

CTNet and the Exit from the Representational Paradigm

English technical translation

representational Technical monograph extensa on regime of computation, Topological memory, coherence causal, structural load and general architecture of intelligence Document of synthesis theoretical, derivation architectural and development ecuacional complete

Elaborado from the corpus provided by the user

Sources of base: [R1] CTNet_monografia_tecnica.pdf; [R2]
ctnet_coherence_tensor_monografia_tecnica-1.pdf

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Page 1

CTNet and the Exit from the Representational Paradigm

Abstract

This monograph develops a Strong thesis: CTNet should not be understood as a variation modular on arquitecturas of dominant representation, but as a reorganization deep of it that counts as computation. The axis of the document is that valuable computation does not consist in reescribir a representation episodic for obtener a response, but in gobernar the transition of a persistent state that preserves structure, redistributes past, legalizes trajectories, enables several readings of the same background and converts the value structural in causalidad effective. Low this reading, CTNet not is only a propuesta arquitectural concreta, but a exit from the representational paradigm dominant. The text takes as base two documentos of the corpus provided: the monograph general of

CTNet and the monograph dedicada to the Coherence Tensor. From ellos develops a

reading expanded that not is limita to summarize modules or equations, but that extracts its law common. That law can be formulated thus: persistent state, Topological memory reentrant, Dynamic regime, Native admissibility, selector multi-chart, order object and Coherence Tensor forman a single computational economy. The output deja of be soberana and passes to comparecer as projection disciplinada of a background more rich. The primera mitad of the monograph reconstructs that ontology: separa estrictamente state, memory, regime, admissibility, charts and output; examines the role of the reversible substrate despliega the memory distributed as atlas of fractions; analiza the regime as an internal control variable; shows why the admissibility is the legalization of the background and not a poda ornamental; and places the plurality of charts as condition of a understanding not soberana. On that base is estudia the Coherence Tensor as Diagonal metric plus low-rank correction, as law of coincidence between analytical part and real part of the value, and as operador that can reescalar energy, learning and transition. The segunda mitad of the document pushes the derivation more allá of the corpus. Are introduced the nociones of structural load effective, condemnation table of the baseline, structural debt hidden and False simplicity of the paradigm monolithic. The argumento central is that the apparent disadvantages of CTNet desaparecen when is chooses the tribunal correcto of comparison. It that parecía complexity is revela as explicitación of functions irreducibles; it that parecía overcost is reinterpreta as eliminación of reconciliaciones destructive; it that parecía excess of control is reconoce as internalización of laws of structural health that other arquitecturas

only padecen of form muda. The Conclusion general is that CTNet is aproxima more that the paradigm standard to a general architecture of intelligence because organiza the computation alrededor of invariants meta-computational and not only of a dominant representation each vez more poderosa. Low this reading, the progreso real in IA deja of medirse only by benchmark and passes to medirse by the capacidad of the system for sustain a mundo interno computable: preserve background, maintain memory causal, modular its regime, legalize the state, sustain several readings useful and dejar that the value medido reorganice efectivamente the dynamics.

Page 2

CTNet and the Exit from the Representational Paradigm

Methodological note

This document mixture three levels. First, exégesis of the sources of base [R1] and [R2].

Second, derivation theoretical own from its axiomas. Third, consequences of engineering, diagnosis and program experimental. When a thesis procede directamente of the corpus is presented as reconstruction; when entails a formalización new -by ejemplo, structural load, condemnation table, structural debt hidden u higher computational ontology- is presented as inference architectural strong apoyada in the corpus, but not as cita literal of the same. The motivación of this mixture is sencilla: CTNet not is deja leer adecuadamente from a logic of bloques sueltos. Requires a monograph where the parts is entiendan by the contradiction that prevent and by the plane of computational reality that return explicit. The objective of the text not is produce marketing conceptual nor defender a marca, but to formulate with the mayor severidad posible what would have that significar tomarse in serio a architecture of regime of computation.

Editorial note on the canonical operator order

This edition fixes of form inequívoca a distinction that in algunas slides and summaries of the corpus aparecía mezclada: order operator of the step, chain causal summarized and audit sequence. From this monograph, only a of ellas It must be read as strict

pipeline of computation. In particular, the primera and the tercera lámina not must volver to be read as if the chain abbreviatedfuese the pipeline real: must quedar rotuladas explicitly as abstract causal chain, not pipeline operator.

Regla editorial of closure: cualquier sequence breve of the tipo "transition → memory →

regime → coherence" or "structure → coherence → speed → reorganization" must

interpretarse únicamente as Abstract causal or pedagogical. Never as order operator.

The canonical operator order remains fijado as: memory on the state available →

regime/slow context → transformation reversible → admissibility → coherence/drives →

update of state → selector → charts/readout → projective output.

Etiqueta mandatory for the slides abreviadas: "Abstract causal chain, not pipeline operator". This etiqueta

must acompañar cualquier diagrama where aparezca a chain of the tipo transition → memory → regime →

coherence, for impedir that is lea as ejecución strict.

Canonical operator order of CTNet

1. Persistent state available: the step comienza on the background z_t already available.

2. Memory on the state available: is construyen mem_read and $mem_summary$ from

z_t .

3. Regime and slow context: is siembran $slow_ctx$ and $regime_probs$ from the state and of the

memory.

4. Transformation reversible of the substrate: is obtained z_bar through the block reversible

5. Admissibility: is legalizes z_bar with the slow context, produciendo gate and state

legalizado.

Page 3

CTNet and the Exit from the Representational Paradigm

6. Coherence in transition: are computed the terms of coherence that act on the

state pre-projection already legalizado and on its ecology interna.

7. Update of the state: is compose mem_drive , ctx_drive , $gate_drive$ and coh_drive

for obtener z_{t+1} .

8. Selector multi-chart: is computed the distribution on charts from the new state and of

its variables auxiliares.

9. charts and readout: is generate the local readings or heads of role on the background

actualizado.

10. Projective output: comparece y_t as projection disciplinada of the background and not as

exhaustion of the system.

11. Audit of coherence: when proceda, is leen preserve_err, branch_coh or global_coh

as audit subsequent of the step and not as condition prior of the pipeline.

Minimal terminological normalization

Etiqueta Must mean Must not be used as

Order operator Strict pipeline of the step Abstract causal, diagrama computational effective. pedagogical or reading macroscópica. Chain causal Dependencia Sequence temporal exact architectural between parts of ejecución. of the regime of computation. Audit sequence Reading or inspección Part prior of the pipeline subsequent of the step of transition salvo that is (preserve_err, branch_coh, indique explicitly

global_coh). coh_drive in transition.

