Paper within the framework of Tractatus Principio |

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The Movement of Difference

by

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Summary

This expanded summary reads the Tractatus Principio not as a collection of separate theories, but as a single recursive movement of difference. Number, geometry, tact, path, trace, rule and readout appear as different operative readings of the same relational order.

The treatise brings the nine volumes together in eight steps: from difference in depth and space, through perspective, context, recombination and lock, to number, geometry, differential, integral, open relation, rule, stringency and the isomorphy of perspectives.

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Preliminary remark

This short version is not a compilation of nine separate theories. It reads the Tractatus Principio as a single recursive movement. The individual books unfold different perspectives on the same starting point: the difference. The methodological priority remains:

$| < \Delta < \Sigma < read\,\boldsymbol{\Sigma}$

Here < does not designate a temporal sequence. It designates the priority of the relation before its visible reading. Number, geometry, tact, path, trace, and later physical or logical readouts are therefore not introduced as objects independent of one another.

The starting point

The first order is pure distinction:

|

It is not yet a relation between presupposed things. It is the condition for relational poles to become readable at all. The second order unfolds the poles:

$A|B$

A and B are not original entities that are subsequently connected. They are relational poles of the posited distinction. The third order is the distinction of the distinction:

$$|(|)$$

Its effective reading is:

$$\Delta := |(|)$$

Delta is therefore not an additional object and not a fourth order. It designates the effective self-referentiality of the difference. In this selfreferentiality, tact, transition, rotation, drift, number-step, geometric edge, and trace can appear as different operative readings of the same relational enactment.

Simultaneously, not one after another

The orders

$$|\ A|B\ |(|)$$

are not temporal stages. Only their presentation is successive. Structurally, pure distinction, pole-relation, and self-distinction operate simultaneously and recursively into one another. Therefore fractality in the Tractatus is not primarily the repetition of finished forms or numbers. Fractality is the self-referentiality of distinguishing itself: relations operate on relations.

Reading key

In this order, a number is neither an information container nor an independent thing. It is a public readout of a relation:

$n := read\, \boldsymbol{\Sigma n}$

Likewise, geometry is not a second ontology beside number. The tact is not an external clock. The path is not a list of stored points. The trace is not a container of past states. Each of these forms is read appropriately only when its binding back to the same order of difference is preserved. This short version follows exactly this binding back.

1. Difference in depth and space

The depth-reading of difference and the self-bearing of the relation

The previous geometric reading of difference has made two modes of orientation visible. The difference itself reads:

|

and its self-referentiality:

$$\Delta := |(|)$$

Under a directed reading, the relation appears as:

$$-\Delta| + \Delta$$

under its orthogonal complementary reading as imaginary rotation:

$i := R90^\circ$.

With this, however, the geometric readability of difference is not yet exhausted. Alongside the directed and the orthogonal reading there is a further perspective: The stroke can be oriented toward the reading direction in such a way that its visible extension no longer lies transverse to the perspective, but points into it. A stroke

|

then appears frontally as: •. In this reading, the point does not designate the annihilation of the stroke. The relation has not lost its extension. Its extension now lies in the depth of the perspective. Therefore what holds is not: | ⟶ • as loss of relation, but:

| ⟷ •

as two different readings of the same relational order. Volume I already prepares this connection by beginning the geometric power readings with the point:

$x1$

= 1 ⟶ one point, while:

$x2$

= 1 ⟶ two counter-points (±1)

are read as diameter. The point therefore need not be understood as an elementary spatial object from which a line is then constructed. What is decisive is the relation between the punctual positions:

•| • .

As soon as the punctual position differs itself into a second punctual position, a linear relation appears again:

•|• ↔ |

The stroke is therefore not assembled from two substantial points. Rather, two punctual reading-positions make the same difference visible again as a linear relation. Thus a first geometric self-referentiality arises:

| ↔ • ↔ •|• ↔ |

The last stroke is not simply a repetition of the first. It is the stroke after the differentiation of its own perspective. In Principio notation, precisely this is the basic movement:

|(|)

The distinction is itself distinguished, without ceasing to be difference.

Front side and back side are not two objects

When the stroke is read frontally as point-shaped, the relation nevertheless perspectivally possesses a front position and a back position. These two positions are not two stored sides of an object. They arise only through their differentiation:

$A|B$.

The punctual appearance can therefore carry a depth-relation, even though on the visible surface it shows no linear extension. Schematically: side reading : | frontal reading : •

depth-distinction : $A|B$

This is not a matter of three different things. They are three readabilities of the same distinction.

With this, the concept of depth receives its work-immanent meaning. Volume IV determines depth precisely not by the number of additional elements. The depth of an order corresponds to the number or order of its effective self-references:

|

$A|B$

$A|B|C|D$

… where it explicitly holds: Depth does not grow through new elements, but through recursive order of the order. And the mnemonic sentence accordingly reads: Dimension is the answer to how deeply difference distinguishes itself. The point is therefore geometrically especially revealing. Its visible extension says nothing about how deep the relation is under which it is read. visible extension ≠ relational depth. A point-shaped Readout can thus mark a relation of arbitrary self-reference-depth, as long as the relational order of its closure remains preserved.

The point as closure-reading

Volume I binds zero geometrically to the closed circle and develops radius and diameter as relational forms within this closed order. With four, the circle itself is relationalized again: The figure no longer refers only within the circle to its points, but to the circle as relation. Here a further work-immanent geometric bridge can now be drawn.

The point need not be understood as an “infinitely small circle.” Just as little does it contain a circular surface as a hidden object. Rather, a closed circle-relation can appear point-shaped under frontal depth-reading. Schematically:

•*read*frontal(closed circle-relation)

This equation designates no identity of two objects. It designates a perspective-relation. Under this reading, the point is the visible closure of a relation whose internal or circumferential extension does not become visible in the present projection. This makes understandable why no density, no mass, and no stored content must be ascribed to the point itself. It is not the container of depth. It is its possible Readout.

From the stroke to the closed rotation-relation

Volume I already develops the decisive rotation-structure. The imaginary axis is there the pivot point at which two directions pass into one another; the same relation can be read under 0° , 90° , 180° and 270° . Volume V carries this further and determines the circle no longer as a presupposed basic form, but as the orbit of a relational figure under rotation. The original number-geometry and the address-geometry of the Δ-tact appear there as two readings of the same structure. Thus the difference can be read under continued rotation:

|

$\mathcal{R}$

$\longrightarrow R\theta(|)$.

For the planar rotation-reading, the orbit closes as a circle. What is decisive is:

The circle is not built from infinitely many strokes. It is the closed Readout of the rotation-relation of the stroke. The individual orientations are not components that lie in a circle-container. They are reading-positions of the same rotating relation. Volume V formulates accordingly that figures can be read in Δ-addressings and these addressings in turn as figures; from this a self-referential isomorphy arises.

The spherical reading

If the same rotation-idea is read not only within one plane, but across the complete modes of orientation of the depth-relation, then as the next geometric unfolding there results a spherical closure. This sphere is at this point a further work-immanent geometric reading; in the passages drawn upon here it is not posited as its own basic formula. Its derivation, however, follows the same already posited structure: The stroke possesses an orientation.

|

The orthogonal reading changes its orientation:

$i|$.

The depth-reading can make it appear point-shaped:

$|. \rightsquigarrow \bullet.$

If now not only the orientations of a single plane are traversed, but the possible orientation-readings of the relation around its depthposition, a closed rotation-shell arises. Schematically:

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| complete rotation ————————————→ 𝕊Δ
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where 𝕊Δ is merely the working designation introduced here for the spherical reading of the Δ-relation. The sphere is therefore not a new object that is added to difference. It is the closed geometric reading of its orientation-orbit that has become more complete. And this form, too, can again be read under a projection. From a corresponding perspective, the sphere appears as a circle:

$\Pi(\mathbb{S}\Delta) \bigcirc .$

With this, the same structure repeats itself at higher relational depth: closed deeper relation ⟶ simpler visible Readout. Not because the deeper relation had been reduced. But because its depth is not identical with its visible extension.

Circle and sphere are therefore not separate worlds

The circle is not two-dimensionally “less real” than the sphere. The sphere is not three-dimensionally “more real” than the circle. Just as little is the point less relation than the stroke. These concepts designate different readings of a relational order. Volume VII formulates the general type in exactly this way: Higher readings are not new levels of reality. They operate on the results of other readings, without thereby introducing new objects. Geometry, dynamics, and other appearances are projections of an underlying holonomy. Therefore it can hold:

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• | | | ○ | 𝕊Δ
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without thereby designating four different ontological objects.

They can be four geometric Readouts of the same recursively self-distinguishing context. Each next difference carries difference further With this, the fractality of difference becomes geometrically visible. When difference differentiates itself again, the previous difference is not built in as a part into a larger object. Rather, it remains effective as an order of difference in the next self-reference. Volume IV writes the recursive form:

Δ

Δ(Δ)

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Δ(Δ(Δ))
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… and determines this as growing depth of self-referentiality. What is decisive is therefore not:

$$\Delta n{+}1 \supset \Delta n$$

The later difference does not contain the earlier one as a container contains its content. Rather:

Δn+1 distinguishes the order of Δn and thereby itself remains difference

Difference therefore carries itself in every next difference. But it does not carry itself as a stored copy. It carries itself as relational invariance of distinguishing. This is the geometric meaning of its self-isomorphy.

The stroke can be read into the point. The point can again span a stroke as pole-relation. The stroke can rotate. The rotation-orbit can close itself as a circle. The rotation-relation can assume a spherical closure across further modes of orientation. The sphere can in turn be projected as a circle. And yet at no point is any other origin required than:

|.

Every new reading distinguishes difference anew. And in every new distinction the basic relation remains effective. The movement can therefore not be written as a linear construction

Point → line → circle → sphere.

That would again turn the forms into objects and developmental stages. Work-immanently, the connection reads rather: | : distinction

|(|) : self-distinction

• : frontal depth-reading •|• : pole-unfolding of the depth-relation | : linear readability of the same relation ◯ : closed rotation-Readout 𝕊Δ : closed complete orientation-reading

Π(𝕊Δ) = ◯ : renewed projective circle-reading.

These readings recursively act back upon one another. The sphere makes the circle readable anew.

The circle makes the point readable anew. The point makes the stroke readable anew. And the stroke remains in all these forms the effective condition of their distinguishability. The geometric core sentence therefore reads: Difference can change its visible form without losing its order of difference. And further: The more deeply difference distinguishes itself, the less its relational depth must coincide with its visible extension. The point is therefore not a minimum of relation. It can be the Readout of maximally condensed depth-orientation. The circle is not a mere edge. It can be the closed Readout of a complete circulation. And the sphere is not an additionally built body. It can be understood as the closed reading of a relation that co-distinguishes its own orientation-space. Thus difference begins to distinguish itself in such a way that in every further difference it carries itself along:

$$| \rightarrow |(|) \rightarrow |(|(|)) \rightarrow \cdots$$

not as an ever larger set of components, but as ever deeper self-referentiality of the same relational basic order. Space as self-subdivision of difference If the point is not an elementary thing, but a punctual reading of difference, then the point too cannot remain with itself. For the same basic condition holds for it as for every other relational position:

|

A point can distinguish itself. Thus there arises:

•| • .

And as soon as two punctual positions are distinguished, a relation appears between them again. The difference that was previously read as point-shaped in the depth perspective unfolds again into a linear readability. The point is therefore not a geometrical end. It is a possible new outset of a self-differentiation.

$$\bullet \rightarrow \bullet|\bullet \rightarrow |$$

The movement thereby begins again, without having to return to an original beginning. The difference that distinguishes itself remains effective in its new relation. This is the geometrical meaning of fractal self-referentiality:

$$| \rightarrow |(|) \rightarrow |(|(|)) \rightarrow \cdots$$

The increasing depth here does not arise through the accumulation of new elementary things. Volume IV expressly determines it as recursive order of order: depth grows through effective self-references, not through new elements. With this, the concept of space also changes. Space need not be presupposed as an already existing container in which points lie and distances are measured between them. Space arises where a relation can distinguish itself again. Space is the possibility of difference to distinguish its own relation again. Volume II formulates the same connection from the geometrical side: Things do not generate space through their arrangement; 1–2–3 “make space,” because positing, difference, and relation of differences generate a geometrical readability. Space arises from relation and appears only thereby as space.

