

Thinking—Ordering Without Losing

An Introduction to Systematic Thinking Through Its Practice

Kai Froeb

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About the Author

Kai Froeb (born 1963) is a German philosopher and IT expert living in Portugal. His work combines more than 35 years of systematic Hegel research with the possibilities of artificial intelligence, developing a new form of philosophical collaboration.

His thinking is radically interdisciplinary. He studied mathematics and computer science at the University of Erlangen–Nuremberg, business administration at EBS, and cultural studies and law at the University of Hagen. At the same time, he pursued intensive general studies in philosophy, sociology and history. He deliberately conducted his studies without orienting them towards academic degrees, preserving the freedom to follow an independent path of thought and research beyond the boundaries of university disciplines.

Since the late 1990s, Froeb has edited and maintained **hegel.net**. Available in twelve languages, the website ranked among the leading results in international Google searches for Hegel for many years and developed into one of the central online resources on Hegel's philosophy. It is probably still the most extensive multilingual website devoted to Hegel on the internet.

In connection with **hegel.net** and **hegel-system.de**, Froeb also created an extensive, publicly accessible archive of primary sources. The German-language collection alone offers 506 digitised original editions of works by Hegel and nineteenth-century Hegelians for free download. Further collections in other languages include 19 original works in English.

More than 40 years of programming experience, beginning in 1980, form another methodological foundation of his work. His first program was a reimplementation of Joseph Weizenbaum's ELIZA, thus completing a circle from the earliest experiments in artificial intelligence to his productive collaboration with Claude today. Froeb uses his IT expertise not merely as a technical resource but also as an instrument of thought: he analyses social and philosophical structures with the precision of a software architect.

Froeb is developing an independent philosophical body of work that stands in the tradition of Hegel while attempting to continue that tradition under contemporary conditions. At its centre is his own performative approach to truth, which forms the common foundation of his philosophical books. Truth appears here not merely as the object of propositions, but as a movement that must also prove itself in the form of thinking and presentation.

His aim is demystification through conceptual clarification: to penetrate every boundary through thought, including the boundary of what initially appears inaccessible. In his work, form follows content—structure, concepts and method are determined by the subject matter itself. At the same time, he seeks accessibility: to present demanding philosophy as clearly as possible, in the spirit of the best Anglo-American scholarly tradition, without simplifying it.

His guiding motif is Hegel's formula: "The truth is the whole"—the search for a form of integration that need not repress or exclude anything.

CONTENTS

List of Figures xi

Chapter 1: What This Is About and How 1
1.1 The Question . . . 1
1.2 Without Appeal to Authority . . . 1
1.3 The Course and Its Standard . . . 2
1.4 The Words . . . 3

Part I: What Belongs Together 5

Chapter 2: What Ordering Is For 7
2.1 What Already Happens in Reading . . . 7
2.2 The Smallest Order . . . 7
2.3 Overview and Access . . . 8
2.4 Condensing . . . 9
2.5 What Matters . . . 10

Chapter 3: In What Respect 13
3.1 What One Orders By . . . 13
3.2 Three Levels . . . 14
3.3 Several Respects . . . 15

Chapter 4: Series and Compartment 17
4.1 Orders That Know Nothing of the Matter . . . 17
4.2 Compartments in Compartments . . . 18
4.3 What the Order Conceals . . . 18
4.4 What the Series Makes Visible . . . 20

Chapter 5: Pattern 21
5.1 What Repeats . . . 21
5.2 Found or Made . . . 22
5.3 Where a Pattern Remains Open . . . 22
5.4 Too Coarse, Too Fine . . . 23
5.5 Where the Pattern Fails . . . 24
5.6 Looking Back on Part I . . . 24

Part II: Why It Belongs Together 27

Chapter 6: Principle 29
6.1 What Produces a Pattern . . . 29
6.2 Generalization and Principle . . . 29
6.3 When a Principle Explains Everything . . . 30
6.4 Where the Principle Fails . . . 31

Chapter 7: Ground 33
7.1 Empty, Arbitrary, Sufficient . . . 33
7.2 How Much Is Sufficient . . . 34
7.3 The Syllogism . . . 34
7.4 Whom a Ground Serves . . . 35
7.5 The Ground in the Matter . . . 35
7.6 Where the Single Ground Fails . . . 36
7.7 Looking Back on Part II . . . 36

Part III: How a Whole Is Built 39

Chapter 8: Kinds 41
8.1 The Whale . . . 41
8.2 Correct and Good . . . 42
8.3 Where the Subject Matter Draws No Boundary . . . 43
8.4 When Dividing Never Stops . . . 43
8.5 Where the Kind Falls Short . . . 44

Chapter 9: Parts 45
9.1 Two Breakdowns of a Bicycle . . . 45
9.2 What Makes a Structure Good . . . 46
9.3 When the Structure Matters More Than What It Structures . . . 46
9.4 The Structure of a Nonfiction Book . . . 46
9.5 Where the Breakdown Falls Short . . . 47

Chapter 10: Connections 49
10.1 Everything Is Connected . . . 49
10.2 Three Kinds of Connection . . . 49
10.3 Tree and Network . . . 50
10.4 When a Relationship Is Misread . . . 51
10.5 When Everything Is Connected to Everything . . . 52
10.6 Where the Network Fails . . . 53

Chapter 11: Processes 55
11.1 How It Began . . . 55
11.2 When Something Can Be Grasped Only as a Process . . . 56
11.3 By What Something Moves . . . 56
11.4 Rhythm . . . 57
11.5 When Kinds Are Stages . . . 57

11.6 Two Orders at Once . . . 58
11.7 Where Process Fails . . . 58

Chapter 12: Self-Unfolding **59**
12.1 The Numbers . . . 59
12.2 Universal, Particular, Singular . . . 60
12.3 How Far This Takes Us . . . 61
12.4 How to Find a Universal . . . 62
12.5 Concepts That Change Their Subject Matter . . . 63
12.6 Self-Unfolding and the Other Four . . . 64

Chapter 13: Which Order Is Better? **67**
13.1 The Question That Fits . . . 67
13.2 Three Stages . . . 67
13.3 Cross-References . . . 69
13.4 Ordering in Research and in Writing . . . 70
13.5 Looking Back on Part III . . . 70

Part IV: What Order Costs **73**

Chapter 14: Condensing and Losing **75**
14.1 Three Stages of Condensation . . . 75
14.2 Why Condensation Succeeds . . . 75
14.3 The Remainder . . . 76

Chapter 15: Dead Order **79**
15.1 Form 47B . . . 79
15.2 How to Recognize a Dead Order . . . 79
15.3 The Coherent Deception . . . 80
15.4 Shared Order . . . 83

Chapter 16: One's Own Order **85**
16.1 Thinking That Orders Itself . . . 85
16.2 Where One's Own Orders Come From . . . 86
16.3 The Orderer's Pride . . . 87
16.4 The Path . . . 87
16.5 This Book Put to the Test . . . 88
16.6 What Remains Open . . . 89

Appendix A: Exercises **91**
A1: Ordering a Decision . . . 91
A2: Ordering a Dispute . . . 91
A3: Setting Up a Filing System . . . 92
A4: Condensing and Recovering . . . 92
A5: Structuring a Talk . . . 93

A6: Testing a Chapter 93

Appendix B: Who Else Has Seen It This Way, and the Strongest Objections 95
B1: On the Individual Chapters 95
B2: Five Objections in Their Own Form 98
B3: Further Reading in the Other Books 101

Glossary 103
Notes on Use 103
Access (Zugriff) 103
Classification (Klassifikation) 104
Coherent Deception (kohärente Täuschung) 104
Composition (Komposition) 105
Concept (Begriff) 105
Condensation (Verdichtung) 105
Correct and Good Division (korrekte und gute Einteilung) 106
Cross-Reference (Verweis) 106
Essentiality (Wesentlichkeit) 107
External (äußerlich) 107
Factual, Functional, Conceptual Connection (faktischer, funktionaler, begrifflicher Zusammenhang) 107
Generalization (Verallgemeinerung) 108
Ground: Empty, Arbitrary, Sufficient (Grund: leer, beliebig, zureichend) 108
Importance (Wichtigkeit) 109
Mechanical and Living Order (mechanische und lebendige Ordnung) 109
Order (Ordnung) 109
Overview (Überblick) 110
Pattern (Muster) 110
Prejudice (Vorurteil) 111
Principle (Prinzip) 111
Process (Verlauf) 111
Proliferating Order (wuchernde Ordnung) 112
Relation (Relation) 112
Remainder (Rest) 112
Respect (Hinsicht) 113
Rhythm (Rhythmus) 113
Self-Unfolding (Selbstentfaltung) 113
Series and Compartment (Reihe und Fach) 114
Shared Order (geteilte Ordnung) 114
Standard (Maßstab) 115
Sublation (Aufhebung) 115
Syllogism (Schluss) 116
System, Systematic (System, systematisch) 116
Universal, Particular, Singular (Allgemeines, Besonderes, Einzelnes) . 116

Urgency (Dringlichkeit) 117
Way of Ordering (Ordnungsweise) 117

LIST OF FIGURES

1 The symbol of kinds: three separate shapes, without a frame. The space between them carries the meaning. 41
2 The symbol of parts: a single closed shape, differentiated within. 45
3 The symbol of relation: several shapes, connected by lines. . . 49
4 The symbol of process: a curved path with an arrowhead. Curved, because a straight arrow claims progress where only the course of things is meant. 55
5 The symbol of self-unfolding: a triangle containing an inverted one whose points touch the midpoints of its sides. The same figure repeats in each of its parts. 59

CHAPTER 1: WHAT THIS IS ABOUT AND HOW

1.1 The Question

Anyone who puts things in order wants to find something again: a letter in the files, a tool in the workshop, a thought in a book. And he wants to see what he has without going through everything item by item. Both succeed only if the many become few, and in the process something is lost. This book asks how that can succeed without losing what matters.

More is meant here than filing. Someone who tidies a drawer orders things; someone who identifies a species, forms a concept, structures a theory or builds a book orders thoughts. That the whale is a mammal, that the numbers divide into natural numbers, integers and rationals, that a textbook begins with this chapter and not with that one: these are orders, and what one understands depends on them. This book is about ordering by thinking: about division and concept formation, about patterns, principles and grounds, about structures. It starts with filing, because there every step can be checked firsthand, and goes on from there to the kinds of living things, to numbers, to scientific explanations and to the construction of texts.

The question therefore arises for the researcher analyzing a series of measurements or describing a new species, for the lawyer structuring a case, for anyone writing a nonfiction book, also for the program that is supposed to write one, and for someone who simply puts his papers into folders. The answers differ in precision from one setting to another, but they are related.

1.2 Without Appeal to Authority

The book appeals to no one. What it claims should be testable against one's own ordering: against reading this book, at one's desk, on a filing system, on a text one is structuring. The examples illustrate; they do not prove. Some are invented,

some taken from everyday life, and what matters is not that things go this way everywhere, but that one can follow them; it is the argument that must bear the weight. Where a step invites an obvious objection, the objection is stated, in the strongest form that could be found, and the reply follows. Where the reply falls short, the book says so.

Many of these thoughts have been thought by others before, some of them long ago. Where that is the case, Appendix B says so, as a pointer to further reading; sometimes a sentence at the end of a section does too, once the thought has been worked through. None of this is meant to prove anything: a step that bears no weight here does not become load-bearing because a famous name has taken it.

1.3 The Course and Its Standard

The book is itself an order, an order of thoughts about ordering. It must therefore be measured against what it says about orders, and anyone reading it thereby has a touchstone in hand.

The standard is a question that can be put to any order: can it say why its members are these and why they lie where they do? An alphabetical order cannot; that "dog" comes after "dock" says nothing about dogs. A division of the numbers in which each kind arises because a calculation did not work out in the previous one can. As long as an order cannot state its ground, it is applied to the matter from outside, and what it leaves out may be precisely what matters.

The book follows this question. The first part deals with orders that say what belongs together, but not why: with the respect in which one sorts, with series and compartments, with patterns. The second asks about the why: about principles and grounds. The third asks how a whole is built, and finds five ways of ordering, the last of which itself shows its ground. The fourth asks what any order costs.

This is a preview, and it has yet to prove itself. Why the book has precisely these parts, in this sequence, is explained at the end of each part, when one can see what has been ordered, and for the whole at the end of the book. Anyone who would structure it differently has, in the same question, the means to compare the two structures.

1.4 The Words

For what turns up in ordering, the book uses words from everyday language wherever possible. It adopts a few technical terms because they have become established for these things and one will meet them again elsewhere: compression, classification, composition, relation. Each is explained where it belongs, and explained from what has been found at that point. The glossary at the end says where that is.

The book stands on its own. It has four neighbors that ask other questions: one on truth, which develops it from the testing everyone already performs in reading; one on logic, which works through the basic forms of determining; one on ethics, which develops from the same testing what people owe one another; and one on organization, which takes up some things from this book and asks how institutions must be built for knowledge, reasons and correction to work in them. None presupposes the others. *Truth* (2025) reaches back furthest: anyone who calls one order better than another presupposes that better can be told from worse, and that book develops this in its own right. Here it is shown in ordering itself, as far as ordering requires.

On the translation of quotations: The quotations from Hegel and other German-language authors have been translated for this edition from the German wording, in this book's terminology, rather than taken from an existing translation. Where there are several authoritative translations, each interprets differently; the translation here follows this book's interpretation. So that the rendering can be checked, the German wording is given alongside: in parentheses after the quotation, or, for longer quotations, in a separate paragraph below or in the footnote that cites the quotation. Very short phrases (under four words) appear without the original, and quotations that are already in another language in the German text remain unchanged.

Further reading: *Truth*

PART I: WHAT BELONGS TOGETHER

CHAPTER 2: WHAT ORDERING IS FOR

2.1 What Already Happens in Reading

Anyone who has read this far has already been ordering. Look back at the preceding pages: what was the main thought, what was an example, what a side remark? The answer is usually there before one looks. Then try to read the next paragraph in such a way that everything in it is equally important to you.

It fails. Even the resolve to weight nothing is a weighting, since for the moment it becomes what matters. If anyone experiences it differently, let him examine what happened in the attempt; that too would be a finding.

So you already distinguish what matters; otherwise you could not read. Someone who took everything as equally important would retain nothing of a page. And anyone who wanted to deny that understanding is ordering would have to order in denying it: put his reasons forward and the trimmings back. This book is therefore about something one does while reading it, and what it says about this can be tested against that doing.

In the head this happens too quickly to watch. On the desk it happens more slowly and visibly.

2.2 The Smallest Order

Experiment 1: Your Own Desk

Look at your desk, or at whatever surface comes closest to one. If there is disorder there: what kind of disorder is it? Is everything lying where it fell? Rarely. What is needed every day lies within reach. What belongs to one matter lies together, even if the pile is crooked. What still needs doing lies on top. Anyone who tidies someone else's desk learns this from the owner's protest: he can no longer find anything, although everything now stands in its place.

What happens on the desk is the smallest order there is: this is put with that, the other thing set aside. Both happen in one act. Whoever puts the bills on one pile has separated them from the letters; whoever sorts something out has put it with what can go. Nothing can be put together without being separated from something else.

Objection: Then every arrangement is an order. Even in the heap of leaves the wind has blown into the corner, this lies with that.

Reply: It lies together, but on no ground that anyone could use for searching. Here, "order" will mean an arrangement from which something can be inferred: where something is, what is missing, what belongs together. In this sense the crooked pile is ordered, for the person who works with it. For the person tidying up it is not, because he does not know the ground. This already shows something that will run through the whole book: whether an arrangement is an order depends not on the things alone, but also on who searches in it and what he knows about it.

2.3 Overview and Access

A drawer with three things needs no order; one pulls it open and sees everything. One with three hundred needs one. Someone who had everything in view at once, with all its connections, would need none. No one has that. Memory holds little at a time, attention even less. Almost any amount can be offloaded, onto shelves, into folders and databases, but with every piece offloaded the question of how to find it again grows.

Two requirements follow from this situation. One wants to see what there is and how it hangs together, without going through everything item by item: let this be called *overview*. And from one place one wants to find another: let this be called *access*.

Almost every nonfiction book shows that the two are different, for it has a tool of its own for each. At the front is the table of contents. It shows what the book consists of and in what sequence, and anyone who has read it knows roughly what to expect; a particular detail he will rarely find there. At the back is the index. It leads in one step to every place where a word occurs, but says nothing about how the book is built. The table of contents orders by the matter, the index by the alphabet, and precisely because the alphabet knows nothing of the matter, anyone who knows the word can find his way in it.

Both achievements can be measured. For access: how many steps does it take from any one place to another, and how much must one know beforehand? The index takes one step, but requires that one know the word. For overview: how many members must one keep in mind to see the whole? A table of contents with five parts gives it; one with forty chapters and no parts does not, even if every chapter is well named.

Anyone who sets up an order thereby decides what will later be easy to find and what hard. Usually he notices this only when he searches himself.

2.4 Condensing

Experiment 2: A Conversation in One Sentence

Think of your last fairly long conversation with someone you know well. Before you read on, tell yourself in one sentence what it was about. The sentence will run something like this: “He is worried about his job but takes it calmly.” (DE: „Er sorgt sich um seine Stelle, sieht es aber gelassen.“) An hour has become a sentence. The weather, the coffee, the new glasses, the detours by which the conversation came to the topic are gone, and you miss none of them.

The same happens in the drawer. Anyone who puts three hundred things into six compartments has to remember six labels instead of three hundred places; each stands for everything lying under it. To order is to condense: the many are represented by the few. In engineering, the condensing of data is called *compression*, after the Latin word for pressing together. The word fits here too.

A borderline case shows how far one may go in this. A procedure that condenses every file into a single character has compressed more strongly than any other, and it is useless, for nothing can be recovered from one character. A condensation is usable only as long as what matters can be recovered from it. Engineering distinguishes two kinds. One leaves nothing out, and from it the whole is restored. The other gives something up, in images for instance gradations of color that the eye can hardly tell apart. Both are usable; what decides their value is *what* is given up.

This is how a good condensation can be told from a bad one. The good one gives up what does not matter and keeps what does. The bad one confuses the two. Had you put your conversation into the sentence “He’s complaining

again," that would have been a stronger condensation, for the sentence fits many conversations with him. It saves attention and makes the next conversation predictable. What it has left out is precisely what was different this time. This is how prejudice works: it condenses strongly and quickly, and in doing so gives up the differences that matter. Without quick condensation, however, one would never get into a conversation, for every expectation one brings to it is such a condensation. It becomes prejudice only when the conversation can no longer correct it. Condensing less is no remedy for this; anyone who does not summarize the conversation at all knows no more afterwards than before. What helps is condensing differently: recovering the differences the quick sentence gave up, and testing which of them count this time.

Objection: Then ordering always means loss. Anyone who wants to lose nothing keeps everything as it is.