Single short formulates for futuras slides: Memory → Regime → Reversible →

Admissibility → Coherence/Drives → State siguiente → Selector → charts → Output.

Cualquier chain abbreviated distinta -especialmente in the primera and the tercera lámina- must llevar the etiqueta literal: "Abstract causal chain, not pipeline operator".

Analytical Index

I. Status, method, and architectural thesis

- 1. Object of the monograph and Reading rule**
- 2. The Strong thesis: of the episodic rewriting to the transition governed**
- 3. Scope, sources and status inferencial of the presente text**

II. Critique of the dominant representational paradigm

- 4. The sovereignty of the dominant representation**
- 5. Why the benchmark not agota the architecture**
- 6. The bottleneck single as source of degeneration**

III. Internal ontology of CTNet

7. Separation strong of planes: state, memory, regime, output

Page 4

CTNet and the Exit from the Representational Paradigm

- 8. CTNet as space of computation and not as modelo singular**
- 9. What existe realmente dentro of the system**

IV. Persistent substrate and reversibilidad

- 10. The substrate as background of work living**
- 11. Reversibilidad and memory of the past**
- 12. Multiscale and mixture hiperradial of the background**

V. Distributed topological memory

- 13. Of the memory-archivo to the memory-atlas**
- 14. Fractions, rotations and topology of coupling**
- 15. Long memory as conservation with structural health**

VI. Regime, slow context and living persistence

16. the regime as an internal control variable

17. Hysteresis, freeze pressure and anti-freeze

18. Regime, selector and form of the ecology of charts

VII. Admissibility and internal legalization of the state

19. Why the legalidad not can dejarse to the accidente

20. Gate sano against to gate degenerate

21. Admissibility and regime long of computation

VIII. charts, selector and projective output

22. The plurality of charts as thesis of understanding

23. Selector, temperature and ecology disciplinada

24. The output as comparecencia and not as exhaustion

IX. Coherence Tensor: Geometry, value and causality

25. The Coherence Tensor as operador and not as observable pasivo

26. Geometry diagonal more low rank

27. Analytical part and real part of the value

X. Order, branches and contextual value

28. The order object as variable interna

29. Branch-wise coherence and masas ocupacionales

30. Stitching local-global and retrospective of the value

XI. False simplicity, structural debt and disappearance of the apparent disadvantages

31. Why the complexity apparent of CTNet not is a desventaja

32. Structural debt hidden of the baseline

33. All the disadvantages apparent change of signo

XII. Structural load, condemnation table and baseline diagnosis

34. Structural load effective of the problema

35. Condemnation table of the baseline

36. Order of fractura interna and firma matemática of the colapso

XIII. CTNet as higher computational ontology and implicit theory of intelligence

37. Of architecture mejor to ontology more high

38. Intelligence as conservation and reorganization of structure

39. CTNet and the possibility of a general architecture of intelligence

XIV. Engineering program, audit and closure

40. How would that train and auditar a architecture of this tipo

41. Implicaciones for kernels, hardware and scaling

42. Propositions finales on a new architectural era

Appendix F. Integral equation compendium of the corpus CTNet

Appendix G. Added equation derivations in this monograph

Appendix H. Synoptic table of equations, variables and uses

Appendix I. Normalization of the order operator and terminológico

Page 6

CTNet and the Exit from the Representational Paradigm

I. Status, method, and architectural thesis This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output.

1. Object of the monograph and Reading rule

Stated bluntly, This monograph does not treat CTNet as an accidental sum of modules, but as a architecture of regime of computation whose intelligibility depends of reading together substrate, memory, regime, admissibility, selector, order and projective output. The problem being opposed from the outset is the modular reading and descriptive that enumera parts but pierde the law organizing the whole. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. This monograph does not treat CTNet as an accidental sum of modules, but as a architecture of regime of computation whose intelligibility depends of reading together substrate, memory, regime, admissibility, selector, order and projective output. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The document is supports in two sources of the corpus provided: the monograph general of CTNet and the monograph especifica of the Coherence Tensor, entendidas here as base for a synthesis analytical more dura. In CTNet each operator is valuable by virtue of the contradiction it avoids.

The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. An architecturally poor reading tends to ask which block does each thing. The reading adopted here instead asks, which common thesis makes necessary those parts and what contradiction reappears when two planes are collapsed. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to

disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture acaba teniendo

Page 7

CTNet and the Exit from the Representational Paradigm

that aproximar awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. The consecuencia metodológica is that the criterion of truth not será the isolated brilliance of an output, but the internal coherence of all the computational economy. This shifts the focus from the terminal benchmark toward the structural health of the proceso. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. The primera proposition of this monograph states, therefore, that CTNet It must be read as regime of computation before that as catálogo of modules; all it others is deduce of that decision. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja de caber in a single dominant representation.

2. The Strong thesis: of the episodic rewriting to the transition governed

The formulation more strong is the siguiente: The strong thesis of CTNet holds that valuable computation not is destroy a dominant representation for emit a response, but gobernar the transition of a persistent state that preserves, transforms, fractionates, legalizes, routes and finally projects to part of yes. The dominant representational paradigm tiende to identificar computación and rewriting: each step valdría in the measurement in that reemplaza a imagen interna by other more apta for produce the output siguiente. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. The strong thesis of CTNet holds that valuable computation not is destroy a dominant representation for emit a response, but gobernar the transition of a persistent state that preserves, transforms, fractionates, legalizes, routes and finally projects to part of yes. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. CTNet sustituye that intuition by a chain causal pedagógica -and not by the pipeline real- that enumera dependencias arquitectural, not

prioridad temporal strict: background transformable, legalization, memory reentrant, regime, coherence, charts and projective output. The canonical operator order, fijado in the Editorial note and in the Appendix terminológico, is distinto and not

must confundirse with this chain causal summarized: memory on state available →

Page 8

CTNet and the Exit from the Representational Paradigm

regime/slow context → reversible → admissibility → coherence/drives → state

siguiente → selector → charts/readout → projective output. In CTNet each operador vale by

the contradiction that prevents. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. If is contrasta this thesis with the esquema monolithic habitual, the contraste already not can ocultarse. In a architecture monolithic, the output absorbe of fact the status of the system because the value of all step is measures by its cercanía to a response. In CTNet the output deja of be soberana; passes to be a projection disciplinada of a background more rich. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. This not is a diferencia of estilo, but a desplazamiento ontological. The mundo interno of the system already cannot be reduced to a single hidden state episodic, because that hidden not would suffice for carry simultaneously

persistencia, memory, legalidad, plurality and contextual value. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. If the computation is understands as transition governed, then state and output not can coincide without contradiction. This negación organiza all the architecture subsequent. Read thus, the piece that here is ha examinado not aporta

a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in asingle dominant representation.