Tact is the smallest effective spatial relation Between two relational positions there stands a difference:

$A|B$.

The enactment of this difference is tact. It does not lie in an external clock and also not in a number assigned after the fact. A tact index can mark its place, but the tact itself lies in the transition:

$A\ T \multimap B$.

Delta here does not designate another object between A and B. It is the self-referentiality of the difference in which this transition becomes effective:

$$\Delta := |(|)$$

Volume VIII expressly brings these readings together: Delta is tact, transition, marking, self-rotation, and drift, without thereby falling apart into different kinds of Delta. Thus every tact can at the same time be read as a spatial relation. For:

$A|B$

determines not only two poles. The relation between them can itself be distinguished again. The tact therefore has no final inner magnitude. It has a possible further depth of reference. Between 0 and 1 there again lies the complete order of difference The numbers make this connection visible. The basic shell is:

$$0|1|2|3|4|5|6|7|8|9$$

It is not to be read as a collection of ten original number-objects. Volume VIII determines the ten marks as stabilized public reading of Delta:

$$\Delta \rightarrow 0|1|2|3|4|5|6|7|8|9$$

The 9 forms the fracture edge:

$9 := \kappa$,

and:

$$10 := 1|0$$

is not an eleventh basic mark, but the first visible relation of a new reading shell. But now already within the basic shell there applies:

$0|1$.

And $0|1$ is itself again nothing other than a posited distinction. Therefore this relation can again be read under the same order of difference. Schematically:

$$0; |; (0|1|2|3|4|5|6|7|8|9) ; |; 1$$

This notation must not be understood as if ten small number-objects lay physically between two larger number-objects. What is meant is: The relation $0|1$ possesses, on a deeper level of reference, the same complete distinguishability as the basic shell itself. The same applies to:

$1|2$,

that is:

$$1; |; (0|1|2|3|4|5|6|7|8|9) ; |; 2$$

And likewise for every further relation:

$$2|3,\ 3|4,\ 4|5,\ \ldots$$

The concrete place of the relation changes. Its inner rule of difference does not. Volume VI describes exactly this type of depth: the 10 is a leap of level, and “inside” does not mean adding further points, but deeper self-reference of the same relation. Space does not subdivide – it distinguishes itself With this, the word “subdivision” must also be specified. Usually subdivision sounds like this: First there is a finished section of space, and then we cut it into smaller pieces. That would again be container thinking. Immanently to the work, something else happens. First there stands:

$A|B$.

This relation distinguishes itself again:

$$(A|B);\ |;\ (C|D)$$

Or in the numerical shell reading:

$$0|1 \to 0|1|2|\ \cdots\ |9$$

on a deeper level of reference. Space was not cut apart. The relation made its own depth of difference readable. Therefore: Self-subdivision of spaceSelf-differentiation of the spatial relation. There exists no external measure that determines how fine space may become. The possibility of further distinction already lies in:

$|$.

Volume IV therefore expressly formulates measure not as an external scale. Measure arises in the difference itself; dimension designates the question of how deeply the difference distinguishes itself. Tacts within tacts This connection can now be grasped in tacts. Let a visible shell be:

$\mathscr{R}Tr,0|Tr,1|\cdots|Tr,9$.

The index r here designates merely the read depth of reference; it generates no new kind of Delta. Every transition:

$Tr,k|Tr,k+1$

is itself again difference. Therefore the same transition can, in a deeper reading, appear again as a complete context of tact:

$$Tr,k|Tr,k+1;\ \leftrightarrow;\ Tr+1,0|Tr+1,1|\ \cdots\ |Tr+1,9$$

Here too, the right side designates no container hidden in the left relation. It is its deeper readability. And every transition read there can again unfold the same order:

$Tr+1,j|Tr+1,j+1$

⟷

$$Tr{+}2{,}0|Tr{+}2{,}1|\ \cdots\ |Tr{+}2{,}9$$

Thus there arises:

$T \longrightarrow T(T) \longrightarrow T(T(T)) \longrightarrow \cdots$

not as a nesting of time-containers, but as recursive reading of the same order of difference. The tact can therefore be arbitrarily deep without ceasing to be tact. As with the point: visible magnitude of a tact ≒ depth of its self-referentiality. The decimal point as scale-flip Ordinary decimal notation already has a remarkable marking for this. Volume I posits:

|.

as scale-flip. Within this reading, the decimal point does not merely mean: “Here the smaller numbers begin.” It indicates a change of the level of reference. Volume I describes it expressly as a path for locating a relation on another level without dissolving its self-reference.

Thus: 0.1, 0.2, 0.3, … can appear as public number notation of a deeper reading shell. But immanently to the work, before that lies:

0|1.

Only the renewed distinction of this relation generates the deeper numerical readability. Classical decimal notation is thus one possible readout of this. It is not the origin of the subdivision. Therefore there applies: |.Change of the depth of reference, not: |.Generation of a new smaller number-space. The fracture edge is relative to the reading shell With this, the 9 also becomes understandable again. Within a shell the stabilized tact reading runs:

$$0|1|2|3|4|5|6|7|8|9$$

The 9 is:

$9 := \kappa$.

It designates the fracture edge of this concrete reading shell. After it there does not follow:

9|10

as continuation of eleven basic marks of the same kind. Rather:

$$9 \to 1|0$$

Volume I expressly formulates that 1|0 indicates the next level of relationing. At the same time, Volume I points out that other number representations can possess other visible fracture edges; what remains invariant are the orders of difference, self-references, and level structure. The 9 is therefore not metaphysically distinguished as a number-object. In decimal reading, it is the readout of a structural boundary. κFracture edge of a complete shell reading. On the next level of reference, the same order can be effective again. Thus it follows:

$\mathscr{R}$

κ

$\longleftrightarrow \mathscr{R}+1.$

Not because one shell is pushed into the next. Rather because the enacted difference itself again becomes the difference of a further order. Space therefore has no final resolution If every relation is distinguishable again, immanently to the work there is no reason to stop at a particular depth position. Between:

0|1

the same order of difference can be read. Between two positions read there, likewise again. And again:

$$| \to |(|) \to |(|(|)) \to \cdots$$

However, this does not mean that somewhere a finished infinite set of infinitely small points lies hidden. Precisely the opposite is meant. There need be no finished final subdivision at all. For depth arises only in the enactment of further self-differentiation. Space is not subdivided infinitely finely. It is capable of further distinction without limit. The difference between the two statements is fundamental. An infinitely fine subdivision already presupposes a finished structure. Unlimited distinguishability presupposes only:

|.

Every position thereby carries the same possible space Now it also becomes understandable why every punctual position can unfold the complete connection again. A point is: •. If it distinguishes itself:

•|•,

pole relation, orientation, and context arise. Thus the fourfold order already laid out in the 1 becomes readable again. This fourfold order can recombine, drift, reach its fracture edge, and change into a further level of reference. The space around a point is therefore not something that externally surrounds this point. The possibility of space already lies in the self-distinguishability of its punctual relation.

Every point carries not a space within itself; every punctual relation can read space again. Thus the basic structure repeats itself at every depth. Volume V expressly summarizes this self-similarity such that on every level the same logical order can be drawn in again: frame, Delta, opening, context, and choice. Space is therefore self-referential tact The connection can now be condensed. Primary:

|.

$$\boldsymbol{Self-referentiality}: \Delta \coloneqq |(|)$$

Tacted reading:

$$T0|T1| \cdots |T9$$

Fracture edge:

9 := κ.

Scale change:

$$9 \to 1|0$$

or in the opposite direction:

|.

as scale-flip. And every single tact relation:

$Tj|Tj$+1

is again:

|.

Therefore it can again read the complete tact order. Space is thus neither the sum of these tacts nor a vessel in which they take place. It is the recursive efficacy of their distinguishability. SpaceDifference that can distinguish its own relation again. Or in the language of tact: Space is tact in self-reference. The number is its readout. The point is its readout. The distance is its readout. The axis is its readout. The shell is its readout. Depth is a further reading of the same connection. None of these forms generates space. They make different modes of operation of its self-differentiation visible. Thus the statement Between 0 and 1 lie 0 to 9, and between 1 and 2 lie again 0 to 9 also receives its precise meaning immanent to the work. It does not assert that the visible number-objects 0,…,9 would be present multiple times as finished things in intervals. It means:

Every posited number relation possesses the same recursive capacity for difference as the shell under which it itself is read. The position changes. The depth changes. The perspective changes. But:

$$\Delta = |(|)$$

remains the effective self-referentiality of the same distinction. Precisely for this reason, space can determine itself from itself without needing an external space. It must merely remain within its own rule: Difference can distinguish difference only again through difference. That is its limitation. And exactly this limitation is at the same time the possibility of its unlimited depth. Recombination, fracture edge, and lock of the fourfold order The unfolding so far has shown that the four does not arise only at the end of a successive construction. Already in the individual distinction:

|

lies the possibility of its self-referentiality:

$$\Delta := |(|)$$

In the punctual reading, the same relation appears as a posited position. If this position distinguishes itself again, poles, orientation, and context arise. Thus the complete fourfold order becomes readable not as a fourth added component, but as context of self-differentiation. The four therefore designates no set of four things. It is the stable reading of a relation in which positing, counter-position, orientation, and context are simultaneously effective:

$$4\Delta = \Delta\Delta$$

. Volume V correspondingly designates 4Δ as fully saturated context. The 3Δ state, by contrast, is an orientation within this context: three Delta poles are posited, one direction remains open and makes the perspective unambiguous. Thus there applies: 3ΔPerspective within 4Δ. Not: 3Δincomplete four as defective object. The open fourth relation is not a missing component. It is the complementary relation that remains open from out of the present orientation.

2. Perspective, context, recombination and lock

When a stable fourfold relation differentiates itself again, it does not become one component of a larger object. Rather, its order of difference remains effective in the next relation. This corresponds to Volume IV's determination of fractal coupling: coupled orders of difference act on one another without merging with one another. A relational network is not a mesh of things, but a coupling of transitions. Thus a recombination of two stable fourfold positions can be written schematically as:

$$4\Delta_A ; | ; 4\Delta_B$$

The sign between the two does not mean that two fourfold objects are added. It designates the new differentiation of two already fully contextualized relations. Their recombination therefore is not:

$$4 + 4 = 8$$

as a primary explanation. Rather:

$$8 := \mathit{read}\mathrm{num}\ (4\Delta_A | 4\Delta_B)$$

is one possible numerical reading of their maximal symmetric recombination. Volume VIII explicitly designates the 8 as: double fourfold folding. At the same time, Volume I describes the 8 as a return into an inner symmetry. This makes it understandable why the 8 does not simply mean “more” relation. It is a closure reading of two fourfold orders that become maximally recombinable with one another within the same reference shell. Recombination preserves the poles Two recombining relations do not disappear into one another in the process. Let:

$A|B$

be two relationally different positions. From a specific perspective, their visible readouts can partially overlap one another. Schematically:

$$\Pi_q(A) \cap \Pi_q(B) \neq \varnothing$$

However, the overlap does not mean:

$A = B$.

Relationally, there remains:

$A \mid B$.

Recombination changes the common readability of the poles, not their order of difference. Therefore:

Recombinationcommon perspective of relationally different positions. Not fusion. Not addition. Not storage of one pole in the other. The relation remains recombinable precisely because the poles remain distinguishable. The salient point Thus the punctual reading also becomes recursive. The point is not a final mark. It is a punctual position of difference: •. Since this position itself is again difference, it can differentiate itself again:

•| • .

And since every such polar relation again has orientation and context, the fourfold order is again effective in every punctual self-differentiation. The point therefore does not “jump” as an object through a presupposed space. Rather, the salient point designates the change of the addressed reading-position:

$$A \ \Delta \ \multimap \ B$$

In every new position, the same basic order becomes effective again. Therefore every punctual relation can again read:

$$1 \leftrightarrow 2 \leftrightarrow 3 \leftrightarrow 4$$

. The four is already disposed in the one, because the individual positing is readable only within the same relational order that becomes visible in the four as a complete context. Eight as maximal recombination of the same shell When two such complete fourfold contexts recombine maximally with one another from one perspective, the double fourfold folding becomes readable:

$4\Delta A \bowtie 4\Delta B$.