Reply: Everything is kept anyway; after the ordering, the three hundred things are still in the drawer. What is lost is lost from view: the label "cables" does not say which cables. That is the price of overview, and whoever refuses to pay it has three hundred places and no overview. So the choice is not between loss and no loss, but between losses. Whether an order is any good depends on this choice.

A second objection: With a search engine there is no longer any need to order. You type in what you are looking for, and you have it.

Reply: You have what you can name. A search gives access, not overview: it does not show what else there is, or what you should have asked about. And it finds only what was captured beforehand in a way that lets it find it; an archive without a field for the sender cannot be searched by sender. So ordering goes on, only elsewhere: it is done by whoever builds the system, and for all future cases at once. What that means comes up with the third way of ordering.

2.5 What Matters

This brings back the question on which everything that follows depends, and which you have already answered in reading (Ch. 2.1): what matters? For the friend it was the worry about his job. Had an optician been listening, what would have stayed with her was the new glasses. She would not have condensed worse, only for a different question. A first standard has thus been found: the question for which one condenses. Against it one can test whether a condensation has kept what it was meant to keep.

Everyday language has two words for what matters, and it uses them differently. Something is important to someone, with regard to a question. Essential is what belongs to a matter itself, no matter who asks: the essentials of a contract, of an illness, of a quarrel. Whether there is such a thing, the word does not decide. It may also express no more than that someone takes his own question to be the only right one.

A case makes the difference tangible. Some people order their bookcase by color, and the edition suhrkamp deliberately invited this: side by side, its spines form a color spectrum. Others order by size, and there are good reasons for that. The shelves can be set closer together, and libraries separate the books in their stacks by format, not least for this reason. For the question of how the shelf looks or how much fits on it, both are well ordered. But anyone looking for something on a particular subject, or wanting all of an author's books together, will say that this ordering has missed the books. Color and format are external features in the precise sense of the word: they lie on the outside of the book, and a book is what is written in it. But where does he get this standard? He is not simply setting another question beside the first. He appeals to something in the books themselves, to what makes them books. Whether that is a standard drawn from the matter or only the question usually asked of books cannot be decided at this point.

The question remains open, and the course of the book depends on it. From stage to stage the standard moves closer to the matter: first as a respect one chooses, then as a repetition one finds in the things, then as a ground from which the repetition follows, finally as an order that states why its members are these. Whether at the end there is a standard that belongs to the matter itself, and in what sense, is for this course to show. Its first step is the respect, what one orders by.

CHAPTER 3: IN WHAT RESPECT

3.1 What One Orders By

Experiment 3: The Wardrobe, Three Times

Imagine putting your wardrobe in order three times: once by color, once by the occasions you wear things for, once by season. In each of the three orders, what is easy to find and what is hard?
Sorted by color, you see at a glance what goes together, but for a job interview you have to search every compartment. Sorted by occasion, you reach into the right compartment in the morning, but you cannot see whether the dark blue sweater goes with the gray trousers, and the shirt that would do just as well for an evening with friends lies in the compartment for the office, where you do not look for it in the evening. Sorted by season, you can put a whole compartment away in spring, and everything else stays as unordered as before.

Each of the three orders puts this with that, and each does so on a different ground: because it is the same color, because it is worn for the same occasion, because it belongs to the same season. What one looks to in doing so will be called the *respect*. Without a respect there is no order, only arrangement (Ch. 2.2), for only the respect says why something lies here and not there.

Each respect condenses in its own way. When things are ordered by color, the differences of color count and the differences of occasion drop out; the label "blue" does not say whether something will do for a wedding. Which differences an order keeps and which it gives up is fixed by the respect, and with it, what is easy to find in the order and what is hard.

Objection: Then no order gets the matter right. Each shows what its respect lets it show, and one only ever orders differently, without ever getting at what is there.

Reply: Note what it is that makes one give up an order. Someone who has ordered his wardrobe by color and rearranges it two weeks later has not compared

his order with the clothes as they are without any order; he does not know them that way. He has noticed that something did not work: in the morning he could not find what he needed, or some item would not fit anywhere. What an order bears and where it fails shows itself in the same experience in which one works with it. This requires no standpoint outside all orders. The question whether an order gets "the matter itself" right is therefore not unanswerable. Only, it is answered not by a comparison, but in working with the order, case by case, and sometimes with a no. This book asks about the other half: what distinguishes one order from another.

3.2 Three Levels

On the desk lies a library book that has to be returned tomorrow; so far it is only half read. To the person reading it, nothing seems more important at this moment. What does "important" mean here? Three meanings can be distinguished, and all three can be shown with the same book. What differs each time is what the word refers to.

The first is urgency: what is occupying a person right now. It refers to the situation of the one doing the ordering, not to the book. Once the book is returned, the urgency is gone, and the book is what it was.

The second is importance for a question. For someone who is moving and packing boxes, format and weight count. For someone who wants to quote from the book, edition and pagination count. For someone who wants to give it as a present, the cover counts too. In this sense something is important not for someone in a situation but with regard to a question: whoever asks the same question finds the same thing important. This is the level at which Ch. 2 found the first standard.

The third is essentiality: what makes the book what it is, no matter who asks or why (Ch. 2.5).

The second level, importance for a question, is the one most easily confused with the other two. Someone who says "that is unimportant" (DE: „das ist doch unwichtig") usually means: for this question, and takes it to be the only one. Someone who says "that is what matters" sometimes means the question and sometimes the matter, and often does not notice the difference. Many disputes about what is important are disputes between two questions that take themselves for information about the matter. And conversely, some people take what lies in the matter itself for a mere question among others.

For essentiality, a first test can be given: Does the rest change if this changes? It can be carried out on the book. If the book gets a new cover, it is the same book; content, structure, and value for the reader remain as they were. If one changes the text, everything else changes with it, and in the limiting case one has a different book. The text is more essential to the book than the color of its spine.

Objection: For the collector it is the other way round. A first edition with the original dust jacket is worth many times as much, a copy without it is not, and nothing about the text changes. So essentiality too is only importance for a question, the collector's question.

Reply: The collector and the reader are speaking of two different matters under the same word. The reader means the work, which exists in many editions; the collector means this copy, an object with a history. For the copy, the jacket is nothing external, for if one changes it, what the copy is changes: a complete first edition or an incomplete one. So the test works for both. But it presupposes that one knows *as what* one is taking the matter, as a work or as a copy, and the test does not answer this question itself.

This shows how far the test reaches. It tests whether something is essential once it is settled what is being talked about. Often that is not settled. If a smartphone has been dropped, one can ask what is essential about the device, about the fall, or about the damage, and each time something different is essential: for the device, what it can do; for the fall, how it happened; for the damage, whether it can be repaired. Anyone who does not keep these apart argues about the essential while speaking of three matters. What it means for the rest to depend on something, and how one knows as what a matter is to be taken, the test does not say. Both are the question of ground. It belongs in the second part.

3.3 Several Respects

The wardrobe from Experiment 3 has a problem that none of the three orders solves: all three respects are legitimate. Someone who reaches for clothes by occasion in the morning wants to combine them by color in the evening and to rearrange them by season in spring. None of the three questions is the wrong one, and none is the real one; each has its time. On top of that, even a single respect does not separate cleanly. The same shirt works for the office and for the evening, the same trousers for everyday wear and for travel. Anyone who dresses strictly by the compartments needlessly limits themselves to whatever

happens to be there. The occasions overlap because the clothes are not made for one occasion but suit several.

On a screen this would be easy to fix: the same clothes, displayed in three different ways. In the wardrobe each piece is in one place. Anyone who wants to serve several respects at once has to nest them, first by occasion and within that by color, or the other way round, and the sequence decides which question takes one reach and which takes three. How to do this and what it costs is the question of the orders that sort by features.

Further reading: *Truth* (2025), Ch. 11

CHAPTER 4: SERIES AND COMPARTMENT

4.1 Orders That Know Nothing of the Matter

A dictionary is ordered by the alphabet. That “dog” comes between “dock” and “dole” says nothing about dogs, and no one expects it to. Even so, anyone can find what they are looking for in a dictionary, provided they know the word – they need to know nothing about the matter to do so. An archive that files its incoming items by date works the same way: the letter of March 3 lies before the one of March 4, whatever either is about. A library that shelves the books in its stacks in order of receipt, each with a running number, gets by without any knowledge of their content.

Such orders have three advantages, and all three follow from the fact that they know nothing of the matter. Anyone who knows the feature by which they are sorted can use them: the initial letter, the date, the number. New items can be inserted without moving old ones; the next letter goes at the end, the new word in its place in the alphabet. And no one has to argue about where something belongs, because the feature decides.

The price is just as clear. Such an order gives access but no overview (Ch. 2.3). Neighbors in the alphabet have nothing to do with one another, and anyone who wants to know what the dictionary contains about animals has to go through all of it. The order keeps a single feature of each thing, and of that feature only what sorting requires. That is a very strong condensation, and it keeps nothing of the matter.

This is no defect as long as nothing else is asked of it. A dictionary is meant for finding words, not for explaining the world. It becomes a defect only when such an order is taken for an order of the matter: when someone believes a year’s letters are in order because they are filed by date, and then has to gather the correspondence about a single case from twenty places.

4.2 Compartments in Compartments

Most orders people work with use more than one feature. A bookcase is arranged by subject, within that by author, within that by year of publication. A filing system is divided by year, and within each year by sender. Such orders nest respects within one another, and in doing so they solve the problem from Ch. 3.3 as far as it can be solved: where each thing can have only one place, several respects can be served only one after another.

Nesting has a rule that sounds simple and is often broken. Within a tier the feature must not change. Someone who orders their books by subject and slips a few in by color because they look so nice has not ordered imprecisely but pushed two orders into one another, and neither holds up any longer: whoever looks for the book under its subject does not find it, and whoever looks for it by color does not know it is there. Between tiers, on the other hand, the feature may and should change; that is just what nesting means.

A second rule follows from the first. The compartments of a tier should not overlap, and together they should take in everything that arrives at that tier. If two compartments overlap, the feature was not unambiguous; if something is left over that fits none of them, a compartment is missing. The “Miscellaneous” compartment that almost every filing system has is the admission that a compartment is missing – often the most honest compartment in the whole order.

Which respect goes on top decides the costs. Someone who files by year and within that by sender finds everything from one year with one reach, but has to gather everything from one sender year by year. Someone who files the other way round, by sender and within that by year, has it easy with the sender and hard with the year. One always pays; the only question is for which search. The best a nested order can do is to put on top the respect most often searched by, and to rank the others as they are needed.

4.3 What the Order Conceals

A letter concerns the tax on the house your mother rents out. Does it belong in the folder “Taxes,” in “Mother,” or in “House”? And those are only the orders by the matter. Alongside them are the two that every registry works with anyway: date and sender. These too can only be nested: first by year and within that by sender, or the reverse; outgoing mail with incoming or kept separate. Each choice is defensible, and each makes the letter invisible in the other places. Anyone who

looks for it under “Mother” in three years’ time will not find it, although it would have belonged there just as well.

Objection: The case is small; the objection it can anchor is not. An order that gives each thing exactly one place claims that each thing has exactly one respect in which it belongs. But things are more like a web than a tree: almost everything is connected with much else, and which connection counts changes with the question. An order that does not allow for this does not describe what is there; it decides about it. The better it works, the less one notices that a decision was made. And this does not apply only to filing. Every order this book has yet to develop, including the one that can state its ground, gives each thing a place; by this reasoning the grounded order would be the most dangerous, for whoever can ground an order is the most likely to take it for the matter itself.

Reply: Much in this objection is right. Every order chooses, and what appears in none of its respects drops out of view. But the objection overlooks where this shows. That the letter is missing under “Mother” is noticed in searching, in the same experience in which an order can fail at all (Ch. 3.1): something does not add up. An order does not become dangerous by choosing. It becomes dangerous when it no longer notices its failures, when what cannot be found counts as nonexistent instead of as a pointer to a second respect.

What follows from this is not a renunciation of order but a condition for it: it must keep the remainder visible. That has a cost. A cross-reference in the “Mother” folder pointing to the tax file has to be created and maintained. Since copiers have existed, one can file a copy instead, but the files grow. Every registrar knew that a letter belongs in several places. The open question was how much that insight was allowed to cost him. How far one gets with this, up to orders that no longer assign a fixed place, is shown in Ch. 10.3.

The same holds for every presentation that is read in sequence. A book has a table of contents, and a table of contents knows only one series. What stands side by side or intersects in the matter has to stand one after another on paper, and what belongs in two places stands in one. This book is built that way too, and it manages as the registry does: with cross-references to the other chapters where something belongs that had no room in its own place.

The objection of this section found its sharpest form in Gilles Deleuze and Félix Guattari. Against the tree they set the rhizome, the tangle of roots without a trunk in which every point can be connected with every other.

4.4 What the Series Makes Visible

All the orders in this chapter have one thing in common: their respect is chosen. The alphabet, the date, the subject, the sender are features one sorts by because that is how one wants to search. That the order is thereby laid on things from outside is both its advantage and its price.

And yet precisely such an order can show something that no one put into it. Someone who files their mail only by date for a few years, without a glance at the content, sees when leafing through it that the same letters arrive at the same time every year: the tax assessment in spring, the utility statement in summer, the insurance premiums in autumn. The date was their choice. That something repeats within it was not, and they could not have forced it; it comes from the deadlines and rhythms by which authorities, landlords, and insurers work. The same goes for the "Miscellaneous" compartment from Ch. 4.2. After a year it holds a pile, and often the pile is not a random mix: half of it is letters from tradespeople. Nobody arranged that either. It shows itself and says which compartment is missing.

Both findings have the same form. In a chosen respect a repetition shows itself that is not chosen but comes from the things. An order that follows it (a compartment for the yearly deadlines, one for the tradespeople) no longer sorts only by a feature one brings to the things. It takes up something found in them. Such a repetition is called a pattern.

CHAPTER 5: PATTERN

5.1 What Repeats

Experiment 4: Letters as Strokes

Try for a moment to see the letters of this line as mere strokes, as black lines without meaning.
It hardly works, and when it does, it does not last. The strokes come together into letters, the letters into words, before one can stop it; not recognizing takes more effort than recognizing.

What imposes itself here is a pattern: a shape that recurs in many cases and is therefore recognized. An “a” looks a little different in every typeface, and yet each time it is an “a.” The ability goes far. Anyone with a neighbor knows after a few weeks that the neighbor comes home around half past five on weekdays and not until around seven on Mondays, without ever having decided to pay attention to it. Someone hearing a melody for the first time can often hum the rest of it the second time.

A pattern is a condensation (Ch. 2.4). Instead of fourteen separate arrival times, one remembers a rule: weekdays half past five, Mondays seven. Why this is necessary becomes clear where it is missing. Nobody remembers directions with twenty turns; one asks for the pattern, “keep to the main road, left at the end,” (DE: „immer der Hauptstraße nach, am Ende links“) and where there is none, the only option is to write it down.

In science the same thing appears on a larger scale. The observations of the orbit of Mars that Tycho Brahe had collected over decades were thousands of angles and times. Johannes Kepler found a rule in them: the planet moves on an ellipse with the sun at one of its foci. A table that no one could keep in their head became a sentence from which every entry in the table could be recovered, and more precisely than with any earlier rule.

Unlike the orders of the previous chapter, a pattern is not chosen. One can choose what to pay attention to, the neighbor’s arrival times and not the color of

his jacket; whether something repeats in that respect does not depend on the choice. The respect remains chosen; the repetition is found.

5.2 Found or Made

Objection: Patterns↑ are not lying out there waiting to be recognized. Someone hearing jazz for the first time hears noise; after a while they hear rhythm, recurrence, response, and suddenly it makes sense. The pattern came into being only through their hearing. One creates patterns by recognizing them.

Reply: Jazz offers a way to test whether that is true. The musicians play to a form: they return to the theme after a fixed number of bars, they answer one another, they keep a tempo. The listener who hears this after a while has learned what the musicians are doing. If the listener had created the pattern, they could just as well read it into any other noise. That does not work, at least not in the same way. One can see faces in clouds and hear voices in the hiss of a radio; but these patterns cannot be continued. The cloud does not do what a face would do next, and the voice in the hiss does not say a second sentence. The pattern in jazz, by contrast, can be continued: anyone who has heard it knows when the theme will come back.

What is right in the objection is that patterns are learned and that one does not hear them before having learned to. It is also right that the respect in which one listens comes from the listener. But the fact that a pattern can be wrong shows that it is not made by recognizing. What existed only through my recognizing could fail at nothing. The face in the cloud fails at the next minute.

So the pattern is neither simply there nor made by the listener. The listener brings the respect, the recurrence comes from the matter, and the next bar shows whether the two fit.

5.3 Where a Pattern Remains Open

The series 1, 2, 4: how does it continue? Most people say 8, because the number doubles each time. But 7 fits just as well: the differences grow by one, first one, then two, then three. Both rules account for everything given and diverge only at the next term. More terms do not help in principle. For every finite series there are arbitrarily many rules that continue it, and the cases alone do not decide between them.

The objection that can be built on this has a second side. Even a pattern that is fixed does not stay what it was when it is applied to something new. One recognizes the word “family” in every use. Yet each new case brought under it, the blended family, two widows sharing a flat, shifts what it means. Is pattern recognition not, then, fundamentally uncertain, a recognizing that never knows whether it has recognized the right thing?

Uncertain it is, and no method changes that. But it does not follow that nothing decides between the rules. Anyone who wants to know whether 8 or 7 comes next asks where the series comes from. If it counts bacteria that divide, it is 8. If it comes from a training plan that adds one step more each week than the week before, it is 7. The pattern is recognized not from the numbers alone but from the numbers and what they are about. Where even that does not decide, the next case decides. Anyone who then relearns has not lost the pattern but only now found it. It is similar with the word: one notices that “family” is shifting when a new case sets off a dispute. At this point the pattern is put to the test.

A pattern is therefore an anticipation that has to prove itself on the next case, not a statement of fact.

The objection in its first form is familiar from Ludwig Wittgenstein’s reflections on rule-following, in its second from Jacques Derrida’s idea of iterability: a sign that is repeated is a little different in every new context.

5.4 Too Coarse, Too Fine

A pattern can miss what it is meant to condense in two ways. It can be too coarse: someone who has noted that the neighbor comes home at half past five on weekdays wonders for two weeks at the dark window before it occurs to them that it is vacation time. And it can be too fine: someone who remembers every arrival time to the minute, 5:28, 5:34, 5:31, has fourteen numbers instead of a rule and is no wiser than before.

Between the two there is no happy medium that could be stated once and for all. How coarse a pattern may be depends on what it is needed for. Someone who wants to ask the neighbor a favor is served by “toward evening”; someone who wants to hand him a package needs the half hour. This is again the first standard from Ch. 2.5, the question for which one condenses. A pattern is good if it keeps as much for its question as the question demands, and fails recognizably where it no longer holds.

