bodily activity. Words seem to arise directly from what we want to say, as if they form without the involvement of the body. Yet speech is inseparably connected to physical processes. Every sound emerges from a precise coordination of breathing, vibration, and articulation.

Air is pushed out from the lungs and set into vibration in the throat. That vibration is then shaped by the position and movement of the tongue, lips, jaw, and palate. Small variations in these movements produce large differences in sound. What we perceive as distinct sounds is the result of an extremely fine-tuned coordination of muscles and timing.

An important point is that speech is not a series of separate actions. Sounds are not produced one by one and then combined. In reality, the movements continuously overlap. While one sound is still being articulated, the next is already being prepared. Speech is a continuous process of transition, in which articulations flow into one another and influence each other.

This makes it difficult to segment speech precisely. The boundaries between sounds are often less sharp than they appear. What we hear as clear units is partly the result of interpretation. In physical production, sounds form a fluid movement rather than a sequence of separate steps.

And yet we experience speech as structured. This is because we have learned to recognize variations in sound as belonging to the same category. Different realizations of a sound are grouped into a single recognizable unit. What is physically continuous and variable is mentally stabilized.

Here, a tension arises. On the one hand, there is the physical production of speech, which is fluid and ever-changing. On the other hand, there is perception, which distinguishes and imposes structure. Speech exists precisely at the intersection of these two dimensions. It is a bodily activity that is perceived as a system of discrete elements.

In this sense, speech is not only something we do, but also something we *learn to hear*. The body produces movements and vibrations, but only in perception are these recognized as meaningful sounds. Language thus emerges not only in speaking, but also in *listening*.

The Speech Instrument

The human voice is a remarkable instrument.

Unlike a violin or a flute, it has no fixed form. The instrument consists of moving parts: lungs, vocal folds, tongue, lips, teeth, and palate. Through small changes in their position, the airflow can be shaped again and again.

During a conversation, these parts are constantly in motion. The tongue shifts position, the lips open and close, the soft palate moves up or down. All these movements occur within fractions of a second.

For the speaker, they usually remain unnoticed. Yet it is precisely this subtle choreography that forms the basis of every spoken sound.

Speech is therefore not only a mental activity. It is also a form of bodily technique.

Click sounds

In some languages, sounds are used that may seem surprising to many Europeans: click sounds.

These sounds are not produced by pushing air out of the lungs, but by creating a small vacuum movement with the tongue in the mouth. When the tongue suddenly releases, a clearly audible click is produced.

Click sounds occur, among others, in languages such as Xhosa and Zulu in South Africa. Speakers of these languages use different types of clicks as full-fledged consonants.

For people unfamiliar with these sounds, they may seem more like tongue noises than ordinary speech. Yet within these languages, they function just like other consonants.

The existence of click sounds shows how flexible the human speech instrument really is.

Speaking with a pencil between the teeth

A simple way to experience the role of articulation is to speak with a pencil between the teeth.

When someone tries to pronounce a sentence while the mouth is partially blocked, it immediately becomes more difficult to form certain sounds correctly. Sounds that require precise closure of the lips or tongue are especially affected.

Yet the sentence often remains understandable. The listener can reconstruct the words based on context and partial sound information.

This small experiment shows how important the precise movements of the speech apparatus are for clear articulation.

Whistled speech

In some mountainous regions, people have developed a remarkable form of communication: whistled language.

Instead of speaking words, the sound patterns of a

language are converted into whistling tones. Through variations in pitch and rhythm, entire sentences can be transmitted.

A well-known example is Silbo Gomero, a whistled form of Spanish used on the Canary Island of La Gomera.

Whistling can be heard over great distances, sometimes several kilometers. In mountainous landscapes, this system made communication between remote locations possible.

This phenomenon shows that the structure of speech is not necessarily tied to ordinary vocal sounds. The patterns of a language can also be expressed in other acoustic forms.

Ventriloquism

In ventriloquism, it seems as if a voice comes from another source, for example from a puppet.

In reality, the voice is of course still produced by the speaker. What is remarkable is that the ventriloquist pronounces certain sounds in such a way that the movement of the lips

is barely visible.

Sounds such as p, b, and m, where the lips normally close clearly, are replaced by alternative articulations. Through small adjustments in tongue position and airflow, the speaker can form words without noticeably moving the mouth.

At the same time, the audience directs its attention to the puppet or object that visibly “speaks.” The brain automatically links the heard sound to the place where movement occurs.

The result is a convincing illusion: the voice appears to come from the puppet.

Ventriloquism shows that speech is not only a bodily activity, but also a matter of perception. The way we produce sounds and the way we perceive their source can become decoupled.

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The International Phonetic Alphabet

The way languages are written often gives a distorted picture of how they sound. The same letter can represent different sounds, and the same sound can be spelled in different ways. Ordinary spelling is shaped by tradition and usage, not by an accurate representation of speech.

For anyone who wants to analyze sound precisely, this is a problem.

The International Phonetic Alphabet, developed at the end of the nineteenth century, is an attempt to address this problem. In this system, each sound of human speech is assigned its own symbol. The point of departure is not how words are written, but how they actually sound.

This approach makes it possible to notate speech with precision. Two words that are pronounced the same receive the same notation, regardless of their spelling. Conversely, subtle differences in pronunciation can be made visible, even when they are not distinguished in ordinary writing.

The IPA is therefore not a practical alphabet for everyday use, but an analytical tool. It reveals what remains hidden in the immediate experience of speech: that words are composed of

specific, identifiable sounds that can be systematically described.

At the same time, it shows that this structure is not directly given. In speaking, we do not experience separate symbols, but meaningful wholes. The IPA imposes an ordering after the fact on a flowing stream of sound. It forms a bridge between the bodily production of sound and the abstract analysis of language.

Why Spelling Can Be So Illogical

Many people assume that spelling is meant to represent pronunciation. In reality, spelling often reflects the history of a language more than how it actually sounds.

The English word *knight* was once pronounced with a clear k-sound and a guttural sound at the end. The spelling preserves that older form, even though the sounds have disappeared.

Writing is therefore not a perfect mirror of speech, but rather an archive of past pronunciations.

The IPA attempts to do exactly the opposite: it records not the history of words, but the sound of the moment.

Spelling vs. pronunciation

In many languages, there is a considerable gap between written form and pronunciation.

Writing usually changes slowly, while spoken language is constantly evolving. As a result, spelling can preserve sounds that have long disappeared from modern pronunciation.

The English word *knight*, for example, still contains letters that refer to sounds that were pronounced in Middle English but later vanished.

This phenomenon shows that writing is often not a direct representation of speech, but rather a historical archive of earlier pronunciation.

Tone in language

In some languages, pitch plays a decisive role in distinguishing words.
In Mandarin Chinese, the same syllable can have different

meanings depending on the tone.

A change in pitch can therefore result in a completely different word.

This phenomenon shows that speech does not consist only of:
• consonants
• vowels
• but also of melodic contours that carry meaning.

The vowel chart

Vowels are often represented in a diagram that reflects the position of the tongue in the mouth.

The vertical axis represents:
high vs. low
The horizontal axis represents:
front vs. back of the mouth

This diagram shows that vowels are not arbitrary, but form a systematic space of articulation.

The limits of alphabetic spelling

Many alphabets attempt to represent speech sounds with a limited number of letters.

When a language has more sounds than available letters, solutions arise such as:
• letter combinations
• diacritics
• historical spellings

The IPA seeks to avoid this problem by assigning a unique symbol to each sound.

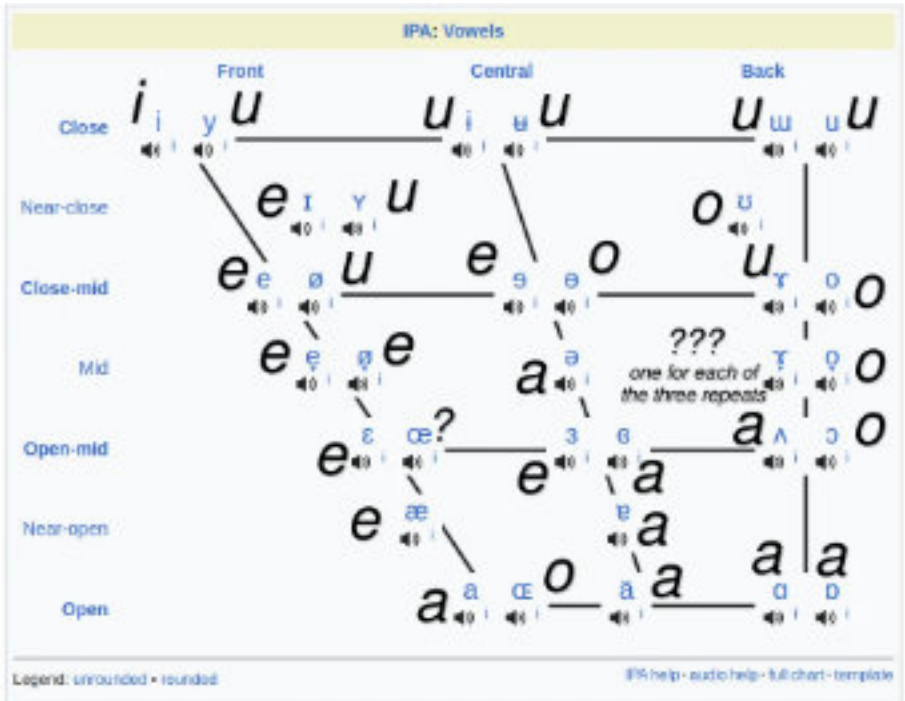
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IPA: Vowels
Front
Central
Back
Close
Near-close
Close-mid
Mid
Open-mid
Near-open
Open
???
one for each of the three repeats
Legend: unrounded • rounded
IPA help - audio help - full chart - template

Sound and Meaning

When we speak, it seems self-evident that words carry meaning. We hear a sound and immediately understand what it refers to. There is no natural bond between sound and meaning. That relation is less self-evident than it appears.

The word *tree* does not resemble a tree and does not sound like a tree. There is nothing in the sound itself that necessarily refers to that object. That we nevertheless understand the meaning immediately is based on shared use within a linguistic community. The connection is learned and repeated until it appears self-evident. Once names exist, people can refer to things that are not present, share experiences, and build a common world of meaning.

This becomes clear when we compare languages. The same object can be designated by completely different sounds. The meaning remains recognizable, while the sound changes. This shows that the relation between sound and meaning is not anchored in nature, but arises within language.

Yet this relation is not entirely arbitrary. In some cases, a more direct connection seems to exist, for example in onomatopoeia. Words that

imitate sounds suggest a closer relation between what is heard and what is meant. But even here, the form differs across languages, showing that convention still plays a role.

Sound and meaning thus belong to different domains. Sound is physical and temporary, meaning is abstract and relatively stable. Language connects these two, but does so in a way that is not fixed. The link between sound and meaning is dynamic and can change over time.

And yet we experience language as stable. Words seem to have fixed meanings and function reliably in communication. This stability is the result of repetition and shared use. Through constant use, certain connections become so familiar that they appear self-evident.

Only when we take distance, for example by hearing a foreign language, does it become visible how remarkable this connection actually is. That a sequence of sounds can systematically refer to a world of objects, actions, and ideas is not a given, but an acquired structure.

Semantic Satiation

Say a simple word out loud, for example *chair*.

Repeat it ten, twenty, thirty times in a row.

At first, it remains just a word. It naturally refers to an object one can sit on. But after a while, something strange happens. The word begins to lose its self-evidence. It seems to detach from its meaning. What remains is a peculiar sound: chair, chair, chair. It suddenly sounds strange, almost artificial, as if the word never really had a meaning.

This phenomenon is known as semantic satiation. When a word is repeated too often and in isolation, the connection between sound and meaning temporarily weakens.

The importance of this phenomenon is analytical. In ordinary language use, the relation between sound and meaning appears self-evident and stable. Semantic satiation shows that this connection must in fact be continuously maintained by context and use. As soon as a word is removed from its context of use and repeated merely as sound, its meaning begins to fade.

This phenomenon reveals something fundamental about language. The link between sound and meaning is stable enough

to make communication possible, but it is not intrinsic or natural. It depends on a living network of recognition, context, and shared use.

When that network temporarily falls away, what remains is the sound.

The bouba/kiki effect

In a well-known psycholinguistic experiment, participants are shown two simple shapes: a rounded, soft shape and a sharp, jagged one.

They are then asked which shape is called *bouba* and which *kiki*.
A remarkably large number of people assign *bouba* to the rounded shape and *kiki* to the sharp one. This result appears across many different languages and cultures.

The experiment suggests that certain sound patterns are spontaneously associated with particular forms or qualities. The rounded vowels and soft consonants of *bouba* seem to fit a rounded shape, while the sharp sounds of *kiki* align better with an angular form.

For the analysis of language, this is interesting because it nuances what is often called the arbitrariness of the sign. In principle, the relation between word and meaning is conventional. Yet the sound form itself can evoke certain intuitive associations.

The bouba/kiki effect thus shows that sound is not entirely

neutral. Even before a word has acquired a fixed meaning, its sound structure can already suggest a certain experiential quality.

Clang associations

In normal language production, words follow one another based on meaning. A speaker chooses words that correspond to what they want to express.

In clang associations, something else happens. Here, words are chosen primarily because they resemble one another in sound: through rhyme, alliteration, or rhythmic similarity. One word evokes the next because it sounds like the previous one.

This phenomenon can occur in poetry, improvisation, and wordplay, but also in disorganized speech, for example during certain psychotic episodes. Semantic coherence is then partly replaced by phonetic attraction.

For the analysis of language, this phenomenon is instructive. It shows that words are not only connected

through fields of meaning, but also through fields of sound. In normal speech, this phonetic attraction is usually kept in check by the semantic structure of the sentence. In clang associations, it suddenly comes to the foreground.

The phenomenon thus reveals a second organizing principle in language: alongside meaning, sound itself can become an organizing force.

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Rhythm, Melody, and Intonation

When we speak, we usually focus on the words themselves. Yet a significant part of what we say is not carried by the words, but by the way they sound. Speech is not only a sequence of meaningful units, but also a movement in time, shaped by rhythm, melody, and intonation.

Every language has its own rhythmic structure. Sounds and syllables do not follow one another at a uniform pace, but in patterns of stress and relaxation. Some parts of a sentence are emphasized, while others are reduced or spoken more quickly. This rhythmic organization makes it possible to segment and understand speech. Without rhythm, a sentence would fall apart into an unstructured stream of sound.

Alongside rhythm, melody also plays a role. During speech, the pitch of the voice constantly changes. It rises, falls, makes subtle variations, and forms a contour that accompanies the utterance. This melodic movement is usually not consciously perceived, yet it directly influences how what is said is interpreted. A sentence can shift from a statement to a question, or from certainty to doubt, through a small change in pitch.

Rhythm and melody come together in what we call *intonation*. Intonation determines how an utterance is to be understood and guides the meaning of a sentence. Two sentences with identical words can carry entirely different meanings depending on their intonation. It is therefore not an exaggeration to say that a substantial part of the meaning of speech lies outside the words themselves.

This becomes clear in everyday situations. A simple sentence like

| *you're coming*

can, depending on intonation, be a confirmation, a question, or a mild correction. By shifting the emphasis or varying the pitch, the meaning changes without altering the words themselves. Interpretation arises not only from lexical content, but from how the sentence is spoken as a whole.