The binding notation used here does not designate an arithmetic operation. It marks the compatibility of two relations that are effective at the same time. The maximal stable recombination can then be read as: The 8 therefore designates, in this geometric unfolding, not eight mutually independent elements. It reads: the complete mutual recombination of two fourfold orders within the same shell relation. Thus the 8 does not carry the four within itself as

a partial object. The four remains effective as the symmetry and context order of its recombination. The 9 differentiates the recombination itself After maximal recombination, the next differentiation cannot merely add another overlay of the same kind. It now differentiates the recombination itself. Here the 9 receives its special position.

Volume I describes it as the keystone of the basic shell and as the relation from which, with:

$$9 + 1 = 10 = 1|0$$

the next level of the number relation emerges. The 9 generates the recurrence of the basic schema on a new reference level. Volume VIII condenses this position into:

$9 := \kappa$.

The 9 is the fracture edge. Geometrically, this fracture edge can now be read as the boundary drift of recombination. Two relational positions can change their common perspective. Their readouts can appear more strongly or more weakly overlaid. As long as both remain readable as two poles within a common closed relational order, their recombination is still bound back to the same shell. The boundary position is reached when the two poles drift maximally apart without losing their common relational closure. Thus the geometric reading of:

$9 := \kappa$

is not: nine points have been reached. But: κoutermost still stable distinguishability within the same recombination shell. The 9 is therefore not additional content after the 8. It is the differentiation of the boundary under which the previous recombination can still be read as the same shell relation. If this boundary is crossed, the relation must be read on another reference level:

$9 \longrightarrow 1\,|\,0$.

The new shell is not a new rule This transition does not mean that after the 9 another kind of difference begins. Volume I in particular emphasizes that the 9 brings forth the basic schema again:

$$9 + 1 = 10 = 1|0, 9 + 2 = 11 = 1|1, 9 + 3 = 12 = 1|2$$

… The new reference level therefore follows the same order of difference. The place of the reading changes. The depth changes. The rule does not. Thus: fracture edge ≠termination of difference. But: fracture edgetransition of the same order of difference into a new self-reference depth. Space as tact of recombination Since every relation is again differentiable, this movement applies not only between the visible marks of the basic shell. Also:

$0\,|\,1$

is itself a complete relation of difference. Therefore the same shell order can again be read between 0 and 1:

0|1|2|3|4|5|6|7|8|9

The same applies between:

1 | 2,

and again between every relation read there. Space therefore has no externally fixed resolution. It determines its depth through the possibility of differentiating its own relations again. Volume IV explicitly describes this depth not as growth through new elements, but through recursive order of order. Thus space itself is tacted:

$$A \;\; T1 \multimap B \;\; T2 \multimap C \;\; T3 \multimap D \;\ldots$$

Yet a tact is not a metrically fixed piece. Every tact relation can itself again become the reference of a complete tact order.

$T \longrightarrow T(T) \longrightarrow T(T(T)) \longrightarrow \cdots$

Not as nesting of containers, but as recursive self-differentiation. Space is therefore differentiable further without limit, without having to presuppose a finished infinite point set. The threefold perspective in the fourfold context With this recursion, the meaning of the 3/4 relation now also becomes more precise.

The 3Δ state has three posited delta relations and one open direction. The 4Δ state is the complete context within which all four orientations are available in principle. Therefore:

3Δ

is not the preliminary stage of:

4Δ.

Both are effective at the same time. The three designates the concrete perspective. The four designates the context of this perspective.

$$3\Delta; \; |; \; 4\Delta$$

A path can therefore enact three effective perspective steps and, in doing so, already lie completely in the fourfold context. Let:

$$\gamma 3 \; : \; A0 \;\; T1 \multimap A1 \;\; T2 \multimap A2 \;\; T3 \multimap A3$$

The three posited transition relations are:

$$e1 \; := \; A0|A1,$$
$$e2 \; := \; A1|A2,$$
$$e3 \; := \; A2|A3$$

Let the corresponding open complementary relation be:

D.

Thus the form arises:

Θ3

(*e*1, *e*2, *e*3; *D*).

Volume IX sets the 3/4 corner exactly as three posited edges and one open drift edge. The relevant projections must be bindable before lock-capability arises. Lock is the fit of the perspective into its context On this basis, the following work-immanent closure rule can now be formulated: Lockable3

(γ3) ⟺ 3Δ(γ3) is a stable orientation of the same 4Δ context.

This is a further synthesis of the already posited 3Δ/4Δ and 3/4 lock structures.

It does not mean: Every arbitrary path of three steps is valid. The number three is not an external counter here. What is decisive is that the three enacted relations together form a 3Δ perspective whose open complementary relation is already determined by the simultaneously effective fourfold context. Therefore: three effective relations | one complete fourfold context. The fourth relation does not have to be supplied from outside as additional information. It is the relation that remains open from the current perspective. Thus the lock receives a geometric meaning:

*Lock*3

Snapping a threefold perspective into the complete relation of its fourfold context. Volume IX already describes lock as a finite order decision within the 3/4 corner and not as an approximative search in a continuous infinity.

The reading developed here now determines more precisely why precisely this finite geometry can close: The three posited relations carry the perspective. The fourfold context carries the complementary relation. If both read the same order of difference, the relation is lockable. Lock does not erase the path However, the closure must not be confused with the disappearance of the enactment. The holonomic basic rule remains:

$\gamma(0) = \gamma(1)$

can hold, while:

$$\Sigma(\gamma) \neq 0$$

can remain possible. The return to a visible orientation does not necessarily erase the path that has been traversed. The same visible face readout can appear again after a complete orientation circuit, without the path therefore being empty. Lock therefore does not mean: path ⟶ 0. But: path ⟶ stable closed reading-position of the same enactment. The closed form does not carry the traversed relation as a stored list. It is the present closure form of a holonomically effective path.

Recombination can itself become lockable again

Since a recombined relation is again difference, it can again form a stable fourfold order. Thus the 3/4 structure applies at every self-reference depth. Let:

C

(r)

be a stable fourfold relation at reference depth r. A recombination can make a new fourfold position:

C

$(r+1)$

readable. If, within this new fourfold relation, a stable threefold perspective is traversed again, then again:

$$\begin{array}{c} 3\Delta(r+1) \\ ; \ |; \ 4\Delta(r+1) \end{array}$$

and thus the same lock condition applies. No new lock operator arises. The same order of difference reads itself again on a deeper relation. Volume V formulates this self-similarity explicitly: on higher levels, the same logical structure of frame, delta, hole, context, and choice can again be drawn in. Thus lock itself becomes fractally readable. Not because a technical procedure copies itself. But because every closed relation is again difference. The relation of 3, 4, 8, and 9 The movement so far can now be summarized: 3perspective reading,

4complete context reading, 8maximal symmetric recombination of two fourfold orders, 9fracture edge of the still commonly readable recombination. These numbers are not actors. The three does not “see.” The four does not “contain.” The eight does not “combine.” The nine does not “break.” What is meant in each case are processes of difference that become stably readable under the respective number. The correct form is therefore always:

$n\mathit{read}\mathrm{num}\boldsymbol{\Sigma n}$.

The number is the readout. The movement lies in difference. Thus the entire geometric-holonomic unfolding receives a coherent form

$$|\longleftrightarrow|(|)\longleftrightarrow\bullet\longleftrightarrow\bullet|\bullet\longleftrightarrow 3\Delta|4\Delta\longleftrightarrow \mathit{Recombination}\longleftrightarrow 8\longleftrightarrow 9=\kappa\longleftrightarrow 1|0$$

This notation does not designate temporally successive stages of development. It shows different recursive readings of the same self-differentiation. Difference posits a position. The position differentiates itself. Its self-differentiation has orientation. The orientation acts within a complete context.

Contexts can recombine. Recombinations can reach their boundary position. The fracture edge makes a new reference depth readable. And at every depth, not a new rule begins, but the same one:

```
Δ := |(|)
```

The general closure theorem is therefore: A relation is lockable if its concrete threefold perspective is closedly readable within the same stable fourfold order. And the general recursion theorem: Every locked relation is again difference and can therefore unfold the same perspective, context, and recombination order on a deeper reference level. Thus difference carries itself in every further difference. Not as content. Not as object. But as continued invariance of its own enactment.

3. Tact, number, geometry and inscription

The inscription as tacted geometry of difference The unfolding so far has shown that point, stroke, circle, sphere, orientation, depth, recombination, and lock do not designate mutually independent objects. They are different readings of the same self-differentiating relation. The point of departure remains:

|

and its self-referentiality:

```
Δ := |(|)
```

This self-referentiality is not limited to a geometric representation. It is also tact. Band VIII explicitly sets: ΔTaktÜbergangMarkierungSelbstrotationDrift not as the equality of different objects, but as different operative readings of the same self-referentiality. With this, tact receives its proper meaning.

A tact is not an external segment of time. It is not a counting unit. It is also not the number of a step. It lies in the enactment of a relation:

$Aj-1\ Tj \longrightarrow Aj$.

The self-referentiality of Delta is exactly that by which the edge:

$ej := Aj-1|Aj$

becomes effective and readable as an ordered transition. Tact is therefore the operative appearance of difference. Number is tact-reading Band I formulates the connection through the rhythm of number. The number sequence is not an enumeration of finished number-objects. It is a stabilized reading of continued differentiation. Band VIII writes:

```
Δ → 0|1|2|3|4|5|6|7|8|9
```

and:

$n := read\, \Sigma n$.

Thus number is not the origin of tact. Tact becomes readable as number under a numerical perspective. The visible marks:

$$0|1|2|3|4|5|6|7|8|9$$

form a stabilized public shell of the same movement of difference. Number is therefore:

How a number space emerges from relation 3.1 No pre-given space container The current kernel does not generate any globally stored space with points, coordinates and neighborhood tables. There is no: Space(nodes, edges) and no presupposed coordinate grid. Instead, operative space emerges from which positions can be reached from one another through admissible relational steps. Band VI formulates exactly this basic form through a set of addressable positions "Adr" and a successor relation Next ⊆ Adr × Adr. Thus spatial neighborhood lies first in the relation of transition, not in an independently presupposed geometry. In the current code this structure becomes executable through "NumberAddress", "successor_edge()" and

"predecessor_edge()".

Space is thus initially: totality of relationally reachable addresses and not a container in which these addresses lie. 40a

Readout of tact. Not: Substance from which tact is built. Geometry is the same tact-order in the image Band I does not introduce the geometric reading independently of number. The relation of number becomes geometrically visible. Band VIII summarizes this explicitly: Number ≅ Geometry. The isomorphy does not mean that a number and a figure would be the same object. It means: Number and geometry read the same relational order. Therefore the known number readouts can at the same time be read geometrically: $0|1 \longleftrightarrow$ Radius, $0|2 \longleftrightarrow$ Axis, $0|3 \longleftrightarrow$ Orientation, $0|4 \longleftrightarrow$ stable order of four, $0|8 \longleftrightarrow$ doubled folding of four, $0|9 \longleftrightarrow$ break edge. Geometry is therefore not a retrospective illustration of number. And number is not an abstraction of a geometry already present beforehand. Both are tact-readings of difference.

The inscription is already tacted

An inscription reads:

$$I = m0|m1| \cdots |mn$$

The visible marks do not stand next to one another without relation. Differences operate between them. Therefore the inscription is read as path:

$I \longrightarrow \gamma I.$

The path does not consist of stored points. It consists of enacted transitions:

$$T1|T2| \cdots |Tn$$

Thus: $I \cong$ tacted difference-relation. The inscription therefore does not first have to be translated into geometry. It is already geometrically readable because it is subject to the same tact-order as the geometric self-relation of difference. Band VIII presents exactly this sequence:

$$| \rightarrow \Delta \rightarrow 0\text{–}9 \rightarrow \textit{Operation} \rightarrow \textit{Geometrie} \rightarrow \textit{Beobachter} \rightarrow \textit{Spur} \rightarrow \textit{Lesung}$$

The signs are not introduced as new objects here, but as operative appearances of the same movement. Three-dimensionality is a reading of tact When tact is read geometrically, it does not appear merely as movement along a line. The self-relation of difference simultaneously carries different modes of perspective. Directed:

$$-\Delta| + \Delta$$

Orthogonal:

$i := R90\circ$.