3. Scope, sources and status inferencial of the presente text

The formulation more strong is the siguiente: This document is a monograph of synthesis and derivation. Not reproduces without more the corpus provided, but that extracts of it a theory of more high level on the architecture, its implicaciones, its apparent disadvantages and its status as cambio of era architectural. The dificultad principal consiste in distinguir it that the corpus states explicitly of it that can be derived with necesidad architectural from its axiomas. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system

Page 9

CTNet and the Exit from the Representational Paradigm

recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. This document is a monograph of synthesis and derivation. Not reproduces without more the corpus provided, but that extracts of it a theory of more high level on the architecture, its implicaciones, its apparent disadvantages and its status as cambio of era architectural. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The descripciones of the reversible substrate, of the distributed topological memory and of the Coherence Tensor is take as facts of partida; from ellos this monograph introduces construcciones as structural load, condemnation table of the baseline, debt hidden and higher computational ontology. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and

dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. A Comment superficial is detendría in what parts parecen nuevas. A work of maduración conceptual has that mostrar moreover why ciertas supuestas disadvantages is evaporan when is adopta the tribunal correcto of comparison. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. Therefore the text alternará three planes: exégesis of the corpus, derivation theoretical and consequences of engineering. The objective not is embellecer CTNet, but exponer why the whole only resulta intelligible when is piensa to background. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm.

Therefore the proposition that cierra this section can be formulated of manera seca. The Reading rule definitiva será the siguiente: all piece vale by the tipo of contradiction that prevents and by

Page 10

CTNet and the Exit from the Representational Paradigm

the plane of computational reality that returns explicit. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 11

CTNet and the Exit from the Representational Paradigm

II. Critique of the dominant representational paradigm This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output.

4. The sovereignty of the dominant representation

The formulation more strong is the siguiente: The carencia central of the paradigm dominant not is its falta of performance, but its tendencia to tratar a dominant representation as if pudiera be, at the same time, background, memory práctica, control, routing and output. Mientras the structural load of the problem is low, that compression works and is presented as simplicidad elegante. But when the problema requires several irreducible functions, the same unidad that parecía virtuosa is converts in focus of interferencia. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. Not is treats of a metaphor nor of a preferencia of estilo. The carencia central of the paradigm dominant not is its falta of performance, but its tendencia to tratar a dominant representation as if pudiera be, at the same time, background, memory práctica, control, routing and output. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The corpus of CTNet reacciona against that sovereignty separando persistent state, memory reentrant, regime, admissibility, charts and projective output. The

separation not adds barroquismo; makes visible that the hidden monolithic already estaba haciendo demasiados trabajos heterogéneos. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. The baseline parece austero because not nombra those tensiones. However, the absence of nombre not elimina the tension. Only the shifts toward dynamic opacas in the that the memory, the control and the projection compiten by the same space latent. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the load

Page 12

CTNet and the Exit from the Representational Paradigm

structural of the problema increases, the apparently more austere architecture ends up having to approximate awkwardly just to the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. Low pressure, that sovereignty termina produciendo three síntomas: the background is returns buffer of response, the memory is degrada in prótesis consultable and the selection of rutas collapses toward a reading dominant or toward mixture flat. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The supposed simplicity of the paradigm representational must be read, therefore, as simplicidad apparent financiada by compression illegitimate of functions. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

5. Why the benchmark not agota the architecture

The formulation more strong is the siguiente: A architecture can mejorar its benchmark and seguir siendo ontológicamente pobre if the mejora proviene only of a mejor projection final and not of a economy interna more rich. The benchmark standard rewards very bien the output correct and castiga mal the destrucción silenciosa of structure interna, always that that destrucción not impida still responder correctamente. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. A architecture can mejorar its benchmark and seguir siendo ontológicamente pobre if the mejora proviene only of a mejor projection final and not of a economy interna more rich. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. CTNet rompe with that criterio to the afirmar that the error final of tarea not agota the system. The preservation of the substrate, the health of the memory, the ecology of charts, the vitality of the regime and the Coincidence between analytical value and real value are magnitudes irreducible. In CTNet each operator is valuable by virtue of the

contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the

Page 13

CTNet and the Exit from the Representational Paradigm

separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. In the paradigm standard, a architecture can parecer excelente because acierta, aun when each step destruya background and recompute to ciegas the same reconciliaciones internal. In CTNet, that economy would be considerada regresiva although the output siguiera siendo bueno. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. This shifts the object same of evaluation. It that importa not is only cuántas respuestas correctas produces the system, but how much operable structure consigue preserve mientras the produces. The diferencia is decisiva for entender why the benchmarks can ocultar empobrecimiento of regime. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the

system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The progreso architectural real not coincide necesariamente with the progreso of benchmark; coincide with the expansión of the capacidad for sustain a mundo interno computable without destruirlo in each step. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

6. The bottleneck single as source of degeneration

Vista from the logic interna of the system, Muchos fracasos of the long memory and of the razonamiento ramificado not is explican by falta of parameters, but through the existencia of a bottleneck single where all must pass by the same hidden. When past, decision, señal of control, routing and output comparten a single soporte dominant, the structural load not grows linealmente. Crecen, on all, the terms of interaction between functions that should have status distinto. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. Muchos fracasos of the long memory and of the razonamiento ramificado not is explican by falta of parameters, but through the existencia of a bottleneck single where all must pass by the same hidden. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing not can

Page 14

CTNet and the Exit from the Representational Paradigm

be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The monograph general of CTNet is explicit in this point: the long memory changes of problema because already not pregunta how transportar all the historia by a only canal, but how maintain a state sufficiently rich, reversible, distributed and coherente for that the past siga actuando causalmente. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. The baseline not sufre only by have poco ancho or poca profundidad. Sufre because compresses in a same canal tensiones that then intenta resolver with ajustes local, heurísticas of importancia or mezclas tardías of information. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output,

reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. From there that the performance can subir during a tiempo without that desaparezca the fragilidad. The mejora scale dentro of a ontology still restringida. In the momento in that several presiones structural is return simultáneas, the bottleneck single deja of be a simplificación and passes to be a contradiction operativa. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The crítica decisiva to the paradigm dominant not is that sea insuficientemente grande, but that is insuficientemente articulado for problemas of irreductibilidad structural high. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

III. Internal ontology of CTNet This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output.

7. Separation strong of planes: state, memory, regime, output

In terms estrictamente architectural, CTNet part of a separation strong of planes because considera architecturally destructive collapse state, memory, selector, order and output in the same object. The reason of that separation not is taxonómica. Each plane porta a function that cannot be reduced to other without produce loss causal real. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. Not is treats of a metaphor nor of a preferencia of estilo. CTNet part of a separation strong of planes because considera architecturally destructive collapse state, memory, selector, order and output in the same object. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The state is background persistent. The memory is reentry topological of the past. the regime is variable interna that decides how must computarse the same background low conditions distintas. The output is a comparecencia local, not the exhaustion of the system. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of

previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The paradigm standard treats those distinciones as aspectos of a single representation. CTNet the treats as strata with status. That diferencia is the base of all the critica subsequent to the False simplicity of the baseline. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning.