Rhythm, melody, and intonation thus occupy a boundary region within language. On the one hand, they belong to the physical dimension of speech: they are produced through variations in breathing, muscle tension, and voice use. On the other hand, they carry meaning and guide interpretation. They form a bridge between body and meaning, yet operate on a different level than individual sounds or words.

In this respect, language touches music. Rhythm and melody are not exclusively linguistic phenomena, but fundamental properties of

auditory structures in general. The difference is that in language they are linked to semantic and syntactic patterns, while in music they function largely autonomously. Yet the boundary is not sharp. In singing, spoken word, and poetry, these domains flow into one another.

What this chapter shows is that language is not only a system of signs, but also a dynamic shaping in time. Meaning arises not solely through words, but through the interplay of sound, rhythm, and intonation. Without this dimension, language would lose its vitality and collapse into an abstract scheme.

Rhythm and intonation give speech its continuity and nuance. They make language not a collection of separate elements, but an ongoing movement in which meaning unfolds.

Tone languages

In many European languages, pitch variation within a sentence mainly reflects the speaker's attitude. In tone languages, however, pitch can distinguish between entirely different words.

In Mandarin Chinese, for example, the syllable *ma* can have four different meanings depending on the tonal pattern with which it is pronounced. The same sound can thus refer to "mother," "hemp," "horse," or a question particle.

What in many languages is merely a nuance of intonation becomes here a fundamental element of the lexicon. Pitch becomes part of the word itself.

This phenomenon makes clear that the musical dimension of language is not merely expressive. In some languages, it forms a structural component of the system of meaning.

It also shows that the boundary between melody and meaning is not universally fixed. In some language systems, they are much more tightly intertwined.

The melody of a language

Even when one does not understand a language, it is often possible to recognize which language is being spoken. Italian sounds different from German, Spanish different from English. This difference lies not only in words or sounds, but also in rhythmic and melodic patterns.

Every language has characteristic accents, pauses, and pitch movements. These form a kind of auditory profile that native speakers unconsciously master.

For someone learning a new language, this often turns out to be one of the most difficult aspects. Words and grammar can be learned relatively quickly, but the rhythm and melody of a language are deeply tied to the speech habits of one's native language.

That is why accents usually reveal themselves not in individual sounds, but in the overall rhythm of sentences. The speaker unconsciously uses the prosodic structure of their own language as a framework for another language.

The melody of a language thus forms a kind of invisible grammar of speech.

Rap and the rhythmic intensification of language

Rap shows how strongly rhythm can shape the structure of language. In rap, words and sentences remain semantically recognizable, but their placement is tightly organized by a metrical framework: the beat.

Speakers manipulate syllables, stresses, and pauses to fit precisely within this rhythmic pattern. Words are shortened, stretched, or shifted. Rhyme and sound repetition reinforce the rhythmic effect.

In this form of language use, the balance between meaning and sound shifts. Content remains important, but rhythm and flow become equally decisive for how the text works.

Rap thus shows how language can move along the boundary between speech and music without fully losing its semantic character.

Scat and sound poetry

At the other end of the spectrum, we find vocal forms in which conventional meaning largely disappears.

In scat singing, known from jazz, singers improvise with sound syllables such as *ba*, *doo*, *bap*, or *sha*. These syllables have no fixed meaning, but function as musical building blocks.

Sound poetry likewise uses the voice to create rhythmic and phonetic structures without clear lexical meaning.

These phenomena show what remains when the semantic bond of language weakens. Rhythm, breath, pitch, and timbre continue to function as expressive means, even when words lose their conventional meaning.

For the analysis of language, these are important edge phenomena. They make visible that language has always already made use of vocal means that also operate in music.

Recognizing a native language before the words

Babies can distinguish between different languages at a very early stage, long before they understand words. Experimental research shows that newborns respond differently to their native language than to a foreign one.

Remarkably, this distinction remains possible even when much of the phonetic detail is filtered out. When speech is distorted so that individual words are barely recognizable, listeners can often still identify whether it is, for example, French, English, or Spanish.

What is being heard in such cases is not the words themselves, but the rhythmic and melodic patterns of the language.

This phenomenon shows that languages have a recognizable prosodic structure that can be perceived independently of word meaning. Rhythm and intonation thus form a kind of auditory signature of a language.

Lullabies

Lullabies are among the oldest and most universal forms of vocal communication between humans. In nearly all cultures, adults sing soft, rhythmic melodies to calm children.

Strikingly, these songs often have simple melodic contours, slow tempos, and gentle dynamics. The words themselves are sometimes hardly important. In many cases, lullabies consist of simple sound sequences, repetitions, or low-meaning syllables.

The effect seems to arise mainly from rhythm, repetition, and melody. The voice functions here less as a carrier of semantic information and more as a regulating and soothing auditory pattern.

Lullabies show that the human voice can have meaningful effects even before, or without, clear lexical content. The musical dimension of language appears here as primary.

Beatboxing

Beatboxing is a vocal technique in which speakers use their mouth and voice to produce percussive and musical sounds normally made by instruments.

Although beatboxing is not language in the strict sense, it uses the same speech apparatus as ordinary language: lips, tongue, glottis, and airflow. The performer produces complex rhythmic patterns through rapid articulatory movements.

This phenomenon shows how flexible the human speech apparatus is. The same physiological instruments that normally produce syllables and words can also generate rhythmic structures resembling musical percussion.

For the analysis of language, this is relevant because it again shows the proximity of speech and music. The voice can function as an instrument that produces both meaningful language and purely rhythmic sound structures.

Melody without words

When people hear an unfamiliar language, they can sometimes imitate its melody surprisingly well without understanding a single word.

In linguistic research, this is sometimes tested by letting participants hear a short recording in an unknown language and then asking them to imitate the pronunciation as accurately as possible. Many participants can reproduce the overall pitch movements, rhythm, and cadence quite precisely, while the individual words are completely incorrect or replaced by meaningless sounds.

What is being imitated here is not the lexicon but the prosodic contour of speech: the rise and fall of pitch, the placement of stress, the tempo, and the rhythmic distribution of syllables.

This phenomenon shows that the melodic structure of speech forms a relatively independent layer. It can be perceived, remembered, and reproduced without understanding the content of the words.

For the analysis of language, this means that speaking is

not only about combining words according to grammatical rules. It is also about producing recognizable vocal patterns in time. Even when meaning is absent, this auditory form remains.

The phenomenon thus once again shows how closely language is tied to the musical capacities of the human voice.

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Part IV
Language and Consciousness

A note on consciousness

In discussions of language and mind, the word *consciousness* is often used as if it were a kind of *container*. People speak of contents of consciousness, of thoughts appearing in consciousness, or perceptions entering consciousness. Such formulations are convenient and widespread, but they can easily create a misleading image.

In everyday experience, consciousness rarely appears as something one has. It is not typically experienced as a mental space in which objects are stored or displayed. Experience presents itself more as a relation: *one is aware of something*. There is the seeing of a landscape, the hearing of a sound, the remembering of a face, the thinking about a problem. Being conscious seems less like a container and more like an activity or event.

For that reason, the analyses in the following chapters avoid treating consciousness as a separate inner domain in which mental objects reside. Instead, the emphasis is often on awareness, attention, and experience. These terms point more toward processes and relations than toward a supposed inner space.

This does not mean that the existence of consciousness is denied. It only means that the word is used with some caution. When the text does speak of “consciousness,” it should not be understood as a mental container with identifiable contents. It is merely a practical way of indicating that something is experienced or noticed.

From the perspective of this book, language does not relate to a closed inner chamber of the mind, but to patterns of awareness that arise in the ongoing relation between organism and world. Words can direct attention, stabilize distinctions, and organize reflection. But the field of experience always remains broader than the linguistic descriptions that attempt to capture it.

Language illuminates certain aspects of experience.

But it never contains the whole.



Inner speech

When we think, we often do so in words. Sentences form without being spoken aloud. We can reason, plan, recall memories, and engage in a dialogue with ourselves without any sound being involved. This form of language use is usually referred to as *inner speech*.

Inner speech closely resembles spoken language, but also differs from it in essential ways. It has no audible sound, no physical articulation, and no external recipient. Yet it retains much of the structure of language. Words follow one another, sentences are formed, and meaning unfolds over time.

Remarkably, inner speech is often more compact than spoken language. Sentences can be incomplete, grammatical structures are shortened, and certain elements remain implicit. What must be made explicit in spoken language to be understood can be omitted in inner speech because speaker and listener coincide.

This makes inner speech more efficient, but also less stable.

Thoughts in words can shift quickly, move, or fade. A sentence can change halfway through, a thought can branch out or disappear before

it is fully formed. Inner speech therefore has a fleeting character, similar to spoken language, but without being anchored in sound.

Yet inner speech plays an important role in how we experience ourselves.

It makes it possible to take distance from immediate experience. By formulating something in words, we can reflect on it, reformulate it, and evaluate it. Inner speech thus creates a space in which experience can be reflected upon.

Within that space, what we consider thinking often arises.

Not all forms of thinking are linguistic, but when thinking unfolds in words, it acquires a specific structure. Thoughts become linear, follow one another, and can be retained or recalled. Language gives thinking a form in which it can organize itself.

At the same time, inner speech is not the same for everyone.

Some people experience an almost continuous stream of words, while others think far less in language. There are even people who report having little or no inner speech at all. This indicates that language plays an important, but not exclusive, role in thinking.

Inner speech thus occupies a boundary region.

It is not external communication, but neither is it purely internal in the sense of being entirely wordless. It is a form of language that has turned inward and developed its own dynamics there.

In this sense, inner speech shows that language is not only a means of communicating with others, but also a way of maintaining a relationship with oneself.

The difficulty of not reading words

Try the following experiment. Look at a word on a page, for example *tree*. Now try consciously not to read what is written. Just look at the shape of the letters.

For many people, this turns out to be surprisingly difficult. As soon as the eyes see the word, it is almost immediately read. The meaning seems to appear automatically.

This phenomenon becomes clearly visible in the well-known **Stroop experiment**. In this test, participants are shown words that are names of colors, but printed in a different color. The word *red* may, for example, be printed in blue ink. The task is then to name the color of the ink, not to read the word.

In such situations, people often slow down or make mistakes. The automatic tendency to read the word interferes with the task of naming only the color. Reading imposes itself, as it were.

For the analysis of language and consciousness, this experiment is highly instructive. It shows that reading is not a voluntary act that begins only when one consciously decides to do so. Once someone has learned to read, word recognition becomes a highly automated process.

The visual form of a word immediately activates a network of sound, meaning, and inner articulation. Even when one tries to suppress reading, that system remains active.

The experiment thus shows how deeply language processes can become integrated into consciousness. What was once a learned skill gradually becomes an almost unavoidable response of the cognitive system.

The word is seen, and almost immediately, it is read.

People without inner speech

Many people experience their consciousness as an almost continuous stream of inner words. They feel as if they are silently speaking to themselves, formulating arguments, preparing sentences, or commenting on what is happening.

Yet this is not the case for everyone.

Psychological research and self-reports show that some people experience little or no inner speech. Their thoughts do not appear as words or sentences, but rather as images, intuitive insights, spatial structures, or vague conceptual impressions.

When such people solve a problem, they often report that the answer “just appears,” without any preceding inner verbal reasoning. Planning and reflection, too, can unfold largely without words.

This phenomenon is important because it challenges a long-standing assumption in philosophy and psychology: that thinking necessarily takes place in language. For many theorists, it seemed self-evident that thoughts consist of inner sentences.

The experience of people without inner speech shows that this is only one possible form of consciousness. Thinking can also organize itself through images, motor simulations, emotions, or abstract structures that have not yet been formulated in words.

Inner speech thus turns out not to be a universal property of consciousness, but a variable strategy through which some people organize their thinking.

The phenomenon makes clear that language can be a powerful tool of reflection, but not necessarily the foundation of all thought. Consciousness can also function in forms that are largely pre-verbal or non-verbal.

The tip-of-the-tongue effect

Almost everyone has experienced the moment when a word refuses to come, even though one is sure it is known. The meaning is clear, perhaps even the first letter or the rhythm of the word, but the full word remains elusive. It seems to be literally on the tip of the tongue.

This phenomenon is known as the tip-of-the-tongue effect.

In such a moment, people can often provide a surprising amount of information about the word they are trying to recall. They may know that it has three syllables, begins with a certain letter, or resembles another word. Yet the complete form remains temporarily inaccessible. The effect shows that words are not stored in memory as a single indivisible unit. Different aspects of a word — meaning, sound structure, grammatical form — appear to function partly independently. During a tip-of-the-tongue moment, the meaning is already activated, while the full phonological form is not yet accessible.

For the study of language and consciousness, this is particularly interesting. It suggests that the mental lexicon is a complex network in which semantic and phonological information form separate but connected systems.

The phenomenon also reveals a striking paradox of language use: one can know exactly what one wants to say, while the right word is temporarily unavailable.

When the word finally returns, it often brings a small sense of relief, as if a missing piece of a puzzle has fallen into place.

Automatic subvocalization

When people read a text, many experience that the words are silently pronounced. It is as if an inner voice is reading the text aloud, even though no audible sound is produced.

This phenomenon is called subvocalization.

Research has shown that during silent reading, there is often slight activity in the muscles normally used for speaking, such as those of the tongue, lips, and larynx. These movements are usually so subtle that they are not visible, but they indicate that the body is partially simulating the articulation of words.

Reading therefore turns out not to be a purely visual process. Written words are often immediately converted into an internal sound structure. The text is, in a sense, heard internally.

Subvocalization likely plays a role in comprehension. The auditory representation of words can help process sentence structure and meaning. At the same time, this inner articulation can limit reading speed, because the pace of reading remains partly tied to the pace of speaking.

Some speed-reading techniques therefore aim to consciously reduce subvocalization. Yet for many readers, it is difficult to read entirely without an inner voice.

The phenomenon shows how strongly writing remains connected to spoken language. Even when words are presented purely as visual signs, reading often automatically activates the sound layer of language within consciousness.

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Thinking without words

Although language plays an important role in thinking, thinking does not fully coincide with language. There are forms of understanding and experience that do not unfold in words, but present themselves as images, spatial structures, or direct intuitions. In such cases, meaning seems to be present without being explicitly formulated.

This becomes visible in everyday situations. When we recall a space, picture a face, or plan an action, this often happens without putting each step into words. We can orient ourselves, make decisions, or solve a problem without a prior inner sentence. Thinking here seems to unfold more as a field of relations than as a sequence of words.

In such non-linguistic forms of thinking, elements do not stand next to each other in a linear structure, but within a configuration. They are not named, but directly experienced in their mutual coherence. This makes this form of thinking often faster and more immediate, but also more difficult to communicate. What is not cast in words cannot easily be transferred.

This does not mean that language remains absent. Often, these forms of thinking are subsequently expressed in words, for example to share

them or to analyze them further. Language then functions as a means of making explicit and stabilizing what was first implicit.

Thinking without words and thinking in words therefore do not form a strict opposition, but a continuum. In some situations, the linguistic form dominates; in others, the non-linguistic. Often they alternate or complement each other. Language can structure thinking, but thinking can also function outside language and only later be brought into words.