5.5 Where the Pattern Fails

The neighbor comes on Mondays at seven. Why? Perhaps he has a meeting on Monday afternoons, perhaps he plays sports on Mondays, perhaps he visits his mother. As long as nothing depends on it, this makes no difference; the pattern holds even if no one can explain it. But it does matter as soon as something changes. If he changes jobs, the meeting goes, and the pattern with it; the sports do not. Only someone who knows why the pattern holds knows whether it will go on holding.

Here lies the limit of all the orders in this part. The respect says what one attends to; the series and the compartment say where something belongs; the pattern says what recurs. None of them says why things are so. The pattern comes closest, because it is found in the matter. But it says only *that* something repeats, and so it cannot say under what conditions it will stop.

5.6 Looking Back on Part I

Why does this part have exactly these stages, and why in this sequence?

Every order puts this with that, and to do so it needs something to look at. That is why the respect comes first: it is the condition of every order, and without it there is only arrangement (Ch. 3.1). The simplest way to use a respect is to sort by it: by one feature and, where one is not enough, by several, nested inside one another. That is the order in series and compartments. It takes from the matter only the feature and leaves everything else out. In the matter itself, however, it turns out that some things recur; where an order follows this recurrence, it is no longer merely brought to the matter from outside. That is the pattern.

The sequence is that of an order coming ever closer to the matter. The respect is chosen, the series follows the chosen respect, the pattern is found within it. The sequence cannot be reversed, for each stage presupposes the one before: a pattern is a repetition in a respect, and anyone who forms a series already has a respect.

Objection: Children recognize patterns long before they sort things or look them up alphabetically. The sequence is the wrong way round.

Reply: The sequence is not a history of learning but one of dependence. Even a child who recognizes a pattern is attending to something, to its mother's voice and not to the noise of the traffic; without this respect there would be nothing for it that repeats. That the child did not choose this respect but brings it along changes nothing. And that patterns are learned earlier than the alphabet shows

only that the found order is older than the one brought from outside. For the question of how much an order knows of the matter, this makes no difference.

What all three stages have in common is that they say what belongs together, not why. That is where they fail, and not only in difficult cases but with every change: anyone who does not know why something belongs together does not know whether it will stay together when circumstances change. This is what Part II asks about.

PART II: WHY IT BELONGS TOGETHER

CHAPTER 6: PRINCIPLE

6.1 What Produces a Pattern

Someone turns on the shower; the water is cold, so he turns it toward warm. It stays cold; he turns further. Then it comes out hot, too hot; he turns back, and a while later it is too cold again. After three or four rounds he has the temperature he wanted. That is a pattern: a swinging between too hot and too cold that recurs with every unfamiliar shower.

Why does it swing? Because the water he is mixing at this moment comes out of the showerhead only a few seconds later. He adjusts according to what he feels, and what he feels is the water of a few seconds ago. Every correction comes too late and therefore overshoots. This identifies something that produces the pattern: a loop of measuring and adjusting in which the effect of an adjustment reaches the one measuring only after a delay. Wherever such a loop works with a delay and readjusts more strongly than the delay allows, the same swinging arises. A heating system whose sensor is in the wrong place overheats and then gets too cold. A market in which farmers plan their breeding by today's price, which takes effect only a year later, produces years of glut and years of shortage.

What produces a pattern will be called a *principle* here, after the Latin word for beginning, origin. A principle is again a condensation, but of a different kind from the pattern. The pattern gathers many cases into one rule; the principle gathers many patterns into one ground from which they arise. The shower, the heating system and the market have different patterns, different timings, different swings. The principle is the same in all of them.

6.2 Generalization and Principle

Not every general statement is a principle. "Practice makes perfect" (DE: „Übung macht den Meister") sums up many experiences, and it is mostly true. But it does not say why practice works, and so it does not say when it does not work either:

when one practices the wrong thing, when one practices without feedback, when one practices overtired. It is a generalization, a pattern with a wide scope.

The principle of delayed feedback, by contrast, says under what conditions the swinging occurs and under what conditions it does not. If the effect arrives without delay, nothing swings; anyone standing at a shower with a short pipe gets the temperature right the first time. If one adjusts in smaller steps and waits, the swinging becomes weaker. So the principle says not only what happens but also what one must change for something different to happen. And it can be applied to cases one has never seen. Anyone who has understood it expects a controller with a long delay to swing before having observed it.

The principle says even more. If the correction acts not against the deviation but in its direction, nothing swings; it escalates. The microphone that picks up its own loudspeaker squeals louder and louder; the bank from which everyone withdraws their money because others are withdrawing theirs becomes insolvent. The same loop of measuring and adjusting produces two opposite patterns depending on its direction, and from the direction one can say in advance which of them will occur.

The pattern of the planetary orbits from Ch. 5.1 found its ground in the same way. Kepler had established that the planets move in ellipses; it took a principle that also explained the falling stone and the tides to say why: the attraction of masses, which decreases with the square of the distance. Kepler's ellipses followed from it, and more besides: namely, that they are not quite exact, because the planets perturb one another.

This is how a principle can be told apart from a generalization. The generalization says what came together in the known cases. The principle says what produces it, and therefore also where it stops.

6.3 When a Principle Explains Everything

A person anonymously donates a large part of his income. The explanation by utility maximization has no trouble with this: he gets more satisfaction from giving than from the money. Another lives as a hermit without possessions and maximizes his peace. A third sacrifices his life for a stranger; for him, the feeling of doing the right thing weighed more. The principle fits every time.

Objection: This can be built into an objection to every search for principles. A principle that is borne out by everything explains the new by tracing it back to the familiar. Whatever does not look like a variation of the familiar is reinterpreted

until it does. Yet actuality constantly produces something new: a deed, a way of life, an idea that previously did not seem possible. It is precisely to this, the objection runs, that the search for principles makes one blind.

Reply: The objection strikes home, but what it strikes is something specific. The delayed feedback from the beginning of the chapter predicts that a control loop with too long a delay will start to swing. That can be tested, and where it does not happen, the explanation is wrong. Utility maximization, in the version that explains donor, hermit and rescuer alike, cannot fail with any person. It does not say what someone will do; it interprets afterward what he has done. A principle is worth as much as the cases it rules out. If it no longer rules out any, it is no longer a principle but a way of speaking.

This gives the new a mark by which it can be recognized: it is what a proven principle fails at. Anyone who looks for principles that can fail will not become blind to the new. Only such a person has an organ for it.

Science knows this path. When the orbit of Uranus deviated from what the attraction of masses required, a further, unknown planet was assumed, its position was calculated, and Neptune was found there. When the orbit of Mercury deviated by a tiny amount, the same was tried, and this time nothing was found. The deviation remained until a new theory of gravity explained it. It was visible only because the old principle was exact enough to fail at it.

That the new is not to be thought of as a variation of something already known but as a difference in its own right is the guiding thought of Gilles Deleuze's *Difference and Repetition*.

6.4 Where the Principle Fails

The principle explains why a shower with a long pipe swings. Whether *this* shower swings this morning, it does not say. For that, one must know how long its pipe is, how far the tap was already open, whether the person showering waits patiently or turns hastily, whether the hot-water tank is full. The principle is general; the case is this one, and what happens in it depends on the principle and on its conditions.

This is the principle's deficiency, the counterpart of its strength. Because it abstracts from the conditions, it holds in many cases; because it abstracts from them, it fully explains none. Anyone who wants to know why what happened happened here and now needs the principle and the conditions together. The two together shall be called ground.

CHAPTER 7: GROUND

7.1 Empty, Arbitrary, Sufficient

A houseplant has died. Why?

The first answer that suggests itself is: it just wasn't viable. That sounds like a ground and says nothing. "Not viable" only means that it died, under another name. Such answers are more common than one thinks; anyone who says that someone failed because he could not cope with the pressure has often just said the same thing twice. A ground that merely repeats the matter is empty.

The second answer names something else: it was not watered. That says something, but it is not enough. The cactus next to it was not watered either, and it is alive. And the neighbor's plant was watered, every week, and died anyway, because the pot had no hole and the roots stood in water. Not watering is one condition among others, and anyone who singles it out has singled out one; why this one in particular, he does not say. A ground that takes one condition for the whole is arbitrary.

The third answer takes the conditions together: this plant needs water every week; in August it stood at the south window, where the soil dries out in three days; for three weeks nobody was there to water it. Here nothing has been singled out, and here something is included that the second answer skipped: what kind of plant it is. The cactus would have survived the same three weeks, because it is a cactus. The nature of the matter itself is a condition, and often the most important one. A ground that takes all the conditions together, including the matter, shall be called sufficient.

Empty, arbitrary, sufficient: each stage remedies the deficiency of the one before. The empty answer says nothing new; the arbitrary one says something, but not enough; the sufficient one says what had to come together for what happened to happen.

7.2 How Much Is Sufficient

Objection: A sufficient ground is unattainable. Among the conditions are that the sun was shining, that the earth turns, that houseplants exist at all. Anyone who tried to name all the conditions would never come to an end.

Reply: He would never come to an end if he had to name all the conditions under which anything at all happens. But the question is why *this* plant died, and that means: why it died instead of living, as it did last summer, as the cactus next to it did. A condition that was the same in both cases does not explain the difference. The sun was shining last summer too. A ground is sufficient if it states what was different in the one case from the case it is being compared with. That is finite, and it can be tested: had someone watered it, or had the plant stood at the north window, it would have lived.

This makes the sufficient ground depend on which case one compares with, and that is usually how the question is meant. Anyone who asks why the plant died almost always means: as opposed to what one had expected. And anyone who means a different comparison gets a different ground, without either being wrong. The only thing that would be wrong is to pass off a condition that was the same in both cases as the ground of the difference.

7.3 The Syllogism

One form of grounding is so old and so familiar that it is often taken for grounding as such: the syllogism. All human beings are mortal; Socrates is a human being; therefore Socrates is mortal. Anyone who grants the first two statements must grant the third.

The syllogism says nothing about whether the first statements are true. It secures the step, not the starting point. That is why it is not a kind of ground of its own alongside the sufficient one, but the form in which a sufficient ground can be written down: if this plant needs water every week and got none for three weeks, then it died. The “then” is certain as soon as the “if” is complete. Whether it is complete, the syllogism does not say; testing that is the work that distinguishes grounding from mere inferring. Even a valid syllogism grounds something only if the link that connects its first two statements captures the matter. Anyone who reasons that the rose is red, everything red is beautiful, so the rose is beautiful, has reasoned validly; with “thorny” as the link he would arrive just as validly at the opposite. A link that the matter merely also has is the arbitrary ground of Ch. 7.1 in another guise.

7.4 Whom a Ground Serves

A treatment does not work, and the clinic notes: the patient did not take his medication as prescribed. That is true. What is not noted is that he is a shift worker and was supposed to take the tablets three times a day on an empty stomach, which could not be squared with his shifts. The ground given is true, and it is precisely the ground that exonerates the clinic.

Objection: This leads to an objection against the whole art of grounding. Grounds are selected by those who give them, and they have interests. A grounding can be formally flawless, rest on facts, and still serve domination by selecting which facts count. Anyone who grounds systematically, the objection runs, merely refines the tool by which this is done.

Reply: Two things in this are right: the selection of grounds is itself an action that must be examined. And this examination includes the question of whom a ground benefits. But what made the deficiency in the example visible? A further ground: the shift schedule. The criticism of the clinic's grounding is itself a grounding, and the more complete one. It does not deny that the tablets were taken wrongly. It shows under what conditions that happened and who could have changed them.

In the language of this chapter: the clinic gave an arbitrary ground, a true condition singled out, and the selection fell where it did not hurt the clinic. So the suspicion that a ground serves someone does not end grounding. It gives it a task: to look for the missing conditions. It turns into what it criticizes only where it turns down this task and concludes from a ground's usefulness that it is false.

Max Horkheimer and Theodor W. Adorno developed the thought that reason itself can become an instrument of domination in *Dialectic of Enlightenment*.

7.5 The Ground in the Matter

Among the conditions under which the plant died, one was of a different kind from the rest: what kind of plant it is. The south window, August, the three weeks without water are circumstances; they could have been different, and the plant would have been the same. That it needs water every week is not a circumstance. It belongs to the plant, and if that changes, it is a different plant.

This makes it possible to make good on what Ch. 3.2 had to leave open. There it was said that what is essential is that on which the rest depends, but what "depend" means remained unexplained. Now it can be said: one thing depends on another if the other is among its grounds. What is essential to a matter is the

part of its grounds that belongs to the matter itself and not to its circumstances. With the book, it was the text: from it follow content, structure and value for the reader, whatever cover it comes in. And the second open question from Ch. 3.2 also gets an answer, the question of what one takes a matter as. One takes it as that whose grounds one is looking for. The reader looks for the grounds of what the book gives him and finds the text; the collector looks for the grounds of what this copy is worth and finds, among them, the cover.

7.6 Where the Single Ground Fails

As long as one asks for the ground of a single event, it is enough to have the conditions together. It is different when one asks for the ground of a multiplicity: why this plant has leaves, stems and roots, and these in particular; why there are twenty varieties of it; why it puts out shoots in spring and dies back in autumn. Here what is to be explained is not an event but a whole, and the ground is no longer a series of conditions but what the matter itself is: a living thing that needs light, water and soil to sustain itself. From it the parts become intelligible, the varieties, the seasons.

Such a ground no longer merely orders from outside and no longer merely records what recurs. It structures a whole out of what that whole is. How this happens, and in how many ways, is what Part III asks.

7.7 Looking Back on Part II

Why is it principle and ground that stand here, and why in this sequence?

Part I ended with the question of why something belongs together. This question can be answered at two stages. One can state what produces a pattern at all, wherever it occurs: the principle. And one can state why it occurred here and now: the ground, which takes the principle together with its conditions. The sequence cannot be reversed, for the sufficient ground contains the principle as one of its conditions, the one that lies in the matter; the principle, by contrast, does not need the individual case.

Objection: But surely one asks first about the ground of the individual case, why did my plant die, and only later, if at all, about principles.

Reply: That is how one asks, but it is not how one has to proceed. The sequence of this part, like that of Part I, is one of dependence. Anyone who states

the sufficient ground for the dead plant says that it needs water every week: a principle of its kind, whether he calls it that or not. The ground of the individual case is the richer construct, and that is why it comes second.

Both stages say why something belongs together. Neither says how a whole is built that consists of many members, all of which are to become intelligible from the same ground. That requires an order that no longer explains individual cases but structures a whole.

PART III: HOW A WHOLE IS BUILT

What this part deals with, how to divide a subject matter, how to distinguish kinds, how to test a structure, was once taught in school. Logic, as it was taught for centuries, had three parts: the doctrine of the concept, the doctrine of judgment, and the doctrine of the syllogism. The first dealt with definition, division, and the relation of genus and species.

This doctrine has disappeared, and not because it was refuted. It was ground down between two successors, neither of which took it over. Set theory defines a set by its elements. That is precise and powerful, and it contains nothing that determines order: a list of arbitrary things is a set like any other, and whether a division fits the matter is a question this language cannot ask. Formal logic has developed the connecting of sentences far more finely than anything the older logic had. But it starts from finished sentences with finished concepts. How an unwieldy subject matter yields the concepts one can then calculate with is not its subject.

Between the two lies the work this part is about. It cannot be formalized, but it is not arbitrary: there are better and worse structures, and one can say what shows which is which.

A whole can be questioned in several ways; each question yields a different structure. The first is closest to what the first part already knew, sorting: What kinds are there?

CHAPTER 8: KINDS



Figure 1: The symbol of kinds: three separate shapes, without a frame. The space between them carries the meaning.

8.1 The Whale

For a long time the whale was considered a fish. It lives in water, has a streamlined shape and fins; it swims. Today it is considered a mammal: it breathes air, it is warm-blooded, it gives birth to live young and suckles them. Both divisions are based on features. Why is the second better?

The features by which the whale used to be grouped depend on its habitat. Anything that lives in water and moves fast acquires a streamlined shape, whether it is a fish, a mammal, or a bird; the penguin has one too. Such features are consequences of circumstances and therefore occur in very different animals. The features by which the whale is grouped today occur together, and not by chance. Warm blood, breathing with lungs, and suckling its young are what the whale shares with the land animals it descends from; it kept them when its ancestors went into the water, although there they are more of a hindrance. They follow not from the circumstances but from what it is.

This takes up again what Ch. 7.5 found. A good division divides according to what belongs to the grounds of a thing, not according to what belongs to its circumstances. The whale was not regrouped because someone preferred a different respect, but because it became clear which features follow from which. That is the difference from the order in compartments of Ch. 4: there the feature was chosen. Here it is sought, and so it can also be missed.

An order by kinds will be called *classification*. Its question is: What kinds are there? Its members stand side by side, exclude one another, and do not develop out of one another: a dog is a kind of mammal, not a stage of one.

8.2 Correct and Good

Divisions are subject to the rules that the compartments already knew (Ch. 4.2). On any one level the feature must not change; the kinds on a level should exclude one another and together cover everything being divided. The strictest form these rules can take is dichotomy: one divides a whole by a feature into what has it and what does not, and divides each half again in the same way. Corporeal and incorporeal; the corporeal into animate and inanimate; the animate into sentient and nonsentient. Dichotomy leaves no gaps, for whatever is not the one is the other.

Dichotomy has a price. It forces every subject matter into a sequence of yes-or-no decisions. Very few things are built that way. And it is lopsided: one half is defined by a feature, the other only by its absence. “Nonsentient” does not say what a thing is, only what it lacks, and whatever is divided only in this way is easily treated as a remainder. The division of living things that biology makes today does not pay this price. It divides not into two but into as many members as there are: an order breaks down into any number of families, a family into any number of genera. And it changes the feature from level to level. What distinguishes on one level no longer distinguishes on the next, and what separates there was irrelevant further up. This does not violate the rule, for on each single level the feature stays the same. It adapts to the subject matter: with living things there is no single feature that separates on every level, and anyone who forces one gets a division that is formally correct and explains nothing.

This shows the difference between a correct division and a good one. A division is correct if its members exclude one another and cover the whole. It is good if the boundaries run where the subject matter itself makes distinctions, that is, if the feature does not merely separate but hits on something. Anyone who arranges their books by color has divided them correctly, provided every book has a color, and has captured nothing about the books.

Behind this lies something that reaches beyond division. A determination is what it is through what it excludes. “Mammal” means something only because there are animals that are not mammals. A division is therefore an attempt to draw boundaries where something begins to be something else, and it fails, without containing any logical error, when it draws boundaries at places where the thing has none.

8.3 Where the Subject Matter Draws No Boundary

Where does orange end, and where does red begin? Lay out a hundred shades side by side, from pure yellow to pure red, each barely distinguishable from its neighbor. Somewhere you would have to draw a line, and every line would have to be justified: Why here and not one shade further on? Languages draw it in different places. Some have no word of their own for orange.