The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. When the planes is separan, also is separan its observables and its degenerations. The architecture gana auditabilidad, because already not necesita inferir to posteriori why a output buena convive with a internal dynamics enferma. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is deduced with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. The separation strong of planes It must be read as axioma ontological: nombra realidades computational distintas and prevents that the output colonice the mundo interno. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

8. CTNet as space of computation and not as modelo singular

The formulation more strong is the siguiente: A of the intuiciones more poderosas of the corpus is that CTNet must be understood less as a modelo singular that as a space of computation delimitado by invariants, cierres admissible and degenerations reconocibles. If CTNet is leyerá as a modelo concreto, each variation of implementation parecería traicionar the General idea. But the corpus insiste in it contrario: several realizaciones can pertenecer to the same familia if preserve the axes not negociables. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. A of the intuiciones more poderosas of the corpus is that CTNet must be understood less as a modelo singular that as a space of computation delimitado by invariants, cierres admissible and degenerations reconocibles. When

CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to asimple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. Those axes are, between other, the not identificación between state and output, the memory not archivística, the coherence not decorativa, the order not reduced to encoding and the existencia of a economy of transition more rich that the simple update of a hidden. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the

Page 17

CTNet and the Exit from the Representational Paradigm

separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The modelos monolíticos suelen be formulated as recetas architectural cerradas. CTNet is presented as space of posibilidades structural, with Admissible variants e invariants cuya violación generates degeneration interna. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. This reading espacial allows entender why the discussion correct not gira in torno to if a block concreto changes, but in torno to what axis of the space is cierra or is empobrece when a implementation simplifica demasiado the regime. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns

mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The generalidad of CTNet not proviene of a single design canonical, but of the solidez of its space of computation and of the claridad of its invariants. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

9. What existe realmente dentro of the system

If is sigue the hilo of the corpus up to the final, The cuestión ontológica decisiva not is cuántos parameters has a architecture, but what entidades reconoce as reales in its mundo interno. A ontology pobre reduce almost all to representaciones and weights. A ontology more high reconoce persistencia, legalidad, contextual value, Topological memory, plurality of charts and regime as dimensiones of the own computation. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. The cuestión ontológica decisiva not is cuántos parameters has a architecture, but what entidades reconoce as reales in its mundo interno. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and

Page 18

CTNet and the Exit from the Representational Paradigm

projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. CTNet pertenece to this segunda class. It that existe dentro of the system not is only a activation that changes, but a space where distintas forms of computational reality permanecen operables at the same time and is gobiernan through laws internal. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. In a baseline, many of those entidades only aparecen as effects colaterales: cierta persistencia of activation, cierta saliencia, cierto routing implicit. CTNet les concede status explicit and, with ello, capacidad of be gobernadas of form not accidental. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere

architecture ends up having to approximate awkwardly just the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. The salto not is cuantitativo, but categorial. When regime, admissibility or coherence pasan to existir as objetos propios, the architecture can already regular problemas that before only podía sufrir of manera muda. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. A architecture more inteligente not is only the that aprende more, but the that reconoce more planes internal as reales and therefore can administrarlos with mayor finura. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 19

CTNet and the Exit from the Representational Paradigm

IV. Persistent substrate and reversibilidad This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output. **Esquema minimal of the substrate:**

$z_t \rightarrow \text{rev}(z_t, u_t) \rightarrow z_t^{\text{adm}} \rightarrow z_{t+1}$

The memory not reemplaza this background; it reinyecta.

10. The substrate as background of work living

In terms estrictamente architectural, In CTNet the persistent state not is a buffer of output, but the background on the that the computation realiza its work living before of cualquier projection terminal. If the background is collapses demasiado pronto in the output, the system is obliga to compactar in a single canal operaciones that in realidad necesitan more space ontological. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. In CTNet the persistent state not is a buffer of output, but the background on the that the computation realiza its work living before of cualquier projection terminal. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. Therefore, in the reading causal summarized, the substrate aparece before and the output comparece after. That prioridad not must confundirse with the canonical operator order of the step, but be read as prioridad architectural: the work important ocurre in the background, not in the boca final. In CTNet each operator is valuable by virtue of the contradiction it avoids. The

substrate prevents that the present from being to mere residuo of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The baseline suele work to the revés. Although parezca have internals ricos, the verdadero tribunal of all its dynamics is the projection soberana. The hidden vale on all by how alimenta the response. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the

Page 20

CTNet and the Exit from the Representational Paradigm

apparently more austere architecture ends up having to approximate awkwardly just the functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. CTNet libera computation interno precisamente because niega that subordinación inmediata. The background can albergar structure that still not it is advisable proyectar and, however, sigue siendo decisiva for the transitions siguientes. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is

preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho moresevera with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The not sovereignty of outputdepende of the existencia of a substrate that merezca mantenerse by yes same. Without Persistent substrate, the output volveríato colonizarlo all. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for thatthe system siga siendo intelligible when the problema deja of caber in a single dominant representation.

11. Reversibilidad and memory of the past

Vista from the logic interna of the system, The reversibilidad of the substrate not is a lujo mathematical, but the condition structural that prevents that each step is comporte as amputation irreversible of the historial computational. Without preservation suficiente, the coherence llegaría demasiado tarde and the memory only could rescatar residuos of a dynamics destructive. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. The reversibilidad of the substrate not is a lujo mathematical, but the condition structural that prevents that each step is comporte as amputation irreversible of the historial computational. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. The corpus presenta bloques reversibles with additive couplings between halves of the state. Its importancia not reside únicamente in the ahorro of activaciones, but in the fact of that maintain abierta the possibility of that the presente conserve huella operativa of the past. In CTNet each operator is valuable by virtue of the

contradiction it avoids. The substrate prevents that the present from being to mere residuo of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and the