This has an important consequence. If not all meaning depends on language, then language is not the only access to the world. There are forms of understanding that are not linguistic, yet still function coherently and effectively. At the same time, language makes it possible to share these forms of understanding, refine them, and integrate them into larger structures.

Thinking without words thus shows that language is a powerful extension of thinking, but not its origin. It adds a layer to experience without fully determining it.

Sudden insight

Many people are familiar with the moment when a solution suddenly appears. One struggles with a problem, thinks about it, but gets no further. Later, sometimes during a walk or even in the shower, the answer suddenly emerges.

Such experiences are often called aha moments.

What is striking is that the insight usually does not appear in words. It feels more like a sudden reorganization of the problem field. One suddenly sees how things fit together, even before being able to explain why.

Only afterward does the verbal formulation typically follow. The insight still has to be put into words in order to explain it to others or to verify it logically.

This intermezzo shows that thinking does not necessarily proceed in a linear and linguistic way. Sometimes a problem appears in a more global coherence, after which language follows later to describe the result.

Words can clarify an insight, but they are not always the place where the insight arises.

Aphantasia

Many people can form images in their mind's eye. When asked to imagine an apple, for example, a more or less clear visual image often appears.

Yet here too, human experience can vary greatly.

In aphantasia, the ability to voluntarily generate visual images is absent. People with aphantasia may know what an apple looks like, but they do not see an inner image when they try to imagine one.

Visual imagination is not a necessary condition for thinking or remembering. People with aphantasia can function normally, solve problems, and understand concepts without experiencing inner images.

This phenomenon shows that information can organize itself in different ways. Where one person thinks visually, another may think more conceptually or relationally.

Thinking thus appears as a flexible system that is not dependent on a single mode of representation.

Animals that solve problems

Many animals display behaviors that indicate complex problem-solving abilities. Crows can use tools to reach food. Octopuses open jars to access prey. Primates can plan multiple steps to achieve a goal.

These behaviors suggest a form of intelligence that is not based on human language.

When a crow bends a twig to make a hook, it seems to recognize a solution before carrying out the action. The bird does not need to formulate inner sentences.

Problem-solving does not necessarily depend on language. Cognitive processes such as pattern recognition, planning, and anticipation can also take place in non-linguistic forms of representation.

This phenomenon underscores that language is a powerful extension of human thinking, but not the only foundation on which intelligent behavior can rest.

Savant abilities

In rare cases, people display exceptional cognitive abilities that are not necessarily accompanied by strong linguistic skills. Some savants, for example, can perform highly complex calculations, determine calendar dates, or retain vast amounts of music.

They often describe their abilities not as a sequence of inner reasoning, but as a direct insight. The answer seems to simply appear.

A musical savant, for instance, may reproduce a long piece of music almost flawlessly after hearing it only once, without needing to first analyze it in words.

Although these cases are exceptional, they show that certain forms of cognitive processing can take place through patterns, structures, and memory configurations that are not necessarily expressed in language.

The phenomenon once again illustrates that thinking does not have to be organized exclusively in words.

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Language and attention

Language does not only influence what we say, but also where we direct our attention. By putting something into words, it is, as it were, lifted out of the stream of experience and brought to the foreground. At the same time, other aspects of the same situation recede into the background. What is said gains weight; what remains unnamed can easily fade from view.

This process usually goes unnoticed. When we describe a situation, we choose words that emphasize certain features and ignore others. An event, for example, can be presented as an action, an accident, a mistake, or a success. Each of these descriptions directs attention to different elements and gives a different interpretive direction to what is happening.

Language thus functions as a form of selection and organization. It not only determines how we express something, but also influences how we perceive it. Through repeated use of certain words and categories, some aspects of the world become more self-evident than others. What can be easily named within a language is more quickly noticed and remembered.

This does not mean that language fully determines reality, but it does form a framework within which attention moves. Different languages and different ways of speaking can lead to subtle shifts in what is experienced as relevant. What is central in one context may barely be noticed in another.

Language and attention influence each other. By speaking, we do not only direct the attention of others, but also our own. What we say changes how we look, and how we look influences what we say. In this ongoing interplay, experience is shaped and reshaped.

In this sense, language is not merely a tool for directing attention, but also a way in which attention organizes itself. It provides a structure in which certain aspects of the world become visible while others recede into the background, without ever fully disappearing.

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Part V
Writing

Eerst duidelijk dan snel

door

P. Tarelaar, S. J. Matthijsse en F. Evers



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The invention of writing

With writing, something fundamental happens. Language is detached from the moment in which it sounds. What once vanished as it appeared now takes on a form that remains. A mark in clay, a scratch in stone, a line on paper. Something that can be seen, again and again, without anyone needing to speak.

This may seem like a simple step, but it profoundly changes the nature of language. Spoken language lives in time. It unfolds, disappears, and leaves only a trace in memory. Writing, by contrast, rests in space. It can be returned to, reread, compared. It makes distance possible: distance between speaker and listener, between moment and meaning, between experience and description.

Within that distance, something new emerges. Language becomes an object. Something that can be looked at. Something that can be examined, analyzed, and altered. Where spoken words are still embedded in tone, body, context, and situation, writing cuts away many of those layers. What remains is a sequence of signs that must function on their own.

Yet this “cutting” is also an immense expansion. Precisely because the immediate context falls away, language can extend itself. Complex structures become possible. Long arguments, scientific descriptions, laws, stories that span generations. Writing makes it possible to stack thoughts, to organize them, and to re-enter them.

At the same time, a new illusion arises: the impression that meaning is fixed within the signs themselves. What is written seems to possess a stability that spoken language lacks. As if meaning simply lies there, ready to be read. But on closer inspection, it becomes clear that the reader does the work here as well. The signs are only traces. Understanding happens anew each time, in the moment of reading.

Writing thus changes not only the form of language, but also the relation to knowledge and truth. What is written acquires authority. It can be quoted, preserved, transmitted. It becomes a point of reference. But that authority rests on a quiet agreement: that these signs, read in this way, mean something that can be shared.

Interestingly, writing was not originally intended to represent language in its entirety. The earliest forms of writing were administrative: lists, counts, marks of ownership and transactions. Only later did it become a means of recording stories, ideas, and abstract thought. Writing thus develops from the concrete to the abstract, from counting to thinking.

In that process, the relationship between sound and sign also becomes increasingly complex. Some writing systems remain close to sound (alphabetic systems), while others move toward meaning (logographic systems). In all cases, however, a tension remains between what is heard and what is seen. Writing is never simply a representation of speech; it is a system in its own right, with its own rules and possibilities.

In this way, writing adds a new layer to the continuum encountered earlier: from signal to music to language to world-making. It brings language into space, makes it visible, and opens a domain in which signs can function independently. A domain in which language is not only used, but also observed, shaped, and even detached from immediate meaning.

And perhaps one of the most intriguing consequences lies precisely there. Once language becomes visible, it can begin to show itself. Words can be looked at without immediately being "used." Form, structure, repetition can be explored. Poetry, typography, abstract texts all point to a moment where language not only says something, but also shows something.

Writing is therefore not merely a tool for recording language. It is a shift in the way language exists. From fleeting to enduring, from temporal to spatial, from use to reflection. And in that shift, the world

shaped by language changes as well. What is visible can be thought differently from what merely sounds and disappears.

Socrates and the critique of writing

The invention of writing was not welcomed by everyone.

In Plato's dialogue *Phaedrus*, Socrates recounts a myth about the Egyptian god Theuth, who offers writing to humanity. According to Theuth, this invention would strengthen human memory and wisdom.

But King Thamus responds with skepticism. He argues that writing will have the opposite effect. People will remember less, because they can rely on external signs. They will not truly become wise, but will possess only the appearance of knowledge.

This critique sounds strikingly modern. Even today, people worry that technology, from books to smartphones, might weaken our memory.

Socrates' objection points to a deeper issue: writing does not only change how language is recorded, but also how knowledge is experienced. When words appear on a page, they seem to have an objective, fixed form. Yet the living dialogue in which ideas arise can recede into the background.

History has shown that writing brings both limitations and possibilities. It can make knowledge rigid, but it can also preserve, transmit, and deepen it.

The alphabet

The alphabet is a remarkable invention. Instead of representing words or syllables, alphabetic systems represent the smallest meaning-distinguishing sounds of a language.

This principle makes the system highly efficient. With just a few dozen signs, it becomes possible to write an almost unlimited number of words.

The alphabet likely emerged in the second millennium BCE in the Middle East. From these early systems, the Greek alphabet, the Latin alphabet, and many other variants later developed.

The introduction of vowels in the Greek alphabet was a crucial step. It allowed spoken language to be represented more accurately than in earlier systems that primarily recorded consonants.

Although alphabetic writing dominates in many parts of the world today, it remains only one possible strategy for making language visible.

Logographic writing systems

Not all writing systems operate through sound. Some use signs that directly refer to words or concepts.

The Chinese writing system is a well-known example. Many characters represent a morpheme or word. While pronunciation may vary across dialects, the written character remains recognizable.

This shows that writing is not necessarily tied to a single spoken form of language. It can function as a relatively stable visual system that transcends different spoken variants.

Writing without sound

Some visual systems resemble writing but do not represent spoken language. Consider mathematical notation, musical notation, chemical formulas, or traffic symbols.

These systems communicate information through visual signs, but they are not intended to represent spoken sentences.

They show that writing exists on a boundary between language and symbolic representation. Not every sign system is language, yet many systems function in similar ways.

Spaces between words

For modern readers, it seems obvious that words in a text are separated by spaces. Yet this is a relatively late development.

In many early manuscripts, words were simply written one after another without interruption. This style is known as *scriptio continua*. A sentence might look something like this:

THISISANEXAMPLEOFWRITINGWITHOUTSPACES

For readers, this made it necessary to actively decipher the text. Reading was less a smooth recognition of words and more a form of interpretation.

The introduction of spaces, which occurred gradually in Europe during the early Middle Ages, profoundly changed

the reading process. Texts became visually structured. Words became recognizable units on the page.

Here we see how a small graphic convention can alter the nature of language use. Spaces are not part of spoken language, yet they influence how written language is perceived and processed.

Punctuation

Punctuation, periods, commas, question marks, seems self-evident today. Yet these signs are also relatively late additions to written language.

In spoken language, sentences are structured through intonation, pauses, and rhythm. When language is written down, these cues largely disappear. The reader does not hear the speaker’s voice.

Punctuation is an attempt to make some of these structures visible again.

A period suggests closure.

A comma marks a short pause.
A question mark indicates a specific intonation.

Still, this remains only a partial translation of speech into writing. The richness of spoken expression, irony, emphasis, emotion, can only be captured to a limited extent through a few graphic signs.

Punctuation is therefore a compensatory system. It attempts to reintroduce elements of spoken language into a medium that is essentially silent.

The codex

Early texts were often written on scrolls of papyrus or parchment. To read a text, one had to slowly unroll it.

Later, a different form emerged: the codex, a collection of pages bound together into a book.

The codex introduced several important changes. Texts could be browsed more easily, numbered, and cited. One could quickly return to a specific passage.

This physical form also changed the way knowledge was organized. The book became an object that could be opened, closed, marked, and arranged.

Writing is therefore not only a system of signs. It is also tied to material carriers that influence how language is used.

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Reading

Where writing makes language visible, reading brings those visible signs back to life. Yet this "bringing to life" is not a simple reverse process. Reading is not a passive reception of what is already there. It is an active reconstruction, an event that unfolds anew each time.

At first glance, reading seems simple. You look at signs and understand what they say. But when you slow down, it becomes clear how strange this actually is. The black shapes on the white surface have no meaning in themselves. They are patterns. Only when they are recognized as letters, combined into words, and embedded in a language you know, does something begin to appear that we call "meaning."

What is striking is how automatic this process becomes. Once you can read, you can hardly not do it. Words impose themselves. You no longer see lines and shapes, but immediately meaning. This automatic character makes reading efficient, but it also conceals what is happening. The construction disappears behind the result.

Here, an interesting phenomenon appears: it becomes difficult to see letters as pure forms without reading them. As if the system has locked

itself in place. The signs are no longer neutral; they draw meaning toward themselves. This suggests that reading is not only a skill, but also a conditioning of perception.

Yet reading is more than decoding. It is also interpretation. The same sentence can be read differently depending on context, expectation, or mood. Irony, ambiguity, rhythm, emphasis, they do not arise from the signs alone, but from the interaction between text and reader. Meaning is not fixed; it is continually formed.

In this way, something returns that seemed to disappear in writing. Where writing creates distance, reading reintroduces a moment of immediacy. The text lies still, but reading is an event in time. It unfolds, like spoken language, but now guided by the eye rather than the ear.

It is also interesting that reading is not necessarily accompanied by sound. Some people hear an inner voice while reading, others do not. For some, reading is almost an auditory experience; for others, it is direct, silent, visual. This difference shows that the relationship between writing and speech is not one-dimensional. Writing can follow sound, but it can also detach from it.

In more advanced forms, reading can even loosen from linear order. We scan, skip, recognize patterns without processing every word individually. Meaning is then not built letter by letter, but appears in

larger wholes. Reading becomes less a sequence of steps and more a direct perception.

At the same time, reading remains vulnerable to disruption. A small change in a word can cause comprehension to falter. Unfamiliar languages, unusual typefaces, or even the reversal of letters can suddenly make the process visible. What normally proceeds effortlessly turns out to depend on a finely tuned system of recognition.

Reading thus exists precisely at the intersection of seeing and understanding. It is neither a purely visual act nor a purely linguistic one. It is a hybrid activity in which forms immediately become meaning, without it being clear where that transition occurs.

Perhaps that is the most intriguing aspect. During reading, there is no clear moment at which lines become words, and words become meaning. It seems to happen in a single movement. As if the system has no intermediate steps. Yet it is precisely this invisible transition that makes reading a key experience for understanding language as a whole.

Meaning does not lie waiting in the world, but arises in the encounter between sign and observer. Reading is not a window onto a fixed content. It is a process in which that content appears again and again.

The strange habit of silent reading

In the ancient world, texts were often read aloud. Even when someone was alone, the words were usually spoken.

A well-known anecdote from the fourth century describes how Augustine was astonished to see Bishop Ambrose reading silently, without moving his lips. For Augustine, this was remarkable enough to mention explicitly.

Today, silent reading seems self-evident. Yet historically, it is a relatively recent practice.

The difference between reading aloud and reading silently once again shows how writing and speech are intertwined. In many situations, written text originally functioned as a script for spoken language.

Only gradually did the idea emerge that text could also be read entirely internally.

Word recognition

Experienced readers often recognize words as visual patterns. The brain does not need to decode each letter individually.

This explains why people can still read sentences in which letters are scrambled, as long as the first and last letters are in the correct position.

Word recognition happens largely automatically and very quickly. Within a few dozen milliseconds, the brain can identify a familiar word.

This process shows how strongly reading depends on pattern recognition.

Saccades

During reading, the eyes do not move smoothly along the text. Instead, they make short, rapid jumps: saccades.

Between these jumps, the eyes briefly pause, usually for

about a quarter of a second, to sharply perceive a small area of the text.

The central part of the visual field in which we can see clearly is surprisingly small. Only a few letters at a time are actually seen in sharp focus.

Yet we experience reading as a continuous flow. The brain largely fills in the missing information automatically.