Objection: Such transitions are not found only in colors. Between hill and mountain, between child and adult, between a species and the one it descends from, there is no line but a continuum. A classification that forms classes here draws boundaries that do not occur in the subject matter and forces each thing onto one side or the other. It does violence to the continuum and passes the violence off as order.

Reply: The rule from the previous section already contains the reply. A division is good if its boundaries run where the subject matter itself makes distinctions. Where it makes none, there are two honest ways forward. One can mark the boundary as a convention: one comes of age at eighteen, not because something happens on that day but because a boundary is needed somewhere. Or one classifies not things but degrees. Classification↑ becomes dishonest only when it treats an agreed boundary as if it had been found.

Borderline cases therefore do not refute classifying. They tell us where the subject matter makes no cut, and where they pile up, one knows that the division at this point is a convention.

The problem is old. The Greeks knew it as the sorites, the fallacy of the heap: no single grain one takes away turns the heap into a non-heap, and yet in the end there is no heap left.

8.4 When Dividing Never Stops

Anyone who has learned to divide can overdo it. He goes for a walk with a friend, and while the friend talks, he sorts as he listens: now work, now family, now both. He listens in order to classify, and in the process he misses what the friend wants to say, because it fits none of his classes. Here the classification no longer has a question to serve. It orders because it can.

The urge to divide has an understandable reason. Anyone who can assign something to a kind knows what to expect from it; what is unclassified, by contrast, is unsettling. But the expectation a kind provides is only as good as the kind. Someone who has assigned a person to a kind after three sentences hears,

from the fourth sentence on, only what fits it. The sentence “I do not know what kind of case this is” (DE: „Ich weiß nicht, was für ein Fall das ist“) is therefore often the beginning of understanding, not its failure.

8.5 Where the Kind Falls Short

Anyone who knows that the whale is a mammal knows a lot about it: that it breathes air, that it suckles its young, that it has warm blood. This does not yet tell them how its heart works, what its lungs are like, or how it can hold its breath for so long. The kind says what the whale has in common with others and how it differs from them. It does not say how it is built.

That is the limit of classification. Its members stand side by side, each a whole in itself, and the division concerns the relations between them, not the inside of each. A heart is a part of the dog, but not a kind of dog. Anyone who wants to know how a single thing is built must ask a different question: What does it consist of?

CHAPTER 9: PARTS



Figure 2: The symbol of parts: a single closed shape, differentiated within.

9.1 Two Breakdowns of a Bicycle

A bicycle can be broken down in two ways. It can be broken down by material: steel, aluminum, rubber, plastic, a little leather on the saddle. This breakdown is complete, with every piece falling under one material, and for the recycling center it is the right one. But it can also be broken down by what it does: a frame carries, two wheels roll, a drive transmits the force of the legs, brakes stop, handlebars steer. This breakdown is just as complete, and for anyone who wants to understand or repair the bicycle, it is the right one.

The second breakdown has something the first lacks: it says why these in particular are the parts. A vehicle that a person moves under their own power must carry them, must roll, must transmit the force, and must be able to stop and to be steered. If any of these is missing, it is not a usable bicycle; a bike without brakes is dangerous, and one without handlebars rides straight on into the next bend. The parts follow from what the whole is for. The breakdown by material, by contrast, says nothing about the bicycle that would not also be true of a heap of scrap.

An order by parts will be called *composition*, from the Latin word for putting together; where texts are concerned, the usual word is structure. Its question is: What does it consist of? Unlike kinds, parts are not each a whole in themselves; they are members of one single whole and are what they are only within it. Handlebars attached to no bicycle steer nothing.

9.2 What Makes a Structure Good

The same distinction applies to every structure. Someone asked to give a talk on a large topic can structure it by history, by subfields, by applications, or by controversies. Any of these structures is possible; each simply puts a different question to the topic. Which one is right depends first on what the talk is meant to achieve: that is again the respect from Ch. 3. But within each of these structures there are better ones and worse ones. A structure by subfields that merely lists its subfields is worse than one that shows why the field falls into precisely these parts.

The number of parts is set by the matter, not by the wish for a round number. A bicycle has as many parts as it has tasks to perform; a body as many organs as it needs functions. Anyone determined to divide a talk into three points because three points are easy to remember has a reason, but it is the listener's reason, not the matter's. That can be legitimate; it just should not be mistaken for information about the topic.

9.3 When the Structure Matters More Than What It Structures

Structuring, too, can be overdone. Someone who is preparing a talk and spends hours thinking not about the content but about whether there should be three main points or four, and whether section 3.2.1 would not be better as 3.1.2, has cut the structure loose from what it structures. A structure is visible and can be shown, tested, improved. A thought is harder to grasp, especially as it often takes shape only in the writing. That is why working on the structure is a convenient escape from working on the thought.

The remedy is simple and uncomfortable: develop the content first and derive the structure from it. A structure that grows out of the content has breaks where the content has breaks. That is its virtue. A structure fixed before the content is smooth and says nothing about it.

9.4 The Structure of a Nonfiction Book

A nonfiction book is a composition with only one series (Ch. 4.3): what the writer sees side by side before them, the reader has to read one after the other. Its parts

are chapters, and each should have a task that follows from the whole, as the brake follows from riding. A chapter that could be cut without anything missing from the line of thought is not a part but an appendage.

Three errors in structuring nonfiction books recur so regularly that they can be recognized as patterns. They pile up wherever texts are produced quickly and in large numbers, and most of all where programs write them. The first is the same blueprint for every chapter: opening, clarification of terms, three subtypes with strengths and weaknesses, objection, solution, transition. Such a blueprint is fixed before the content and says as much about it as breaking the bicycle down by material: every chapter fits into it, whatever it is about. The second is the list in place of the transition. Anyone who sets three points one below the other does not have to say how the second follows from the first, and it is precisely these transitions that would have been the argument. The third is the announcement: one paragraph says what the chapter will show instead of showing it, and at the end another says what it has shown.

The counter-test is the same as with the bicycle. Can it be said of every chapter why it stands where it does and what it passes on to the next? Can it be said, at every transition, where what came before failed or what it left open? Then the structure has been derived from the content. If it cannot be said, the structure has been imposed on the content, and the reader notices by the third chapter at the latest, the one that looks like the second.

9.5 Where the Breakdown Falls Short

The handlebars steer only on the bicycle. But the bicycle, too, rides only on a road, with a person on it who pedals, steers, and brakes. The brake has its task only in relation to the road, whose slope and wetness determine how hard it has to grip. And the saddle is set for this person; for someone else it has to be higher or lower. The parts of the bicycle are parts of a whole that is, in its turn, what it is only in connection with other things.

Moreover, the same part can belong to several wholes. The heart is part of this body, and after a transplant it is part of another. An employee is part of his department, his family, and his club, and in each he is a different part. The breakdown of a whole says what it consists of; it does not say what it and its parts are connected with. That is what the next order asks.

CHAPTER 10: CONNECTIONS

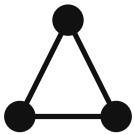

Figure 3: The symbol of relation: several shapes, connected by lines.

10.1 Everything Is Connected

Someone who is offered a new job in another city does not think only about the job. They think about the family, which would have to move too or stay behind, about the rent in the new city, about friends, about the children's school, about the commute, about parents who are getting older. Each of these links is real, and each is in turn connected with others. The rent depends on the location, the location on the commute, the commute on the time left for the children.

An order that follows such links will be called *relation*, from the Latin word for relationship. Its question is: What is it connected with? It orders neither by kinds nor by parts but ties threads together; its network is the order.

The difficulty of this order is plain at once. There are countless links, and everything is somehow connected with everything else. Someone who wants to decide about the job cannot follow every link. They must know which ones carry weight. To that end it helps to distinguish the links by how they are connected.

10.2 Three Kinds of Connection

Some links are merely observed. People with more education earn more on average: the figures show it. Why, they do not show. Perhaps education makes the higher income possible; perhaps both have a common cause, such as family

background, which makes both longer schooling and better jobs easier to get. Such a connection will be called *factual*. It is real, but it does not say how it comes about.

Other links are effects. The delay in the pipe makes the shower swing back and forth (Ch. 6.1); interest makes loans more expensive, and expensive loans slow down house building. Such a connection will be called *functional*. It says what acts on what, and so also what changes when one intervenes.

Still other links lie in what things are. Buyer and seller are connected because neither would be what they are without the other; whoever buys, buys from someone. Such a connection will be called *conceptual*. It does not have to be observed or brought about; anyone who understands the thing understands the connection along with it.

The three kinds are easily confused, and most fallacies in thinking about relations are such confusions. Anyone who takes the figure showing that educated people earn more and concludes from it that education raises income has mistaken a factual connection for a functional one. They may be right; they have not proved it.

10.3 Tree and Network

The orders of Part One gave each thing a place. The letter from Ch. 4.3 lay in one folder, and anything that would have belonged in two places was missing from the second. An order by connections need not work that way. It can link the same thing with many others.

Anyone who organizes files today has both at hand and usually uses both. The folder tree is hierarchical: each file sits in exactly one place, and anyone looking for it follows the path down from the top. Tagging is not: the same file carries any number of tags, and anyone looking for it gets to it through one of them. The tree suits cases where a thing clearly belongs somewhere and the path is known. Tags suit cases where a thing matters in several respects and it is not known under which of them it will be looked for later.

Libraries have developed a theory of their own for the second form: faceted classification. Instead of placing an item once, it describes it along several independent axes – material, process, place, time – and allows any combination. A tree with five features would have five levels and a fixed order; the faceted scheme has five axes and no fixed order. Programming shows the same contrast. Inheritance is a tree: a class inherits from a superclass, and whatever holds

above holds for everything below it. It holds up as long as things fit into one order, and it becomes useless as soon as a thing is defined in several respects at once. The answer to this is components that can be plugged together: instead of asking what something is, one specifies what it can do, and the capabilities are combined.

This does not resolve the question from Ch. 4.3; it only moves it elsewhere. Tags of any kind, as well as, sort orders and filters exist only where someone has planned and built the fields for them, for data in general and for this data in particular. An archive without a sender field cannot filter by sender, however flexible it otherwise is. Which respects count is then decided no longer at filing but when the system is built. The decision is made once, for all future cases, and is therefore more easily overlooked than that of the registry clerk, who had to choose anew before every letter.

The same question arises where tasks rather than letters are being ordered. A state distributes them among ministries and agencies, a company among departments, and each task thus has exactly one place. The connections in the matter itself do not respect this. A new road affects traffic, the air, health and the budget, and each department sees in it the part it is responsible for. Anyone who brings the parts together only at the top, in the cabinet or at the meeting of department heads, sees only what one of the departments has already seen; what lies between them lies in no folder. That is why administrations lay a network over the tree of their responsibilities: joint working groups, duties to involve other offices, units that look across all of them at the whole. How well it holds up is decided, as with the archive, when it is built, by the connections that are provided for.

Tree and network are therefore not worldviews to choose between. They are forms of order with different strengths, and the choice depends on subject matter and purpose. Anyone who orders a legal code needs unambiguity and takes the tree. Anyone who indexes research literature needs many ways in and takes tags. Anyone who needs both takes both, and most systems do exactly that.

10.4 When a Relationship Is Misread

In one district more crimes are recorded than in the others. The figure is correct. It is usually read as a statement about the residents: people there, the reading goes, are simply more criminal. That this district is also more closely monitored, and that more is therefore discovered, disappears in this reading. And the reading

has effects: where more crime is suspected, more monitoring is done, and the next statistics confirm the previous ones.

Objection: From this an objection to relational thinking can be derived. Anyone who establishes relationships does not merely establish them. He selects which links are drawn and suggests how they are to be read. In this way a network of connections can make an order of things appear natural, precisely because every single link is correct.

Reply: The objection describes exactly the error that the distinction between the three kinds of connection was made to guard against. Between the district and the number of recorded crimes there is a factual connection. Reading it as a functional one, as an effect of the residents on the number, requires proof that the number does not supply. What obscures things is not that one thinks in relationships, but that one kind of relationship is passed off as another. What is missing becomes visible as soon as someone draws the line that was left out: from monitoring to recording, and from recording back to monitoring.

Criticism of a network of relationships is thus itself relational thinking, and a more precise kind. It asks what kind of link a given link is, and draws the one that is missing.

That knowledge and power are not external to each other but produce each other is a central idea in the work of Michel Foucault.

10.5 When Everything Is Connected to Everything

Anyone who wants to buy a coffee machine can connect the decision with working conditions on the plantations, with power consumption, with the waste from capsules, with the space in the kitchen, with the guests' tastes and with the household budget for the next few years. Each of these links is justified. Anyone who follows them all does not buy a coffee machine.

Relational thinking has its own form of excess, one that looks like thoroughness. Anyone who sees many connections seems clever and responsible, and often is. But behind the networking there can lie a reluctance to decide: as long as there is still a link that has not been considered, one need not decide. The question that helps against this is not what something is connected with, but which connections bear weight at this point. This is again the respect from Ch. 3, now applied to the network.

10.6 Where the Network Fails

A network shows what something is connected with, but it shows it at a single moment. Anyone who describes a dispute in a department – who is involved, who is allied with whom, who accuses whom of what – has drawn a network, perhaps even a complete one. Yet everyone who hears it asks: How did that begin? Today's network is not last year's, and anyone who knows only today's sees the positions, but not why they stand as they do, nor that they once stood differently.

All three orders of this part have this in common. Kinds, parts and connections hold their subject matter still. They ask what it is, what it consists of, what it is connected with, and in doing so assume that it does not change in the meantime. For many subject matters this does no harm; a toolbox can be divided up without time making any difference. For others it is the error itself. Anyone who notices this asks the next question: What moves, and by what?

Further reading: *Ethics – The Good We Already Do* (2026), Ch. 15.8, *Organization* (2026), Ch. 3

CHAPTER 11: PROCESSES

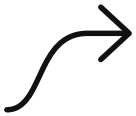

Figure 4: The symbol of process: a curved path with an arrowhead. Curved, because a straight arrow claims progress where only the course of things is meant.

11.1 How It Began

The question “How did that begin?” (DE: „Wie hat das angefangen?“) looks for something that is missing from the description of the dispute: the process. Described as a state, a conflict looks like an arrangement of positions. Described as a process, it shows why the positions stand as they do.

The same holds elsewhere. A patient’s complaints add up to a picture, but often it is only their course that yields a diagnosis: whether the fever came on suddenly or rose slowly, whether it returns every third day. In a building with cracks, where the cracks are says less than how they have grown. And anyone who wants to know what a contested word means looks at how it came to mean that.

An order by the course things take will be called, for short, a *course*, or, with the more familiar term, a *process*. Its question is: What moves, and by what?

11.2 When Something Can Be Grasped Only as a Process

Not every subject matter calls for this question. A toolbox can be divided up without time making any difference; so can the alphabet. The deciding question is: Does what something is change as time passes?

With a hammer, no. It wears out, but it remains a hammer. With a person, yes: a child is not a small adult but something else, and the description that fits the one misses the other. With an institution, too: a club in the year it was founded and the same club a hundred years later are not the same thing with different members.

Where the answer is yes, a structure that holds its subject matter still is not merely incomplete. It describes a state and passes it off as the matter.

11.3 By What Something Moves

That something changes is not yet an order; everything changes. An order by process arises only when it is stated by what. “First it was so, then so, then so” (DE: „Erst war es so, dann so, dann so“) is a list of states, not a structure. This is the same requirement that the kinds and the parts already had to meet: a division that does not name its feature is no division, and a process that does not name its principle is no process either.

The principles differ, and some of them can be distinguished. Some things grow: there comes to be more of what they are, without their kind changing, like a collection or a fortune. Some things mature: they pass through stages that emerge from one another and cannot be swapped, like an organism, a skill, an understanding. Some things recur: the movement comes back without the state as a whole changing, like the seasons or the alternation of strain and recovery. Some things build up until they tip over: the change is one of more or less until, at a threshold, it becomes one of kind, like water that freezes or a dispute that escalates. And some things fall apart: they lose what held them together, and the parts are left behind.

Anyone who wants to order a process looks for its principle and often finds several that take over from one another. A dispute builds up until it tips over; afterwards it recurs in a milder form; at some point the relationship falls apart, or it matures. The structure then consists in naming the transitions, not the points along the way.

11.4 Rhythm

One form of movement deserves particular attention, because it concerns ordering itself. Anyone who thinks about something for a long time notices an alternation between two movements. In one, he gathers: he opens himself to material, takes in points of view, lets it all become hard to survey. In the other, he orders: he condenses, decides, leaves out.

Both movements are necessary, and both have their temptation. Anyone who stays with gathering never reaches a result; he always has one more source. Anyone who orders too early has a result that does not stand up to the material. The alternation comes from the matter itself: ordering presupposes material, and gathering material is worthwhile only as long as the existing order can no longer hold it. The rhythm is the form of movement of an activity that needs both and cannot do both at once.

On a larger scale the same thing recurs, as on a spiral staircase: understanding comes back to the same questions, but one turn higher. What seemed settled years ago shows new sides, not because the earlier understanding was wrong, but because the one who understands has since seen more. This too is a process with a principle: each return brings with it what has been added since the last one.

11.5 When Kinds Are Stages

With some subject matters, the kinds one distinguishes are at the same time the stages that give rise to one another.

Writing is an example. Scripts can be divided by what a sign stands for: a thing, a word, a syllable, a sound. That is a division by kinds: every script can be examined for which kind it follows. It is also, in broad outline, a sequence in time, and one that has a ground. A script that needs a separate sign for every word needs thousands of signs; whoever starts using signs for other words according to their sound needs fewer, and whoever breaks sound down into individual sounds gets by with a few dozen. Each kind solves a problem of the one before.

Anyone who separates the two loses something. Anyone who reads the kinds of script only in time has a chronicle without a ground: one thing simply followed another. Anyone who reads them only as kinds has a division without a ground: there simply are four, and that they appeared in this order would be chance. Read together, they yield a third thing. The kinds are stages because each took shape at the point where the previous one failed. And that is information about

the subject matter, not about the method: where kinds and stages coincide, one is dealing with something that develops out of a problem.

11.6 Two Orders at Once

It often happens that two ways of ordering hold at once, and in two different ways. In writing, one interlocks with the other: the kinds *are* the stages, and one understands both only together. A city travel guide, by contrast, usually has three parts: the city's history, its districts, and its sights by kind – museums, churches, parks. These are three questions put to the same subject matter, one by process, one by parts, one by kinds, and they stand one after another because a table of contents knows only one sequence (Ch. 4.3). In the first case one interlocks with the other; in the second, one lies beside the other. Anyone who confuses the two either mistakes mere proximity for an inner connection or overlooks one that exists.