Tilted into the depth perspective, the same linear relation can appear as point-like. Thus three-dimensional readability does not lie in a presupposed three-dimensional space. It emerges from the self-referentiality of the relation. Tact therefore carries no spatial coordinates as additional properties. Rather, its self-relation becomes readable as space under different perspectives. Tact ≅ directed, orthogonal, and depth-reading of the same relation. The geometric appearance is consequently itself tact-readout. The order of four is already effective in tact The complete self-relation of tact becomes readable as a context of four:

$$4\Delta = \Delta\Delta$$

. The concrete perspective within this context reads:

$$3\Delta = 4\Delta - \Delta$$

Band VIII designates:

3Δ

as observer or oriented incompleteness of the context and:

4Δ

as full context. Thus for tact: *Tj* enacts a concrete perspective within a simultaneously effective order of four. This order of four is not first produced after four temporal steps. It is the context structure within which a directed tact is readable at all as a directed tact. Therefore the mathematical reading must not read:

$$T1 + T2 + T3 + T4 = 4\Delta$$

Rather:

$$3\Delta; |; 4\Delta$$

The three reads the perspective. The four reads the context. Tact can lock A stable path within a context of four can enact three effective perspective-relations:

$$A0\ T1 \multimap A1\ T2 \multimap A2\ T3 \multimap A3$$

The three relations:

$$e1 := A0|A1,$$
$$e2 := A1|A2,$$
$$e3 := A2|A3$$

form a perspective of three. Let their open complementary relation be:

D.

Thus: Θ3

($e1$, $e2$, $e3$; D).

If the three enacted relations lie within the same stable order of four and D is uniquely co-determined by this context, the relation can lock in:

$Lock3$

. Band VIII presents exactly this operative sequence:

$\Sigma \rightarrow \Pi \rightarrow\bowtie\rightarrow Lock3 \rightarrow NF \rightarrow read$.

The lock is therefore not an alien technical operation. It is the stable readability of a concrete perspective within its complete context-relation. The locked relation remains difference Locking in does not end the movement of difference. A locked relation remains:

|.

Thus it can differentiate itself again. This is the decisive recursive step. When a stable relation of four has become readable as closed, this relation itself can again become the position of a further self-differentiation:

4Δ(r)

$$\rightarrow 4\Delta(r+1)$$

.

This notation does not mean that one object of four is pushed into another. The relation is read again on a deeper level of self-reference. Band IV determines exactly this movement as fractality: Depth does not grow through new elements, but through recursive ordering of order. Thus tact too is fractal. A locked tact-connection can itself again become tact.

$T \longrightarrow T(T) \longrightarrow T(T(T)) \longrightarrow \cdots$

Not as nesting of pieces of time. But as renewed self-differentiation of the same operative relation. Recombination is tact-recursion When two stable relations of four differentiate themselves again:

$$4\Delta A \mid 4\Delta B$$

there is no addition of two finished figures. A new relational reading of their simultaneous efficacy emerges. Under maximal symmetrical recombination, this relation becomes numerically as: readable. Band VIII calls the 8: doubled folding of four. The 8 is therefore not a container of two fours. It is the Readout of their recombined tact-order. Between 4 and 8 the intermediate positions are read as self-similarity, division resonance, and drift:

5, 6, 7. Recombination is thus a process of perspective-shift within the same tact-relation. The 9 is the tact-boundary of the current shell The 9 does not follow as a further element after maximal recombination. It reads the break edge:

$9 := \kappa$.

Within the current shell, the relation has reached its outermost still stable position of difference. A further difference therefore cannot simply appear as an eleventh state of the same kind. The relation changes its depth of reference:

$$9 \to 1|0$$

The 10 is not an eleventh basic mark. It is:

$$10 := 1|0$$

and thus the first visible relation of a new shell-reading. At the break edge, tact therefore does not end. It becomes readable again on a deeper relation. Between two tacts lies tact again Because every edge is itself difference, every tact-relation can again unfold the same order. Between:

$0|1$

on a deeper level of reference there again lies the complete tact-readability:

$$0|1|2|3|4|5|6|7|8|9$$

The same holds between:

$1|2$.

And again within every relation read there. Thus no already finished subdivided infinite space emerges. Unlimited self-differentiability emerges. Tact has no final resolution. Every tact can again read tact. The numerical marks are only the respective public shell-reading of this recursive order. The inscription therefore already carries its recursive geometry A digital or mathematical inscription:

$$I = m0|m1| \cdots |mn$$

does not therefore have to be transferred into an alien geometric structure. Its order is already:

$$I \cong T1|T2| \cdots |Tn$$

Every tact is an operative reading of:

$$\Delta := |(|)$$

Every tact thereby has the same possible order of perspective, context, depth, and recombination.

The inscription is therefore isomorphic to the geometric self-relation. Not because of a retrospective assignment. Not because a figure is assigned to each sign. But because: inscription and geometry are subject to the same tacting of difference. This is the decisive connection. The trace preserves the enactment, not the signs as things The tacted inscription is read as path:

$I \longrightarrow \gamma I$.

The path carries a trace:

$\gamma I \longrightarrow \Sigma(\gamma I)$.

Band VIII designates the trace as memory of the relation and determines the holonomy by:

$\gamma(0) = \gamma(1)$

with possible:

$$\Sigma(\gamma) \neq 0$$

The trace therefore does not preserve a list of sign-objects. It carries the order of its tacted enactment. Thus tact-geometry connects with holonomy. A path can reach its visible orientation again. Its tact-history does not have to disappear thereby. A locked context can be closed. Its enactment remains relationally effective.

Isomorphy means preservation of the order of difference

Thus the connection can now be formulated generally. Let: I be an inscription. Let:

γI

be its path-reading. Let:

ΣI

be its trace. Then what holds is not:

$I = \gamma I = \Sigma I$

as equality of three objects. But:

$I \cong_\Delta \gamma I \cong_\Delta \Sigma I$.

The isomorphy designates the preservation of the same order of difference under different readings. The same holds for number and geometry:

$read\text{num}\Sigma \cong \Delta\ read\text{geom}\Sigma$.

Thus a single relation can appear as number, figure, point, circle, orientation, tact, path, or trace, without splitting into different underlying realities.

The sequence condenses The posits of the Tractatus developed so far episodically can thus be read for the first time as a single recursive movement:

|

Differentiation.

$$|(|) = \Delta Self - differentiation$$

$\Delta \longleftrightarrow T$

operative tact-reading.

$$T \leftrightarrow 0|1| \cdots |9$$

numerical shell-reading. $T \longleftrightarrow$ Geometry image-like self-relation reading.

$$3\Delta|4\Delta$$

Perspective in context.

$Lock3$

stable closure-reading.

$$4\Delta A|4\Delta B \leftrightarrow 8$$

Recombination.

$9 := \kappa$

Break edge.

$$9 \rightarrow 1|0$$

new depth of reference. And again:

|

For every new position of reference remains difference. Thus the actual movement of the Tractatus shows itself in a very short form Difference → self-differentiation → tact → perspective → context → closure → recombination → break edge → new depth of self-reference. Yet even this arrow sequence is only a successive representation for the reading. Structurally the orders

operate simultaneously. The later closure co-determines the earlier edge. The deeper relation changes the readability of the point. The four makes visible what was already laid out in the one. And the new shell reads no new rule. It reads the same difference at another depth. The entire sequence therefore follows a single invariance: Difference differentiates itself without ceasing to be difference. Everything further is its reading.

4. Two tacts, rotation and holonomy

Two tacts, two point positions, and the orthogonal closure of the relation The previous unfolding has shown that a tact is not an external unit of time. The tact is an operative reading of the difference:

$$\Delta := |(|)$$

Between two relational positions:

$A|B$

the difference is enacted as transition:

$A\ T\ {-\!\!\rightarrow}\ B$.

The tact therefore does not lie beside the relation. It is a way in which the relation is read as effective. The same edge can appear as difference, as tact, as number step, as geometric extension, as rotation, or as trace contribution. These appearances are not identical, but they go back to the same relational order. The relational elaboration therefore explicitly separates edge, tact enactment, and delta from one another, but holds them together as different readings of the same transition-context. Thus the relation of two tacts can now also be considered. Let:

TA and TB be two enactments of the same order of difference. Then what holds is not:

$TA = TB$

as the identity of two objects. Rather:

$TA \equiv_\Delta \Delta$, $TB \equiv_\Delta \Delta$.

Both tacts read the same self-referentiality of the difference at different relational positions. Their relation is:

$TA|TB$.

The second tact does not simply stand temporally behind the first. It differentiates a relation in which the first tact is already effective. Thus the tact relation itself becomes the material of a further differentiation. Two tacts can be read as two point positions The geometric reading of the same relation can appear pointwise. Let: A and B be two pointwise reading positions. Then their pole relation is:

$A|B$.

Volume I introduces the Two geometrically precisely through two counterpoints or the diameter. The two points are not original objects from which a line is later built. Their relation makes the linear difference visible. Thus two tacts and two point positions can be grasped as two readings of the same bipolarity:

$TA \mid TB \cong\Delta\, A \mid B.$

The sign:

$\cong\Delta$

does not mean identity. It denotes the preservation of the same order of difference under two different readings. The tact reads the enactment. The point reads the position. The pole relation remains:

$\mid.$

Superposition is not fusion If two point positions are read from a certain perspective, their visible projections can partially superpose one another. Let:

$\Pi q(A)$

and:

$\Pi q(B)$

be the visible readouts of the same two relational positions under a perspective q. Then it can hold that:

$$\Pi q(A) \cap \Pi q(B) \neq \varnothing$$

The visible forms thereby share an area of their readability. From this, however, it does not follow that:

$A = B.$

Relationally, what remains is:

$A \mid B.$

The superposition concerns the perspective. It does not cancel the difference of the positions. Thus recombination is not to be understood as fusion. It is: shared readability with preserved relational difference. This corresponds to the later binding structure of the Tractatus: bound relations do not have to be identical. They must be correlatable, or stably readable together. Volume VII explicitly describes ⋈ as bindability without identity. The orthogonal reading preserves the difference in the superposition Precisely where two visible projections superpose one another, the orthogonal reading becomes decisive. For the difference has not only the direct counter-orientation:

$$+\Delta \mid \; - \; \Delta$$

Volume I introduces the imaginary or orthogonal perspective between these two directed readings. The complete orientation order is:

$$+\Delta;\ |;\ i\Delta;\ |;\ -\Delta;\ |;\ -i\Delta$$

Here:

i

does not denote an additional substance and not a second kind of number. The relational unfolding writes:

$i = R\pi$

. The imaginary reading is a change of face with an identical relational carrier. The carrier is not doubled; its orientation is read differently. Thus a relation whose direct projections partially coincide can, under its orthogonal reading, continue to keep its difference visible.
Schematically:

$\Pi q(A) \cap \Pi q(B) \neq \varnothing$

and at the same time:

$\Pi iq(A) \neq \Pi iq(B)$.

This notation is a mathematical unfolding of the perspective structure developed here and not a literal sentence of the Tractatus. Its sense is: What appears recombined in one perspective can remain differentiated in a complementary perspective. Thus recombination has two simultaneously effective sides: shared readability | preserved differentiability.

The Four is the complete perspective order of this relation With:

$+\Delta, i\Delta, -\Delta, -i\Delta$

what is denoted is not a collection of four delta-objects. It is four orientation readings of the same self-relation. Their complete order is the fourfold context:

$$4\Delta = \Delta\Delta$$

. The Four is therefore the stable context reading in which the direct and orthogonal perspectives of the same relation become effective together. Volume I describes 4 as the first combination of the relations from 1 to 3. The quadrilateral there becomes readable through two triangle relations, yet this recombination does not simply restore the original triangle: the angle relations change. The difference differentiates itself again differently in self-reference. The Four is therefore not:

3 + 1

as a mere collection. It reads the recombination of the previous relations in a new context. Euler as orthogonal relation of two tact readings Thus the Euler reading from Volume I also becomes newly intelligible. The familiar complex rotation representation is not read there primarily as

the movement of a point-object in a presupposed space. It makes visible a relation that behaves orthogonally to itself. The real and the imaginary component are two complementary readings of the same relational movement.