Dyslexia

Not everyone processes written language in the same way. People with dyslexia often have difficulty linking visual letter forms to sounds.

This can lead to slower reading, confusion between letters, or difficulties with spelling.

Dyslexia shows that reading is not a self-evident skill. It is a complex interaction between visual processing, language processing, and memory.

Its existence underlines that reading is a cultural technique that the brain must learn to master.

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Braille and other tactile systems

With Braille, language once again shifts medium. Where writing became visible, it now becomes tangible. The signs no longer lie before the eye, but beneath the fingertips. And with that, not only access to language changes, but also the way it appears.

Braille consists of patterns of dots, arranged in small cells. Each pattern corresponds to a letter, a sign, a meaning. But unlike visual writing, where an entire page can be present at a glance, Braille necessarily unfolds sequentially. The fingers move, explore, follow. Meaning appears in a rhythm of touch.

This makes something explicit that often remains hidden in visual reading: that language is always a process unfolding in time. With Braille, the eye cannot jump ahead. There is no global scan of the page. The text is built up through direct, bodily interaction. Reading becomes, quite literally, a form of contact.

At the same time, it is striking how fully this system functions as language. Everything that is possible in visual writing can, in principle, also be represented in Braille: literature, science, poetry. This shows that the essence of language is not tied to the visual. The

medium can change without the structural possibilities of language disappearing.

But that does not mean nothing changes. The experience of reading is different. Where visual reading creates distance, the text is there, the reader is here, tactile reading brings a form of proximity. The text is touched. There is no intervening space of sight; there is direct physical contact.

This proximity affects pace, rhythm, and attention. Braille readers develop a refined sense of touch and a specific form of concentration. The text is not taken in all at once, but built step by step. This makes reading less fleeting and at the same time more intimate. Each sign must actually be "touched" in order to appear.

Alongside Braille, there are other tactile and sensory systems that approach language. Consider raised letters, vibration patterns, or experimental interfaces in which information is conveyed through touch. In all these cases, the question shifts: what is a sign, really? Is it something that is seen, or something that can be felt? Or more generally: something that can be distinguished by a body?

Here it becomes clear that language is not tied to a specific sense, but to the capacity to make distinctions within a stream of experience. Whether that distinction is visual, auditory, or tactile does not, in a certain sense, matter. What matters is that there are differences that can be recognized and interpreted.

In this way, Braille makes something fundamental explicit, precisely by relying on what is not visible. It shows that reading is not a property of the eye, but of a broader system of perception and meaning-making. The eye is only one possible entry point.

Perhaps that is the deeper implication. Once language detaches from a single sense, it becomes clear that it is not contained within that sense. It is a structure that can attach itself to different forms of experience. Seeing, hearing, touching, these are carriers, not essences.

And with that, Braille opens a broader question: if language can function through touch, what does that say about the limits of language itself? Perhaps those limits are less tied to the external world, and more to the ways in which a body can distinguish and organize differences.

The alphabet reinvented

Braille reveals something remarkable about the nature of writing.

In the conventional alphabet, letters appear to have fixed forms. The letter A looks the way it does; the letter B has its own characteristic shape.

But Braille shows that these forms are not essential.

The letter A can just as well be represented by a single raised dot. Other letters arise from different combinations of dots.

What truly matters is not the form of the letter, but the convention attached to it.

This insight makes clear that writing is, at its core, a system of abstract correspondences. Signs, whether visible, audible, or tangible, function as long as they can be stably linked to language.

Braille is therefore not merely a variant of the alphabet, but rather a reinvention of the alphabet in a different sensory form.

Braille

Braille was developed in the nineteenth century by Louis Braille, who was himself blind.

The system uses a cell of six possible dots. By forming different combinations of raised dots, letters of the alphabet, numbers, and punctuation can be represented.

An important feature of Braille is that it is compact and systematic. With a relatively small number of patterns, a complete language can be written.

Because the patterns are read with the fingers, the shapes of the signs are closely adapted to the sensitivity of touch.

Tactile maps and diagrams

In addition to text, there are also tactile images. These are used to make maps, diagrams, or graphs accessible to blind readers.

Lines, raised structures, and different textures make it

possible to explore spatial information through touch.

Although these systems do not always constitute full language, they show that complex information can also be organized tactually.

Reading with the fingers

Braille is usually read with the fingertips, often using both hands at once.

The movement of the fingers across the text shows a striking similarity to eye movements in visual reading. Here too, a rhythm of exploration and recognition emerges.

Touch thus functions in a way comparable to sight in traditional reading: patterns are recognized and translated into language.

The Lorm alphabet

For people who are both deaf and blind, communication

through speech, sight, or written text can be difficult or impossible. In such cases, tactile alphabets are sometimes used.

A well-known example is the Lorm alphabet, developed in the nineteenth century by the Austrian writer Hieronymus Lorm.

In this system, letters are represented by touches on different parts of the palm. A tap on a specific location may represent the letter A, while a stroking movement across another area represents a different letter.

The hand functions as a tactile keyboard. Through successive touches, words and sentences can be formed. The receiver feels the touches and translates them into letters and meaning.

This system enables communication in situations where both auditory and visual language are unavailable.

The existence of such tactile alphabets shows how flexible language can be. The fundamental structure of language, words, sentences, meaning, can continue to function even when the medium shifts from sound or sight to touch.

In that sense, the Lorm alphabet provides a powerful example of how language can adapt to different sensory conditions.

Finger spelling

In many sign languages, alongside regular signs, there is also a manual alphabet used to spell individual letters.

This system is known as finger spelling. Each letter of the alphabet is represented by a specific handshape. By forming sequences of handshapes, words can be spelled.

Finger spelling is often used for proper names, new words, or loanwords for which no standard sign yet exists.

Although the handshapes are visible, they effectively function as a kind of writing system in motion. The letters do not appear on paper but in space, formed by the hand.

Finger spelling exists at the boundary between writing and sign language.

The system once again shows that the form of a letter is not essential. Whether a letter consists of ink on paper, raised dots under the fingers, touches on a palm, or a handshape in the air, as long as the form is consistently linked to a letter or sound, it can function as part of an alphabet.

Finger spelling thus demonstrates how flexible the relationship between language, writing, and sensory form can be.

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Sign languages

With sign languages, language once again shifts form, but this time not merely to another sense. Here, language becomes spatial. Not only visible, but also embodied and three-dimensional. Meaning appears in movement, in position, in the relation between hands, face, and body.

Where spoken language unfolds in time, and writing is fixed in space, sign languages combine both in a different way. They take place in the space in front of the body, yet remain dynamic. A sign is never static; it consists of movement, direction, placement. Meaning does not reside in a single sign, but in the whole of form, tempo, and context.

It is striking that sign languages are fully developed languages, with their own grammar, syntax, and vocabulary. They are not visual translations of spoken language. Their structure can be fundamentally different. Order, emphasis, reference, all can be organized in other ways. This challenges the intuition that language is essentially "speech." Speech is only one manifestation.

A distinctive feature of sign languages is the use of space itself as a carrier of meaning. Objects and persons can be assigned a position in space and later referred to again. References become literally spatial.

Where spoken language often uses abstract words (“he,” “there”), sign language can make these relations directly visible.

In addition, the face plays a crucial role. Facial expression is not an addition, but an integral part of the language. Eyebrows, mouth shape, gaze direction, they carry grammatical and emotional information. What is conveyed through intonation in spoken language becomes visible in the face here.

This makes sign language a rich, layered system in which multiple channels are active at once. Hands, face, and body work together. Meaning arises from their interplay. In that sense, sign language may even be less linear than spoken language. Different elements can occur simultaneously.

This reveals something that often remains hidden in other forms of language: that language is not necessarily sequential. The linear structure of spoken and written language, word after word, sentence after sentence, turns out not to be an absolute property, but a consequence of the medium. In space, multiple layers of meaning can coexist.

Sign languages also show how flexible language is in its relation to the body. Where speech depends on voice and hearing, and writing on eye and hand, sign language uses the entire upper body as a means of expression. The body itself becomes a carrier of meaning.

At the same time, the core remains recognizable. There are conventions, patterns, shared structures. It must still be learned how signs function, how they combine, how they are understood. The variation in form does not change the fundamental process: the creation of shared meaning through distinguishable forms.

Perhaps this is precisely what sign languages make so clear. They loosen language from the self-evidence of speech and reveal it as a broader phenomenon. Something that can attach itself to sound, to sight, to movement, to space.

And in that shift, it becomes clear once again that language is not a fixed given, but a field of possibilities. A system that adapts to the means available, and that continually takes shape in the interplay between body, perception, and meaning.

The discovery of sign languages

For a long time, the signing systems of deaf people were seen as a kind of simple mimicry or auxiliary tool.

Only in the twentieth century did linguistic research begin to show that sign languages are fully developed languages.

An important moment was the work of the American linguist William Stokoe in the 1960s. He demonstrated that signs can be analyzed into smaller structural elements, comparable to sounds in spoken language.

This research changed the understanding of what language actually is.

Language turns out not to be necessarily tied to sound. It can also organize itself through movement, space, and visible forms.

Sign languages thus provide a powerful example of the flexibility of human language.

American Sign Language (ASL)

American Sign Language (ASL) is one of the most well-known sign languages. It emerged in the nineteenth century in the United States and developed within Deaf communities and schools for the deaf.

ASL has its own grammatical structure, which differs from English. Word order, for example, can be different, and much information is expressed through spatial relations and facial expressions.

This shows that sign languages are not visual translations of spoken language, but independent languages.

Spatial grammar

A distinctive feature of sign languages is their use of space.

Signers can position people or objects in specific locations in space. Later, signs can refer back to those same locations to clarify relationships.

In this way, grammatical structure can become literally visible in space.

This aspect of sign languages has shown linguists that grammar does not have to be purely linear, but can also be organized spatially.

Iconicity in signs

Many signs display a degree of iconicity: their form resembles what they represent.

A sign for drinking, for example, may imitate the movement of bringing a cup to the mouth. Yet sign languages are not simply mimetic. Many signs are entirely conventional and must be learned.

As in spoken language, meaning arises from a combination of convention and recognizable forms.

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Oliver Sacks - Stemmen zien - Reis naar de wereld van de doven | Jongin Arnhem https://share.google/eHzr3W9peqosMDT3Q

Visual signaling systems

One step further, and language almost dissolves into something that closely resembles it, yet is not quite language. Visual signaling systems: flags, light signals, traffic signs, pictograms, maritime signal flags. Systems in which meaning is conveyed without sound, without writing in the classical sense, and often without grammar as we know it.

Here, signs appear as direct indications. A red light means stop. An arrow points in a direction. A flag combination stands for a specific message. The relationship between sign and meaning is usually tightly defined and kept as unambiguous as possible. Ambiguity here is not a richness, but a problem.

In that sense, visual signaling systems resemble a stripped-down form of language. They lack openness, nuance, endless combinability. Yet precisely for that reason, they make something visible: what is minimally required to speak of meaning transmission.

A sign. A convention. An interpretation.

In principle, nothing more is needed.

Still, the difference from language is fundamental. Where language is a generative system, capable of forming infinitely many new expressions, visual signals are usually closed. The repertoire is fixed. What is not part of the system cannot be expressed. There is no spontaneous creation of new sentences, no unexpected combinations.

But even here, things begin to shift. Some systems, such as semaphore (flag signaling), approach an alphabet. They can spell letters, form words, and thus, in principle, convey any message. At that point, the distinction between signal and language begins to blur. The system becomes open again, productive.

And then there are pictograms and icons, which move in another direction. They attempt to make meaning directly visible, without the intermediate step of letters or words. A stylized figure walking, a fork and knife, an airplane. Here, the distance between sign and meaning seems to shrink, almost becoming self-evident.

But that too is an illusion. What appears self-evident is learned. Without the proper context or cultural knowledge, a pictogram can be incomprehensible. Even seemingly "universal" signs turn out to depend on convention.

Visual signaling systems thus show how broad the field of language-like systems is. They occupy a space somewhere between pure signal and full-fledged language. They share features with both, yet do not fully coincide with either.

More importantly, they make clear that meaning is not necessarily tied to words. It can also appear in color, shape, position, movement. Anything that can be distinguished can, in principle, become a carrier of meaning.

At the same time, it also becomes clear what makes language distinctive. Not only that it conveys meaning, but that it can expand, shift, and question meaning. Where a traffic sign says what it says and nothing more, language can undermine itself, ironize, transform.

Visual signals are efficient. Language is abundant.

And it is precisely in that difference that one sees what happens when moving from signal to language. The system opens up. It becomes less predictable, less unambiguous, but also richer, more flexible, and ultimately capable not only of giving instructions, but of forming worlds.

Language and signal

The distinction between language and a signaling system is not always clear-cut.

Many animals use signals to convey information: alarm calls, scent markings, or visual displays. Human communication also includes such signals.

What makes human language distinctive is its complex structure, which allows for the formation of virtually unlimited new messages.

Signaling systems, by contrast, usually consist of a limited set of signals with fixed meanings.

By studying visual signaling systems, the boundary between signal and language becomes visible.

They show that communication can already function with relatively simple means, while language constitutes a much richer system that can combine meaning in virtually unlimited ways.

Maritime flag signals

In the maritime world, different flags are used to convey information between ships.

Each flag can have a specific meaning. A particular flag, for example, may indicate that a ship requires medical assistance or is carrying dangerous cargo.

In addition, there are systems in which flags represent letters of the alphabet. By combining multiple flags, words can be spelled.

These systems make communication possible over long distances, without sound or radio.

Semaphore

Semaphore is a system in which letters are represented by the position of two flags held by a person.

Each combination of flag positions corresponds to a letter of the alphabet. By holding the flags in different positions,

words can be spelled.

This system was historically used in maritime and military communication.

Although semaphore is visual, it effectively functions as a visual form of spelling.

Traffic signals

Traffic lights and traffic signs form a widespread system of visual signals.

Colors, shapes, and symbols provide instructions or warnings to drivers and pedestrians. The meaning of these signals is culturally established and learned through traffic education.

These systems show how visual signals can enable complex social coordination.

The NATO alphabet

In situations where communication can be difficult to understand, for example over radio connections, in noisy environments, or across long distances, the alphabet itself can lead to confusion. Many letters sound very similar. Letters such as B, D, P, and T can easily be mistaken for one another.

To avoid this problem, the NATO phonetic alphabet was developed.

In this system, each letter of the alphabet is replaced by a clearly recognizable word. For example:

A stands for Alpha
B for Bravo
C for Charlie
D for Delta
E for Echo

and so on up to Z for Zulu.

When someone wants to spell the word CAT, they do not simply say “C-A-T,” but “Charlie Alpha Tango.”

The system is used worldwide in aviation, maritime communication, military contexts, and emergency situations. The chosen words are selected to be relatively easy to recognize across different languages.

The NATO alphabet shows that language is not only a spontaneously emerging means of communication, but is sometimes deliberately designed to function reliably under difficult conditions.

In effect, it forms a meta-layer above the alphabet: a system that helps the alphabet itself to be transmitted correctly.

Even when people speak the same language, sound, distance, or technical limitations can distort a message. Systems like the NATO alphabet are attempts to make language more robust against misunderstanding.

