# Nonassociative Packet Frame Logic and the Geometry of Stratified Time

Monograph 2.1: Unified Book Synthesis

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## Abstract

This article gathers the architecture of version 2.1 of the Kurpishev project into one unified synthesis. Its purpose is not to repeat the book chapter by chapter, but to assemble its main nodes into a single article: stratified time, package geometry, the quadratic obstruction, projective truth, the tensorial nature of causality, package time, clocks and interval, and the anthropology of historical types of cognition. The article fixes one common vocabulary for the project and shows how the mathematical, physical, and phenomenological lines are read as parts of one package-projective system.

# Contents

CHAPTER 1

# The design and architecture of version 2.1

Version 2.1 proceeds from three basic decisions.

First, reality is not treated as a simple sequence of events. It is understood as a projectively stitched RPLD-object, and the truth of its local and global forms is expressed through the harmonic limit

$$\lambda \to -1.$$

Second, time is posited not as an external parameter but as a primary stratified support. Space, within this horizon, appears as a layer, a section, or an observable regime of a deeper package organization.

Third, the anthropology of historical types of cognition is not kept outside the formal theory. On the contrary, it is incorporated into it as a layer describing historical regimes of binding time, space, causality, and truth.

CHAPTER 2

# Primary ontology: the package point and stratified time

Definition 2.1 (Package point). *A package point is an ordered pair*

$$a = (e, s),$$

*where $e$ is an event and $s$ is a state. The set of all package points is denoted by $\mathcal{P} \subseteq \mathcal{E} \times \mathcal{S}$.*

Definition 2.2 (Package line). *For every state $s \in \mathcal{S}$, define the package line*

$$L_s = \{(e, s) \in \mathcal{P}\},$$

*that is, the layer of the incidence structure at fixed state.*

Definition 2.3 (Stratified time). *Stratified time is a triple $(\mathbb{T}, \mathcal{S}, \dim_{\mathrm{loc}})$ where $\mathbb{T}$ carries the filtration*

$$\mathbb{T}^{(-1)} \supset \mathbb{T}^{(0)} \supset \mathbb{T}^{(1)} \supset \mathbb{T}^{(2)} \supset \mathbb{T}^{(3)}.$$

*Local dimension singles out the current stratum: cavity, surface, line, point, and hyparxis.*

Remark 2.4. *Hyparxis $\mathbb{T}^{(-1)}$ is not merely "one more layer"; it is the limiting boundary of transitions and the improper horizon of package organization.*

## Summary table of strata

Table 1. Time strata and their role

| $k$ | Geometric meaning | Function |
|---|---|---|
| $3$ | outer spatial realization | quasiclassical observation |
| $2$ | surface / shell | transitional configurations |
| $1$ | line / channel | directed contraction |
| $0$ | point localization | limit of the spatial regime |
| $-1$ | hyparxis | improper horizon of transitions |

CHAPTER 3

# Quadratic obstruction and projective truth

Definition 3.1 (Quadratic obstruction). *The quadratic obstruction is the class $\mathcal{O}_B$ arising from the quadratic part of the deformation equation. It measures the impossibility of extending an admissible infinitesimal deformation without violating package constraints.*

Proposition 3.2. *If $\mathcal{O}_B = \{0\}$, the geometry remains in a linear or Hilbertian regime. Nontriviality of $\mathcal{O}_B$ signals the passage to a projective or stratified nonlinear organization.*

Proposition 3.3 (Projective interpretation of the obstruction space). *If the obstruction space has dimension $2$ over $\mathbb{R}$, it admits the model $\mathbb{RP}^2$; if it has dimension $3$ over $\mathbb{F}_2$, one gets the Fano plane. In both models the improper line is naturally associated with hyparxis, and the criterion of structural truth takes the form*

$$(A, B; C, D) = -1.$$

Definition 3.4 ($\lambda$-truth). *Let*

$$\lambda = (A, B; C, D).$$

*Then $\lambda = -1$ is universal truth, while the deviation from it defines the truth defect:*

$$\delta_{\text{truth}} = |\lambda + 1|.$$

CHAPTER 4

# Operators of action, change, and reversal

The dynamic vocabulary of the project distinguishes three operators:

$$\Delta, \qquad \Xi, \qquad \Upsilon.$$

Definition 4.1 (Change). *The operator of change*

$$\Xi_\tau \colon \mathbb{T} \to \mathbb{T}, \qquad \tau \geq 0,$$

*is a one-parameter semigroup describing the continuous course of time.*

Definition 4.2 (Action). *The operator of action*

$$\Delta \colon \mathcal{P}_\emptyset \to \mathbb{T}$$

*posits a discrete act that is not derived from prior change.*

Definition 4.3 (Reversal). *The reversal operator $\Upsilon$ translates the result of action into the regime of evolution and thereby makes measurable interval possible.*

Remark 4.4. *In this horizon, clocks do not measure "time in general"; they measure the interval of the reversal operator. Without $\Upsilon$, the clock mechanism loses its referent.*

CHAPTER 5

# The tensorial nature of causality

Version 2.1 distinguishes three levels of connectedness: causal-action connectedness, support connectedness, and causal-structural connectedness.