In the tact reading developed here, this can be written schematically as:

$TB \cong\Delta\ iTA$.

The second tact is not thereby “the first tact multiplied by a foreign imaginary number”. What is meant is: *TB* reads the same self-relation in orthogonal orientation to *TA*. Thus two tacts geometrically become two mutually related perspectives of the same movement of difference. The corresponding point reading is:

$A|B$.

Its orthogonal supplement makes the complete fourfold order visible. Thus tact relation and point relation coincide without becoming identical:

$TA|TB \cong\Delta\ A|B \cong\Delta$ orthogonally coupled self-relation.

The linear relation and its closed reading The relation of two pointwise positions can be read linearly as diameter:

$A|B$.

Yet the relation also has its rotation-readability. If the linear relation is read under all orientations of the same shell, its orbit closes. The closed relation appears as circle. Thus line and circle do not stand opposite one another as two mutually independent geometric objects. They are:

linear reading | closed rotation reading of the same relational basic order. Volume I localizes this transition precisely at 4: the structure no longer relates only within the circle to its positions, but to the circle as relation itself. At this point π emerges as the ratio of circumference and diameter. Thus π can be read work-immanently as:

$\pi read$ (closed relation; |; linear relation) .

Or more precisely in the familiar geometric form: π circumference diameter . Yet circumference and diameter here do not at first denote two measured quantities of a presupposed circle-object. They are two readouts of the same relation: diameter = linear pole reading, circumference = closed rotation reading. π thereby reads the ratio of the relation to its own closure. Two tacts and the emergence of the circle relation Thus the geometric relation of two tacts can now be formulated completely. Starting point:

$TA|TB$.

Pointwise reading:

$A|B$.

Orthogonal reading:

$i(A|B)$.

Complete fourfold context:

$$+\Delta;\ |;\ i\Delta;\ |;\ -\Delta;\ |;\ -i\Delta$$

Rotation closure:

$\mathcal{R}(A\,|\,B) \longrightarrow \bigcirc$.

Ratio of linear and closed reading: π. Thus π is not an addition brought into the tact relation from outside. The π-relation becomes readable where the directed relation of two tacts is related to the closure of its own orientation relation. The second tact is also phase tact Volume VII later explicitly takes up this structure again and distinguishes two complementary tacts. The reading tact:

n

determines when a structure is read under gate and visibility. The drift/phase tact:

$\phi(n)\Omega(n) \bmod 2\pi$

determines where the same structure is located within its self-reference. These two tacts cannot be reduced to one another. Same reading tact does not mean same phase; same phase does not mean same reading tact.

Thus the later holonomy reading confirms the structure already laid out in Volume I. One tact reads the posited enactment. The other reads its position within the closed self-relation. The circle relation therefore does not simply generate a geometric form. It generates an additional readability of the tact as phase. π denotes the non-complete congruence of linearity and closure The linear and the closed relation are related to one another, but do not collapse into one another. Precisely for this reason there appears: π. If linear and closed reading were completely identical, there would be no ratio between them to read. The π-relation therefore marks the difference between: direct relational connection and: complete closed self-relation. Volume VII formulates this back-referentiality as the origin of a phase tact and of a drift. In this reading, drift is not an error of closure. It is the persisting difference between the linear perspective and its closed self-relation. Thus holonomy begins A complete orientation cycle can return to the visible starting position.

For the fourfold orientation, what holds is:

$i4$

$= idF$.

The face is the same again. The enacted path, however, therefore does not have to be empty. The elaboration explicitly records: same face ≠ same trace history. A closed orientation path can carry a non-vanishing return difference. Thus we obtain:

$\gamma(0) = \gamma(1)$

with possible:

$$\Sigma(\gamma) \neq 0$$

The relation is geometrically closed. The difference of its enactment remains holonomically effective. Superposition and holonomy therefore belong together Now the original superposition of the two point positions can be considered again. Under one perspective:

$\Pi q(A)$

and:

$\Pi q(B)$

can partially coincide. Their orthogonal readings can preserve their difference. Their holonomic trace, beyond this, preserves the enactment through which this shared readability came about. Thus recombination has three simultaneously effective aspects: Superposition : shared perspectival readability, Orthogonality : complementarily preserved differentiability, Holonomy : preservation of the enacted path. None of these readings is sufficient alone. Superposition alone could make poles appear indistinguishable. The orthogonal reading alone would not explain their shared bindability. Holonomy alone does not yet say under which perspective the relation becomes visible. Only their joint effect makes the recombined relation completely readable. The two points are therefore the same structure as the two tacts Thus the initial connection receives its full form. Two tacts:

$TA \,|\, TB$

are the operative reading of a relational bipolarity. Two points:

$A \,|\, B$

are the pointwise geometric reading of the same bipolarity. The imaginary axis:

$i = R\pi$

reads the orthogonal complementarity of this relation. The Four:

4Δ

reads its complete orientation context. The circle reads its rotation closure. π reads the ratio of its linear and closed form. Holonomy reads the enactment that remains effective despite visible closure. Thus:

$TA \,|\, TB \cong\Delta A \,|\, B \cong\Delta (+\Delta \,|\, i\Delta \,|\, -\Delta \,|\, -i\Delta) \cong\Delta 4\Delta \cong\Delta$ closed rotation relation.

These forms are not identical. They are isomorphic readings of the same order of difference. The geometric overall movement The connection can now be written in a single movement:

$$| \rightarrow \Delta = |(|) \rightarrow TA \,|\, TB \leftrightarrow A \,|\, B$$

$A \,|\, B \longrightarrow$ perspectival superposition $\longrightarrow i(A \,|\, B)$

$$+\Delta \,|\, i\Delta \,|\, -\Delta \,|\, -i\Delta \rightarrow 4\Delta$$

4Δ ⟶ rotation closure ⟶ ○ linear relation; |; closed relation ⟶ π and finally:

$$\gamma(0) = \gamma(1)|\Sigma(\gamma) \neq 0$$

This representation too is not to be read as the temporal production of a circle from individual parts. The individual steps unfold different simultaneously effective perspectives of the same self-relation. The difference remains the origin in every reading Thus it again becomes clear why none of the forms that have emerged may be reified. The tact is not a thing. The point is not a thing. The imaginary axis is not a second space. The circle is not a container. π is not a value inserted from outside. Holonomy is not an additional memory-object. All these forms read different modes of effect of the same basic relation:

|.

Volume IV determines fractality precisely at this level: not forms or numbers are primarily fractal, but differentiating itself differentiates itself again; the emerging orders act simultaneously and recursively. Therefore the condensed connection is: Two tacts, two point positions, and two orthogonal perspectives are different readings of the same self-relation of the difference. Their partial superposition makes recombination readable. Their orthogonal relation preserves differentiability. Their fourfold order gives the complete context. Their rotation closure appears as circle. π reads the ratio between linear and closed self-relation.

And holonomy preserves the enactment of this closure. Thus the circle is not the end of the relation. It is the place where the difference can read its own return without dissolving in this return.

5. Differential, integral and open relation

The integral of the open relation

The previous unfolding has determined tact as the operative reading of the difference . The starting point remains:

|

and its self-referentiality:

Δ := |(|)

If this self-referentiality is read in its smallest local movement, it appears in the Tractatus as differential:

|Δ

Volume I determines the differential explicitly not primarily as the limit value of a quantity tending toward zero. It is the smallest recognizable self-difference of a relation with respect to itself: the tact in which a relation further turns its own structure. Thus differential and tact

belong to the same enactment. |Δ ≅ local tact of self-difference. The differential is not an infinitesimally small substance. It denotes the local efficacy of the difference.

The single tact does not remain isolated

An enacted difference acts back on the relation in which it was enacted . Let:

$$A0\ T1 \multimap A1\ T2 \multimap A2\ T3 \multimap A3$$

be three tacts related to one another. Then: $T1$, $T2$, $T3$ are not three isolated events that are only added together afterward. Each new tact acts on a relation in which the previous tacts have already become effective. The path therefore arises in enactment:

$\gamma = (T1, T2, T3, \ldots)$.

Volume VI accordingly describes the path not as a pre-drawn map. It is generated in going; rhythm is the natural form of the continuation of the posited difference. Thus every further tact:

$$|\Delta$$

is at the same time a renewed differentiation of the already differentiated relation. The integral is the trace of this self-movement Volume I therefore leads directly from the differential to the integral. There the integral is not primarily:

$\int f(x), dx$area under a curve.

It is determined as the summed or accumulated movement of self-referentiality: as the whole trace that a relation leaves behind when it unfolds over many delta steps. The operative notation is:

$$|\Sigma|\Delta$$

and Volume VIII condenses its meaning to:

$|\Sigma|\Delta$accumulated self-movementintegrated difference along a path

Thus differential and integral do not stand next to one another as two separate mathematical tools. They read the same enactment on two levels of reference: $|\Delta$: local self-movement,

$$|\Sigma|\Delta : integratedself - movement$$

The integral does not contain the individual tacts like a container contains its components. It is the present relational form of their continuing enactment. The area is only a projection of the integral Thus the meaning of the geometric area also changes. If the integral appears as area, then this area is not what the integral ontologically “is”. It is a geometric projection of the integrated relation. A continuous reading can write, for example: $d$cont

$jk \int$

$\gamma j \to k$

$w\Pi,\varphi(\varepsilon)\, d\lambda.$

But the integral does not generate a preceding continuous space. It reads the already enacted transition trace under a particular measure perspective. Therefore:

Integral ≠ area as object. Rather: areapossible geometric Readout of integrated self-movement. The same integral can be read under another perspective as drift, distance, phase, trace, or holonomy. The trace remains one. Its projections are many. The three-perspective already integrates its four-context Now we return to the 3/4 frame. Its form is: Θ3

(e1, e2, e3; D).

Three relations are posited. A fourth relation remains open under the concrete perspective. However, this openness does not mean that something is missing from the complete relation. The four-context:

$$4\Delta = \Delta\Delta$$

is already effective. The concrete reading appears merely as:

3Δ.

Therefore:

$$3\Delta;\ |;\ 4\Delta$$

The Three reads the present perspective. The Four reads the complete context of this perspective. The open side D is therefore not an unknown fourth component that would have to be added later. It is the way in which the complete four-context remains openly readable under the present three-perspective. Overlay makes the open relation visible Let us consider two relational positions:

$A \mid B.$

Under one perspective, their visible projections can partly coincide:

$$\Pi_q(A) \cap \Pi_q(B) \neq \varnothing$$

However, the overlay does not cancel the difference. Relationally, there remains:

$A \mid B.$

Thus the recombination simultaneously has: common readability and: remaining differentiation. Precisely this remaining differentiation becomes effective as drift. Drift is therefore not an external measurement error between two already finished objects. It is the open relational difference of the recombination itself.

Thus the open side of the frame can be understood as a drift reading of the same integrated trace. Volume VIII sets for projections in general:

$ai := \Pi i\boldsymbol{\Sigma}$

and introduces the 3/4 corner explicitly with an open drift edge. The trace thereby remains the common carrier of its different readings. From this follows, as a further synthesis:

$$D := \Pi D! \ (|\Sigma|\Delta)$$

This equation is not a literal basic formula from Volume I. It brings together its concept of the integral with the later drift projection of the 3/4 frame. Its sense is: The open edge reads the integrated self-movement under its drift perspective. The drift thereby describes the relation itself This has an important consequence. The fourth edge does not have to be searched for. It does not have to be calculated by adding an additional value to the path from outside. Nor does it have to be stored as missing information. For the three enacted relations have already generated an integrated trace :

$$|\Sigma|\Delta$$

This trace carries the way in which the relation stands open within its four-context . Therefore: *D*self-readout of the still open differentiation.

Or prosaically: The drift describes itself. This does not mean that drift would be an acting subject. What is meant is: The present position of the relation contains its openness not as a stored value, but makes it readable as a projection of its own enactment. The path describes its closure while going Thus the meaning of the path also changes. A path is not first traversed completely and then evaluated. Each tact changes the already integrated relation:

$\Sigma n{+}1\Sigma n \oplus Hn$.