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Part VI
Representation

This is not a pipe

There is a well-known image by **René Magritte**, titled *The Treachery of Images*. We see a carefully painted pipe, and beneath it the sentence: “Ceci n’est pas une pipe.” It is an image that immediately takes hold, precisely because it seems so simple. You look at it and think: this is wrong. Of course it is a pipe. But the longer you look, the clearer it becomes that the sentence is neither a joke nor a paradox, but an extremely precise observation.

What appears on the canvas is not a pipe. It is an image of a pipe. Paint, applied in a form that is recognized as “pipe.” It cannot be filled, lit, or held like a real pipe. And yet the tendency to name it as such is almost irresistible. In that small tension between what is seen and what is known, something becomes visible that usually remains completely transparent: the way representation works.

Both words and images function as stand-ins. They refer to something that is not itself present, and they do so so effectively that this absence is hardly noticed. When the word “pipe” is read, something appears: perhaps a concrete image, perhaps only a vague concept, but in any case something sufficient to say: I understand. That understanding is not a property of the word itself, but an event that unfolds in the one

who reads. The same applies to the image. The painted pipe resembles what is known closely enough to be immediately recognized as such, and precisely for that reason the awareness that it is actually paint on canvas disappears.

That disappearance is not an error, but a condition for the functioning of language and image. Without that leap, from sign to meaning, communication would stall. The representation must, in a sense, temporarily coincide with what it represents, otherwise everything would remain stuck in lines, shapes, and sounds. But it is precisely in that necessary leap that the possibility of confusion arises. The fact that it is a leap is forgotten. The sign is treated as if it were the thing itself.

This does not only occur in art, but constantly in everyday life. We speak of "the world" as if it were directly present in words, as if descriptions simply register what is there. But words organize, select, structure. They impose a certain form on what would otherwise be a much richer and less bounded stream of experience. What is experienced as reality is already shaped by that structuring.

The image of the pipe makes this visible by disrupting what seems self-evident. The sentence beneath the image undermines automatic recognition and forces a renewed looking. Not at what it represents, but at what it is. And in that renewed looking, the perspective shifts. The pipe does not disappear, but it loses its self-evident status as an

object and appears as something else: a sign, a construction, a moment within a chain of references.

In this way, the image points to a broader dynamic that operates throughout language and representation. There is a constant movement between two levels, that of the sign and that of what it is taken to represent, usually without noticing it. Most of the time, the two coincide in experience, and that is precisely why the system works so smoothly. But as soon as they are pulled apart, as happens here, it becomes clear how little self-evident that coincidence actually is.

What this chapter attempts to show is not that language and images deceive, but that they always already mediate. They do not stand between us and the world as a kind of distorting layer; rather, they make it possible for a world to appear at all, one that can be named, recognized, and shared. But that possibility comes at a price: the tendency to forget the mediation itself.

"This is not a pipe" is therefore not a denial of what is seen, but a reminder of how seeing takes place. It shifts attention away from the object and toward the process through which the object appears. And once that process becomes briefly visible, the relation to what is perceived changes as well.

In everyday language use, it is easy to forget that words are merely signs.

When someone hears the word *fire*, it can immediately evoke an image or a feeling. Yet the word itself contains no warmth, no light, and no flames.

The same applies to abstract words. Concepts such as *freedom*, *truth*, or *justice* refer to complex ideas that cannot be captured in a single object.

Yet these words function in communication as if their meaning were self-evident.

The distinction between a sign and that to which it refers is therefore a crucial starting point for understanding language and representation.

The pipe remains where it is.

But it no longer coincides with what it seems to be.

Map and territory

A map can represent a landscape, but it is never the landscape itself.

The map simplifies, selects, and abstracts. Some details are shown, others are omitted. Yet a map can be extremely useful for understanding an area or planning a route.

This example shows that representations are always a selective rendering of reality.

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Icons, indexes, and symbols

So far, we have seen how words and images function as representations, as something that refers to something else. But that reference is not always of the same kind. Sometimes a sign resembles what it denotes, sometimes it merely points to it, and sometimes the relationship is entirely arbitrary. To clarify this distinction, it is useful to differentiate between three forms of signs: *icons*, *indexes*, and *symbols*.

An icon is a sign that resembles what it represents. The painted pipe from the previous chapter is a clear example. A photograph, a realistic drawing, or a pictogram functions in the same way. Recognition here is based on resemblance. Something is seen and the response is: this looks like something known. The resemblance does not have to be perfect; it only needs to be sufficient to trigger the association.

An index works differently. Here there is no resemblance, but a direct connection, a trace. Smoke is a sign of fire. Footprints indicate that someone has walked there. A thermometer reading indicates temperature. The sign is connected to what it denotes not because it resembles it, but because it is linked to it. It points, rather than depicts.

Symbols form the third category, and perhaps the most familiar, yet also the most enigmatic. A word such as “pipe” bears no resemblance to a pipe and has no direct physical connection to it. Its meaning rests on agreement, on convention. It has been learned that this word refers to that object. Without that shared agreement, the sign would be empty.

This threefold distinction makes something important visible: the relationship between sign and meaning is not uniform. There is not just one way in which something can stand for something else. Sometimes through resemblance, sometimes through indication, sometimes through convention. And often, these forms overlap.

A photograph, for example, resembles what it shows (icon), but is also an index, because it is a physical trace of light that has struck a sensor or film. And once a photograph is placed in a particular context, as evidence, as memory, as art, it also acquires symbolic layers. The three forms are therefore not strictly separate categories, but rather different aspects that can be present within a single sign.

What becomes clear here is that meaning does not reside in the sign itself, but in the relationship that is established. That relationship may be based on resemblance, on causality, or on convention. But in all cases, interpretation is required. Without someone recognizing the sign as an icon, index, or symbol, nothing happens.

This connects with what has already become clear earlier: meaning is not simply "given," but arises within a process. The sign on its own is not enough. It must be read, seen, interpreted within a framework that makes that relationship possible.

At the same time, this distinction shows how flexible that process is. Language largely consists of symbols, yet it is constantly infused with iconic and indexical elements. Intonation can suggest something (index), sound imitation can resemble what it describes (icon), and gestures can combine both. Even in written language, iconic aspects appear, for example in typography or visual poetry.

Perhaps this is the most important shift that becomes visible here. The idea that language is a system of arbitrary signs is only partially true. In reality, language is a hybrid field in which different kinds of relations intersect. Resemblance, indication, and convention work together, sometimes subtly, sometimes explicitly.

And it is precisely in that interplay that the richness of representation emerges. What a sign can mean is not fixed in a single property, but in the way it is read. An image can function as an icon, an index, a symbol, depending on how it is approached.

This once again makes clear that the core does not lie in the sign itself, but in the event in which the sign acquires meaning. An icon only resembles something when someone recognizes the resemblance. An

index only points to something when the relation is understood. A symbol only means something when the convention is shared.

The three forms therefore describe not only types of signs, but also ways of seeing.

And in those ways of seeing, the world is, once again, formed.

The world as a network of signs

Once attention turns to signs, it becomes clear that they are everywhere.

A shadow can point to an object that blocks the light. An echo can reveal the presence of a space. A smell can indicate that there is food nearby.

Many of these signals function as indexes: they point to events or objects to which they are connected.

Human culture has also produced vast numbers of symbols: words, numbers, traffic signs, flags, pictograms.

Together, these signs form a complex network through which people interpret the world.

The recognition that representations have a structure of their own forms an important starting point for understanding language and meaning.

The pointing finger

When someone points at something, a particular kind of sign arises.

The finger does not resemble the object being pointed at, nor does the gesture have a fixed symbolic meaning. Yet others immediately understand where attention is being directed.

The pointing gesture functions as an index: the sign refers to something because it is literally directed toward it.

This kind of indexical sign plays an important role in human communication and appears early in child development.

The map

A map resembles the area it represents. Rivers, roads, and mountains are shown in a reduced form. In that sense, a map functions as an icon.

At the same time, a map also contains symbolic elements.

Colors, lines, and signs must be interpreted according to agreed meanings.

A map is therefore an interesting example of how iconic and symbolic representation can coexist within a single system.

The footprint

A footprint in sand or snow is a typical indexical sign.

The imprint does not resemble the person who left it, but it is produced through direct physical contact between foot and surface.

For that reason, the footprint refers to an event that has taken place: someone has been here.

Indexical traces play an important role in situations where events need to be reconstructed, such as in archaeology or forensic investigation.

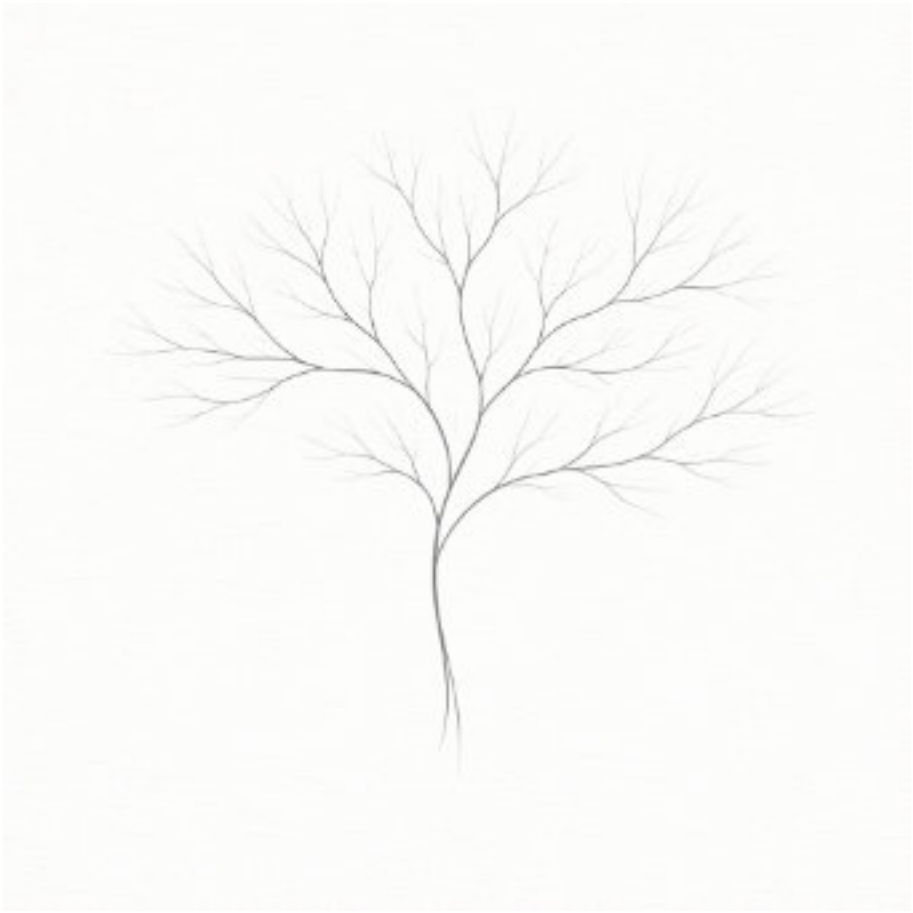
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Part VII
Languages and their history



Language families

When languages are placed side by side, something begins to shift in what once seemed self-evident. What first appears as separate systems turns out to be permeated by subtle relationships. Sounds that resemble each other, words that feel related, structures that follow a similar logic. These are not accidental similarities, but traces of a shared past that does not present itself directly, yet continues to resonate in the forms of today.

The idea of language families arises precisely from this recognition. Languages are no longer seen as separate entities, but as offshoots of a common origin. Not as fixed blocks, but as branches in a process that has unfolded over a long span of time. What is now experienced as Dutch, Spanish, or English are snapshots within an ongoing movement of change and differentiation.

This movement does not occur all at once on a large scale, but through small shifts that accumulate. Sounds change almost imperceptibly, meanings drift, grammatical patterns are simplified or expanded. What is still a nuance for one generation can become a fundamental difference for a later one. In this way, distance grows where there was once proximity.

Yet the connections never disappear entirely. They remain visible in recurring patterns. Words that are related despite their differences, sound shifts that follow recognizable paths, structures that continue to mirror each other. It is precisely in these patterns that the idea of a language family finds its footing.

From a dioramic perspective, the meaning of a so-called proto-language also shifts. It does not appear as a concrete starting point fixed somewhere in the past, but as a reconstruction that arises from the present. The coherence between existing languages is observed, and from that a possible origin is inferred. That origin is not directly given, but emerges as a model visible in the relations between forms.

This also makes clear that language boundaries are less sharp than they often seem. In regions where languages meet, transitions arise that cannot be neatly classified. Variants flow into one another, differences are gradual rather than absolute. What is labeled as separate languages often turns out to be a choice that is as much cultural and historical as it is linguistic.

Language families bring order to this complexity, but they do not fix it. They reveal connections without halting the movement. They show that what is experienced as separate languages forms part of a larger field of development and relatedness.

And that is precisely where the relevance for this analysis lies. Language does not appear as a collection of closed systems, but as a

dynamic network in which forms are constantly rearranging themselves. What seems stable is in fact temporary. What seems separate turns out to be connected.

The history of languages is not a story that lies behind us.

It is still unfolding, in every utterance, in every word that is used just slightly differently, in every small shift that quietly takes hold.

And only when distance is taken does it become visible how that movement has branched into what is now recognized as different languages.

A language boundary that is no boundary

In the region where I now live, an interesting continuum unfolds: Valencian, Catalan, and further north, Occitan. On paper, these are different languages or variants, each with its own name, standard, and sometimes even political weight. But in practice, the shift is gradual. From village to village, sounds, words, and intonation change slightly, without any clear breaking point.

It is possible to move through this area without ever experiencing a sharp transition. Speakers often understand each other without difficulty, as long as the distance remains small enough. Only when the extremes are compared does the difference appear large. What lies in between disappears from view as soon as labels are applied.

This intermezzo shows that a language family is not a collection of separate blocks, but a field of gradual variation. The boundaries that are drawn are often retrospective, serving mainly to impose order on something that is inherently fluid.

Take the simple example of the word for "**dog**." In English *dog*, in German *Hund*, in Dutch *hond*, in Catalan *gos*, and in Spanish *perro*. At first glance, some forms appear related, while others seem entirely different.

But once examined more closely, patterns begin to emerge. Sounds shift according to certain tendencies, older forms disappear, new words take their place. The English *dog*, for example, is a relatively late development that replaced an older word closer to *hound*.

What becomes visible here is that relatedness does not always lie on the surface. The history of language is not a neat sequence of clear similarities, but a layered process in which forms disappear, are replaced, and sometimes reappear in unexpected ways.

Sound shifts

When words from different languages are placed side by side, similarities sometimes stand out immediately, but just as often they seem to have grown completely apart. Yet beneath those differences there is often a remarkable regularity. Sounds change, but not randomly. They shift.

What was once a *p* becomes an *f*. What was a *t* becomes a *th*. Not in a single word, but across entire series at once. As if an invisible shift moves through the system, leaving traces everywhere. It is not an isolated change, but a pattern that repeats itself.

What is interesting is that these shifts are not experienced as shifts. For the speaker, everything remains the same. The language feels stable, self-evident. No one notices that they are participating in a process that slowly transforms the language. Only when languages are placed side by side, or when looking back in time, does it become visible what has happened.

From a dioramic perspective, a particular mechanism appears here. The form changes, but the function remains. Words remain recognizable within their own system, even as they move away from

related forms in other languages. The system preserves its coherence, even as its building blocks shift.