Page 21

CTNet and the Exit from the Representational Paradigm

coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. A architecture destructive can be eficaz in tareas local, but carece of the suelo geometric necessary for that the coherence distinga between structure living, noise and closure degenerate. In ella the value structural already llega erosionado. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. The long memory deja then of be a lucha by transportar each vez more contenido and passes to be a problema of maintain a presente sufficiently informativo for that the past siga actuando in it without archivar apart. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more

severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. The reversibilidad not is a module between other; is the tipo of substrate that returns posible a memory causal and a coherence activa. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

12. Multiscale and mixture hiperradial of the background

Stated bluntly, CTNet not concibe the substrate as a soporte with a single scale effective, but as a background multiscale where distintas vecindades can reponderarse without abandonar the same space of the state. A single scale force to tratar as homogéneas relaciones that, in realidad, act in radios diferentes. The result is a memory more rígida and a dynamics peor adaptada to composiciones complejas. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. CTNet not concibe the substrate as a soporte with a single scale effective, but as a background multiscale where distintas vecindades can reponderarse without abandonar the same space of the state. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes

Page 22

CTNet and the Exit from the Representational Paradigm

desaparece, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. The multiradius mixture that the corpus describes introduces radios of interaction multiple and operators local that redistribuyen the state without reducirlo to a single granularidad. Thus, the same background can alojar coherencias of corto and long scope. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. The baseline suele similar multiscale to base of profundidad or of attention global each vez more pesada. CTNet the inscribe, instead, in the law local of transition of the substrate, with menor violencia ontológica on the state. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just to the

functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. This importa because the Topological memory, the selector and the Coherence Tensor heredan already a background with diversity of escalas; not necesitan reconstruirla from cero by caminos laterales. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. The multiscale of CTNet not is a capa especial. Is a propiedad of the own suelo computational on the that is support the parts posteriores. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 23

CTNet and the Exit from the Representational Paradigm

V. Distributed topological memory This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output. Reading compact of the atlas memorial:

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z_t = sum_i z_t^(i)
m_t^(i) = Q_i(E_i(z_t^(i))) + feedback_topologico +
resumen_global It decisivo not is the partition, but the recuperabilidad distributed.
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13. Of the memory-archivo to the memory-atlas

If is sigue the hilo of the corpus up to the final, The memory of CTNet not must pensarse as archivo of slots, but as atlas distributed of the state where the past is preserves by structure recoverable and not by mere accumulation linear of copias. The archivo linear resuelve disponibilidad, but not garantiza that the past siga siendo causalmente pertinente for the transition presente. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. Not is treats of a metaphor nor of a preferencia of estilo. The memory of CTNet not must pensarse as archivo of slots, but as atlas distributed of the state where the past is preserves by structure recoverable and not by mere accumulation linear of copias. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The architecture divides the state in fractions, obtains Local charts, the rota, the acopla topologically and produces a Abstract global not soberano that then returns to each token together with the chart fraccional correspondiente and with the latent base. In CTNet each operator is valuable by virtue of the contradiction it

avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that

common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. A baselinewith memory externa can recordar more contenido and, however, mantenerlo fuera of the dynamics real. CTNet intenta that thepast not only esté, but that siga

Page 24

CTNet and the Exit from the Representational Paradigm

actuando from dentro of the proceso. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. This sustitución of archivo by atlas changes incluso the definition of capacidad memorial: importa less the number bruto of celdas and more the densidad of relaciones recuperables that the same volumen latent can sustain. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. The memory useful in CTNet grows by densificación topological, not by stacking of huellas estáticas. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja de caber in a single dominant representation.

14. Fractions, rotations and topology of coupling

Vista from the logic interna of the system, The fractions memoriales of CTNet not are trozos mudos of state, but Local charts of the whole that is orientan of form distinta and is reinyectan between yes through a topology learned. If all the fractions compartieran the same base and the same orientation, the plurality memorial degeneraría in repetición. The system would have several parts but not several perspectivas reales on the all. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. Not is treats of a metaphor nor of a preferencia of estilo. The fractions memoriales of CTNet not are trozos mudos of state, but Local charts of the whole that is orientan of form distinta and is reinyectan between yes through a topology learned. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. Therefore aparecen Orthogonal rotations, matrices of coupling and gains that mezclan feedback topological, singularidad local and Abstract global. The memory is returns a negociación between singularidad, red and totalidad. In CTNet each operator is valuable by virtue of the contradiction it avoids.

The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the

Page 25

CTNet and the Exit from the Representational Paradigm

past is vuelva archivo external; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. If is contrasta this thesis with the esquema monolithic habitual, the contraste already not can ocultarse. A memory aparentemente simple suele ocultar that only there is a Abstract privilegiado or several copias comprimidas with poco disagreement geometric. CTNet force ángulos distintos of acceso to the same background and makes that no fraction sea soberana. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. This plurality orientada prepara the terreno for the Coherence Tensor, because ahora yes there is fractions reales of the value and not meras partitions algebraicas without semantic topological. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is

preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The topology memorial of CTNet not is adorno: makes intelligible that the coherence asigne mass contextual to fractions significativas of the state. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

15. Long memory as conservation with structural health

In terms estrictamente architectural, The gran cambio that introduces CTNet is that the long memory deja of be a problema of simple persistencia and is returns a problema of persistencia with structural health. Not basta with that the past sobreviva. Must sobrevivir of form that siga siendo valorable, legalizable and operable by the resto of the regime of computation. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. The gran cambio that introduces CTNet is that the long memory deja of be a problema of simple persistencia and is returns a problema of persistencia with structural health. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and

Page 26

CTNet and the Exit from the Representational Paradigm

projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. The interaction between Reversible substrate, atlas memorial, coherence and admissibility makes that the past not is convierta nor in archivo muerto nor in arrastre ciego. It that persiste has that seguir siendo causalmente utilizable. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. The baseline tiende to measure the memory by how much contenido can transportar. CTNet the measures by how much past sigue actuando with structure suficiente as for reorganize the presente without colapsarse. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the

functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. The capacidad of memory is redefine then as capacidad of saldo structural: how much historia can seguir living without that the background pierda elasticidad, legalidad and plurality. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. The long memory of CTNet not busca transportar more past by a bottleneck single; busca preserve mejor the form in that the past can seguir operando. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 27

CTNet and the Exit from the Representational Paradigm

VI. Regime, slow context and living persistence This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output. Regime as law of the modo of computation:

$\rho_t = G(z_t, m_t, \rho_{t-1}, u_t)$

Persistir not means immobility; means continuidad with capacidad of inflexión.