11.7 Where Process Fails

A process shows how something came to be and can state by what. Where kinds and stages coincide, however, it shows more than it can itself explain. The sequence of stages does not say why each kind of script took shape precisely in response to the problem of the one before; it only shows that it was so. The question that arises here goes beyond process: Is there an order in which the members result from a single ground, so that the order itself says why these particular members, and why in this sequence?

CHAPTER 12: SELF-UNFOLDING



Figure 5: The symbol of self-unfolding: a triangle containing an inverted one whose points touch the midpoints of its sides. The same figure repeats in each of its parts.

12.1 The Numbers

The numbers one learns to calculate with at school come in kinds: natural numbers, integers, rational numbers, real numbers. They can be learned by heart like the names of cities. But one can also see why they exist.

With the natural numbers – one, two, three – one can count and add, and in such a way that every addition works out. Subtraction does not always work out: three minus five is not a natural number. For it to work out, one needs the negative numbers, and with them the integers. With the integers every subtraction works out, but not every division: seven divided by three is not an integer. For it to work out, one needs fractions, the rational numbers. With them every division works out, but not every root extraction: no rational number, multiplied by itself, gives two. For it to work out, one needs new numbers; the real numbers close not only this gap but all the gaps in the number line. And the game goes on: among them, too, there is none whose square is minus one.

This order has something that none of the previous ones had. It says why there are precisely these kinds: each arises because a calculation does not work out in the previous one. It says why they stand in this sequence: none can be formed before the previous one, for only in the previous one does the calculation that does not work out appear. And it says what they all have in common: they are numbers one can calculate with, each kind a way of making calculating more

complete. The kinds here are at the same time stages that build on one another, as with writing (Ch. 11.5). Only here the sequence is not that of history, for it was known long before the negative numbers that the square root of two is not a fraction. It is the sequence of construction, and its ground lies in plain view: the one demand that the calculation should work out.

12.2 Universal, Particular, Singular

In the numbers, three aspects can be distinguished that recur in every order of this kind. There is a universal that is the same in all the members: calculating, which is meant to work out. There is the particular, into which the universal divides itself: the kinds of numbers. And there is the singular, in which the whole becomes actual: this number, the square root of two, one third, minus five. The particularizations are not attached to the universal from outside; they follow from it as soon as one considers it under specific conditions, here: under the condition that a specific calculation is to work out.

The same can be shown with something that does not come from mathematics. The universal of a democracy is that the governed determine the government. How this happens depends on conditions. In a community whose citizens fit into one square, they can deliberate and vote themselves. In a country of millions they cannot, and so they elect representatives. The kinds of democracy, direct and representative, are thus not arbitrary forms that happen to bear the same name; they are the universal under different conditions. And democracy only ever becomes actual as a singular one: in this town meeting, in this parliament, with these people.

An order in which the particular results from the universal under conditions and becomes actual in the singular will be called *self-unfolding* here, because in it the matter brings forth its members out of itself. This is again what Ch. 7 called sufficient ground: the universal with its conditions. What is new is that the ground here explains not a single event but a whole structured field.

For the universal that brings forth its particularizations out of itself in this way, and for the whole that is structured in this way, language has two old words, which it uses in a weaker sense in everyday life. The universal is called the *concept* of a matter. In ordinary use, a word with its meaning is already called that; but anyone who has the concept of number does not only know the word, he sees why there are natural numbers, integers, rational numbers and real numbers. The whole whose members can be understood in this way from one ground is

called a *system*. In ordinary use, any fixed order is called that, even a filing system. In this book, thinking systematically means more: ordering a matter so that one can say why its members are these, and, where one cannot say it, knowing that too (Ch. 12.3).

Experiment 5: The Subtraction Test

Try to explain a rich concept, such as democracy, using only two of the three sides: first only the universal and the singular, then only the universal and the particular, and finally only the particular and the singular. What is missing each time?
The three attempts fail in different ways. Universal↑ and singular only: "Democracy means that the governed determine the government; here are fifty examples." (DE: „Demokratie heißt, dass die Regierten die Regierung bestimmen; hier sind fünfzig Beispiele.") What is missing is whatever organizes the examples; why they look so different remains unexplained. Universal and particular only: "Democracy divides into direct and representative." (DE: „Demokratie gliedert sich in unmittelbare und vertretende.") What is missing is the case; one has an overview without knowing whether last night's assembly falls under it. Particular and singular only: "There are parliaments, councils, referendums, citizens' assemblies …" (DE: „Es gibt Parlamente, Räte, Volksabstimmungen, Bürgerversammlungen …") What is missing is what holds them together; one has many forms without knowing why they bear the same name.

The three sides are not a rule that everything must have three parts. The number of kinds and parts is determined by the matter (Ch. 9.2); the numbers have more than three kinds, democracy has two basic forms. The three sides are three respects in which one and the same understanding must attend to the matter if it is to be complete: to the universal, to its particularizations, and to the case.

12.3 How Far This Takes Us

The numbers are the most favorable case. Their kinds can be derived completely from the universal and the demand that the arithmetic should work out, and

for each individual number, everything it is follows from its determination. With other subject matters, self-unfolding takes us less far.

With living things, some things can be understood. That a flying animal must be lightly built is understood from flying; that a herbivore has a longer gut than a carnivore, from its food. But why there are precisely these kinds of butterflies and no others cannot be understood from any universal; that has a history, and the history is full of chance. With the registry from Ch. 4.3, self-unfolding takes us nowhere at all. That there is a folder "Mother" and one called "Taxes" follows from no concept of filing but from the life of the person who does the filing.

A rule for ordering follows from this. Where a structure arises from a universal, it should be presented so that this can be seen. Where it does not, the order remains external, and one should know this rather than lend it an appearance of necessity. Most subject matters lie in between: their broad features can be understood, but in the finer branching, insight peters out.

12.4 How to Find a Universal

With numbers, the universal lies in plain view. With most subject matters one has to search for it, and the search has a form that can be learned. One determines the universal tentatively, tests whether the particulars can be understood from it, and amends the determination until this succeeds.

The testing takes place at two points. One is the borderline cases: Does this still belong? Does this no longer belong? Where does it remain unclear? The other is the range: What different forms are there within the limits, and which are the most extreme? In astronomy, a planet was long taken to be anything that orbits the sun and is large enough to be seen as a sphere. When more and more bodies were found beyond Neptune, some almost as large as Pluto and one even heavier, astronomers had to either call them all planets or change the determination. They changed it in 2006: a planet must also have cleared its orbit of other bodies. With that, Pluto dropped out. The borderline case had made the universal more precise, and the new determination says why the eight planets form a kind of their own: they dominate their orbits, while the others share theirs with many.

Science is not the first to run into borderline cases. Everyone runs into them wherever they hesitate over using a word. Someone calls a vote democratic, and something inside one pauses: everyone was allowed to vote, but did everyone know what they were voting on? Could each person say what they thought? Did

the result depend on the vote, or had it been settled beforehand somewhere else? In this hesitation the word has become a question, and against this question the determination from Ch. 12.2 is tested: that the governed determine the government. It was not false, but too coarse, for to determine means more than to vote. It presupposes that people know what they are deciding on, that they can express themselves, and that the decision really lies with those who vote. The hesitation is therefore not a lack of clarity. It is the point at which the concept becomes more precise, and whoever passes over it keeps the word and leaves the concept as it was. Where one does not hesitate oneself, someone else often does, because they know other cases; some borderline cases are found only in conversation. The more precise determination is better grounded than the coarser one, because it answers what made the coarser one falter. It is not the only possible one: someone who starts from other cases may make precise in a different way what it means for the governed to determine the government, for instance so that they can get rid of a government without violence.

The two tests refine each other. A new borderline case forces one to grasp the universal more precisely, and the more precisely grasped universal reorders the forms. The search ends when a determination has been found from which both the limits and the range can be understood. It ends for the time being, for the next borderline case can reopen it.

12.5 Concepts That Change Their Subject Matter

Who counts as unemployed is decided by a definition. Does someone in a retraining course count? Someone who works two hours a week? Someone who has given up looking? Depending on the answer, the figure rises or falls without anything having changed in the situation of a single person. But the definition has repercussions. Whoever no longer counts receives different benefits and different letters from the agency, and perhaps soon comes to see himself differently.

Objection: Concepts↑ do not simply describe what is there. They establish what counts as what, and where people are concerned, they change what they establish. A diagnosis, a statistical category, a label for a group produces people who recognize themselves in it and are treated according to it. Is concept formation, then, not a form of power passing itself off as knowledge?

Reply: The finding is correct, and with people it weighs more heavily than with things: a stone does not change when it is classified differently; a person, under some circumstances, does. But this does not mean that the concept shapes

its subject matter arbitrarily. The people it captures respond to it. They deny that it fits them, slip through its grid, turn out differently than it predicted. A concept that helps shape its subject matter meets no less resistance than one about stones. It meets resistance that can speak.

What follows from this is a duty, not a release from one. Where a concept has repercussions, it must be tested more often, and the people affected are among those against whom it must be tested. They are the borderline cases of Ch. 12.4 that can object.

Michel Foucault examined, in the cases of madness, illness, and punishment, how concepts and orders of knowledge produce what they seem to describe. Ian Hacking described more precisely how categories act back on the people they capture.

12.6 Self-Unfolding and the Other Four

Self-unfolding does not stand alongside the other ways of ordering; it takes them up into itself. Outwardly, the universal divides into kinds: the kinds of numbers, the forms of democracy. Inwardly, it divides into parts: representative democracy includes elections, a parliament, and a government responsible to it – each of these parts with a task that follows from the universal. Between the members there are connections, and conceptual ones at that: parliament is what it is only in relation to the voters and the government. And where the particularizations arise from one another, as with the numbers, where each kind is formed from the previous one, the kinds are at the same time stages, whether in history or only in construction.

The other four ways of ordering each put one question to the matter. Self-unfolding asks why the answers to these four questions turn out as they do. That is why it comes last. It is not a fifth way alongside the four but the order in which the four have their ground, where they have one.

There is a word for this taking up that says three things at once: where the four have their ground in self-unfolding, they are *sublated* in it. They then no longer hold for themselves alone, for their ground lies in this order. They are preserved in it, for the kinds of numbers are still kinds and the parts of democracy still parts. And they stand higher in it, because one now sees why they turn out as they do. To sublate in this threefold sense – to end, to preserve, and to raise higher – is a basic movement of thinking. *Truth* (2025) shows it where a contradiction is resolved; here it shows itself in the way one order takes up the others into itself.

Further reading: *Truth*, Ch. 8

CHAPTER 13: WHICH ORDER IS BETTER?

13.1 The Question That Fits

Someone facing a confusing situation does not ask all five questions one after the other. He asks the one he is missing, and what he is missing usually shows itself before he can name it. Someone who does not know what he is dealing with asks about the kind: What kind of case is this? Do I know similar ones? Someone who finds it too much all at once breaks it down: What parts does it consist of? Which part is causing the difficulty? Someone who feels that something is left hanging in the air asks about the connections: What is it connected with? Who else is affected? Someone to whom a description seems right and yet misses the point asks about the process: How did this come about? How long has it been going on? And someone to whom an order works out neatly and yet seems arbitrary asks about the ground: Why precisely these members?

An order does not come about by asking all the questions but by asking the right one. Sometimes one is enough. Someone who wants to know which folder an item belongs in needs no history of the item. Sometimes several are needed, and then they interlock: how one divides a subject matter changes what appears as one of its parts, and how one breaks it down changes which connections become visible.

13.2 Three Stages

When two orders of the same subject matter are possible, which should be preferred? The answer has three stages and holds for all ways of ordering.

The first is capturing. An order is better if it accommodates more of the subject matter: few kinds under which many cases fall with nothing left over; few parts from which the whole can be understood. This is the condensation from Ch. 2.4.

The second is keeping what matters. Capturing alone is not enough; otherwise the strongest condensation would be the best, and Ch. 2.4 showed that it is not. An order that accommodates everything by leveling the differences that matter has captured much and explained nothing. What matters is determined first by the question (Ch. 2.5, 3.2) and then, where a ground can be found, by the matter (Ch. 7.5).

The third is that the order also explains its own principle. A good order says not only which members there are but lets one see why they are these. Self-unfolding achieves this, in degrees (Ch. 12.3). Where it does not succeed, the order remains external, and then it is better to say so than to hide it.

Even an order that does not yet know its principle can be more than external. When Dmitri Mendeleev arranged the known elements by atomic weight in 1869, placing them one below another so that elements with similar properties fell into the same column, gaps remained. He left them open, predicted that elements were missing there, and stated what weight and properties they would have to have. Over the next seventeen years three of them were found – gallium, scandium, and germanium – and they fit. Why the table is built precisely this way Mendeleev did not know; only the structure of the atom showed that. But his order indicated where something was missing from it, and in this it proved to be more than a convenient arrangement.

A bad order can be recognized by the way it proliferates. For every new case it needs a new category, for every deviation an exception, for every counterexample a special case. It then captures everything and explains nothing. No case can make it fail, because it creates a place for each one. An order that also explains its principle, by contrast, can be applied to cases that were not at hand when it was formed, and it indicates when a case does not fit. It is precisely at this point that one learns from it.

What to make of the number of members follows from this. It is rarely what decides. Where an order distinguishes kinds or parts, the matter fixes the number, however large it turns out to be. It is different where an order traces how a determination becomes more precise. There, three members result: a first version that roughly agrees with the matter; a borderline case at which the two diverge without separating completely; and a more precise version that agrees again and now works out what the borderline case showed. This is how the determination of the planet in Ch. 12.4 passed, by way of the bodies beyond Neptune, to a more precise one, one turn higher, as on the spiral staircase from Ch. 11.4. Every movement of thinking in which a determination becomes more precise has these three members; not every structure does: a process in the matter can grow, tip over, or fall apart without following them (Ch. 11.3). And each of the three can

be structured further; then there are more, without the movement changing. Anyone who argues about the number is therefore usually arguing about the wrong question. What needs testing is not whether there are three or four but whether each member carries weight and whether, together, nothing is missing.

13.3 Cross-References

No order accommodates every thing in every place where it belongs, and no presentation can show everything at once (Ch. 4.3). What is missing in a second place can be brought there by a cross-reference. But cross-references are not all of the same kind, and anyone who creates them should know what kind theirs is.

Two places in an order can be connected in two ways: by their position in the order or by the matter they deal with. They are connected by position when they occupy the same place in their structure, for instance when each is the first member of a threefold division, or each is the stage at which an order fails. This is a kinship of form, not of content, and it means something only where the position itself means something, that is, in orders that show their ground. In the alphabet, it means nothing that two words stand at the same place on their pages.

By the matter, two places are connected in three ways. It can be the same matter, occurring in two places because the order passes through it in two respects: the letter under “Taxes” and under “Mother.” It can be the same matter at different stages of development, so that one place anticipates what the other works out, or the later one takes up what the earlier one began. And two places can determine the same matter differently, so that they contradict each other. This last kind of cross-reference is the rarest and the most revealing, for it shows where an order is not yet at one with itself.

No further ways can be seen here. The places are connected by form or by content; if by content, it is the same content, the same at a different stage of development, or a contradictory one. Whether this division is complete must be shown by cross-references that fit none of the four.

Cross-references improve access (Ch. 2.3): they shorten the way from one place to another. But they also have a cost, for they have to be created and maintained, and a cross-reference to a place that no longer exists is worse than none.

One can also build an order entirely out of cross-references: pages connected only by cross-references, with no table of contents and no series. Whoever knows

what he is looking for gets there quickly. Whoever does not follows one cross-reference after another and in the end knows neither what he has seen nor what else there is. Cross-references give access; the overview comes from the series or the tree they branch off from.

13.4 Ordering in Research and in Writing

In biology, systematics asks what kinds there are; anatomy, what a living thing consists of; physiology and ecology, what its parts and the organism itself are connected with; developmental biology and the theory of evolution, how it came to be. And the theory of evolution, where it holds, gives the ground why there are precisely these kinds with precisely these parts. It is where biology also explains its own division, and its limit lies where Ch. 12.3 found it: in the chance of history. So the five questions structure not only subject matters but entire sciences.

Anyone doing research can use this to check which question he is asking at the moment. Some disputes in the sciences are disputes between two questions, as Ch. 3.2 described. The systematist who asks where a species belongs and the ecologist who asks what it does in its habitat can disagree about the same species without either of them being wrong.

Anyone who writes faces the same choice and has to make it within a series. A textbook can be structured by kinds, by parts, by connections, by history, or from a basic thought, and often it needs several, one after another or interwoven (Ch. 11.6). A good structure is one whose sequence can be justified: one that gives the reader at every point what he needs for the next, and that can say at the end why it was built this way. This book attempts that in its retrospectives.

13.5 Looking Back on Part III

Why precisely these five ways of ordering, and why in this sequence?

Each one started from where the one before it had failed. Kinds stand side by side and do not say how the individual thing is built; parts do say this, but they are parts only together with their outside; connections show this outside, but at a single moment; the process shows time, and where kinds and stages coincide, it shows something that develops from a ground without naming this ground itself; self-unfolding names it. The sequence begins where Part I had left off, with

sorting, now by features that follow from the matter itself. It ends with the order that states why its members are these members.

Objection: One could just as well begin with connections. Everything is what it is only in relation to something else; kinds and parts are nodes in a network; the network comes first.

Reply: A network has nodes, and the nodes must be something for anything to stretch between them. Whoever puts connections at the beginning must already have the members he connects, and have them as kinds or as parts. What is right is that the members are fully understood only in their connections. The sequence itself shows this: the parts failed precisely because they are what they are only together with their outside. But that something is fully understood only in its connections does not mean it would be nothing before them.

A second objection: There are further ways of ordering. One can order by place, like a map, or by rank, like a table of sizes, prices, or values.

Reply: A map orders parts of a space and their neighborhoods; it is an ordering by parts and connections whose feature is place. A ranking is a division by a feature that comes in degrees, and it belongs to kinds, more precisely to what Ch. 8.3 said about degrees instead of things. This does not prove that every order can be traced back to the five. The five are those that have emerged along this path and have proved themselves so far. Whoever finds a sixth that cannot be traced back to any of them has a finding that changes this structure.

PART IV: WHAT ORDER COSTS

CHAPTER 14: CONDENSING AND LOSING

14.1 Three Stages of Condensation

Ch. 2.4 described ordering as condensing and left open the question of what is lost in the process. Three stages of condensation can now be distinguished; the book has passed through all three.

The first condenses observations into patterns. Instead of the neighbor's fourteen arrival times, one remembers a rule (Ch. 5.1). The second condenses patterns into principles and grounds. Instead of the oscillation of the shower, the heating, and the market, one understands a control loop with a delay (Ch. 6.1). The third condenses a whole domain into a structure in which every member has its place, and at best into one that says why it is precisely these members (Ch. 12).