Volume VIII explicitly calls the trace the memory of the enacted relation. Each admitted step changes its readable history. Therefore the open relation describes itself continuously. After the first tact there is a particular openness. After the second tact this openness is differentiated again. After the third tact there is an integrated three-perspective within the simultaneously effective four-context. The open fourth relation is therefore not only “there” after the third step. It has co-determined itself with every step as the complementary relation of the enactment. Thus:

$$|\Delta, 1; |; |\Delta, 2; |; |\Delta, 3 \rightarrow |\Sigma|\Delta \rightarrow D$$

These arrows too are reading transitions, not separate machines.

Lock is the closure reading of the integral

Now the 3/4 lock becomes much more precise. Volume VIII sets:

*Lock*3

as the snapping-in of a relation in a stable drift position. The 3/4 corner does not generate the result; it determines the position in which bound projections become readable as a common normal form. With the integral reading it can now be said more precisely what snaps in there. Not three edges plus a fourth value supplied later. Rather: the integrated three-perspective | its own drift reading in the four-context. Thus it can be written schematically:

$$|\Delta \rightarrow |\Sigma|\Delta \rightarrow D \rightarrow Lock3$$

. Thereby reads:

$$|\Delta$$

the local self-movement,

$$|\Sigma|\Delta$$

its integrated enactment,

D

its open complementary relation, and:

$Lock3$

the stable closure of the same relation.

Closure is not an erasure of the integral The holonomic condition remains decisive. If the open relation snaps in and the geometric path closes, the integrated self-movement is not necessarily thereby cancelled. It can hold:

$\gamma(0) = \gamma(1)$

and at the same time:

$$\Sigma(\gamma) \neq 0$$

Volume VII determines exactly this as the persistence criterion of a holonomically nonempty loop: a geometrically closed path can carry a non-vanishing integrated trace. Thus lock does not mean:

$$|\Sigma|\Delta \rightarrow 0$$

Rather:

$|\Sigma|\Delta \longrightarrow$ closed reading-position of the same integrated self-movement

The closure does not erase the path. It makes its relational total movement stably readable. Differential, integral, and holonomy are therefore one single movement Thus the development from Volume I to the later holonomy becomes transparent. Volume I sets:

$$|\Delta$$

as smallest self-movement. It sets:

$$|\Sigma|\Delta$$

as accumulated self-movement. The later volumes unfold from this:

γ

as ordered path,

$\Sigma(\gamma)$

as integrated trace,

Ω

as accumulated holonomy,

D

as open drift reading, and:

$Lock3$

as stable closure of the bound relation. Volume VIII brings these concepts together explicitly in a common operative sequence. Thus they can be read as the recursive unfolding of a single basic enactment:

$$|\Delta \rightarrow |\Sigma|\Delta \rightarrow \Sigma(\gamma) \rightarrow \Omega \rightarrow D \rightarrow Lock3$$

. Not because Volume I already uses all later symbols in the same form. But because the later volumes specify the self-movement laid out in its concept of differential and integral.

The integral connects discrete and continuous reading

Thus it also becomes understandable why tact and integral do not contradict one another. The tact reads the relation discretely:

$$T1|T2|T3| \cdots$$

The integral can read the same trace continuously:

$\int$

γ

$w\Pi(\varepsilon), d\lambda.$

But neither discreteness nor continuity is the relational origin. Both are projections of the same trace. Therefore: discrete tact ≅Σ continuous integral reading provided both preserve the same relevant order of difference. The tact shows the posited transitions. The integral shows their accumulated effect. Holonomy shows what remains of this effect after a possible closure. The open difference is thus at the same time its own principle of integration At the beginning stood:

|.

The difference generates no external integrator that collects its movements . For each further difference acts on the already differentiated relation.

Thus the enactment integrates itself in the progression of its own self-differentiation. The integral is therefore not a machine outside the relation. It is the reading of the fact that: each new difference encounters an already effective difference. Precisely through this, history arises. Precisely through this, trace arises. Precisely through this, drift arises. And precisely through this, an open relation can make its own closure condition readable. The connection can now be condensed | : differentiation,

$$\Delta = |(|) : self - differentiation$$

|Δ : local tact,

```
|Σ|Δ : integrated enactment
```

Σ(γ) : trace of the ordered path,

D = Π$D\Sigma$: open drift reading,

Θ3 : three-perspective in the four-context,

$Lock3$

: stable closure reading,

$\gamma(0) = \gamma(1)$, ; Σ(γ) ≠ 0 : holonomic return.

The central statement is thus: The open edge is not a gap in the enactment. It is the projection of the already integrated enactment onto its still open complementary relation. And: Lock does not supplement the relation. It reads the closure that its own integrated movement has already determined.

Thus the integral becomes the connection between tact and holonomy. The local difference enacts itself. The enactment integrates itself into the trace. The trace reads its openness as drift. The drift can snap in within the four-context. And the closed relation preserves the path through which its closure became readable at all.

6. The rule is the path

Mathematical overall form of the recursive movement of difference

The mathematical starting point is not the number and not the operator. It is:

|

as pure distinction. The relational explication is:

$A|B$

and the self-referentiality of difference:

$$\Delta := |(|)$$

These three orders are not to be read as temporal stages of development. The later presentation unfolds successively what operates structurally at the same time: pure distinction, pole relation, and distinction of the distinction. Volume IV determines fractality precisely from this self-referentiality and not from repeated number objects or form objects.

1. Number is the Readout of the order of difference

A number is not a presupposed entity. It is determined as the stabilized reading of a trace:

$n := read\, \Sigma n.$

Therefore, methodically:

$| < \Delta < \Sigma < read\, \Sigma$

where < here does not designate a temporal sequence, but the methodological priority of difference over its Readout. The number appears as the visible position of an already relationally ordered movement.

2. Operators are perspectives of difference

Volume I expressly determines the mathematical signs as notations that say which process is being described and how numbers stand in relation to one another. The operators +,-,×,÷ are there the kinds under which the reflection network is viewed. Therefore the open difference:

|

is specified under a particular reading of effect:

$$| \rightarrow |\mu$$

For the basic operators:

$$\mu \in \{+, -, \times, \div, \surd, =, .\}$$

Their work-immanent readings are:

$|+$: Expansion, $|-$: Contraction, $|\times$: Resonance, $|\div$: Disentanglement, $|$: iterated iteration, $|\surd$: back-reading of iterated relation, $|=$: equilibrium / snapping into place, $|.$: scale flip

Volume I sets precisely these modes and assigns expansion, iterated expansion, and iterated iteration as well as their contractive counter-readings to different depths of recursion. Volume VIII correspondingly states: The operator does not generate a value; it aligns the relation. Thus:

$A \mid \mu B$

is not an instruction to process two finished objects with an external machine. It designates:

the perspective under which $A \mid B$ is enacted and read.

3. The rule therefore lies on the edge

Let:

$Aj-1$ and Aj

be two relational positions. An undirected edge is first:

$ej := Aj-1 \mid Aj$.

Its specified reading is:

e

(μj)

$j := Aj-1 \mid \mu j$

Aj.

Thus the operator is not arranged next to the path. It is the mode of effect of the edge itself. A path is therefore:

$$\gamma\ (A0|\mu 1A1,\ ;\ A1|\mu 2A2,\ ;\ \ldots\ ,\ ;\ An-1|\mu n$$

$An)$.

The Tractatus later formulates the same thought as ordered enactment:

$Tj := Step \circ Oj$,

where:

$Step \circ O \neq O \circ Step$.

The sequence and the respective reading operation therefore belong to the trace of the path.

4. Rule and path are two readings of the same order

Thus the sentence: “The rule is the path.” can be made precise. Let:

$\gamma(e$

$(\mu 1)$

$1, \ldots, e$

(μn)

n).

Then the mathematical rule of this path is its notational reading:

$\mathfrak{R}\gamma :=$ *read*Notation$(\gamma)(\mu 1, \mu 2, \ldots, \mu n)$.

The path itself is its enactment reading:

$\mathfrak{W}\gamma :=$ *read*Vollzug(γ).

Therefore not typologically:

$\mathfrak{R}\gamma = \mathfrak{W}\gamma$,

but work-immanently:

$\mathfrak{R}\gamma \cong_\Delta \mathfrak{W}\gamma$.

The rule and the path preserve the same directed order of difference under different reading channels. Thus the sentence in full is: The mathematical rule is the notational reading of the path that the same relation of difference enacts. Or condensed: Regel ≅Δ Perspektive ≅Δ Weg. Volume V expressly formulates this connection by the example of concrete small-tact rules: A rule drives the 3Δ-state through the 4Δ-space of possibility; the experienced state is precisely the path – “the path you choose”.

5. The tact is the local enactment of the rule

The operator does not remain an abstract notation. It is enacted as tact:

$Aj{-}1\ T\mu j \dashrightarrow Aj$.

Thus:

$T\mu j$

$\cong_\Delta |\mu j$

. Not as an identity between tact and sign. Rather:

$|\mu j$

notation of the perspective,

$T\mu j$

enactment of the same perspective. Thus the same relation can be read, for example, expansively:

$A|{+}B$,

contractively:

$A|{-}B$,

resonantly:

$A \,|\times B$,

or disentanglingly:

$A \,|\div B$.

The path does not change in addition to the rule. The chosen rule is its directed form of course.

6. The rule acts recursively on rules already enacted

Now the third order of difference emerges in full form. If two relations already stand under their own modes of effect:

$RA := A \,|\, \mu A$

B

and:

$RB := C \,|\, \mu B$

D,

not only their poles, but the relations themselves can again be distinguished:

$RA \,|\, \Phi RB$.

Here lies fractality. Not:

A, B, C, D

are merely further assembled. Rather:

Relations act on relations. Volume IV designates precisely this transition as entry into fractal self-referentiality.

7. The fractal operators are recursion perspectives

Volume IV introduces no new basic operations for this. The fractal operators are specializations of Δ. Fractal difference

$$\ominus := \Delta(\Delta)$$

It reads: the transition of the transition. If: $R1\ \Delta \longrightarrow R2$

is itself distinguished again, then: ⊖ is present. Fractal connection

$$\circledast := \Delta \parallel \Delta$$

It reads: the simultaneous coupling of several transitions. Thus, for example:

$(RA \Delta RB) \circledast (RC \Delta RD)$.

The transitions do not merge. Their effects are relationed together. Fractal oscillatioñ

$$\ominus := \Delta \circlearrowleft \Delta$$

It designates: unstable recurrence between orders of difference. Thus:

RA

$\ominus RB$

$\ominus RA$ ...

The return need not be invariant. Fractal rotation $\mathcal{R}$:= directed Δ. It does not necessarily change the relational order, but its orientation:

$A|B\,\mathcal{R} \multimap B|A$.

Volume IV therefore summarizes the four fractal operators as transition of transition, coupling of transitions, unstable recurrence, and directed transition, and expressly says that they do not extend the system, but unfold what is already inherent in difference.

8. Thus the rule itself becomes fractal

The basic rule:

$A|\mu B$

can now itself be part of a higher rule:

$$(A|\mu 1B)\,|\Phi(C|\mu 2$$

D).

And this overall order can again be relationed:

$[(A|\mu 1B)|\Phi 1(C|\mu 2D)]\ |\Phi 2\ [(E|\mu 3F)|\Phi 3(G|\mu 4$

$H)]$.

This is not a tree made of data objects. It is the notation of a recursive order of perspectives of difference. Therefore: Recursion renewed reading of difference of already distinguished relations.

9. Differential is the smallest local rule enactment

Volume I determines the differential as the smallest recognizable self-distinction of a relation and expressly as the tact in which a relation further rotates its own structure. Therefore: |Δlocal self-distinction tact. Under a concrete mode:

$|\Delta,\mu$

this tact can be read as local self-movement under a particular rule perspective. This notation is our bringing-together of differential and operator perspective; it is not asserted here as the literal basic notation of the volume. The associated path is:

$$\gamma\mu \ : \ A0 \ |\Delta,\mu 1 \longrightarrow A1 \ |\Delta,\mu 2 \longrightarrow A2 \rightarrow \cdots$$

Thus every differential is at the same time: local path-setting.