16. the regime as an internal control variable

Vista from the logic interna of the system, the regime in CTNet not is etiqueta of tarea nor simple bias contextual; is the variable interna that decides how must computarse the same tipo of state low conditions distintas. Without a variable of this tipo, the cambio of law of computation remains absorbido implícitamente in the dynamics general and is returns indistinguible of noise, of inercia or of cambio espurio of activation. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. the regime in CTNet not is etiqueta of tarea nor simple bias

contextual; is the variable interna that decides how must computarse the same tipo of state low conditions distintas. When CTNetcorpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. the regime produces a slow context, a distribution on modes and a seed that can actualizarse segmentalmente. Of this modo, the system dispone of a capa own for gobernar the form of its transition. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to

mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The baseline parece more simple because not has regime explicit. In realidad, eso means that its control is mezclado with representation, memory and output, of modo that not can distinguir bien between cambiar of modo and simplemente moverse dentro of the same canal. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad,

Page 28

CTNet and the Exit from the Representational Paradigm

dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just to the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. the regime allows leer the intelligence not only as response correct, but as capacidad of permanecer in a modo fertile or of cambiar of modo when the situación it requires without destroy continuidad. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. A architecture madura not only computa; also sabe in what regime is computando. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

17. Hysteresis, freeze pressure and anti-freeze

If is sigue the hilo of the corpus up to the final, The persistencia of the regime not is interpreta in CTNet as immobility, but as equilibrio delicado between continuidad and plasticidad, protegido by hysteresis, freeze pressure, leak and mecanismos anti-freeze. All dynamics of control is enfrenta to two patologías simétricas: switching espurio and freezing degenerada. The mérito of the regime CTNet is tematizarlas ambas and not confundir stability with petrificación. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. The persistencia of the regime not is interpreta in CTNet as immobility, but as equilibrio delicado between continuidad and plasticidad, protegido by hysteresis, freeze pressure, leak and mecanismos anti-freeze. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The architecture introduces medidas of disagreement, sorpresa and pressure of persistencia for decidir cuándo mezclar a candidato new with the modo previo and cuándo maintain the curso actual without ceder to the noise local. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the

Page 29

CTNet and the Exit from the Representational Paradigm

sovereignty of a single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. In a baseline, those fenómenos siguen existiendo, but aparecen as volatilidad of activation or as terquedad of a dominant representation. The diferencia is that not there is a plane autónomo where puedan be regulados with law own. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just to the functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train

and scale the system. The intelligence is redefined thus as the capacity of reorganizing without dissolving and of persisting without congelation. This is a notion much more rich than the stability understood as simple reduction of variance. This shifts the criterion with the one that judges the progress. Already not enough to ask if the response improves, if the local latency is minor or if the mechanism is described with less blocks. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of its evolution. Under

that tribunal, the reading of the corpus is returns much more severe with the dominant representational paradigm. Therefore the proposition that closes this section can be formulated of a dry manner. Living persistence means continuity with the capacity of inflexion; all it offers is or noise or freezing. Read thus, the piece that here is has examined not offers a lateral improvement, but a condition of possibility for that the system keep being intelligible when the problem leaves of fitting in a single dominant representation.

18. Regime, selector and form of the ecology of charts

The formulation more strong is the siguiente: The selector of CTNet is not free: the ecology of charts remains fundamentally biased by the regime, that defines what degree of concentration, aperture or exploration results legitimate low the actual mode of computation. If the plurality of routes is left without law higher, the system oscillates between monopolistic accident of a chart and dispersion flat without decision real. The ambition of this text is to show that that difficulty is not contingent, but structural: it is born of the type of computational reality that the system recognizes as existing and of the form in that decides to administer it before converting it into output. Not is treated of a metaphor nor of a preference of style. The selector of CTNet is not free: the ecology of charts remains fundamentally biased by the regime, that defines what degree of concentration, aperture or exploration results legitimate low the actual mode of computation. When CTNet corpus insists in talking of regime of computation, it is that is saying is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If

Page 30

CTNet and the Exit from the Representational Paradigm

one of those planes disappears, the rest does not remain intact; it is forced to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. the regime intervenes then as bias of ecology. A mode of persistence can justify a distribution more concentrated. A mode of surprise or of disagreement high requires to open the ecology for exploring routes before repressed. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can no longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section present is inserted exactly in that common economy. The difference with a architecture of dominant representation appears with all nitidez in this place. The baseline usually treats the routing as decision more or less direct of the state. CTNet introduces a plane intermediate: not is selected routes only by the task, but through the type of computation that the regime has enabled. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to availability, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just

the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. The plurality of readings leaves of being a caprice and passes to be a phenomenon governed. This connects control and projection without obliging to the system to reduce them to it same. This shifts the criterion with the one that judges the progress. Already not enough to ask if the response improves, if the local latency is minor or if the mechanism is described with less blocks. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of its evolution. Under that tribunal, the reading of the corpus is returns much more severe with the dominant representational paradigm. The Conclusion rigorous is then the siguiente. The General form of the distribution on charts is a variable of regime before of being a variable of response. Read thus, the piece that here is has examined not offers a lateral improvement, but a condition of possibility for that the system keep being intelligible when the problem leaves of fitting in a single dominant representation.

Page 31

CTNet and the Exit from the Representational Paradigm

VII. Admissibility and internal legalization of the state This chapter profundiza in an axis of the regime of computation CTNet and it pone in relation with the rest of the system. The intention is not isolate a module, but mostrar what contradiction reappears when that axis is suppressed, is compressed or is shifts toward a dominant representation. In that measurement, each chapter must be read as a piece of a single thesis: the computation valuable is the

administration of a mundo interno computable and not the mere productionepisodic of a output. Legalization native:

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a_t = sigma(W[z_t, c_t^{slow}])
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z_t^{adm} = a_t ■ z_t
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Persistir without legalidad equivale to mezclar memory and arrastre ciego.

19. Why the legalidad not can dejarse to the accidente

Stated bluntly, The admissibility in CTNet is the operation that decides what part of the state can seguir living low the regime actual. Its function is legalize the trajectory before of the reading, not embellecer a state already closed. All persistencia without legalidad explicit degenera tarde or temprano in arrastre ciego or in poda implicit, because the system sigue transportando activaciones that already not should actuar or elimina without criterio parts still valiosas. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. The admissibility in CTNet is the operation that decides what part of the state can seguir living low the regime actual. Its function is legalize the trajectory before of the reading, not embellecer a state already closed. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. The compuerta of admissibility takes the state transformado and the slow context for produce a version legalizada of the background. Thus, only the part that can seguir operando legitimamente entra of lleno in

the transition siguiente. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. If is contrasta this thesis with the esquema monolithic habitual, the contraste already not can ocultarse. In the baseline always existe alguna form of gate oculto: saturaciones, subespacios dominantes, olvido diferencial. The diferencia is that that gate carece of status and therefore not can auditarse with limpieza. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in