At each stage one gains something the previous stage did not have. The pattern says what recurs; the principle says what repeats and why, and therefore also where it stops; the structure says how a whole is built. And at each stage one can go wrong in the same way: by condensing too coarsely and losing what matters, or too finely and gaining nothing. The prejudice from Ch. 2.4 is an error of the first stage, the utility maximization that explains everything is one of the second (Ch. 6.3), and the proliferating structure one of the third (Ch. 13.2).

14.2 Why Condensation Succeeds

That a world full of particulars can be condensed so that a few rules stand for many cases cannot be taken for granted. One answer suggests itself: that the world is simply ordered, and that condensing thought responds to its order.

This answer is stronger than it needs to be, and in this strong form it cannot be tested. Whoever asserts it would have to know the world without any condensation in order to say that his condensations fit it. No one can do that; even the eye with which he would look at the world is already condensing.

What can be tested is more modest, and it suffices. A good condensation proves itself: it allows one to predict, plan, and act, even in cases for which it was not formed, and what it leads one to expect happens. A bad one fails: it leads one to expect what is false, and the plans based on it go wrong. One need not know the world without condensation to notice this; one notices it by what does not work out, as with the wardrobe that is rearranged after two weeks (Ch. 3.1). This does not decide whether the world as a whole is ordered. It suffices that some condensations prove themselves and others do not, and that one can notice the difference.

14.3 The Remainder

Every condensation leaves something out, and some of it cannot be recovered by any better condensation.

Whoever has known a friend for a long time knows how the friend will react. He has learned the friend's patterns, knows the reasons for his moods, could describe him to a stranger in a few sentences. And then the friend does something that fits none of these descriptions, not because they were wrong but because he is more than what can be condensed of him. A person is not merely a case of his patterns. Whoever treats him that way is made to feel it, and often rightly.

Experiment 6: Reading and Observing Reading

Try, as you read this sentence, to observe the reading itself: the movement of the eyes, meaning taking shape, the expectation of how the sentence will go on.

The reading probably falters. One can read, or one can observe the reading; doing both at once works poorly. What can be observed are features of reading: the movements, the pauses, the backtracking. Reading itself, the enactment in which a sentence is understood, is not among them.

An order can describe an enactment, but it does not enact it. It can say how reading works, but it does not read. And it can state conditions under which

something new arises, but the new itself is precisely what could not be predicted from the conditions (Ch. 6.3). At these points, at the singular, at the enactment, at the new, a remainder is left over that no order can reach.

Objection: Then ordering is self-deception. Whoever knows that his order leaves out what matters most should stop pretending to understand anything.

Reply: The objection demands of an order what it never promised. A map that set out to replace the territory would have to be as large as the territory; an order that left nothing out would not be an order. Whoever stops ordering does not have more of the singular but less: he no longer has any expectation against which the singular could show itself as singular. Only someone who had an expectation notices that the friend does something surprising. What does not fit the expectation is the same resistance that in Ch. 3.1 led to the wardrobe being rearranged.

A second objection, from the opposite direction: The remainder is only a remainder of what has not yet been understood. With enough data and enough patience even the friend can be predicted, and what is surprising today will be explained tomorrow.

Reply: Some of what is surprising today will be explained tomorrow; that is how all learning proceeds. But whoever declares in advance that every surprise is merely something not yet explained has secured his order against any refutation. It can then no longer fail at anything, and with that it has stopped saying anything, like the principle that explains everything (Ch. 6.3). Between the two objections lies the path this book has taken from the beginning: ordering, and noticing where the order does not work out.

From this follows the same condition that Ch. 4.3 found in the registry. An order must keep the remainder visible. It need not capture everything, but it must not pretend that it has.

Further reading: *Truth* (2025), Ch. 11

CHAPTER 15: DEAD ORDER

15.1 Form 47B

Someone wants to apply for a parking permit for his street. He fills in a form and learns at the counter that it is last year's version; the data cannot be transferred, and he has to fill everything in again. For the copy of his ID he needs a certification, which is available at another counter, and that counter is closed today. Every single step has a reason. The whole thing prevents what it was set up for.

Such an order did not arise out of malice, and usually not out of stupidity. It has understandable reasons. Where many people work together, not everything can be settled by talking it over, and so rules are written, first for the common cases, then for the rarer ones, then for the exceptions to the exceptions. Where decisions are left to discretion, personal liking often decides, and so criteria are laid down that anyone can check; then what can be measured is measured, and what is hard to measure drops out. And where a regulation applies, no one has to decide: "That's what the regulation says" (DE: „Das steht so in der Vorschrift") takes the burden off whoever says it. Each of these impulses has its justification. Together they produce an order that has forgotten its purpose.

15.2 How to Recognize a Dead Order

An order will here be called *mechanical* if its parts run without relation to one another and without asking what they are for, like a machine that keeps running even when nothing is fed into it any longer. Its opposite will be called *living*. The word needs justifying here, because it sounds like a matter of mood. What is meant is a testable property. In a living order the parts determine one another and are what they are only in the whole, as the handlebars steer only on the bicycle (Ch. 9.1); and the whole maintains itself by changing where it fails. In an order that people sustain, both can be observed. What, in such an order, is what it is only in the whole are the roles, not the people who fill them; the employee from Ch. 9.5 also belongs to his family and his club.

A mechanical order can be recognized by signs that follow from what has been said so far. What does not fit its compartments is made to fit or passed over; the “Miscellaneous” compartment is missing or overflowing (Ch. 4.2). Procedure matters more than purpose: “We could not help you, but everything was processed correctly.” (DE: „Wir konnten Ihnen nicht helfen, aber es wurde alles korrekt bearbeitet.“) Difficult cases count as disruptions, not as pointers to a gap. And the order does not learn from its mistakes, because it is not allowed to admit any; whoever points out a gap is treated as someone attacking the system.

A living order shows the opposite signs. It has a place for what does not fit and checks whether such things pile up. Whoever works in it can say what a rule is for, and therefore also when it does not apply. Difficult cases are collected, because they show where the order is too coarse. And it changes, not with every objection, but at the points where it repeatedly fails.

The measure here is not how many rules an order has. There are fields in which precise and strict regulations are the living order: aircraft maintenance, the manufacture of medicines, the rules of an examination, court procedure. There the strictness protects against disaster or arbitrariness, and whoever works under it knows what it is for. What makes an order dead is not its rules but the fact that no one knows any longer what they are for.

Nor is everything mechanical in it a defect. A living order, too, contains parts that run without anyone asking each time what they are for, as a body contains bones and metabolism: filing, accounting, cover during vacations. They free those who work in it for what requires judgment. An order becomes mechanical in the sense of this chapter only when such parts detach from the whole and keep running where they no longer serve any purpose that anyone could name.

15.3 The Coherent Deception

The distinction in the previous section has a dangerous gap. There are orders that show almost all the signs of a living one and nevertheless lead astray. They are flexible, respond to difficult cases, seem willing to learn, explain a great deal, and they are wrong.

Someone is convinced that visitors from outer space founded the early advanced civilizations. He collects material, and there is more and more of it: buildings whose stones seem too heavy for the means of their time, rock paintings of figures with round heads, legends of gods who came from the sky. Every piece seems to support the thesis, and most of them really exist. What he lacks is not

material. What is lacking is the question of what the material shows if one does not already order it in the light of the thesis: how heavy stones can be moved without machines, what else a round head in a rock painting can represent, a mask, say, or a headdress. The thesis orders its material instead of penetrating it. Every piece that fits counts as confirmation; every piece that does not is passed over. Ch. 5.2 described what a made pattern would be: one that could be heard into any noise. That is exactly what happens here. And because a great deal of material can be found for almost any thesis, the amount of evidence is no standard.

Some pieces, admittedly, remain unexplained even without the thesis. The large line figures in the Nazca desert are best seen as a whole from above. Replications have shown how such figures can be laid out on the ground to scale from a small template using stakes and cords. This shows that it was possible with the means of the time, and that is a simpler explanation than visitors from space. It does not prove that it was done this way. What we know about the past is reconstructed: the best explanation we have, no more. What the figures were for is open in any case; there are several well-founded conjectures, but nothing has been decided. Precisely then it is right to preserve the phenomenon, even if it cannot yet be explained and brought together with the rest. It remains an open question that can be worked on further. A bad explanation closes it too early: it gives a certainty that has no basis, and it takes away the occasion for the question to go on being asked. A riddle kept open is more honest than a false answer.

Such an order also gives itself away by its condensation. A good explanation condenses: one principle explains many cases and proves itself by predicting what will happen (Ch. 6.2). The coherent deception condenses badly and passes itself off as good condensation. For every new fact it needs a new auxiliary assumption. If one piece is explained differently, the next takes its place, or the other explanation itself becomes part of the thesis. Its load of assumptions grows; its predictive power remains empty. After the fact, everything always fits; beforehand, nothing follows from it on which it could fail. It is a proliferating order (Ch. 13.2) that passes off its proliferation as depth.

This form is best known from the story of the secret group that controls everything. It explains effortlessly whatever happens and absorbs every objection instead of breaking on it. Whoever contradicts it is one of the initiated or has been deceived, and every missing proof only shows how well the tracks have been covered. Here the error lies in the form of the explanation, not in its subject. Collusion exists. People in the same trade fix prices, networks hand out posts, agencies run programs the public is not meant to learn about. Some things long

regarded as fantasy have been documented by investigations and published documents. A claim about covert action is therefore not in itself a coherent deception. It can be tested like any other: Who is supposed to have done what, and when? What traces would that have had to leave? What would refute the claim? Such a claim can fail, and it can be confirmed.

Even where the mistrust is justified, what decides is the form of the explanation that follows it. The question “Who benefits?” establishes a factual connection: someone gains an advantage from an event. To conclude from this that he caused or planned it is to read a factual connection as a functional one (Ch. 10.2), which requires a proof of its own. Often another explanation condenses better. Whoever explains from the circumstances in which people act explains many cases at once, including those in which no one planned anything, and those in which different people in different places do the same thing without knowing one another. Whoever explains from plan to case needs a new plan for every new case. This does not deny that there are plans. It only says that where the circumstances already explain, a plan is an auxiliary assumption. A mistrust that looks for culprits where it could find circumstances is often justified but misdirected. It considers the matter settled once the culprits are named, and the circumstances that produce new ones remain untouched.

For the same reason, the word “conspiracy theory” is no use as a test. It sorts a claim by what it is about and whether it contradicts the official account, that is, by its circumstances and not by its construction. That is the error Ch. 8.1 showed with the whale. The label then covers the closed story of a world conspiracy and the documented investigation of a covert program alike. It is also often applied unequally: what is uncovered about opposing powers is called exposure, and the same procedure applied to one’s own side is called conspiracy theory. The label can even take on the form it is directed against. If every objection to the official account counts as a sign of conspiracy thinking simply because it is an objection, then this account can no longer fail at anything. Related to this is the inference from the messenger to the matter. Whoever rejects a claim because unreliable people also hold it has not tested it. Conversely, no claim becomes credible by presenting itself as a suppressed truth. In both directions, the only thing that helps is to test instead of label.

There is a rule for the weight of evidence. The further a claim departs from well-tested knowledge, the more it has to show. This is not a verdict on the claim but a distribution of the burden. Well-tested knowledge, too, is a shared order that can err (Ch. 15.4). The rule demands only that such knowledge be moved by evidence and not by coherence.

The test is therefore not internal coherence, for the coherent deception has that in abundance. It asks three things. Does the explanation penetrate its material, or does it sort it according to an interpretation fixed in advance? Does its condensation prove itself in prediction and application; that is, does it explain whole classes of cases from one ground instead of needing a new assumption for every case? And what would have to happen for one to give it up? An order that has no answer to the last question is not living but immortal, and immortality is no mark of quality in explanations. The same three questions are put to the official account as to its opponents.

This also shows why internal coherence alone does not hold up. It is necessary, for a contradictory explanation is no explanation. But it is not enough: even the most hermetic delusional system is coherent in itself. Whether an order is living is to be measured by what can resist it, not by the order itself.

15.4 Shared Order

So far it has sounded as though each of us orders on our own. But almost every order we work with is inherited or shared. That begins with language. Every word is a ready-made condensation; anyone who learns the word “contract” takes over an order that generations have worked on, without having to repeat that work. Our own thinking does not begin with the particulars but in the midst of a stock of orders that others have formed.

The sciences have turned this into a procedure. Nobody tests everything for themselves; the work is divided, and the single tester is replaced by a web of tests: colleagues who redo the calculations, experiments that are repeated, concepts that are tended, refined and occasionally discarded over decades. A formula, a theory, a well-defined technical concept are condensations tested in common. The same holds on a small scale: a well-established working group has concepts that are empty to outsiders but carry whole experiences for those involved.

This has a downside. False condensations, too, can be held in common. Fashions, schools and camps keep orders alive that have long since failed against the matter; the community then no longer tests, it confirms. Shared order therefore needs the same tests as one’s own, and one more: Who did the condensing for me here, and how would I notice that he condensed badly? What is lost first in such a community is not the correctness of an order but the possibility of noticing its error.

Further reading: *Truth* (2025), Ch. 12, 17, 18 and 19, *Organization* (2026), Ch. 13

CHAPTER 16: ONE'S OWN ORDER

16.1 Thinking That Orders Itself

Experiment 7: What You Notice It With

Pause for a moment and notice what happens as you read this book, and what you notice it with.
We run into a doubling. We think about ordering and are ordering as we do so; we test orders with standards that are themselves an order. And even noticing this doubling is, in turn, an ordering.

Objection: There is a circle here, and not a harmless one. This book develops standards for orders and applies them to itself. That is like a tape measure measuring itself. Where are the standards supposed to get their legitimacy if they only confirm themselves?

Reply: A tape measure cannot be tested against itself, but it can be tested against a second tape measure, against an object of known length, against another procedure for determining the same length. The standards of this book are in the same position. They are tested not against themselves but against what can resist them: against the examples on which they could fail, against the objections raised against them, against the experience of readers, who know their own orders. Applying a standard to itself does not make it circular. It would be circular if it could not fail when applied to itself. The book can fail by its own standards, and Ch. 16.5 tests where.

A second objection: How is thinking supposed to recognize its own limits? If a limit lies within its reach, it is no limit; if it lies outside, thinking cannot see it.

Reply: The limits spoken of here were not seen from outside but noticed from within, in what did not work out: in the letter missing under "Mother," in the friend who did what no description had led us to expect. To notice a limit is not to know what lies beyond it. It is to know that the order reaches no further here. Any thinking that has expectations can do that.

One case must be distinguished from this. When a totality is supposed to contain itself as one of its members, for instance a register of all registers that do not register themselves, contradictions arise that have nothing to do with ordering in this book's sense. They are a matter for logic and mathematics, and this book does not resolve them. It claims only that applying a standard to itself is not of this kind.

16.2 Where One's Own Orders Come From

Anyone who tests their own orders comes up against standards they never chose, and against things taken for granted whose origin they do not know. One's own thinking, too, is a subject matter that can be grasped only as a process (Ch. 11.2).

Experiment 8: The Origin of a Conviction

Take one of your firm convictions: about work, about education, about politics. Ask yourself how you came by it, and write down the first answer. Then ask: Was that the beginning?
The first answer usually gives today's reasons, not the original ones. They are the arguments you cite when you have to defend the conviction, and they are often younger than the conviction itself. Dig further and you come upon experiences that shaped it: a teacher who listened, a boss who did not. And beneath those, things taken for granted that you absorbed before you could think: what counted as normal in the family, what nobody doubted in the time and place where you grew up.

These layers are no truer or falser than today's reasons. That a conviction stems from an early experience says nothing about its correctness; it can be correct all the same. But anyone who knows its origin can tell two things apart: the reason for which they believe something, and the reason for which it would be correct. The two often coincide, and sometimes they do not.

Three questions help here; they follow from what Ch. 11.3 said about processes. What position did I hold before, and for what reasons that were sensible at the time? What made me change my mind: arguments, experiences or people? And what has stayed the same through all the changes? The last question shows how you think, regardless of what you happen to think at the moment. And from all three follows a fourth, which points forward: Which of my present convictions

are likely to change yet? Anyone who has already changed their mind several times will do so again; they just do not know where.

Whoever asks in this way where their own orders come from also understands better where those of others come from. Their convictions arose along paths just as understandable. That says as little about their correctness as it does in your own case, but it makes conversation possible, and only in conversation can correctness be tested.

16.3 The Orderer's Pride

The last exaggeration this book has to name concerns not a single way of ordering but ordering as such. Someone who has learned to distinguish precisely, to divide cleanly and to demand reasons can grow arrogant about it. He listens to others in order to find their mistakes: "You are mixing two levels," "that is only a correlation," (DE: „das ist nur eine Korrelation") "you have not given a reason." He is often right, and the conversation is over all the same.

There is a reason for this that lies in the matter. Anyone who has put a great deal of effort into a skill wants to see it confirmed, and one's own method easily becomes the measure of good thinking as such. But precise ordering is one tool, not the only one. There are areas where dividing gets in the way: a conversation among friends, music you are listening to, a pain you share. Whoever orders there understands less, not more.

This, too, can be exaggerated: one can ask of every thought whether one is not dividing compulsively or structuring arrogantly. Then the warning has turned into a new compulsion. The exaggerations this book has named, in dividing (Ch. 8.4), in structuring (Ch. 9.3), in networking (Ch. 10.5) and here, are not a list to be worked through. They are places where a skill has forgotten its question, and the question that helps against them is the same each time: What am I ordering for here?

16.4 The Path

The question "What am I ordering for here?" (DE: „Wozu ordne ich hier?") stood at the beginning of the book in another form: What matters? It was answered in the reading itself, before it had been asked (Ch. 2.1), and Ch. 2.5 tied to it a second question, which remained open: whether at the end there is a standard

that belongs to the matter itself, and in what sense. This second question could not be answered in advance, only by the path the book has since taken.

The retrospectives at the end of the parts have set out in detail how each step showed what the previous one lacked (Ch. 5.6, 7.7, 13.5). From the first chapter to the last, the same thing was done throughout: putting this with that (Ch. 2.2), each time further into the matter, and no step did away with the one before. The respect is contained in the pattern, the principle in the ground, kinds and parts in self-unfolding. Each stage is sublated in the next, in the threefold sense explained in Ch. 12.6.

Nowhere did the book need a standard outside this path. The matter made itself felt where an order did not work out: with the wardrobe that was rearranged after two weeks, with the face in the cloud that failed by the next minute, with the orbit of Mercury. And it showed itself where an order could say why its members are these, as with the numbers. No picture of the matter, against which the order could have been compared, was needed for this (Ch. 3.1, 14.2). The standard that belongs to the matter is the movement in which an order fails against it and thereby becomes more precise (Ch. 13.2), until it can state its own ground. Thinking systematically, as Ch. 12.2 defined it, therefore also means not breaking off this movement.