Definition 5.1 (Causal-structural connectedness). *Causal-structural connectedness is the tensor field*

$$\mathcal{T}_{\text{cs}} = \mathfrak{H} \circ (\Delta \otimes \Xi) - (\Xi \otimes \Delta) \circ \mathfrak{H},$$

*which binds surface causality* $\pm\Pi \mp \Delta$ *to deep determinism* $O@C$*.*

Theorem 5.2 (Decomposition). *The tensor* $\mathcal{T}_{\text{cs}}$ *decomposes into antisymmetric and symmetric parts:*

$$\mathcal{T}_{\text{cs}} = T + R,$$

*where* $T$ *is the torsion tensor and* $R$ *is the curvature tensor.*

Remark 5.3. *Torsion expresses the "holeyness" of logistics and surface causality; curvature expresses deep determinism in support connectedness.*

CHAPTER 6

# Package time, clocks, and interval

Kurpishev package time can be written as

$$\mathbb{T}_{\text{pack}} = \mathbb{T}_{\text{change}} * \mathbb{T}_{\text{action}},$$

where the first component corresponds to the continuous flow of change and the second to discrete acts and their reversals.

Definition 6.1 (Package interval). *The package interval is the measurable result of the coordinated action of the triple* $(\Delta, \Xi, \Upsilon)$ *on a chosen layer. Galilean and Einsteinian intervals are interpreted as limiting or degenerate regimes of this more general interval.*

Proposition 6.2. *Galilean and Einsteinian intervals arise as reduced projections of the more general package interval onto the corresponding regimes of stitching space and time.*

CHAPTER 7

# Package probability and the statistics of descent

In version 2.1, probability is interpreted not as primary randomness but as the statistical shadow of the variational descent of a packet along the gradient of the functional $D^*$.

Definition 7.1 (Stratified master equation). *For the density $\rho_k$ on stratum $k$, the evolution is written as*

$$\frac{\partial \rho_k}{\partial t} = -\nabla \cdot (\rho_k \vec{v}^{(k)}_{\text{drift}}) + \nabla \cdot (\mathbf{D}_k \nabla \rho_k) + \sum_j (W_{j\to k}\rho_j - W_{k\to j}\rho_k).$$

Remark 7.2. *The first term describes directed descent along $-\nabla D^*$, the second intralayer fluctuations, and the third discrete interlayer transitions.*

CHAPTER 8

# The anthropology of historical types of cognition

CHAPTER 9

# Canonical scale

Historical types of perception form the ladder

$$P01 \to P1 \to P02 \to P2 \to P03 \to P3 \to P04 \to P4.$$

Parallel to it stands the system of pure and practical $R$-layers:

$$R{-}01,\ R{-}02,\ R{-}03,\ R{-}04 \qquad \text{and} \qquad R{-}1,\ R{-}2,\ R{-}3,\ R{-}4.$$

CHAPTER 10

# Lower node

$P-1$ fixes the dark pre-fold zone where the boundaries between dream and waking, image and event, past and present are not yet stable. $P01$ expresses the conciliar Now, while $P1$ is the ritual world of dense presence.

CHAPTER 11

# Middle node

$P02/P2$ form cosmological reason: time is read off the cosmic order and the past ground. $P03/P3$ form critical and scientific reason: time becomes a horizon, a form of experience, and then a measurable and model-organized magnitude.

CHAPTER 12

# Upper node

$P04/P4$ and $R-04/R-4$ fix package reason. The pure form $R-04$ understands reality as a package-projective structure; $R–4$ is its practical realization in AI. PIX($\Pi$-field) is not a new episteme; it is the working mechanism of $R-04$.