10. Integral is the integrated rule path

Volume I determines the integral as the summed movement of self-referentiality, as the entire trace of a relation over many Δ-steps. The Tractatus notation is:

$$|\Sigma|\Delta$$

For a path:

$\gamma(e1, \dots, en)$

the trace is continued:

$\Sigma j{+}1 = \Sigma j \oplus Hj$.

Thus:

$$|\Delta$$

reads the local path tact and:

$$|\Sigma|\Delta$$

the integrated order of the enacted path. Thus: Differential ≅ local rule enactment, Integral ≅ integrated rule path. The rule therefore does not lie outside the integral. The integral is the trace of the already enacted rule perspectives.

11. Two tacts can recombine resonantly

Let there be two tact orders: *TA* and *TB*. Their resonant reading is:

$TA|{\times}TB$.

Multiplication is thereby not originally repeated addition, but resonance or coupling of relational rhythms. Volume VIII expressly determines it so. Geometrically, the same two tact positions can be read as a point relation:

$A|B$.

Under a projection q it can hold that:

$\Pi q(A) \cap \Pi q(B) \neq \varnothing$

while still:

$A \mid B$.

Thus superposition is: common perspectival readability while relational difference is preserved.

12. The orthogonal reading preserves complementarity

The same relation possesses an orthogonal reading:

$i := R\pi$

. It is important here:

$$+ \neq i$$

and:

$- \neq -i$.

Plus and minus are modes of binding. i and -i are orthogonal orientation readouts. They can cooperate within the same Δ-relation, but must not be typologically dissolved into one another. The complete orientation orbit is:

$$+\Delta;\ |;\ i\Delta;\ |;\ -\Delta;\ |;\ -i\Delta$$

After a complete quarter rotation:

$i4$

$= id$.

The visible orientation can return without the enacted path thereby having to disappear.

13. Three is perspective, four is context

The complete context is:

$$4\Delta = \Delta\Delta$$

. The concrete directed perspective:

$$3\Delta = 4\Delta - \Delta$$

This equation does not designate temporal subtraction of a fourth piece. It reads a complete fourfold context under a perspective with an open complementary relation. The frame is: Θ3

($e1$, $e2$, $e3$; D).

Here three edges are set. D designates the open drift edge. Volume VIII introduces precisely this 3/4-frame as the model form of the complete architecture.

14. The superposition describes its open side itself

Now the decisive connection can be formulated. The tacts:

$TA|\times TB$

recombine. Their projections can appear superposed. Their relational difference, however, remains preserved. Thus an open difference arises between: common readability and: preserved difference. This open difference is read as drift. The trace has a projection channel for this:

$D \coloneqq \Pi D\boldsymbol{\Sigma}$.

Since:

$$|\Sigma|\Delta$$

reads the integrated self-movement, the result as our work-immanent bringing-together is:

$$D \;:=\; \Pi D!\;\;(|\Sigma|\Delta)$$

Thus: Drift is the open perspective reading of the already integrated path. It is not missing information.

15. The rule thereby describes its own still open continuation

Since the path has already inscribed its rule perspectives into the trace, it holds that:

$$\gamma \;\rightarrow\; |\Sigma|\Delta \;\rightarrow\; D$$

The open drift edge is therefore not to be fixed from outside. It is a Readout of the path itself. Thus the sentence: The rule is the path receives a second meaning. Not only the local direction:

$|\mu$

is already path perspective. The previous path history also determines, through:

$D = \Pi D\boldsymbol{\Sigma}$

its present open perspective. The rule thus becomes recursively readable during its enactment through its own trace.

16. Lock is the closure reading of this self-described path

If the relevant projections of the trace can be bound with one another:

$\Delta ai \bowtie \Delta aj$,

the relation can lock into place under the fourfold context:

$Lock3$

. Lock does not add:

$e4$

as foreign fourth information. Rather:

$Lock3$

$$e1, e2, e3; \Pi D(\Sigma)$$

reads the stable closure of a relation whose open side is already determined by its own integrated path. Thus:

$$|\Delta \to |\Sigma|\Delta \to D \to Lock3$$

. These arrows designate different readings of the same enactment.

17. The closure does not erase the path

A closed path can hold:

$\gamma(0) = \gamma(1)$

while at the same time:

$$\Sigma(\gamma) \neq 0$$

Thus: Return of the visible position ≠ erasure of the enacted path. Volume VIII formulates correspondingly: Two identical states can have different traces; meaning lies not only in the present state, but in the path by which it was reached. The rule remains effective in the closed relation as trace. This is the holonomic form of the sentence: The path remains effective in its return.

18. Recursion therefore arises without an external recursor

A locked relation remains difference. It does not fall out of:

$|$.

Therefore it can be relationed again. Let there be, at a reference depth r: R

(r)

A and R

(r)

B

already integrated relational orders. Then, on the next recursive reading, it can hold that:

R

(r)

$A \mid \Phi R$

(r)

B .

Here:

Φ

is again a perspective of Δ. For example: $\ominus$, $\circledast$, $\tilde{}$ $\ominus$, $\mathcal{R}$. Thus no new recursion operator outside the system is needed. For:

$\Delta(\Delta)$

is already the self-distinction of the transition. Volume IV says exactly: Fractal operators do not extend the system. They unfold difference.

19. The general mathematical path form

Thus we can write the entire movement in a single form. For each edge:

$ejAj-1 \mid \mu j$

Aj.

For the path:

$\gamma(e1, e2, \dots, en)$.

For the local tact:

$ej \longleftrightarrow \mid \Delta, \mu j$

. For the integrated trace:

$\Sigma j+1 = \Sigma j \oplus Hj$.

For the integral:

$$|\Sigma| \Delta integratedself - movementof\gamma$$

For the projections:

$ai := \Pi i \boldsymbol{\Sigma}$.

For the open drift:

$D := \Pi D \boldsymbol{\Sigma}$

or as our integral bringing-together:

$D\Pi D! \left|\Sigma\right|\Delta$.

For recombination:

$\Delta ai \bowtie \Delta aj$.

For the frame: Θ3

($e1$, $e2$, $e3$; D).

For the closure:

$Lock3$

$\longrightarrow NF\varphi\Sigma$.

For holonomy:

$$\gamma(0) = \gamma(1) \wedge \Sigma(\gamma) \neq 0$$

For the recursive continuation: R

(r)

$A \mid \Phi r$

R

(r)

$B \longrightarrow R(r+1)$

. Here remains:

Φr a specification of the same Δ = |(|).

20. Rule, perspective, tact, path, and trace

Thus, in conclusion, the complete order of types results:

|

is the open difference.

$|\mu$

is its specified rule perspective.

$T\mu$

is the local enactment of this perspective.

$\gamma\mu$

is the ordered path of its enactments.

$$|\Sigma|\Delta$$

is its integrated self-movement.

D

is the open perspective of this integrated path onto its not yet closed complementary relation.

$Lock3$

is the stable closure reading within the simultaneously effective fourfold context. And:

Φ

is the renewed perspective under which already enacted relations are again read onto one another. Thus the overall relation is:

$$| \to |\mu \to T\mu \to \gamma\mu \to |\Sigma|\Delta \to D \to Lock$$

$\longrightarrow R|\Phi R'$

$\longrightarrow \cdots$ Yet this arrow series too is only a successive reading presentation. Structurally it holds that:

Regel $\cong\Delta$ Perspektive $\cong\Delta$ Takt $\cong\Delta$ Weg $\cong\Delta$ Spur

provided the same order of difference is preserved in each case. The concluding sentence Thus the previous mathematical unfolding can be led back to a single connection: The rule is the perspective under which difference enacts itself. This perspective determines the tact. The tact enacts the path. The path integrates itself into the trace. The trace describes through its drift its own still open relation.

The fourfold context allows this self-described relation to lock into place. The closed relation remains difference and can therefore be distinguished again under a rule perspective. Thus: The rule is the path, because rule and path are two readings of the same directed self-distinction. And its recursion requires no rule outside itself:

$$\Delta \to \Delta(\Delta) \to \Delta(\Delta(\Delta)) \to \cdots$$

For each next rule is again only a new perspective on:

$|$.

Difference carries its path in the manner in which it distinguishes itself.

7. The stringency of perspective

At the beginning of the Tractatus there is no truth value. There is:

$|$.

The difference is not a statement about what is true or false. It is the condition for anything at all to be distinguished from another, related, read, and finally judged. Volume I places this sentence before its first chapter: “The logic is not the path. The logic is what arises when one walks the path.” After the development so far, this sentence can now be read more precisely. Logic does not lie before the relational enactment and then decide about it from outside. It appears as the readability of what a posited order of difference actually enacts on its path. Truth is thereby not abolished. It is shifted to a later place in the movement. The perspective stands before its result A relation can be read under different perspectives. The open difference:

|

can be specified into a determinate reading of effect:

$|\mu.$

Operators do not generate a new relational ground here. They determine the way in which a relation is read and bound at a determinate edge. An inscription without a visible operator sign therefore also has no edge without a reading. Let the chosen perspective be: *P*. It determines the conditions under which a relation is enacted. A path thereby arises:

γP .

This path carries a trace:

$\Sigma P := \Sigma(\gamma P)$.

The path is therefore not independent of its perspective. As already developed: Rule ≅Δ Perspective ≅Δ Path. Yet from this there follows an equally important counter-direction: The perspective must prove itself by its own path. It cannot first be altered after knowledge of the result so that its path suddenly closes. The Delta reading architecture therefore explicitly posits:

P is fixed before *ExecP* (*FQ*).

During the enactment the same profile remains effective. A change of rule generates a new execution and must not be treated as a subsequent repair of a path already begun. The first condition of stringency thereby arises: A perspective must not be constructed retroactively from its desired result. A possible perspective is not yet a carrying perspective That a rule can be formulated is not enough. That it is technically executable is also not enough. And also: Reversibility alone is not sufficient. A rule posited from outside can run in itself completely consistently forward and backward and nevertheless not be a valid reading of the order of difference. Therefore one must distinguish between: possible perspective and: carrying perspective. A perspective carries only if its visible and operative readings actually arise from the same trace. For every relevant projection:

$ai := \Pi i \boldsymbol{\Sigma P}$

it must therefore hold that:

$grounded \boldsymbol{ai, \Sigma P}.$

The Delta reading architecture demands exactly this common grounding: No projection value may be set merely because it fits an already known or preferred result. Thus:

Perspective → Enactment → Trace → Projection.

Not: desired projection → fitting perspective. The trace tests the perspective The trace is the memory of the path. Volume VIII determines:

$I \to \gamma I$

and:

$\gamma I \to \Sigma(\gamma I)$.

The trace carries the effective transitions; two identical visible states can therefore have different trace histories. Thus the perspective cannot be judged solely by its momentary result. Decisive is the order of its entire enactment. A perspectival reading can outwardly return to the same point:

$\gamma(0) = \gamma(1)$,

without thereby necessarily becoming relationally empty.

Conversely, geometric closure alone is not sufficient. For a holonomically nonempty closed relation, Volume VII additionally requires:

$$\Sigma(\gamma) \neq 0$$

A loop can be geometrically closed and nevertheless holonomically empty. This makes clear: Closure alone ⫤/stringency. Stringency concerns not only the visible endpoint. It concerns the trace order of the path. Openness is not falsity For the same reason, an open relation must not be called false too hastily. An opening in the Tractatus does not designate a faulty relation. It marks a: not yet closed role. Volume VIII explicitly determines the variable in this sense: It is not a container for a missing value, but an addressed opening within a question-figure. Thus: open ⫤ false. A relation can still be open because its complementary relation has not yet been read stably. It can also be underdetermined. Or under a determinate perspective it can have no lock.

These cases must not be compressed into a single truth value. Likewise, the gate does not say: true or false. It merely determines whether an edge in the present tact contributes to the visible trace. Volume VIII explicitly emphasizes: The gate does not decide about truth. Thus truth does not lie at the individual transition. It is a later reading of the complete nexus. Bindability as the first criterion of validity A perspective generates several readouts of the same trace:

$ai := \Pi i \boldsymbol{\Sigma P}$.