16.5 This Book Put to the Test

In Ch. 1.3 the book promised to let itself be measured by its own standards. Here is the test.

Why does it have precisely these four parts? The first asked what belongs together: respect, series and compartment, pattern. The second asked why it belongs together: principle and ground. The third, how a whole is built: the five ways of ordering. The fourth, what every order costs. The first three follow the question of how far an order knows its own ground: not at all, as the ground of individual cases, as the ground of a whole. The fourth turns back on all three, which is why it has to come at the end. Measured by the third stage of Ch. 13.2, then, this structure also explains its principle, at least in broad outline. Whether it also does so in detail is open to dispute: whether, for example, respect needs a chapter of its own or belongs in the one on series and compartment, or whether the pattern still belongs to the first part or already to the second. The retrospectives at the end of the parts give reasons, not proofs.

Does the book meet the second stage, does it retain what matters? That it cannot decide for itself. It can only supply the tests. Is it complete enough, or is something missing that you know from your own ordering? Is it simple enough, or so simple that exceptions get lost? Can its claims be tested against your own experience? And can it be extended and corrected without breaking?

What would have to happen for the book to give up its claims? The question from Ch. 15.3 applies here too. It can be answered. If the experiments turned out differently for many readers than described, if, that is, people saw the letters effortlessly as strokes or could not put a conversation into a sentence, a foundation would be gone. If a way of ordering were found that cannot be traced back to any of the five (Ch. 13.5), the structure of the third part would have to change. If it turned out that an order which does not keep its remainder visible holds up, the condition from Ch. 4.3 and 14.3 would be false. These are the places where the book can fail.

16.6 What Remains Open

Where an answer falls short, the book says so on the spot. Taken together, four questions remain explicitly open. Two of them ask whether a division that only emerged along the way is complete. The five ways of ordering have held up so far, but it has not been shown that there is no sixth (Ch. 13.5). The kinds of cross-reference in Ch. 13.3 were derived from the question of whether two passages are connected by form or by content; whether they cover every cross-reference must show itself in cross-references that fit none of the four. The third question concerns a measure that is only half developed. For access, Ch. 2.3 gave the steps and the prior knowledge required, for overview the number of members, but not how the two are to be weighed against each other when an order improves one and worsens the other. The fourth concerns a boundary that can only be drawn case by case: where self-unfolding holds and where the further branching of a subject matter is no more than history and chance can be shown in the individual case (Ch. 12.3), but not stated in general.

Many of this book's thoughts have been thought elsewhere before, some in a stronger form than they take here. Appendix B says where, and presents in their own form the objections that appeared here only in their core.

Further reading: *Truth* (2025)

APPENDIX A: EXERCISES

The exercises presuppose the chapters they refer to. They have no solution you could look up; whether they have succeeded shows itself in the matter you carry them out on.

A1: Ordering a Decision

Take a decision that lies ahead of you, for instance whether to accept a new job. The usual order is a list of reasons for and against. It is a series (Ch. 4), and it has a series' defect: it does not say which reasons belong together and which carry more weight.

Instead, ask the questions from Ch. 13.1, and only the ones you are missing. What kind of decision is it: one about your career, about your family, about what matters to you, or about a risk? Each of these kinds brings different standards with it. What does the decision consist of: what parts does it have, and which of them makes it difficult? What is it connected with, and which of these connections are merely observed, which are effects? And how did the situation the question comes from arise?

Notice the point at which the decision became clearer. Usually it is a single question, and the others only confirmed what it showed.

A2: Ordering a Dispute

Two people are arguing about working from home. He says it is far more effective; she says the department's cohesion suffers. He calls that a craving for control; she calls him blind to what happens between people.

First check whether the two are arguing about the same question (Ch. 3.2). Often two people argue who each take a different question to be the only one: he asks about the work of the individual, she about the work of the group. Then check what kind of connection each of them asserts (Ch. 10.2). "Those who work

from home get more done" (DE: „Wer zu Hause arbeitet, schafft mehr") can be an observed connection or an effect, and an effect needs more evidence than an observation. And ask under what conditions each of the two claims holds (Ch. 7.2): for what kind of work, in what size of group, with what living arrangements.

At the end there is seldom a winner. Usually there is a distinction that lets both stand, each under its own conditions.

A3: Setting Up a Filing System

Set up a filing system, for papers or for files. First ask what you will look for most often later, and put that respect at the top (Ch. 4.2). Create a compartment for whatever does not fit, and after a few months look at what has collected in it: if things of one kind pile up there, a compartment is missing. And for items that belong in several places, decide whether to create a cross-reference, a copy or a tag (Ch. 4.3, 10.3). Each of these solutions costs something, and the question is which costs you are willing to bear.

After a year, test the filing system against the two measures from Ch. 2.3. How many steps does it take you to find a particular item, and what do you need to know to do so? And can you say what is in the filing system at all without going through it?

A4: Condensing and Recovering

Condense a text you know well, an essay, a chapter, a long email, into a single sentence. Give the sentence to someone who does not know the text and have them tell you what they now expect. What they expect and what the text says differ at certain points, and at those points the condensation has given something up (Ch. 2.4). Check whether it was something that mattered.

A second test: take a principle you learned from one case and apply it to a case you have never seen (Ch. 6.2). If it holds, you have learned a principle. If it does not, you have learned a pattern, and now you know where it stops.

A5: Structuring a Talk

Write down what you want to say before you make an outline (Ch. 9.3). Then ask what parts your text falls into of its own accord, and whether you can say why into these (Ch. 9.1). Only then ask what your listeners need in order to follow, and whether that calls for a different sequence. If so, that is not a flaw in the first structure but a second respect, and you have to choose between the two or insert a cross-reference: “more on this in a moment.”

A6: Testing a Chapter

Take a chapter you have written, or one a program has written for you. Read the first three words of each paragraph in a column: if they all begin the same way, the construction is schematic (Ch. 9.4). Count the lists, and for each one ask whether its items can be turned into sentences that say how one follows from the other; where that works, the list was standing in for the thought. Delete every sentence that announces what the chapter is going to do, and see whether anything is missing. And at the end of the chapter, write a sentence that says why the next one follows. If it is hard to write, the difficulty lies not in the sentence but in the structure.

APPENDIX B: WHO ELSE HAS SEEN IT THIS WAY, AND THE STRONGEST OBJECTIONS

The book invokes no authorities (Ch. 1.2). That does not mean it was the first to think its thoughts. This appendix says where you can read further, and presents in their own form the objections that appeared in the book only in their core. Where the course of the book resembles one handed down by tradition, that proves neither the one nor the other. It suggests that both have worked on the same matter.

B1: On the Individual Chapters

Overview↑, access, condensation (Ch. 2, 14). The idea that good explanations can be measured by how far they condense their data without losing it has been worked out in information theory: in the theory of algorithmic complexity, associated with the names of Andrei Kolmogorov and Ray Solomonoff, and in Jorma Rissanen's principle of minimum description length.

Patterns↑ that remain open (Ch. 5.3). In the *Philosophical Investigations* (§§ 185 ff.), Ludwig Wittgenstein used the example of a pupil who continues the series "+2" differently after 1000 to show that no finite number of cases fixes a rule. Nelson Goodman posed the same problem as the "new riddle of induction." (DE: „neue Rätsel der Induktion") In *Signature Event Context* (1972), Jacques Derrida developed the thought that a sign is a sign only as something repeatable, and that in every repetition it is slightly different.

Principles↑ that explain everything (Ch. 6.3, 15.3). That a theory is worth as much as it rules out is the core of Karl Popper's demand for falsifiability in *The Logic of Scientific Discovery*. Molière put the explanation that merely duplicates what it explains on stage and mocked it in *The Imaginary Invalid*, where opium is said to put people to sleep because it has a sleep-inducing power.

Planetary orbits (Ch. 5.1, 6.2, 6.3). Kepler published the law of the elliptical orbit in 1609 in the *Astronomia nova*, based on Tycho Brahe's observations of Mars; in 1687 Isaac Newton derived it from gravitation in the *Principia*. Johann Gottfried Galle found Neptune in 1846 at the spot Urbain Le Verrier had calculated from the perturbations of the orbit of Uranus. The deviation in Mercury's orbit was not explained until Albert Einstein's general theory of relativity in 1915.

Delayed feedback (Ch. 6.1). Norbert Wiener founded the general theory of control loops under the name cybernetics. Arthur Hanau described the alternation of glut and shortage in the pig market in the 1920s; it has been called the hog cycle ever since.

Empty, arbitrary, sufficient (Ch. 7.1). The same gradation appears in Hegel's *Science of Logic* as formal, real, and complete ground; that a matter emerges only when all its conditions are in place follows there in the doctrine of condition. Hegel calls nothing short of the concept sufficient, that which determines a matter from itself (*Encyclopaedia* § 121 Addition); Ch. 7.6 also points in this direction. The gradation is traced through Hegel's text in *Hegel's Logic – Logic of Thinking* (2026), Ch. 21.6 and 24.3. John L. Mackie specified more precisely that a cause is usually one condition among others that suffice only together. The idea that explanations always have a contrast case in mind, why this and not that, has been worked out under the name of contrastive explanation, by Bas van Fraassen and Peter Lipton among others.

The doctrine of division (Part III, Ch. 8.2). Division by genus and specific difference goes back to Aristotle. The Neoplatonist Porphyry set it out in the 3rd century in his introduction to the *Categories*; the so-called Tree of Porphyry, the continued division into two, is named after him. In 1758, in the tenth edition of his *Systema Naturae*, Carl Linnaeus placed the whale among the mammals. Jorge Luis Borges attributed a famous division that breaks all the rules to an invented Chinese encyclopedia: There the animals are divided, among other categories, into those that belong to the Emperor, embalmed ones, tame ones, and those that from a long way off look like flies. Michel Foucault opened his *Order↑ of Things* with the laughter at this passage.

Pluto (Ch. 12.4). The International Astronomical Union adopted the new definition of a planet in August 2006; the occasion was the discovery of the dwarf planet Eris, which is more massive than Pluto.

Borderline cases and not knowing (Ch. 8.4, 12.4). That understanding a concept begins where one notices that one cannot determine it is the way Plato's early dialogues proceed. In the *Laches*, Socrates asks what courage is, and every determination his interlocutors offer fails on a borderline case, among others on the question whether fearlessness without insight is already courage,

or recklessness. In the *Apology*, Socrates says that he is ahead of the other man in that he does not think he knows what he does not know.

The periodic table (Ch. 13.2). Mendeleev published his table in 1869; gallium was discovered in 1875, scandium in 1879, germanium in 1886.

The heap (Ch. 8.3). The sorites, the fallacy of the heap, is attributed to the Megarian Eubulides of Miletus.

Tree and network (Ch. 10.3). The Indian librarian S. R. Ranganathan developed faceted classification in the 1930s. In 1994, in their book on design patterns, Erich Gamma, Richard Helm, Ralph Johnson, and John Vlissides made a rule of the advice to prefer composition to inheritance in programming.

Kinds that are stages (Ch. 11.5). In 1952 Ignace J. Gelb presented the sequence from picture writing through word and syllabic writing to alphabetic writing as a developmental law of writing. Research has since criticized it as too linear; even in coarsened form, it serves as an example of how kinds and stages can coincide.

The numbers (Ch. 12.1). In 1834 George Peacock formulated the idea that number domains are extended so that certain calculations work out, and that the old rules of calculation are to be preserved in the process; Hermann Hankel established it in 1867 as the principle of permanence.

Universal↑, particular, singular (Ch. 12.2). Hegel developed the three sides of the concept in the doctrine of the concept in his *Science of Logic* (more briefly: *Encyclopaedia* §§ 163–165; interpreted step by step in *Hegel's Logic – Logic of Thinking*, Ch. 26). The course of this book, from orders laid on the matter from outside, through those that ask for grounds, to those that understand their members from a universal, broadly resembles the course of his logic through being, essence, and concept. This was not sought; it came about.

Mechanical order (Ch. 15.1, 15.2). In 1940 Robert K. Merton described how rules in administrations turn from means into ends, and called it goal displacement; the image of the "iron cage" of bureaucracy comes from Max Weber. That a measure which is made a goal ceases to be a good measure is known, after the economist Charles Goodhart, as Goodhart's law.

Coherent deception (Ch. 15.3). Erich von Däniken spread the thesis of visitors from space in 1968 in *Chariots of the Gods?* (German original: *Erinnerungen an die Zukunft*). Karl Popper spoke of a "conspiracy theory of society" in *The Open Society and Its Enemies* (1945, vol. 2, ch. 15). He did not deny that conspiracies exist, only that they explain society, and he observed that they seldom achieve what they plan; what happens is mostly the unintended consequences of intentional action. Richard Hofstadter described the closed form in which every missing trace becomes evidence in his 1964 essay "The Paranoid Style in

American Politics." (DE: „The Paranoid Style in American Politics") That people of the same trade seldom meet without the conversation ending in a conspiracy against the public is found in Adam Smith's *Wealth of Nations* (1776, book I, ch. 11). In 1975 and 1976 the US Senate investigating committee under Frank Church exposed covert programs that had previously been regarded as figments of the imagination; the documents Edward Snowden passed to journalists for publication in 2013 documented mass surveillance of a kind that hardly anyone had thought possible. That the weight of evidence must be proportioned to the improbability of what is claimed is found in David Hume's section on miracles in his *Enquiry Concerning Human Understanding* (1748); Carl Sagan put it in the formula that extraordinary claims require extraordinary evidence.

Shared order (Ch. 15.4). Ludwik Fleck showed in 1935, using the example of syphilis research, that knowledge arises in communities that share a thought style; Thomas S. Kuhn carried the idea further as the doctrine of paradigms.

Ground of belief and ground of validity (Ch. 16.2). Hans Reichenbach captured the point that the origin of a conviction is to be distinguished from its justification as the distinction between the context of discovery and the context of justification. Anyone who infers from the origin of a conviction that it is false commits what logic calls the genetic fallacy.

The tape measure that tests itself (Ch. 16.1). Otto Neurath compared the situation of cognition to that of sailors who have to rebuild their ship on the open sea without ever being able to take it apart in dock. Bertrand Russell discovered the contradictions that arise when a totality is supposed to contain itself, in the set of all sets that do not contain themselves.

B2: Five Objections in Their Own Form

In the book, five objections have been taken up only as far as they concern the chapter at hand. Here they appear in the form their authors gave them.

Gilles Deleuze and Félix Guattari: the tree and the rhizome (Ch. 4.3, 6.3). In *Rhizome* and in *A Thousand Plateaus*, Deleuze and Guattari set the rhizome against the tree. The tree branches from one root into ever finer twigs; the rhizome is a tangle without a center, in which any point can be connected with any other, and which can break off at any place and start anew. For them the tree is the image of an order that traces everything back to one origin; the rhizome is the image of a multiplicity that cannot be traced back to a unity. In *Difference and Repetition* (1968), Deleuze had already demanded that difference be thought

not as deviation from something identical, but that the identical be thought as a provisional solidification of differences. That strikes at the root of division by genus and specific difference (Ch. 8.2).

The book agrees with the finding that every order chooses and that what is chosen can appear as nature. Its reply is that the choice shows itself in failure and that an order must keep its remainder visible (Ch. 4.3, 14.3). Deleuze and Guattari themselves stressed that tree and rhizome interpenetrate, that there are trees in the rhizome and rhizomes in the tree. That comes close to the reply in Ch. 10.3 that both are needed. What remains open is whether the self-unfolding of Ch. 12, which understands a whole from a universal, is not precisely the tree form they criticize most sharply. The book replies to this with Ch. 12.3: It holds where it holds, and no further.

Jacques Derrida: meaning that does not come to rest (Ch. 5.3). For Derrida a sign is what it is only because it can be repeated, and every repetition carries it into a new context that shifts its meaning. There is therefore no meaning that would be fully present to itself; every concept refers to others and has its sense only in its difference from them.

The book agrees that patterns remain open and shift in use. Its reply is that the shifting can be noticed, in the new case that triggers a dispute, and that there one can test whether the pattern still holds. Derrida never denied that one can understand and distinguish; he denied that this understanding is ever complete. In this he is closer to Ch. 5.3 than it first seems. What remains open is whether the borderline cases on which the book tests its concepts (Ch. 12.4) have not themselves already been selected by a concept they are supposed to test.

Theodor W. Adorno: the concept and the nonidentical (Ch. 7.4, 14.3). Together with Max Horkheimer, Adorno showed in the *Dialectic of Enlightenment* how reason, which was supposed to free human beings from nature, can become a tool of domination over nature and human beings. In *Negative Dialectics* he sharpened the objection: Every concept subsumes the singular under a universal and in doing so cuts off what is not universal about it, the nonidentical. Thinking, he says, must try to get beyond the concept by means of the concept.

The book agrees that every condensation leaves a remainder and that the remainder can be what matters most (Ch. 14.3). Its reply is that the remainder shows itself only in an expectation that it disappoints, and that anyone who stops ordering has not more of the singular but less. Adorno would have objected here: If the remainder shows itself only in a disappointed expectation, it still appears by the measure of the concept it is supposed to exceed. Yet he did not want to do without concepts. He demanded that they be turned against themselves, and that a matter not be subsumed under one concept, but that several concepts be

set around it, in a constellation that shows what none of them captures alone. That is itself a way of ordering, and it is not far from the facets of Ch. 10.3. What remains open is whether the condition "keep the remainder visible" (DE: „den Rest sichtbar halten") is more than a resolution: Whether an order meets it can be tested in the individual case, but not secured in general.

Michel Foucault: order of knowledge, order of power (Ch. 10.4, 12.5). In his studies of madness, the clinic, and the prison, Foucault showed how divisions of knowledge classify, treat, and produce human beings: The sick person, the delinquent, the normal person were not simply found, but came into being in practices of knowledge and power at once. In *The Order↑ of Things* (1966), he showed that every age structures its knowledge within a frame that fixes what can be ordered at all, and that these frames succeed one another in breaks, not as progress. That bears on the question from Ch. 13, which order is better, and on the question from Ch. 16.2, where one's own orders come from. Ian Hacking took this up and described how categories act back on the people they capture, and how this effect in turn changes the categories.

The book agrees that concepts about people change what they are about (Ch. 12.5) and that the reading of a relationship can confirm itself (Ch. 10.4). Its reply is that the people a concept captures can speak against it, and that the critique of an order itself works with more precise distinctions. Foucault called his books toolboxes, not doctrinal edifices, and their force lies in precisely such distinctions. What remains open is whether those affected are always heard when they speak against it, and the reply is: not of its own accord. Ch. 15.4 showed that a community can stop testing. Whoever sees to it that it does not is acting, and that is what another book is about.