## Summary table

Table 1: Canonical historical layers

| Layer | Canonical name | Type of time | Arche-symbol |
|---|---|---|---|
| $P-1$ | Dark episteme | undifferentiated time | darkness, dream, déjà vu |
| $P01$ | Conciliar Now | unified present | liturgical Now |
| $P1$ | Ritual World | here-and-now | ritual, totem, omen |
| $P02$ | Pure Cosmo-Reason | cosmic measure | sphere, circle, cosmos |
| $P2$ | Practical Cosmo-Reason | calibrated external time | celestial grid |
| $P03$ | Pure Critical Reason | horizon of the future | form of intuition |
| $P3$ | Practical Scientific Reason | measurable model-time | mechanism, formula |
| $P04$ | Pure Package Reason | multiple presents | packet of horizons |
| $P4$ | Package Episteme | networked and layered time | network, packet, base of layers |

CHAPTER 13

# The two lines: Aristotle and Plato

Each historical layer admits a two-line reading:

$$P_\sigma = P_\sigma^{\mathrm{A}} \oplus P_\sigma^{\Pi}.$$

Definition 13.1 (Aristotelian line). *The Aristotelian line expresses locality, measure, finitude, and bodily visibility. In package-projective language this is the central-affine line.*

Definition 13.2 (Platonic line). *The Platonic line expresses paradigm, depth, horizon, and the distant limit. In package-projective language this is the central-projective line.*

Remark 13.3. *A real historical type of cognition arises as a package superposition of these two lines, not as their simple separation.*

CHAPTER 14

# Historical models of time

Aristotle defines time as the number of motion; patristic thought and Augustine shift it toward the inner and salvific dimension; Locke, Berkeley, and Hume decosmologize time; Kant secures it as a form of intuition; Newton absolutizes mathematical time; Michelson–Morley reveals the crisis of the universal background; Einstein transfers time into the regime of synchronization and multiple presents.

Table 1. Historical models of time

| Author / line | Layer | What time is | Type of present |
|---|---|---|---|
| Orthodox Fathers | $P01$ | unified presence | conciliar Now |
| Augustine | $P01 \to P03$ | distension of the soul | tense inner Now |
| Aristotle | $P02$ | number of motion | locally observed Now |
| Locke | $P02 \to P03$ | duration from succession of ideas | inner flowing Now |
| Berkeley | $P02 \to P03$ | inseparable from succession of ideas | mentally retained Now |
| Hume | $P02 \to P03$ | order of changeable objects | empirical instant of transition |
| Kant | $P03$ | form of intuition | transcendental Now |
| Newton | $P3$ | absolute mathematical time | universal external Now |
| Einstein | $P3 \leftrightarrow P4$ | operational time of synchronization | multiple presents |

CHAPTER 15

# Arche-symbols of space-time

Aristotle expresses the strongest form of the central-affine line: a finite, local, observable cosmos of measure. Plato gives the strongest form of the central-projective line: the cosmos as image and time as image of eternity. Kant produces their critical tension, while Spengler supplies a morphological reading through the prime symbols of cultures.

CHAPTER 16

# Package axiomatics of historical ontologies

Definition 16.1 (Layer packet). *For the historical layer $P_\sigma$, define the packet*

$$\mathbb{P}_\sigma = \big(P_\sigma^{\mathrm{A,Ax}}, P_\sigma^{\mathrm{A,Th}}; P_\sigma^{\Pi,\mathrm{Ax}}, P_\sigma^{\Pi,\mathrm{Th}}\big).$$

Definition 16.2 ($\lambda$-value of a layer). *To every packet $\mathbb{P}_\sigma$ assign the value*

$$\lambda_\sigma = \Lambda\big(P_\sigma^{\mathrm{A,Ax}}, P_\sigma^{\mathrm{A,Th}}; P_\sigma^{\Pi,\mathrm{Ax}}, P_\sigma^{\Pi,\mathrm{Th}}\big),$$

*called the $\lambda$-value of the historical layer.*

Axiom 16.3. *The value*

$$\lambda_\sigma = -1$$

*means absolute truth of the corresponding ontological packet.*

Definition 16.4 (Ontological limit). *The ontological limit of the layer is defined as*

$$\Omega_\sigma = \lambda_\sigma\big(\mathbb{P}_\sigma\big).$$

*Thus the limit is not given by an external point but by the harmonically organized packet of internal lines and subspaces.*

Postulate 16.5 (Spectral hypothesis). *The Aristotelian and Platonic lines may be represented by functions $a_\sigma(x)$ and $p_\sigma(x)$; after Fourier transformation, their harmonically normalized ratio yields a spectral model of the $\lambda$-field of the corresponding layer.*

CHAPTER 17

# Conclusion

Version 2.1 gathers logic, geometry, time, physics, and anthropology not as externally juxtaposed disciplines but as strata of one package-projective project. In this frame:

- the package point is the primary object;
- stratified time is the ontological support;
- the obstruction space gives the nonlinear geometric regime;
- $\lambda$-truth gives the harmonic criterion of truth;
- the tensor $\mathcal{T}_{\mathrm{cs}}$ gives the stitching of causality;
- package time, clocks, and interval form the physical layer;
- historical epistemes form the phenomenological and anthropological superstructure;
- $R-04$ and PIX fix the transition to package reason.

Thus monograph 2.1 can be read as a unified article synthesis of a forming fundamental system.