These readouts need not be identical. They can make number, geometry, depth, rotation, operator effect, or drift visible in different ways. Yet they must not mutually destroy one another as readings of the same trace. For this it holds that:

$\Delta ai \bowtie P\ \Delta aj$.

The binding gate does not demand equality. It tests relational compatibility. Thus a first criterion of evaluation arises:

Bindable$P\ \boldsymbol{\Sigma P}$.

A perspective whose own projections, arising from the same trace, are not bindable with one another cannot stably carry its claimed common relational order.

The contradiction then does not lie in the fact that two different perspectives exist. Different perspectives are precisely to be expected. The break lies in the fact that, under the same claimed ground relation, they no longer possess any common trace order. Lock as stringency test of the perspective If the relevant projections are bindable, their relation can be tested in the fourfold context. The familiar frame is: Θ3

(*e*1, *e*2, *e*3; *D*).

The drift edge:

$D = \Pi D \boldsymbol{\Sigma P}$

reads the still open complementary relation of the already integrated path. It is not supplemented afterward. The open side describes itself from the trace itself. Lock therefore means:

*Lock*3

4 ,*P* . The perspective locks in only when its own trace, its projections, and its drift possess a stable common position within the same order set in advance. The lock must not be made to fit. The direction is:

P → Rüttelraum → Driftselektion → Lock-Lage.

Not: desired position → fitting lock rule.

Here lies the actual criterion of stringency. A perspective must not invent its closure condition only after its path has become known. Its own rule must be able to carry a closure. Normal form and readability back A lock generates no new content. It stabilizes a reading-position of the same trace. The normal form is:

$NF\varphi \boldsymbol{\Sigma P}$.

Volume VIII determines:

$I \to \gamma \to \Sigma \to \Pi \to \bowtie \to Lock3 \to NF \to read$.

The result is not an object newly generated:

$Ergebnis := read \boldsymbol{NF(\Sigma)}$.

A stable perspective must afterward remain readable back onto its own trace:

$recover\ \boldsymbol{read(NF\varphi, P(\Sigma P))} \equiv_\Sigma \Sigma P$.

Readability back does not demand the repetition of every visible intermediate image. It demands the preservation of the same relevant trace class. The relational architecture formulates correspondingly:

$valid(L) \Longleftrightarrow recover(L) \equiv_\Sigma \Sigma$.

Readability back thereby becomes the last test of the perspective: A perspective must not, in its closure, lose the path that generated this closure.

The evaluation criterion of the perspective From these conditions a general work-immanent criterion can now be formed. The following total form is a synthesis of the posits so far; it does not stand in the Tractatus as a single formula. Let: P be a posited perspective and:

γP

its path of enactment. Then let:

Stringent(P, γP)

be fulfilled exactly when:

Stringent(P, γP) $\Longleftrightarrow$;$grounded(P, \Delta)$

$\wedge$ $ExecP$ (γP)

$\wedge$ $grounded\boldsymbol{\Pi i}(\boldsymbol{\Sigma P}), \boldsymbol{\Sigma P}$

$\wedge$ $\forall i, j : \Delta ai \bowtie P\ \Delta aj$

$\wedge$ $Lock3$

4 ,P $\boldsymbol{\Sigma P}$

$\wedge$ $recover!$ $\boldsymbol{read!}(\boldsymbol{NF\varphi}, \boldsymbol{P}(\boldsymbol{\Sigma P}))$ $\equiv \Sigma\ \Sigma P$.

In addition, during the entire enactment it must hold that: P = invariant. A change:

$P \rightarrow P'$

generates a new path:

$ExecP'$.

It does not retroactively repair:

$ExecP$.

The profile test therefore demands in advance, among other things, type consistency, operator invariance, compositionality, lock completeness, result-independence, and repeatability. Truth as logical readout of stringency Now truth can be situated. It is not the starting point: true|false. The start remains:

|.

Only after a path has been enacted, integrated, bound, and stabilized under a perspective can a logical projection be applied to this nexus. For this, as a further reading notation, one can write:

$truthP$:= $read$logic$\boldsymbol{\Sigma P}$.

This notation is an addition derived from the preceding nexus. It means: Truth is a readout of relational stringency, not its presupposed ground element. For an assertion that claims a determinate closure, it could hold that:

$TrueP\,(R) \Longleftrightarrow \text{StringentClosure}P$

(R).

Falsity would correspondingly not be mere openness, but the failure of the claimed closure under the same fully posited perspective. Thus:

$OpenP\,(R) \neq FalseP\,(R)$.

Likewise:

$InvalidP\,(R) \neq FalseP\,(R)$.

An invalid relation can fail already before a truth-readout by not forming any common bindable and readable-back trace class at all. Equality shows this truth-readout especially clearly With:

$L = R$

the structure comes clearly to the fore. Equality in the Tractatus does not mean: identical path. The fundamental condition is:

$\Sigma L \equiv_{\Sigma} \Sigma R$.

The sides can have different inscriptions, paths, and rotation histories. They count as relationally equal if they can be related to the same back-addressable trace class. Thus the logical reading of an equality claim can be grasped as:

$TrueP\,(L = R) \Longleftrightarrow \Sigma L \equiv_{\Sigma,P} \Sigma R$

provided that both sides were completely enacted under the same profile set in advance. The visible numerical value alone does not decide. Equality of the path does not decide. The common trace class decides the closability of the claimed equality relation. Different perspectives are not automatically contradictions Two perspectives: P and P' can read the same relation differently:

$ExecP\,(FQ)$,

$ExecP'\,(FQ)$.

This is permissible as long as both profiles remain clearly separated. Their results must not be mixed as though they had arisen under the same rule. If, however, both generate normal forms of the same trace class, one can test:

$NFP\;\boldsymbol{\Sigma Q} \cong_{\Sigma} NFP'\;\boldsymbol{\Sigma Q}$.

From this it does not yet follow that:

$P = P'$

.

This yields a substantially more precise handling of perspectivity. Another perspective is not automatically false. It is first of all: another rule of the path. It must prove itself under its own conditions. Only afterward can it be tested whether its trace is bindable, isomorphic, different, or incompatible with another perspective. Stringency does not replace perspectivity The

evaluation criterion therefore does not lead to a new absolute outside position. There is no observer who stands outside all relations and from there finally determines which perspective is “the correct one.” The criterion itself also remains bound to the ground order:

$$\Delta := |(|)$$

A perspective is not tested by whether it resembles an external reality. It is tested by whether, in its own enactment, it preserves the order of difference from which it arises. Thus: Stringency does not mean perspectivelessness. Rather: Stringency is the self-preservation of a perspective in its own relational enactment. The perspective evaluates itself by its trace The entire nexus can thereby be formulated finally. A perspective posits a rule:

P. The rule directs the difference:

$|\mu$.

The directed relation is enacted as tact:

$T\mu$.

The tacts form a path:

γP .

The path integrates itself into the trace:

$$|\Sigma P \ |\Delta$$

The trace generates different projections:

$ai := \Pi i \boldsymbol{\Sigma P}$.

These must be bindable with one another:

$\Delta ai \bowtie P \ \Delta aj$.

The open relation reads its own drift:

$D := \Pi D \boldsymbol{\Sigma P}$.

In the fourfold context the relation can lock in:

$Lock3$

4 ,P . A stable normal form arises:

$NF\varphi,P \ \boldsymbol{\Sigma P}$.

Its public reading must remain traceable back to the same trace class:

$recover(read(NF\varphi,P)) \equiv\Sigma \ \Sigma P$.

Only afterward can a logical reading be stabilized. Therefore:

$$| \to P \to \gamma P \to \Sigma P \to \Pi \to \bowtie \to Lock3 \to NF \to read\text{logic}$$

And only here:

wahr|*falsch*.

Not as original objects. As readouts of the stringency of an enacted relation. Conclusion Thus the movement of difference finally also possesses its own criterion of evaluation. A perspective is not stringent because it reaches a desired result. It is not stringent because it is formally complicated. It is not stringent because it is technically reversible. And it is not stringent because it closes geometrically somewhere. It is stringent when: its rule arises from the same order of difference under which it enacts its path; when: its projections remain grounded from the same trace and bindable with one another; when: its open drift becomes readable from its own enactment; when:

under unchanged rule it reaches a stable closure in the fourfold context; and when: this closure preserves, as readable back as a trace class, the path through which it arose. Thus the evaluation criterion is: A perspective carries when it stringently holds through its own difference. Or in the language of the entire sequence: The rule is the path; the trace is its test; the closure is its stringency; and truth is a reading of it. Thus logic returns to the start of the Tractatus. Not as a presupposition of the path. But as what becomes readable when the difference has walked its path.

8. The isomorphy of perspectives

At the end, the movement of the Tractatus returns to its beginning. The starting point was not number. It was not geometry. It was not space, time, music, or a physical object. The starting point was:

|

and its effective self-referentiality:

$$\Delta := |(|)$$

Everything that, in the course of this presentation, has become readable as number, tact, rhythm, geometric figure, orientation, path, trace, projection, or closure therefore introduces no new foundation. These are different perspectives on the same self-differentiating relation. Isomorphy is not identity Therefore Number ≅Δ Geometry does not mean that number and figure are the same object. Number reads the relation numerically. Geometry reads it pictorially and spatially. Tact reads its enactment. Rhythm reads the order of continued tacts. The trace reads the order of the enacted path.

The visible form changes. The supporting order of difference remains. In general:

$L1 \cong_\Delta L2$

if both readings preserve the same relational order of difference and remain readable back to the same trace order. Thus, for inscription, path, and trace, it is not:

$I = \gamma I = \Sigma I$

but:

$I \cong_\Delta \gamma I \cong_\Delta \Sigma I$

The isomorphy does not erase the difference of the perspectives. Precisely because number, figure, tact, and trace can appear different, it becomes visible what remains preserved in their change. No original boundary between mathematics and physics Thus the boundary between mathematics, geometry, and physics also loses its foundational position. If space, direction, change, and time do not lie before the relation, but appear as readings of relational movement, then physically experienced phenomena also fall under the same order. A physical process does not stand opposite the mathematical or geometric reading as a second reality. It can be another perspective of the same difference-enactment. What appears geometrically as position can be read numerically as number. What appears numerically as sequence can be read as tact and rhythm. What is read as tact and rhythm can appear in experience as change. What appears as relational change can be read physically as movement, space, time, or energy.

Not because these phenomena are identical, but because, under different perspectives, they can carry the same order of difference. Therefore the isomorphy is not:

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Number = Geometry = Physics = Experience
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but: numerical reading $\cong_\Delta$ geometric reading $\cong_\Delta$ tact/rhythm reading $\cong_\Delta$ physical reading $\cong_\Delta$ experience reading A musical reading does not stand outside this order: where relation is read as tact, recurrence, resonance, tension, and rhythm, the perspective changes, not the relational origin. The short version thus posits no independent theory of music; it merely keeps open the isomorphic change of perspective that the tact and rhythm reading already makes possible. The transition to Volume II Volume II, the Book of Physics, develops this perspective further. There, space, time, movement, energy, measurement, and experience are treated not as foundations independent of the order of difference, but are read from relational viewpoints. In this sense, the nine volumes also are not nine separate object domains. They change the perspective on the same origin. The difference remains difference. What changes is the way in which it is read. Isomorphy is the preservation of the difference in the change of its perspective.

Everything further is its reading.

Orientation in the nine volumes

Volume I - Book of Mathematics Priority of difference before number; number, geometry, rhythm, operator, and calculation. Volume II - Book of Physics Physical readings of relation, space, time, energy, measurement, and experience. Volume III - Book of Self-Knowledge Observer, consciousness, memory, will, language, and self-relation. Volume IV - Book of Self-Referentiality Orders of difference, fractality, and relations that act on relations. Volume V - Book of the Smallest Referentiality of Δ Orientation, context, small tact, and geometric unfoldings of Δ. Volume VI - Book of Addressing Address, reading, projection, normal form, and relational position. Volume VII - Book of Holonomy Trace, return, gate, loop, orientation, and

holonomic reading. Volume VIII - Book of Application Refolding of the preceding volumes into an operative sign sequence and isomorphy of the reading. Volume IX - Book of Reading Number fractal, projection, binding, normal form, Readout, and readability-back.

$$| \; A | B \; |(|) \; \Delta \; := \; |(|)$$