Richard Rorty: no vocabulary of the matter itself (Ch. 8.2, 13.1). In *Philosophy and the Mirror of Nature* (1979), Rorty denied that cognition consists in representing reality correctly; in *Contingency, Irony, and Solidarity* (1989), he concludes that there is no vocabulary that describes things as they are in themselves. On this view, whether a division hits the mark is not a question put to the matter but a question of what one needs it for. The criterion of drawing boundaries where the subject matter itself makes differences would be a remnant of the idea of the mirror.

The book agrees that every order serves a question (Ch. 13.1). Its reply is that the matter makes itself heard in success and in failure. The table could not itself bring it about that gallium, scandium, and germanium were found where it left gaps (Ch. 13.2); the elements might also have been missing. The book does not deny that this can be established only in a vocabulary that has already been

chosen. It needs no standpoint outside all vocabularies for this: What does not work out makes itself heard in the vocabulary one has (*Truth* (2025), Ch. 11).

The question put back to all five. Against all five objections it is often argued that they refute themselves. Jürgen Habermas raised the charge in its best-known form in *The Philosophical Discourse of Modernity* (1985), relying on Karl-Otto Apel's figure of the performative self-contradiction: Whoever writes with precise concepts against concepts, with a theory against theory, with an ordered presentation against order, does, so the charge runs, what he criticizes. That is less telling than it seems. All five knew the objection and answered it: Derrida with the figure of using concepts while at the same time indicating their limit, Adorno with thinking against itself, Deleuze and Guattari with the interpenetration of tree and rhizome, Foucault by renouncing an edifice, Rorty with the remark that he asserts no better picture but proposes a more serviceable vocabulary. What is right about the question put back is more modest: None of the five gives up ordering. They order differently and test more precisely. That is also the intention of this book.

B3: Further Reading in the Other Books

Where a chapter is continued in other books of the series, this is noted here. At the end of its chapters the main text refers to *Truth* (2025) and, where a chapter is directly continued there, to *Ethics – The Good We Already Do* (2026) and *Organization* (2026).

- **Ch. 1** (the neighboring book on logic): *Hegel's Logic – Logic of Thinking* (2026), Ch. 2 (the movement of thought at its beginning)
- **Ch. 1** (the neighboring book on ethics): *Ethics – The Good We Already Do*
- **Ch. 2.4** (Condensing and prejudice, continued with the image of the other): *Ethics – The Good We Already Do*, Ch. 3
- **Ch. 6** (Principle↑): *Hegel's Logic – Logic of Thinking*, Ch. 7
- **Ch. 7** (Ground): *Hegel's Logic – Logic of Thinking*, Ch. 6 and 8
- **Ch. 7.4** (Whom a ground serves, continued with the grounds one owes to another): *Ethics – The Good We Already Do*, Ch. 4 and 11
- **Ch. 11** (Processes↑): *Hegel's Logic – Logic of Thinking*, Ch. 5
- **Ch. 11.1** (How a quarrel began, continued with the chain of retaliation): *Ethics – The Good We Already Do*, Ch. 6
- **Ch. 12** (Self-unfolding): *Hegel's Logic – Logic of Thinking*, Ch. 9

- **Ch. 15** (Dead order, continued with rules and institutions): *Ethics – The Good We Already Do*, Ch. 13 and 14
- **Ch. 15.4** (Shared order, continued with the economy): *Capitalism — An Introduction* (in preparation), Ch. 25
- **Ch. 16** (What remains open): *Hegel's Logic – Logic of Thinking*, Ch. 13

GLOSSARY

Notes on Use

This glossary is not meant to be read in advance. The concepts are developed in the book from what turns up in ordering, and anyone who looks them up here first gets a determination without the path that leads to it.

It is meant for three cases: when a word appears in a sense that departs from the usual one; when someone is not reading in order and has therefore missed an introduction; and when someone wants to check whether an expression is used the same way throughout the book.

Order: The entries are arranged alphabetically; umlauts count as their base letters.

Type gives the origin of the entry: *Our method* for distinctions that this book and its neighboring books draw themselves; *General philosophical* for expressions that are established in the tradition and used here in a particular sense.

Developed in points to the place where a concept is developed, not to every mention.

Not meant appears where an obvious reading needs to be ruled out.

See also names related entries in this glossary and, where a concept is carried further in one of the neighboring books, the entry there.

Access (Zugriff)

Type: Our method

Explanation: Finding one place from another. Measured by the steps it takes and the prior knowledge it requires. A search gives access but no overview: it does not show what else there is.

Developed in: Ch. 2.3

See also: Overview, Cross-reference

Classification (Klassifikation)

Type: General philosophical

Explanation: The first of the five ways of ordering: order according to the question "What kinds are there?" (DE: „Was für Arten gibt es?") The members stand side by side and exclude one another. It is the closest to sorting; without knowing what kind of thing is at hand, one can state neither how it is built nor what it is connected with.

Developed in: Ch. 8.1

See also: Correct and good division, Way of ordering

Coherent Deception (kohärente Täuschung)

Type: Our method

Explanation: An order that is coherent in itself and shows almost all the signs of what is living, but sorts its material according to an interpretation fixed in advance, needs a new auxiliary assumption for every new fact, and cannot be made to fail by anything.

Not meant: A claim about covert action as such. The fault lies in the form of the explanation, not in its subject; collusion exists, and a claim about it can be tested like any other.

How to tell: By three questions. Does the explanation penetrate its material, or does it sort it? Does it explain whole classes of cases from one ground? What would have to happen for one to give it up? The same questions apply to the official account as much as to its opponents.

Developed in: Ch. 15.3

See also: Proliferating order, Mechanical and living order, Factual, functional, conceptual connection

Composition (Komposition)

Type: General philosophical

Explanation: The second of the five ways of ordering: order according to the question “What does it consist of?” The parts are what they are only within the whole, and each has a task that follows from the whole. Also parts, structure.

Not meant: Breaking down by material. A bicycle taken as steel, rubber, and plastic has been broken down, but not structured.

Developed in: Ch. 9.1, 9.2, 9.4

See also: Classification, Way of ordering

Concept (Begriff)

Type: General philosophical

Explanation: The universal of a matter, insofar as it produces its particularizations out of itself and becomes actual in the singular. Anyone who sees why there are precisely these kinds of numbers has the concept of number.

Not meant: Merely a word and its meaning, or a definition learned by heart. The book also uses the word in this weaker sense, for instance in Ch. 12.5; the stronger sense is the one it is working toward.

Developed in: Ch. 12.2

See also: Self-unfolding; Universal, particular, singular; System, systematic

Condensation (Verdichtung)

Type: Our method

Explanation: Much is represented by little. In technology this is called compression. A condensation is good when what matters can be recovered from it; its worth is decided by what it gives up.

Not meant: A loss that could be avoided. The choice is not between loss and no loss, but between losses.

Developed in: Ch. 2.4, 14.1, 14.2

See also: Prejudice, Remainder, Overview

Correct and Good Division (korrekte und gute Einteilung)

Type: Our method

Explanation: A division is correct when its members exclude one another and together cover the whole. It is good when its boundaries run where the subject matter itself draws its distinctions.

How to tell: Anyone who arranges their books by color has divided them correctly and grasped nothing of what a book is. A division can fail without containing a logical error.

Developed in: Ch. 8.2

See also: Classification, External

Cross-Reference (Verweis)

Type: Our method

Explanation: A link between two places in an order. It rests either on position in the structure or on the matter, and on the matter in three ways: as the same matter, as the same matter at another stage of development, or as determined as contradictory. Cross-references give access; the overview comes from the order they branch off from.

Developed in: Ch. 13.3

See also: Access, Relation

Essentiality (Wesentlichkeit)

Type: General philosophical

Explanation: What makes a matter what it is, regardless of who is asking and to what end. More precisely: the part of its grounds that belongs to the matter itself and not to its circumstances. A first test: Does the rest change if this changes?

Not meant: Importance for a question. Many disputes about what is essential are disputes between two questions.

Developed in: Ch. 3.2, 7.5, 8.1

See also: Importance, Urgency, Ground: empty, arbitrary, sufficient

External (äußerlich)

Type: Our method

Explanation: A feature that lies only on the outside of the matter, like a book's color and format. In general, an order is called external when it does not follow from the matter and therefore cannot say why its members are the ones they are.

Not meant: Useless. The alphabet is external and exactly right for a dictionary; it becomes a defect only when such an order is mistaken for an order of the matter.

Developed in: Ch. 2.5, 4.1, 12.3

See also: Series and compartment, Standard

Factual, Functional, Conceptual Connection (faktischer, funktionaler, begrifflicher Zusammenhang)

Type: Our method

Explanation: Three ways in which two things can be connected. Factual: observed, without anyone knowing how it comes about. Functional: an effect,

which tells us what changes when someone intervenes. Conceptual: a connection that lies in what the things are, as with buyer and seller.

How to tell: Most false inferences in thinking about relations confuse these three, most often by reading a factual connection as a functional one. The question "Who benefits?" establishes a factual connection, not a plan.

Developed in: Ch. 10.2, 10.4, 15.3

See also: Relation

Generalization (Verallgemeinerung)

Type: Our method

Explanation: A pattern of wide scope that says what came together in the known cases, but not why, and therefore not when it does not hold either. "Practice makes perfect" (DE: „Übung macht den Meister") is one.

Developed in: Ch. 6.2

See also: Principle, Pattern

Ground: Empty, Arbitrary, Sufficient (Grund: leer, beliebig, zureichend)

Type: General philosophical

Explanation: Three stages of giving grounds. The empty ground repeats the matter under another name ("it just wasn't viable" (DE: „sie war eben nicht lebensfähig")). The arbitrary ground picks out one condition among many. The sufficient ground takes all the conditions together, including the constitution of the matter itself.

Developed in: Ch. 7.1

See also: Principle, Syllogism, Essentiality

Importance (Wichtigkeit)

Type: Our method

Explanation: What counts with regard to a question. Anyone who asks the same question finds the same things important. The middle one of the three levels of what "important" can mean, and the one most easily confused with the other two.

Developed in: Ch. 3.2

See also: Urgency, Essentiality

Mechanical and Living Order (mechanische und lebendige Ordnung)

Type: Our method

Explanation: An order is called mechanical when its parts run their course without relation to one another and without any question of what they are for. An order is called living when its parts determine one another and are what they are only in the whole, and when it maintains itself by changing in response to what makes it fail. In orders that people sustain, this shows in being able to say what a rule is for.

Not meant: A matter of how many rules there are or how strict they are. In aircraft maintenance or in court proceedings, strict regulations are the living order; what makes an order dead is that no one knows any longer what it is for.

Developed in: Ch. 15.1, 15.2

See also: Coherent deception, Remainder

Order (Ordnung)

Type: General philosophical

Explanation: An arrangement from which something can be inferred: where something is, what is missing, what belongs together. Its smallest form is putting this with that and thereby separating it from other things.

Not meant: Just any arrangement. In a heap of leaves that the wind has blown into a corner, this too lies with that, but nothing can be inferred from it.

Developed in: Ch. 2.2

See also: Overview, Access, Condensation

Overview (Überblick)

Type: Our method

Explanation: Seeing what there is and how it is connected without going through everything one by one. Measured by the number of members one has to keep in mind.

Developed in: Ch. 2.3

See also: Access, Condensation

Pattern (Muster)

Type: Our method

Explanation: A repetition that is found in the matter in a chosen respect, rather than being read into it. A pattern is an anticipation that has to prove itself on the next case, and it remains open: no finite number of cases settles it.

Not meant: Something that knowing brings into being. That a pattern can be wrong shows that knowing does not make it. Nor is it something that would simply be there without the respect of the knower.

Developed in: Ch. 4.4, 5.1, 5.2, 5.3

See also: Principle, Generalization, Respect

Prejudice (Vorurteil)

Type: General philosophical

Explanation: A strong, fast condensation that gives up precisely the differences that matter. The remedy is not to condense less but to condense differently: to bring back the differences that were given up and to check which of them count this time.

Not meant: Any expectation held before testing. Without such expectations one would enter no conversation; an expectation becomes a prejudice only when it can no longer be corrected.

Developed in: Ch. 2.4

See also: Condensation; *Truth* (2025), Glossary: Pre-Judgment, *Ethics – The Good We Already Do* (2026), Glossary: Image of the other

Principle (Prinzip)

Type: General philosophical

Explanation: What produces a pattern. It says under what conditions the pattern occurs and where it stops, and can therefore be applied to cases one has never seen.

Not meant: A principle that explains everything. What rules out nothing says nothing.

Developed in: Ch. 6.1, 6.2, 6.3

See also: Generalization, Pattern, Ground

Process (Verlauf)

Type: General philosophical

Explanation: The fourth of the five ways of ordering: order according to the question “What moves, and according to what?” (DE: „Was bewegt sich, und

wonach?“) Also process. It is needed where a description is accurate and still misses the point, because the matter becomes intelligible only from its becoming.

Developed in: Ch. 11.1, 11.3

See also: Rhythm, Way of ordering

Proliferating Order (wuchernde Ordnung)

Type: Our method

Explanation: An order that needs a new category for every new case, an exception for every deviation. It captures everything and explains nothing.

Developed in: Ch. 13.2

See also: Coherent deception, Standard

Relation (Relation)

Type: General philosophical

Explanation: The third of the five ways of ordering: order according to the question “What is it connected with?” (DE: „Womit hängt es zusammen?“) Also connection. It needs both tree and network at once; anyone who sees only links can no longer say what is linked.

Developed in: Ch. 10.1, 10.3, 10.5

See also: Factual, functional, conceptual connection, Cross-reference

Remainder (Rest)

Type: Our method

Explanation: What no condensation catches up with: the singular, which is more than a case of its patterns; the enactment, which cannot be observed while one

is carrying it out; the new, for which there is as yet no compartment. An order need not capture it, but it must keep it visible.

Developed in: Ch. 4.3, 14.3

See also: Condensation, Series and compartment

Respect (Hinsicht)

Type: General philosophical

Explanation: What one looks at when putting this with that. Every order has one, even when it goes unnamed; a different respect makes a different order out of the same things.

Not meant: Something merely subjective. The respect is chosen; what shows itself in it is not.

Developed in: Ch. 3.1, 3.3

See also: Series and compartment, Pattern

Rhythm (Rhythmus)

Type: Our method

Explanation: The alternation between collecting and ordering. Anyone who stays with collecting arrives at no result; anyone who orders too early has a result that does not stand up to the material. The alternation comes from the matter.

Developed in: Ch. 11.4

See also: Process

Self-Unfolding (Selbstentfaltung)

Type: Our method

Explanation: The last of the five ways of ordering: an order in which the particular results from a universal under conditions and becomes actual in the singular. It says why its members are the ones they are, and so meets the book's standard, in degrees.

Not meant: A way that merely stands alongside the other four. It takes them up into itself and gives them their ground where they have one; that is why it comes at the end.

Developed in: Ch. 12.1, 12.2, 12.6

See also: Universal, particular, singular; Concept; Sublation; Standard; Way of ordering

Series and Compartment (Reihe und Fach)

Type: Our method

Explanation: Order by a chosen feature: the alphabet, the date, the field. Several features are nested inside one another, compartments within compartments. Such an order gives access but no overview, and it must keep the remainder visible.

Developed in: Ch. 4.1, 4.2, 4.3

See also: External, Access, Pattern

Shared Order (geteilte Ordnung)

Type: Our method

Explanation: An inherited or jointly tested condensation, ranging from language, in which every word is a ready-made order, to the concepts of a science. One does not begin with the details but in the midst of a stock of orders that others have formed.

The flip side: False condensations can be held in common too. What such a community loses first is not the correctness of an order but the possibility of noticing where it is wrong.

Developed in: Ch. 15.4

See also: Condensation, Coherent Deception; *Ethics – The Good We Already Do* (2026), Glossary: Institution

Standard (Maßstab)

Type: Our method

Explanation: The question against which the book measures every order, itself included: Can it say why its members are the ones they are and why they lie where they do? As long as an order cannot state its ground, it is applied to the matter from outside.

Where it comes from: Not from a picture of the matter against which the order would be compared, but from the movement in which an order fails against the matter and thereby becomes more precise.

Developed in: Ch. 1.3, 13.2, 16.4

See also: External, Self-unfolding

Sublation (Aufhebung)

Type: General philosophical

Explanation: The taking up of a determination into a more comprehensive one, in a threefold sense: it no longer holds on its own, it is preserved, and it stands higher, because it now becomes clear why it turns out as it does. In this way kinds, parts, connections, and processes are sublated in self-unfolding wherever they have their ground in it, and each stage of the book is sublated in the next.

Not meant: Abolishing. What is sublated is not gone.

Developed in: Ch. 12.6, 16.4

See also: Self-Unfolding; *Truth* (2025), Glossary: Sublation, *Ethics – The Good We Already Do* (2026), Glossary: Sublation

Syllogism (Schluss)

Type: General philosophical

Explanation: The form in which a sufficient ground can be written down. It secures the transition, not the starting point: whoever grants the premises must grant the conclusion, but the syllogism does not say whether the premises are true.

Not meant: A separate kind of ground alongside the sufficient one.

Developed in: Ch. 7.3

See also: Ground: empty, arbitrary, sufficient

System, Systematic (System, systematisch)

Type: General philosophical

Explanation: A whole whose members can be understood from one ground. To think systematically means to order in such a way that one can say why the members are the ones they are, to know where this cannot be said, and not to break off the movement in which an order fails against the matter and becomes more precise.

Not meant: Just any fixed order. Files kept by year and sender are ordered, but they are not a system in this sense.

Developed in: Ch. 12.2, 16.4

See also: Concept, Standard, Self-unfolding

Universal, Particular, Singular (Allgemeines, Besonderes, Einzelnes)

Type: General philosophical

Explanation: The three sides that an understanding must take in if it is to be complete. The universal is what is the same in all cases; the particular is what

follows from it under conditions, outwardly as kinds, inwardly as parts; the singular is the actual case in which both come together.

Not meant: Three levels of a ranking, or a triad that would have to be imposed on every matter. How far the structure holds shows itself in the matter.

Developed in: Ch. 12.2, 12.3

See also: Self-Unfolding, Concept, Way of Ordering; *Ethics – The Good We Already Do* (2026), Glossary: Universal (of a community)

Urgency (Dringlichkeit)

Type: Our method

Explanation: What is on one's mind at the moment. It concerns the situation of the person doing the ordering, not the matter; once the situation is over, the urgency is gone, and the matter is what it was. The first of the three levels of what "important" can mean.

Developed in: Ch. 3.2

See also: Importance, Essentiality

Way of Ordering (Ordnungsweise)

Type: Our method

Explanation: A question that can be put to a whole, and the structure it yields. The book finds five: kinds, parts, connections, processes, and finally self-unfolding, which asks why the answers to the other four turn out as they do. Which one is called for is shown by what is missing.

Not meant: A complete list. It has not been shown that there is no sixth.

Developed in: Introduction to Part III, Ch. 8 to 13

See also: Classification, Composition, Relation, Process, Self-unfolding