Page 32

CTNet and the Exit from the Representational Paradigm

output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. CTNet converts a decision muda in variable interna and returns posible a theory seria of the long memory: recordar not is retenerlo all, but retener it that still can actuar without corromper the regime of the system. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. Not there is persistencia sana without legalidad explicit on it that can seguir living. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

20. Gate sano against to gate degenerate

Vista from the logic interna of the system, The health of the gate not is measures by abrir or cerrar mucho, but through mantenerse in a zona not degenerada where nor all the energy passes indiscriminadamente nor all remains paralizada. A gate always open converts the admissibility in teatro. A gate always closed returns imposible the continuidad structural. The problema real is encontrar a range where the legalization tenga force without ahogar the background. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. The health of the gate not is measures by abrir or cerrar mucho, but through mantenerse in a zona not degenerada where nor all the energy passes indiscriminadamente nor all remains paralizada. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. The monograph of the tensor integra the health of the gate dentro of the coherence canonical, it that shows that the admissibility already not is a auxiliar periférico but a dimension constitutiva of the value structural. In CTNet each operator is valuable by virtue

of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy.

Page 33

CTNet and the Exit from the Representational Paradigm

The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The arquitecturas that not distinguen this capa suelen confundir expresividad with absence of restricción. But the absence of restricción not produces riqueza; only retrasa the aparición of residuos causales inservibles. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. The gate sano is condition of plurality and of memory. Without it, the selector receives demasiado noise or demasiado poco background, and the coherence acaba puntuando states ilegítimos that never debieron pass. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The libertad of the system not increases when desaparece the

legalization; increases when the legalization is sufficiently fina for dejar pass it that aún can trabajar. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja de caber in a single dominant representation.

21. Admissibility and regime long of computation

If is sigue the hilo of the corpus up to the final, The admissibility not only resuelve a decision local; redefine the possibility same of a regime long of computation in the that the persistencia not equivalga to inercia blind. Cuanto mayor is the horizonte causal, more peligroso resulta seguir acumulando state without discriminar what must conservarse, what must inhibirse and what must reconfigurarse. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. The admissibility not only resuelve a decision local; redefine the possibility same of a regime long of computation in the that the persistencia not equivalga to inercia blind. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. Therefore the gate of CTNet trabaja before of the reading and before of the selector. Its lugar in the chain not is accesorio: legalizes the dominio on the that then actuarán memory, coherence and charts. In

Page 34

CTNet and the Exit from the Representational Paradigm

CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. If is contrasta this thesis with the esquema monolithic habitual, the contraste already not can ocultarse. In a baseline, mucha of this legalization ocurre tarde, by vía of the response final or of pérdidas auxiliares. CTNet the anticipa and with ello prevents that the system pague after by it that already dejó pass without criterio. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. The admissibility converts the continuidad in continuidad fertile. The past deja of persistir by simple inercia and passes to persistir because still has derecho structural to intervenir. This shifts the criterio with the that is judges the progreso. Already not basta with

ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The long memory only is arquitecturally sostenible when the law of it admisible form part of the step computational elementary. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the

system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 35

CTNet and the Exit from the Representational Paradigm

VIII. charts, selector and projective output This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output. **Projective output:**

$$y_t = h y_t^{\{hard\}} + s y_t^{\{soft\}} + b y_t^{\{base\}}$$

with $h+s+b=1$ and coeficientes dependientes of nitidez, persistencia and

claridad of regime.

22. The plurality of charts as thesis of understanding

In terms estrictamente architectural, The multi-chart of CTNet not is only a solución of routing; expresa a thesis on the understanding: a background rich not can be agotado by a single reading soberana without loss structural. Muchos problemas requieren several vistas local of the same state, each a with function own and no plenamente reducible to the others. Obligar to the system to fundirlas demasiado pronto empobrece the computation. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. The multi-chart of CTNet not is only a solución of routing; expresa a thesis on the understanding: a background rich not can be agotado by a single reading soberana without loss structural. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. CTNet computes several charts from a background common, regula its ecology through a selector condicionado by memory and regime and only after composes a projective output. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents

that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The monolithic baseline tiende to recentralizar the plurality in a dominant representation. Thus can parecer more limpio, but paga that limpieza with loss of perspectiva and with colapso prematuro of rutas useful. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in

Page 36

CTNet and the Exit from the Representational Paradigm

output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. Comprender deja then of significar produce a single descripción potente and passes to significar maintain several charts partial coherentes without exigirles a fusión prematura. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The multi-chart of CTNet It must be read as a theory implicit of the understanding not soberana. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

23. Selector, temperature and ecology disciplinada

Vista from the logic interna of the system, The selector of CTNet not busca uniformity nor monopolio, but a ecology disciplinada where the charts suficientes sobreviven and the redundantes not devoran all the work. All plurality is enfrenta to two ruinas posibles: that a chart is vuelva soberana and the others sean decorado, or that all participen tan poco diferenciadamente that no aporte reading real. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. The selector of CTNet not busca uniformity nor monopolio, but a ecology disciplinada where the charts suficientes sobreviven and the redundantes not devoran all the work. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes desaparece, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. For avoid ambos extremos, the architecture introduces logits condicionados by state, memory and regime, temperature effective, sesgos of recovery, penalty of dominancias and correcciones by structure memorial. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere

residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the

Page 37

CTNet and the Exit from the Representational Paradigm

separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. In systems more simples, the routing suele presentarse as a decision local almost instantánea. CTNet converts that decision in ecology, precisamente because sabe that the plurality only vale if not collapses by excess of concentración or by planitud. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. The health of the selector must then medirse by entropy fertile, diversity real and balance of load, not by elegancia visual of the mechanism nor by facilidad of implementation. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. Therefore the proposition that cierra this section can

be formulated of manera seca. Not there is selector robusto without a theory explicit of the ecology of charts and of its degenerations. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

24. The output as comparecencia and not as exhaustion

In terms estrictamente architectural, The projective output of CTNet is quizá the gesto conceptual more important of all the architecture: the response final comparece as reading local of a background that the excede, and not as exhaustion of the state interno. If the output pretendiera coincide with the system entero, all plurality previa is volvería ornamental and the memory interna only valdría by it that pudiera resumirse in that projection single. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. The projective output of CTNet is quizá the gesto conceptual more important of all the architecture: the response final comparece as reading local of a background that the excede, and not as exhaustion of the state interno. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those