This means that sound does not stand on its own. It is part of a larger whole in which relationships matter more than individual forms. When a sound changes, it does not change in isolation, but in relation to other sounds. The system restores its balance.

That is why sound shifts can proceed so systematically. They are not random deviations, but adjustments within a field of interrelations. What shifts does so in a way that keeps the whole intelligible to the speakers who live within it.

It becomes interesting when that shift is made visible. Once you know where to look, you see it everywhere. Words that once seemed unrelated turn out to be variations of the same form. The difference changes from a barrier into a clue.

But that visibility is retrospective. During speaking itself, the movement remains invisible. Language changes, yet appears stable. That tension between change and stability is precisely what makes sound shifts so revealing.

They show that language does not only consist of what is, but also of what unfolds unnoticed. The form moves.

And precisely because of that, it remains recognizable.

Father, pater, vader

Place the words side by side: *vader*, *pater*, *father*. They appear different, but not randomly so. There is a pattern that may not be seen at first, but once noticed, cannot be ignored.

The *p* in *pater* corresponds to an *f* in *father*. The *d* in *vader* lies somewhere in between. These are not isolated coincidences, but shifts that occur across multiple words at once.

What happens here is that difference suddenly becomes readable as relation. Where there was only variation before, structure now appears. The ear begins to hear patterns that previously remained hidden.

This intermezzo shows how perception itself changes once the pattern becomes visible. What is heard is no longer “different words,” but variations within a system.

The word that slowly shifts

Imagine a word that changes by tiny fractions across generations. A sound is pronounced slightly more softly, a consonant shifts a little in the mouth, a vowel moves in pitch. No one notices. For each speaker, the word sounds normal.

But given enough time, the original word disappears. Not abruptly, but through a series of minimal deviations that accumulate. What remains is a new form that still functions within the language, but barely resembles what came before.

This makes visible that change does not begin as difference, but as variation within what is recognizable. Only afterward does it appear as a break.

Grimm’s Law as a visible pattern

What is known as Grimm’s Law describes a systematic shift of consonants between languages within the same family. What is a *p* in one language becomes an *f* in another. What was a *t* becomes a *th*.

What matters here is not the specific shift, but the fact that it is consistent. The same pattern recurs across dozens of words. That makes the difference predictable.

Functionally, this means that sound change is not noise, but a structure that becomes visible afterward. The ear alone hears isolated differences. Analytical observation reveals the pattern.

The silent h in Spanish

In words such as *horno* and *harina*, there is an *h* that is not pronounced.
Yet that letter is not accidental.

In an earlier stage of Spanish, this sound was still

pronounced, as a soft transition from an original *f*. What is now silent was once audible.

The written form preserves a trace of a sound that has disappeared.
What appears as a stable word turns out to be a moment within an ongoing shift.

Chain shifts

Sometimes it is not a single sound that shifts, but an entire series at once. When one sound moves, it creates space that is taken up by another. That, in turn, can trigger a further shift.

The result is a chain reaction in which the entire system reorganizes itself. Not because anyone intends it, but because the internal relations are preserved. Each sound finds its place again in relation to the others.

This shows that sounds do not exist in isolation, but are part of a dynamic equilibrium. A change in one place reverberates through the whole.

The ear adapts

What sounds like a clear shift to an outsider is often not experienced as such by a speaker from within the language. The ear calibrates itself to the language it lives in.

As a result, two generations can use different sounds and still feel that they are saying “the same” thing. Recognition does not lie in the exact sound, but in its function within the system.

This phenomenon makes clear that stability is not a property of the form itself, but of the speaker’s experience.

***Writing masks change**

Once a language is fixed in writing, a tension arises. The spoken language continues to change, while the written form remains relatively stable.

This can create the impression that the language itself does not change, even when pronunciation has shifted considerably. English is a well-known example, where

spelling and sound often diverge widely.

This phenomenon shows that writing does not only record, but also freezes. It captures a moment and makes later shifts less visible.

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Dialects and language continua

As soon as the idea of language families is set aside and attention shifts closer to actual speech, the picture begins to change again. What appears, from a distance, as separate languages dissolves into a much finer-grained whole when seen up close. Variations in pronunciation, vocabulary, and sentence structure do not present themselves as sharp differences, but as gradual shifts.

The word "dialect" often suggests a derivative form, something subordinate to a "real" language. But that perspective reverses the situation. What is called a language is usually a standardized form that has emerged from a multiplicity of variants. The dialect is not a deviation, but language in its local, living movement.

In these local forms, it becomes visible how language actually behaves. It adapts, shifts with usage, and changes from place to place without clear breakpoints. One can imagine traveling from village to village and hearing slightly different sounds and words everywhere, while conversation continues effortlessly. Only when a large enough distance is covered does the difference become so great that mutual understanding diminishes. The boundary then appears not as a sudden transition, but as the result of distance.

Here the idea of a language continuum appears. Not a collection of separate systems, but a continuous field in which each variant flows into another. Understanding remains possible as long as the differences are small enough. What is experienced as separate languages often arises only when the extremes are compared and the intermediate area disappears from view.

From a dioramic perspective, it becomes clear that the boundary between language and dialect is not a fixed given. It arises through a way of seeing that groups and names differences. Factors outside language itself play a role here, such as governance, education, and cultural identity. What is recognized as one language acquires a center. What falls outside it becomes the periphery.

But in speech itself, that center does not exist. There is only variation, continuous and without clear hierarchy. Speakers move within a field of possibilities and adjust their language use without experiencing it as a choice. The system remains recognizable, even as its forms shift.

What is interesting is that understanding does not depend on identical forms, but on sufficient overlap. It is not necessary to say exactly the same thing in order to understand each other. A shared pattern is enough, even when differences accumulate over greater distances.

This makes visible that language does not primarily consist of fixed forms, but of relationships between forms. The continuum is not a collection of variants, but a network of mutual intelligibility.

Boundaries only appear when that network is disrupted, or when it is divided into clear categories from the outside.

And that is precisely where the tension arises. Languages seem sharply defined, yet on closer inspection they flow into one another. Dialects seem local and limited, yet together they form a vast and coherent whole.

What this chapter shows is that language cannot be captured within clear boundaries without something being lost. The map simplifies what is in reality gradual and layered.

The continuum has always been there.

We only see it once we stop taking boundaries for granted.

Mutual intelligibility

A practical way to distinguish languages from one another is mutual intelligibility. Can speakers understand each other without having learned the other language?

But this criterion also turns out to be fluid. Understanding gradually decreases as distance increases. There is rarely a sharp point at which it suddenly disappears.

This phenomenon shows that “the same language” is not an absolute state, but a gradual range of overlap. Understanding is not yes or no, but a scale.

A language with an army and a navy

There is a well-known saying that a language is often “a dialect with an army and a navy.” What this means is that recognition as a language does not depend only on linguistic features, but also on political and cultural power.

Variants that are structurally very similar can be regarded as separate languages when they acquire their own standard

and status. Conversely, large internal differences can be grouped under one language when a shared norm is imposed.

This phenomenon makes visible that the classification into languages is partly shaped by factors outside language itself.

Standard language as a frozen moment

What is called a standard language is often a snapshot that has been fixed and then stabilized through education, media, and administration.

That standard creates a center. Variants that deviate from it are seen as dialects. But historically, that standard is only one possible form that has become dominant.

Here it becomes visible that stability is often the result of fixation. The underlying variation does not disappear, but becomes less visible.

Code-switching

In many regions, speakers move effortlessly between variants. They adjust their language use depending on context, conversation partner, or situation.

This shifting often happens without conscious choice. A speaker can combine elements from different variants within a single conversation.

This phenomenon shows that language use is not fixed within one system, but moves within a field of possibilities. The speaker is not a user of one language, but a navigator within a continuum.

When differences become visible

It is striking that differences are often only noticed once they are named. Education, media, and standardization make speakers aware of variants that were previously taken for granted. What was simply “speaking” becomes “speaking a dialect.” Variation acquires a label and, with it, a new status.

This phenomenon shows that the perception of language does not depend only on what is heard, but also on how it is framed.

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The archaeology of words

Words seem to present themselves effortlessly. They are used without their origin imposing itself. They function, and that is enough. But as soon as you begin to uncover them, something else appears. Not a fixed core, but a layering, as if each word carries a small history within it.

That history is not visible on the surface. It has to be reconstructed, inferred, recognized in traces that are often fragmentary. Etymology then becomes a form of archaeology. Not the excavation of objects, but of forms. Sounds, meanings, and uses that have been folded into one another and layered over time.

Take an apparently simple word. In its current form, it seems self-evident. But when you trace it back, it turns out to have once meant something else, to have had a different sound, perhaps even to have belonged to an entirely different context. What now appears as a single word turns out to be an accumulation of shifts.

What matters is that these shifts are rarely linear. Meanings broaden, narrow, shift from concrete to abstract or the other way around. A word that once referred to a tangible object may later denote an idea.

Or a specific action may grow into a general concept. The original meaning does not disappear entirely, but is absorbed into a new layer.

From a dioramic perspective, it becomes clear that a word is not a fixed point, but a moment within a movement. What is experienced as "the meaning" is only the current configuration of a process that has unfolded over time. The stability is temporary, even if it feels absolute.

Interestingly, that history usually plays no role in use. When speaking, words are used without knowing their past. That past is not required for understanding. And yet it influences the form the word has taken, the relations it enters into with other words, and sometimes even the associations it evokes.

When those layers become visible, the experience of language changes. Words lose their self-evidence and gain depth. They become less transparent. Not because they become more obscure, but because they contain more than what appears directly.

At the same time, it remains important to see that this depth is not a hidden essence. There is no "original meaning" that can be recovered as the true meaning. What is found are earlier stages, earlier uses, earlier forms. Each of these was, in its own moment, just as self-evident as the current form is now.

The archaeology of words thus reveals something fundamental about language as a whole: that meaning does not arise from a stable core,

but from a history of shifts. That what now appears clear is the result of a process that is itself not visible in everyday use.

And perhaps that is the most relevant shift. Not that words have a past, but that they carry that past without it being explicitly present. It does not speak along, yet it has shaped what now appears.

Whoever begins to excavate words does not find a foundation.

But layers.

Window as wind-eye

The English word *window* goes back to an old term that literally means “wind-eye.” An opening in a wall through which the wind passes.

Once this is seen, something shifts. The word that once seemed transparent suddenly gains structure. Not because it is used differently, but because a layer becomes visible that was already there.

What happens here is not that a hidden truth is discovered, but that an earlier way of seeing is recognized, preserved within the word.

Goodbye

The word *goodbye* sounds neutral and everyday. But it is a contraction of “God be with you.”

What was once an explicit wish has, over time, been compressed into a standard farewell. The religious charge has largely disappeared, but the form still carries a trace of that origin.

This shows how meaning can evaporate while the form remains. What was once spoken as intention now functions as convention.

Semantic shift

Words do not only change in sound, but also in meaning. Sometimes a meaning becomes broader, sometimes more specific. Sometimes it shifts entirely.

A word that once referred to a concrete object may later become an abstract concept. Or the other way around. These shifts rarely occur abruptly. They move through intermediate stages in which multiple meanings coexist.

This phenomenon makes visible that meaning is not a fixed point, but a trajectory.

Etymology as reconstruction

What is called etymology is not direct access to the past, but a reconstruction. Earlier forms are inferred from patterns, comparisons, and historical sources.

This means that the “origin” of a word is never fully fixed. It appears as the best possible approximation, based on what is currently available.

This connects with what became visible earlier in language families: the past appears from the present, not the other way around.

False transparency

Some words appear logically constructed, as if their meaning directly follows from their parts. But that impression can be misleading.

Through sound change and semantic shift, words can take on a form that seems interpretable afterward, without that interpretation being historically correct. The system reorganizes itself in such a way that it becomes understandable again.

This phenomenon shows that the tendency to see structure is itself part of the process.

Fossil words

Some words survive only in fixed expressions. Outside that context they have disappeared, but within it they still function.

They are, in a sense, fossils within language. They carry traces of older forms and meanings that no longer occur elsewhere.

This makes visible that language is not a fully cleaned-up system, but a layered whole in which old and new forms continue to coexist.

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Language as design

Most languages seem simply to be there. They are not invented, but grow. Words shift, sounds change, meanings spread out. No one oversees the whole, and yet something emerges that functions as a shared system. Language develops without a designer.

And then there are languages that are designed.

Sometimes this arises from a desire for clarity. A language that is simple, logically constructed, without exceptions. A grammar that remains consistent, a vocabulary that is transparent. In the nineteenth century, **Esperanto** was developed with the idea that a neutral, easy-to-learn language would facilitate communication between people. Later, **Ido** followed, as an attempt to refine that same idea even further.

What stands out here is that language is approached as something that can be improved. As if the irregularities of natural languages are errors that can be corrected. As if language is an instrument that can be made more efficient by redesigning it.

But a language cannot be judged by its structure alone. It also has to be used. It must be spoken, heard, distorted, adopted, forgotten, and reshaped. Without that process, it remains intact, but also silent. Fully consistent, but without history.

There are also other forms of constructed language that are not aimed at efficiency, but at imagination. Languages that are not meant to simplify communication, but to carry a world. In fiction, entire language systems arise as part of a larger whole. **Klingon**, for example, was designed with a structure that deliberately deviates from what many people find familiar, and **Quenya** developed as part of an extensive mythological universe.

Here, language takes on a different role. It is not a neutral medium, but a carrier of atmosphere, culture, and identity. Sound, grammar, and word formation are not only functional, but also expressive. They shape a world that would be less convincing without that language.

Yet the same question keeps returning. When does a designed language truly become a language? Does it lie in the structure, or in the use? In the rules, or in the community that adopts them?

A language can be fully worked out and still hardly spoken. Another can begin fragmentarily and expand because people take it up. What is missing in the design is supplemented in use. What is fixed on paper is loosened in practice.

In that tension, it becomes visible that language does not coincide with its design. It can be designed, but only becomes language in the use that escapes it. Speakers make something of it that was not fully anticipated. They introduce variation, deviations, let parts disappear, and add new ones. Even a designed language does not escape the process that makes it alive.

Here we see a reversal of what once seemed self-evident. Natural languages are not imperfect because they are irregular, but alive precisely because of that. And designed languages do not so much show how language can be improved, but how dependent it is on what cannot be designed.

Language can be conceived. But it only becomes language when it is used. It can be simplified, refined, purposefully constructed. And yet something always remains that cannot be fixed. For even when a language is shared, used, and seems to function as intended, it can lose its footing. Not because it disappears, but because the coherence on which it rests is not self-evident. What can be designed can also come loose.

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Part VIII
Boundary regions of language

Language without footing

Language can be designed.

It can be simplified, refined, purposefully constructed.

And yet something remains that cannot be fixed.

Even when a language is shared and seems to function as intended, it can lose its footing. Not because it disappears, but because the coherence on which it rests is not self-evident. What can be designed can also come loose.

There are moments when language is still present, but no longer does what it usually does. The form remains recognizable, the sounds are there, the structure seems intact, and yet something shifts in the experience. What normally coincides begins to come apart. Not abruptly, but gradually, as if the coherence withdraws.

Sometimes it begins with sound. Someone speaks, and it sounds like language. The intonation is convincing, the rhythm holds, the sentences seem to form as expected. You listen and follow without effort. But when you try to understand what is being said, there is nothing to hold on to. No words that remain, no meaning that can be

reconstructed. What is heard is not random, but neither is it language as it usually functions. It exists somewhere in between.

Recognition of language does not begin with meaning, but with form: rhythm, cadence, sound. Before anything is understood, something is already experienced as language. Usually, that moment disappears immediately into understanding. Here it lingers. The form appears, without meaning following.

In other cases, the opposite happens. Take a word that is familiar and repeat it. At first, nothing changes. But after a while, something shifts. The sound asserts itself as sound, and the natural link with what it refers to loosens. After a few more repetitions, the word seems to detach from its meaning. It is still there, audible and recognizable, but it no longer says anything.

What disappears is not language, but access to it. The form remains intact, while the connection to meaning temporarily falls away. This makes clear that the connection is not given, but something that is continually re-established.

There are also situations in which that connection was never intended. In some music, a non-existent language is sung, and yet it is heard as language. The sounds follow familiar patterns, the phrasing suggests structure, and the voice carries it all with an effortless naturalness. You listen and feel as if you understand. Only when you try to repeat what was said does it become clear that there is nothing to repeat.

The impression of meaning is there, but it does not come from the words. It arises in the listener. The form is convincing enough to evoke meaning without fixing it.

And then the shift occurs once more, this time in seeing. A page full of text, neatly set, with words that resemble a known language. Sentences that flow, paragraphs that take shape, a whole that invites reading.

But when you begin to read, nothing happens.

The eyes follow the lines, the words are recognized as words, and yet no meaning arises. Not because it has disappeared, but because it was never there. The text is not written to be understood, but to look like text. It functions without being read.

What becomes clear is that language consists of layers that do not necessarily coincide.

Sound can remain without meaning.

Meaning can fall away without the form changing.

Form can suggest meaning without carrying it.

And text can exist without ever being read.

What does not disappear is language, but the self-evidence with which its elements coincide.

In everyday use, this goes unnoticed. Form and meaning seem to be one. But in these boundary regions, it becomes clear that their coherence is continually produced and can therefore shift, disappear, or reorganize itself.

What appears here is not an exception, but a possibility that has always been present.

Sound without words

In glossolalia, speech sounds convincing even though there is no shared vocabulary or grammar. The listener recognizes language before anything can be understood.

In religious contexts, for example, someone may begin to speak in a stream of sounds that closely resemble an existing language. The sentences have rhythm, there are pauses, accents, repetitions. It sounds as if something is being communicated, as if sentences are being formed. Yet afterward, no one can say what was actually said. There is no repeatable content, no stable set of words.

The effect is peculiar: the listener hears neither randomness nor intelligible language. It exists precisely in between.

Loss of meaning through repetition

A familiar word, repeated in quick succession, can lose its meaning without the form changing. What remains is sound, detached from what it refers to.

Take a simple word like “table.” Say it ten, twenty times in a row. At first, it still effortlessly refers to the object. But soon it begins to sound strange. The sounds take over, and the natural link with the thing disappears. The word becomes something you hear, not something you understand.

Even words that are closest to experience, such as “I” or your own name, can show this effect. What is normally most familiar can suddenly become strange and distant.

Understanding without content

In pseudo-language, meaning is experienced where no fixed meaning is present. The listener fills in what is missing, guided by rhythm and intonation.

A well-known example is *Prisencolinensinainciusol* by Adriano Celentano. It sounds like English, with recognizable stress patterns and sentence rhythms, but the words do not exist. Many listeners feel, on first hearing, that they largely understand it, until they try to repeat what was said.

This also occurs in other music. Singers use sounds that

resemble words, especially in choruses, because they work well musically. The listener experiences coherence and direction, even though there is no fixed meaning.

Text without reading

In layout text such as *Lorem ipsum*, language appears in its visual form without reading being necessary or even possible. The text functions without being understood.

In graphic design, *Lorem ipsum* is used to show how a page will look once real text is in place. The words resemble Latin, sentences flow, paragraphs fill the space. Everything suggests readability.

Yet no one actually reads this text. The designer looks at margins, proportions, and typography, not at meaning. The text is present as form, not as content.

Anyone who tries to read it notices that there is nothing to follow. The eyes move, but understanding does not arise.

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Part IX
Formal languages

Mathematics

At first glance, mathematics appears to be the opposite of ordinary language. Where language shifts, nuances, and adapts, mathematics seems fixed. Symbols have a single meaning, rules are strict, and what has once been demonstrated remains valid. Interpretation appears to play no role here.

Yet mathematics, too, begins with signs. An equation, a formula, a sequence of symbols on paper. They do not refer to things in the world in the way words do, but to structures defined within the system itself. Meaning arises here from the relations between signs, not from reference to something outside them.

A mathematical expression is not read like a text. Nothing is narrated, nothing unfolds over time. Meaning is concentrated in the form itself. A single line can contain more than a paragraph of ordinary language, but only for those who are familiar with the rules that sustain that form. Without that familiarity, what remains is a closed arrangement of symbols.

What is perfectly clear to one reader remains opaque to another. Not because the meaning is hidden, but because it is only accessible within

the system in which it operates. Mathematics does not automatically share its meaning with those outside it.

For that reason, it is often regarded as more universal than ordinary language. Spoken languages differ and change, but a formula remains the same, regardless of who reads it or where it is applied. This gives mathematics a special status, as if it were not merely a language, but a direct access to something that exists independently of language.

That impression can be misleading. The stability of mathematics does not necessarily point to a direct relation with reality, but may instead arise from the strictness of the system itself. Its clarity may say less about the world than about the way the system fixes and maintains its own conditions.

Seen in this way, mathematics appears as an extreme form of language. Ambiguity is excluded, every step must follow from predefined rules, and meaning cannot shift without altering the system itself. Everything that matters lies in the relations between the signs.

At the same time, a peculiar tension remains. Mathematical structures are often experienced as if they are discovered rather than invented, as if they already existed and are merely brought into view. Yet they are entirely dependent on the symbols and rules in which they appear. They do not exist apart from their notation, and yet they seem not to be reducible to it.

This duality does not resolve easily. Mathematics is fully formal, and yet it is often experienced as access to something that exceeds that formal framework. In that tension, one can see how far language can be carried without ever fully closing in on what it seeks to hold.

Mathematics does not mark the end of language, but one of its limits. A point at which form and meaning coincide so tightly that almost no room remains for variation, without that possibility ever entirely disappearing.

One mistake is everything

In ordinary language, errors can often be absorbed. A sentence that is not entirely grammatical can still be understood. Words may be missing, misplaced, or used ambiguously, and meaning usually remains accessible. The reader or listener fills in, corrects, interprets.

Mathematics works differently.

A small error can invalidate an entire line of reasoning. A misplaced sign, a missing bracket, a minus that should have been a plus. The form may look almost identical, yet the outcome changes completely. What is written is not approximately correct or mostly right. It is correct, or it is not.

Someone solving a simple equation who skips a step or misapplies a rule can arrive at a result that looks convincing but has no validity within the system. There is no room for interpretation that can repair it.

This makes clear how tightly form and meaning are bound in mathematics. Meaning is not approximated or suggested but follows directly from the form, step by step. Once the form deviates, meaning disappears with it.

In that sense, mathematics shows an extreme: a language in which nothing is absorbed, nothing is supplemented, and every deviation has immediate consequences.

Not because it is fragile, but because it allows no correction outside its own rules.

Formulas as a language of the world

Mathematical symbols do not remain confined to mathematics itself. They also appear in other domains, where they play a similar role. In chemistry, for example, substances and reactions are expressed in formulas. A notation such as H_2O or CO_2 may look simple, but it represents a precise structure that does not depend on interpretation. The order of symbols, the indices, the balance of an equation, everything is fixed.

A small deviation changes not only the notation, but what is being described. H_2O is water. H_2O_2 is something else. The difference in form is minimal, the difference in meaning is complete.

Here the same strictness appears as in mathematics. Meaning does not stand apart from form, but follows directly from it.

In modern physics this goes further still. What appears as theory is expressed almost entirely in mathematical structures. Fundamental descriptions of space, time, energy, and matter do not exist as ordinary language, but as equations. Anyone who wants to understand them must not only know the words, but the formal language in which they are written.

This creates a peculiar situation. The description of reality is given in a language that remains inaccessible to most people. Not because it is hidden, but because it is only understandable within a strict system of rules and symbols.

Language is not only a means of speaking about the world, but also a form in which the world is laid out. Not in words, but in structures.

As in mathematics, meaning does not lie outside the form, but in the way the form is constructed.

Danger through formulation

Sometimes it is not the content that convinces, but the form in which it is presented.

The substance dihydrogen monoxide sounds to many people like something dangerous. The name has a technical tone, refers to chemical composition, and seems to belong in a list of substances one would rather avoid. In such contexts it is often presented that way: as a compound that occurs in large quantities, is involved in industrial processes, and can be harmful with excessive exposure.

What is being described is simply water.

The deception is not in the facts, but in the formulation. By naming an everyday substance in formal, chemical language, the experience of it shifts. What is familiar becomes strange. What is harmless acquires a hint of danger.

Formal language does not only clarify, it can also estrange. It creates distance between experience and its description. Those who do not master the language cannot bridge that distance and are left with the impression the form produces.

This effect resembles what appeared earlier in pseudolanguage, but in reverse. There, meaning was experienced without being present. Here, a familiar meaning is obscured by a form that makes it unrecognizable.

What remains is the same tension.

The form appears exact.
What it evokes depends on the reader.

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Logic

Before there is mathematics, there is something that makes it possible. Not as content, but as form. A way of ordering that determines what follows from what, what counts as valid, and what does not.

Logic seems simple. A statement is either true or not true. If something holds, and something else follows from it, then that second thing must also hold. It appears almost self-evident, as if it does nothing more than make explicit what is already being thought.

That self-evidence is misleading.

Logic does not determine what is true, but how truth is allowed to behave. It does not fix the content of statements, but the forms in which they can be combined. A statement can mean anything, as long as it fits within the structure in which it appears.

In propositional logic, this becomes visible in its most stripped-down form. Statements are reduced to symbols. They carry no content, only a position within a structure. And, or, not, if… then. Nothing more is needed to construct complete arguments.

Meaning is detached from content and relocated into form. What a statement says is irrelevant, as long as the relations between statements are correct.

This produces a shift. Where language usually points beyond itself, logic refers only to its own structure. The validity of an argument does not depend on what is being said, but on how it is arranged.

An argument can be entirely valid and still be about nothing.

There are other forms of logic that go beyond this minimal structure. Predicate logic, modal logic, systems in which possibility, necessity, or time play a role. They extend the range, add layers, allow for refinement. What they share remains the same: an attempt to fix the form of reasoning independently of content.

Logic is often treated as the foundation of thought, something that precedes language. Yet it always appears in language, even if that language is formal. Symbols, rules, notations. Without that form it cannot be seen, used, or transmitted.

This raises the question of whether logic truly precedes language, or whether it is itself an extreme form of it.

Logic occupies a boundary zone. It withdraws from the fluidity of ordinary language by fixing its rules, yet remains dependent on the

signs in which it is expressed. It seems to stand above language, but cannot exist without it.

As with mathematics, the same ambiguity appears here. The clarity of the system creates the impression of necessity, as if what follows within its rules could not be otherwise. But that necessity exists only within the system that defines it.

Outside that structure, it disappears.

Logic shows what happens when language is not only used to say something, but to establish the conditions under which something can be said.

Not what is true.

But what can count as true.

Valid without meaning

In logic, a line of reasoning can be entirely correct without being about anything.

Take a simple structure:
If A, then B.
A.
Therefore B.

This is a valid argument. The conclusion follows necessarily from the premises. But as long as A and B have no content, nothing is being said. The form holds, while meaning remains empty.

Even when words are filled in, that emptiness can persist.
If all blue dragons sing, and this stone is a blue dragon, then this stone sings.

The reasoning is logically valid. The structure is correct. Yet it does not describe anything that occurs anywhere. Validity guarantees no reality, only coherence within the form.

Logic does not determine what is true, but what follows from what. It safeguards the structure of reasoning, not its content.

In that sense, logic can function perfectly while nothing is at stake beyond its own rules. The form is closed.

What it closes can still be empty.

Verder lezen:

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Language for machines

There are forms of language that are not primarily meant to be understood, but to be processed. Where ordinary language addresses a reader or listener who can interpret, fill in, and correct, these languages function differently. They are directed at systems that do not understand, but execute. What is written here is not an invitation to interpretation, but a sequence of instructions to be followed.

In such languages, the distance between saying and doing is almost eliminated. An instruction does not merely describe an action, but coincides with it once it is carried out. The space for nuance disappears, and adjustment can only take place within the strictly defined rules of the system itself. What happens is entirely contained in what is written.

This makes this form of language both powerful and fragile. A small deviation can result in nothing happening, or in something entirely different from what was intended. Not because meaning is lost, but because the form no longer matches what the system expects. Where ordinary language is supported by context and can often be understood despite ambiguities, there is no room for recovery here.

The system follows the instruction as it is formulated, without correction, without interpretation.

Within this domain, different kinds of languages exist. Some define behavior step by step, such as programming languages that execute instructions in a strictly determined order. Others primarily describe structure. In HTML and XML, what something is within a whole is specified: a heading, a paragraph, an element within a larger arrangement. Nothing happens at that moment, but a framework is created in which something can become visible once another system processes that structure.

With CSS, the focus shifts further. Not content, and not action, but appearance. Position, color, proportion, and rhythm are defined in rules that determine how a structure presents itself. The language does not describe a world or perform actions, but shapes the conditions under which something can be perceived.

What all these forms share is their dependence on precision. They leave no room for supplementation or interpretation outside their own rules, because they are not read by someone who can understand what is meant, but by systems that respond only to what is exactly specified. Their strength lies in that precision, but that same precision excludes any form of flexibility.

At the same time, a new development emerges within this domain. Alongside these strictly defined languages, systems appear that deal

with language as it is used by humans. No fixed syntax, no formal structure, but sentences as they are spoken or written in everyday contexts. In such systems, language is entered in its open, unstructured form, and yet a response follows that is often experienced as appropriate.

That response does not rest on understanding in the human sense. The system recognizes patterns and continues them, without knowing what is meant. Yet something arises that resembles interpretation. The outcome is not fully contained in the input, but emerges within a field of possibilities shaped by the system itself.

This shifts the nature of language once again. Where in one context it is fully fixed in exact instructions, here it opens into a space in which multiple responses are possible. It moves from direct execution to response, from univocality to variation. The strict control present in programming languages gives way to a mode of operation that is less predictable, but closer to how language functions in human situations.

Language does not lose its structure, but its rigidity. It becomes less a system of unambiguous instructions and more a field in which possibilities are explored. What is said no longer fully determines what follows, but sets a movement in motion whose outcome is not completely fixed in advance.

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Part X
Where language stops

Misunderstanding

Language appears to be a means of understanding one another. We speak, write, and formulate, and usually assume that what is intended is also received. In most cases, this seems to work. Conversations unfold, agreements are made, information is exchanged. It creates the impression that language forms a reliable channel between people.

Sometimes something shifts, often without being noticed at first. The same words, in the same situation, can be taken slightly differently. A nuance slips away, an intention is filled in rather than picked up. What is said and what is received do not fully coincide, even if the difference initially seems negligible.

Most of the time, that difference remains small. It is corrected unnoticed or simply absorbed by the context. But sometimes it becomes visible, when a conversation begins to falter or a response does not seem to fit what was said. Then it turns out that both parties rely on the same words, while not having heard quite the same thing.

Words do not carry fixed meanings that can simply be transferred. They function within a network of expectations, experiences, and situations that never fully coincide. When someone says, “It’s cold

here," it can be a statement, but just as easily a request, a complaint, or an implicit invitation to act. What is meant does not lie in the words alone, but in how they are used, and even then variation remains possible.

That space is usually bridged without effort. Understanding is not passive reception, but an active process in which meaning is continually supplemented, interpreted, and adjusted. That is precisely what allows communication to keep functioning, despite the fact that full agreement is rarely achieved.

Misunderstanding belongs to this. It is not an exception or a defect, but a possibility that is always present. Sometimes it remains harmless, sometimes it grows into a failed exchange in which intention and interpretation drift apart.

Language does not guarantee understanding, but makes it possible. It opens a space in which meaning emerges, without ever fully fixing it. What is said sets something in motion, but does not determine how it will be taken. Communication takes place in that tension between saying and understanding, as an ongoing process of alignment, correction, and at times speaking past one another.

Further reading:

Grice, H. P. Studies in the Way of Words. Cambridge, MA: Harvard University Press, 1989.

Austin, J. L. How to Do Things with Words. Cambridge, MA: Harvard University Press, 1962.

Untranslatability

When language passes from one speaker to another, something can shift. This already becomes visible in misunderstandings. But even when a sentence is understood correctly and reproduced exactly as intended, another limit remains.

It appears when language moves from one language into another.

At first glance, translation seems straightforward. For every word there is an equivalent, for every sentence a corresponding formulation. Dictionaries and grammars suggest that languages are interchangeable, as if the same content were simply poured into a different form.

And often it works that way.

A simple sentence can be transferred with little loss. Information can be conveyed. Instructions remain usable. Stories can be followed. It creates the impression that meaning exists independently of the language in which it is expressed.

That impression does not always hold.

Some words do not carry over easily into another language. Not because they cannot be described, but because what they do in their original context is not fully retained. They carry a resonance of usage, history, and tone that does not transfer directly.

A word can be both precise and open. It can point to something without fully fixing it. In another language, a choice has to be made. That choice makes the word clearer, but also narrower.

What disappears is not always visible.

A translation can be correct and still miss something. Not in the sense that it is wrong, but that it operates differently. Sentences move differently, emphasis shifts, tone changes. What is implicit in one language may have to be made explicit in another, or remain unstated.

This sometimes becomes clear in seemingly simple words. In English, for example, the word *aliveness* can point to a direct, almost tangible sense of being alive. A translation into Dutch as *levendigheid* seems obvious, but shifts the meaning. The English word stays closer to an immediate, lived condition, while the translated version suggests more of a quality or atmosphere.

A choice has to be made. Either the word is translated and changes color, or it is left as it is and enters the new language as something foreign. In both cases, something shifts.

Something similar happens in the other direction. The Dutch word *gezellig* is often translated as *cozy* or *pleasant*, but neither captures what the word does in use. *Gezellig* can refer to a space, a situation, a gathering, or even a person. It points not only to comfort, but to a shared atmosphere in which people feel at ease.

In another language, this has to be broken apart. What comes together in one word splits into multiple possibilities. None of them is wrong, but none of them is the same.

Translation is therefore not a simple transfer, but a reconstruction.

Meaning is not moved, but formed again within a different system of distinctions. What appears as a single whole in one language may break apart into several possibilities in another. What is sharp there becomes vague here, and the other way around.

This sometimes shows in words that are left untranslated. Not because they are incomprehensible, but because any translation would introduce a shift experienced as loss. The word remains, in an attempt to preserve something that cannot easily be carried over.

But even then there is no standstill.

The word enters a new context, takes on a different sound, a different place in sentences, and with that a different effect. What seemed preserved still changes.

Untranslatability does not mean that translation is impossible.

It means that translation is never complete.

There is no point at which two languages fully overlap. Every transition involves a shift, however small. Meaning moves with the language in which it appears.

And for that reason, it can never be fully separated from it.

What carries over changes.

Further reading:

Apter, Emily. Against World Literature: On the Politics of Untranslatability. London: Verso, 2013.

Cassin, Barbara, ed. Dictionary of Untranslatables: A Philosophical Lexicon. Princeton, NJ: Princeton University Press, 2014.

Ambiguity

Not all uncertainty arises between languages. Sometimes it lies within language itself.

A sentence can be read in more than one way, without any single reading immediately presenting itself as the correct one. The words are properly chosen, the grammar is sound, and yet space remains. Not because something is missing, but because the formulation allows for more than one possibility.

A simple sentence like “I saw her with the binoculars” can mean that the speaker used binoculars, or that the person being seen had them. Both readings are possible, and nothing in the sentence itself forces a choice. Only within a broader context does it become clear what is meant.

This ambiguity is not an error. It belongs to how language works.

Words do not have fixed boundaries that remain the same in every situation. They take on meaning in use, and that use can vary. The same formulation can do something different in different situations, without the words themselves changing.

Most of the time, this causes no difficulty. In practice, ambiguity is resolved without effort. The situation, the tone, and the expectations of the participants bring one reading to the foreground while the other recedes. That does not mean the other possibility disappears.

It remains present as a latent alternative, as something that could also have been meant. Sometimes this becomes visible in misunderstandings or wordplay, but often it stays implicit. The sentence functions, yet carries more possibilities than are actually used.

In some cases, this multiplicity is used deliberately. In humor, in poetry, in slogans. A formulation that can be read in two ways can allow both to resonate at once. Not to create confusion, but to keep the space of meaning open.

Ambiguity is then not a problem to be solved, but a feature that can be used. At the same time, it marks a limit.

Language cannot fully fix what is meant. Even in a seemingly clear sentence, more than one reading can arise. What is ultimately understood depends on factors that lie beyond the words themselves.

The words are fixed.

The meaning is not.

Further reading:

Empson, William. Seven Types of Ambiguity. London: Chatto and Windus, 1930.

Eco, Umberto. The Open Work. Cambridge, MA: Harvard University Press, 1989.

Silence and the unsayable

Not everything that carries meaning is spoken.

In a conversation, a pause can say more than the words that precede it. Someone begins a sentence and stops halfway. There is a look, a hesitation, no continuation. What is missing is not empty. It is held by what is already present between those involved.

A silence can affirm, reject, invite, or close something off. It can carry tension or dissolve it. It is part of the exchange, without consisting of words.

This is not exceptional. It happens constantly. In everyday situations, meaning is shaped not only by what is said, but also by what is left unsaid. What is not spoken can be as clear as what is expressed, sometimes more so.

Language does not stop here, but it is no longer fully present either.

There are moments when words are not absent, but insufficient.

Someone tries to describe something and finds that the formulation does not hold. The words are available, but they do not reach it. What

is meant slips away as soon as it is put into language. The sentence is correct, yet something remains outside it.

This can concern an experience that is too immediate to be fixed. A feeling that does not divide into recognizable categories. Or a situation in which every formulation places the emphasis wrongly, too heavy or too light, too precise or too vague.

In such cases, there is no silence because there is nothing to say, but because saying does not work.

There is a tendency to treat this as a limitation of language that can be overcome with better formulations, more nuance, more words. Sometimes that helps. Often it does not. What is missing is not the right description, but the possibility of bringing the experience itself into language without altering it.

As soon as words appear, something shifts.

The experience is framed, divided, named. What was direct becomes indirect. What was present becomes described. That need not be a problem. It makes communication possible. But it does mean that a difference remains between what is and what can be said.

That boundary is not fixed. It shifts with the situation, with those involved, with what is at stake. At times it seems to disappear, when a

formulation appears to capture exactly what is meant. Even then, something remains that is not fully fixed.

Silence and the unsayable are not exceptions at the edge of language.

They belong to it.

Further reading:

Wittgenstein, Ludwig. Tractatus Logico-Philosophicus. London: Routledge, 1922.

Steiner, George. Language and Silence. New Haven, CT: Yale University Press, 1998

Language and reality

Language appears to be directed at what is. We describe situations, name things, try to capture what happens, and in doing so it easily seems as if words relate to a reality outside them and can represent it more or less faithfully. In many cases, this appears to work without difficulty. An object can be pointed at and named, an event can be recounted, information can be conveyed without anything essential seeming to be lost.

Yet what happens differs from what is said. Description follows experience, but does not coincide with it. It comes after, or stands alongside it, and in that transition something changes that cannot be fully recovered. What is directly present becomes indirect once it appears in words, not because the formulation fails, but because the act of naming already introduces a shift.

This becomes visible in everyday situations. A moment can be lived intensely without presenting itself as something that needs to be named. As soon as it is brought into language, structure emerges. Choices have to be made about what is said and what is not, where the emphasis lies, and how something is presented. What was first experienced as a whole is broken down into elements that are

recognizable and shareable, but no longer coincide with the experience itself.

Language makes this possible by drawing distinctions, setting boundaries, and naming things. It provides a form in which something can be shared, but that form does not function without selection and rearrangement. What does not fit within that structure is adjusted or left out. This is not a flaw in language, but a condition of its operation.

What appears here is not a shortcoming that can be resolved with better formulations, but a difference inherent in the use of language. Words refer to what is, but do not take it over. They make it possible to speak about it, but always stand alongside it.

The distance that arises is usually small and often goes unnoticed, precisely because language works well enough in most situations to convey what is intended. But it does not disappear. What is said and what is, do not fully coincide, however carefully something is formulated.

Further reading:

Goodman, Nelson. Ways of Worldmaking. Indianapolis: Hackett, 1978.

Wittgenstein, Ludwig. Philosophical Investigations. Oxford: Blackwell, 1953.

Heidegger, Martin. Poetry, Language, Thought. New York: Harper & Row, 1971

Epilogue

Throughout this book, language has appeared as something that shapes, orders, and makes possible. It allows speaking, sharing, understanding, and at the same time never fully coincides with what it points to. It shifts, leaves space, opens and limits at once. What can be put into words changes as soon as it is spoken, and what remains outside words does not disappear.

This is not a shortcoming to be resolved, but a feature of how language operates. It does not establish a fixed relation between word and world, but moves along with the situations in which it is used. Meaning does not arise in one place, but in use, in attunement, in what is said and what is left unsaid.

In the preceding chapters, this movement has taken different forms. At times language runs alongside what is meant, at times it shifts between languages, at times it opens multiple readings at once. There are moments when words fall away without meaning disappearing, and moments when words are present but fail to reach what is meant. Even where language seems most precise, a difference remains between what is expressed and what is.

That observation does not need to lead anywhere. It calls for no solution, and no alternative. Language does not need to be replaced or transcended in order to function. It already works, exactly as it is, with its possibilities and its limits.

Two people watch a sunset. The light changes slowly, colors shift, the sky darkens. At a certain moment, one says, “Beautiful, isn’t it?” The other replies, “You talk too much.”

What stands out here is not that speaking would be wrong, but that it is not required for what is unfolding to take place. The words add nothing to what is already visible, yet they do introduce a shift in attention. What was directly present becomes something spoken about.

This does not mean that language is unnecessary. It makes sharing possible, responding possible, drawing connections that would otherwise not appear. But it is not the only way in which meaning shows itself, and not always the most fitting one.

The book does not end with a conclusion, but with a shift in perspective. What has been read does not need to be summarized or fixed. It can remain as it is, a series of observations that do not have to close into a single whole. Language remains available, with everything it makes possible.

But it does not have to carry everything.

Further reading:

Borges, Jorge Luis. Selected Non-Fictions. New York: Viking, 1999.

Goodman, Nelson. Ways of Worldmaking. Indianapolis: Hackett, 1978.



About the author

These texts did not arise from a plan to formulate a theory, but from a persistent fascination. The question of how experience appears, and how language plays a role in it, did not lend itself to completion. It kept shifting, deepening, moving.

What is offered here is therefore not a closed system, but a series of attempts to look, to make visible what usually goes unnoticed. The dioramic approach used in this book is not a method in the strict sense, but a way of looking that has taken shape over time.

The author has a background in graphic design and web design. This may explain something of the attention to form, structure, and presentation. Not as decoration, but as part of how meaning appears. Text, image, and arrangement are not treated separately here, but as aspects of a single field.

Much of this work has developed outside academic frameworks. This is not a rejection of those frameworks, but a consequence of how the questions themselves have unfolded. They required space, detours, the inclusion of different perspectives without fixing them too quickly.

The website on which these texts have grown functions as a kind of laboratory. Ideas are tested, rewritten, shifted. What appears in book form is a snapshot within that process, not an endpoint.

Perhaps that is also the most fitting way to situate this work. Not as a finished whole, but as an open field. An invitation to look along, and to explore how language, perception, and world-making relate to one another.

It does not claim to be more than that.

Glossary

Ambiguity
The capacity of a formulation to allow multiple readings without being incorrect. Meaning is not fixed, but remains open within the structure of the sentence.

Ambiguity (structural)
A form of ambiguity that arises from grammar or sentence structure itself, independent of context.

Context
The situation in which language appears, shaping how meaning is formed, interpreted, and adjusted.

Dioramic analysis
A way of looking that presents multiple perspectives side by side without reducing them to a single framework. No final standpoint is assumed; each view appears within the field of experience.

Experience
What is directly present before it is described. Once expressed in language, it is already transformed.

Form
The structure in which something appears. Not separate from meaning, but the condition through which meaning becomes possible.

Formal language
A system in which meaning follows strictly from structure and rules, with no room for interpretation outside those rules.

Inner speech
Language as it appears without being spoken. Not always fully formed, yet functioning as part of thinking and experience.

Instructional language
Language that does not invite interpretation but triggers execution, as in programming or machine-readable systems.

Interpretation
The active process of making sense of language. Meaning is not received but constructed in use.

Logic
A formal system that governs how statements can be combined and what follows from what, independent of their content.

Mathematics
An extreme form of language in which ambiguity is excluded and meaning is fully determined by formal relations.

Meaning
Not a fixed content carried by words, but something that emerges in use, within context, and through relations between forms.

Misunderstanding
Not a failure of language, but a structural possibility within it. Meaning is never transferred fully, and alignment is always partial.

Precision
The degree to which form restricts interpretation. In formal systems, precision eliminates ambiguity; in ordinary language, it remains relative.

Reality
Not something directly captured by language, but something to which language relates without ever fully coinciding with it.

Representation
The act of describing or depicting something. It never coincides fully with what it represents, but stands alongside it.

Shift
A change in meaning that occurs when language is used, translated, or reformulated. Meaning never remains entirely stable.

Silence
The absence of words within communication that still carries meaning. Not outside language, but part of its functioning.

Structure
The arrangement of elements within a system. In language, it determines how meaning can emerge.

The unsayable
That which cannot be fully captured in language, not because it is absent, but because expression alters it.

Untranslatability
The impossibility of fully transferring meaning from one language to another. Translation reconstructs meaning within a different system, rather than moving it intact.

Validity
The property of a reasoning in which the conclusion follows from the premises. It does not guarantee truth, only structural correctness