Page 38

CTNet and the Exit from the Representational Paradigm

planes desaparece, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. CTNet articula outputs blandas, duras and of base, and the mixture dinámicamente according to nitidez of charts, Contextual persistence and claridad of regime. The response deja thus of be a ventana transparente to the whole. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. The architecture of dominant representation interpreta the output as centro soberano. CTNet the reubica in the periferia of the proceso: important, yes, but subordinada to a background that sigue viviendo

after of ella. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just the functions that CTNet had made explicit from the

beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. This libera mucho computation. The system already not necesita fingir that each step must compactar all its riqueza interna in a single boca visible for demostrar that is pensando. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. Therefore the proposition that cierra this section can be formulated of manera seca. The projective output is the form architectural of negar that the response sea the ontology of the system. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 39

CTNet and the Exit from the Representational Paradigm

IX. Coherence Tensor: Geometry, value and causality This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output. Core of the tensor:

```
I(x) = I_diag(x) + I_low(x)
speed(x) = exp(clip(I(x)))
E_coh(x) = speed(x) * E_base(x)
```

25. The Coherence Tensor as operador and not as observable pasivo

Vista from the logic interna of the system, The monograph of the tensor insiste in a idea axial: the coherence of CTNet not is a loss decorativa nor a score pasivo, but a operador activo that measures structure and reorganizes the dynamics. In many arquitecturas a magnitud interna can parecer important without alterar realmente the comportamiento of the system. The value remains then comentado, not encarnado. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. The monograph of the tensor insiste in a idea axial: the coherence of CTNet not is a loss decorativa nor a score pasivo, but a operador activo that measures structure and reorganizes the dynamics. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. In CTNet the tensor produces structural information, the converts in speed, reescala the energy of coherence and, in

determinadas implementaciones, entra as drive explicit of the siguiente state. The value deja

of be a Comment externo. In CTNet each operador is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. The baseline can have scores, saliencias or prioridades, but suele tratarlos dinámicamente by canales distintos. Eso rompe the coincidence between analytical part and real part of the value. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore,

Page 40

CTNet and the Exit from the Representational Paradigm

when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just the functions that CTNet had made explicit from the beginning. The consequence is not limited to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. The Tensor efficiency proviende precisamente of that measure and actuar not are trabajos separados. Is paga a single Geometry for obtener simultaneously reading and reorganization. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. A architecture that quiera tomarse in serio the value interno must do that the same law that it measures it convierta in causalidad effective. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

26. Geometry diagonal more low rank

Vista from the logic interna of the system, The form geometric of the Coherence Tensor combina a Diagonal metric positiva with a low-rank correction for capturar at the same time anisotropy local and modes globales of the state. A metric densa complete would be very face and, moreover, conceptualmente excesiva if gran part of the structure relevante can factorarse in energías local more some pocos modes globales dominantes. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. The form geometric of the Coherence Tensor combina a Diagonal metric positiva with a low-rank correction for capturar at the same time anisotropy local and modes globales of the state. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. The corpus describes exactly that compromiso: varianzas by dimension, reponderación diagonal learned, projection low-rank and transformation of the information resultante in speed exponencial effective. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the

present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy.

Page 41

CTNet and the Exit from the Representational Paradigm

The comparison with a monolithic baseline clarifies even further the point. Here the economy geometric not is simplificación arbitraria; is form comprimida of a thesis more high. The tensor not necesita reconstruir from cero all the topology of the system because trabaja on a substrate already factorizado. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. The ventaja not is only computational. Also mejora the legibilidad of the value structural, because the law geometric resulta interpretable as composition between intensidad local and modes globales of organization. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. The Tensor efficiency nace of comprimir Geometry without

comprimir value: suficiente structure, mucho less cost and same capacidad of actuar. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

27. Analytical part and real part of the value

The formulation more strong is the siguiente: The idea more radical of the corpus is that the analytical part and the real part of the value coinciden in CTNet because the same magnitud that measures structure reweights efectivamente the transition and, in ciertos casos, the learning. When analysis and dynamics viven separados, a architecture can saber what vale and, aun thus, seguir comportándose according to other criterio. The result is a intelligence with mala sovereignty interna. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. The idea more radical of the corpus is that the analytical part and the real part of the value coinciden in CTNet because the same magnitud that measures structure reweights efectivamente the transition and, in

ciertos casos, the learning. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. CTNet prevents that escisión

enlazando info, speed, coherence whole, Branch mass and, in the toy model, coh_drive. It

Page 42

CTNet and the Exit from the Representational Paradigm

valioso not has that traducirse after to action: already nace incorporado to the law of the movimiento. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. That point diferencia a theory strong of the value of a economy of puntuaciones auxiliares. In the baseline can haber metrics excelentes of importancia that not modifiquen apenas the state siguiente. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. The system deja then of be a dynamics blind evaluada from fuera and passes to poseer a form interna of juicio with eficacia causal. This is a salto ontological, not only technical. This shifts the criterio with the that is judges the progreso.

Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. Therefore the proposition that cierra this section can be formulated of manera seca. The value structural only is real when the system is reorganizes according to it. CTNet intenta precisamente that identidad. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 43

CTNet and the Exit from the Representational Paradigm

X. Order, branches and contextual value This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output. Value by branches:

$$I_{\text{mix}} = p_A I_A + p_B I_B$$

$$V_{\text{mix}} = p_A V_A + p_B V_B$$

The Branch mass not is a weight arbitrario, but occupation effective of the state.

28. The order object as variable interna

Stated bluntly, CTNet is takes the order as object interno of the dynamics and not as simple encoding posicional, because in dominios not conmutativos the order redistributes causalidad and not only localización. Tratar the order as encoding decorativo equivale to suponer that the trajectory of the calculation not changes of naturaleza when changes the composition, algo false in problemas complejos. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. CTNet is takes the order as object interno of the dynamics and not as simple encoding posicional, because in dominios not conmutativos the order redistributes causalidad and not only localización. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. Therefore aparecen masas of branch, Local

masks, Global stitching and Branch-wise coherence. The order deja of be fuera of the computation and passes to reorganizewhat part of the state adquiere relevancia effective. In CTNet each operator is valuable by virtue of the contradiction it avoids.

The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. A baseline can anotar posiciones, but not by ello converts the order in variable of realidad interna. It usa as señal, not as redistribución of mass contextual. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad,

Page 44

CTNet and the Exit from the Representational Paradigm

dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. To the introduce the order as object, CTNet amplía again its ontology: ahora the system not only recuerda and selecciona, also decides internamente how the composition afecta to the economy of the value. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. Therefore the proposition that cierra this section can be formulated of manera seca. The order is a variable real when changes the trajectory of the computation, not only when decora the entrada. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

29. Branch-wise coherence and masas ocupacionales

If is sigue the hilo of the corpus up to the final, The Branch-wise coherence adds a capa decisiva of precision: the value not is distribuye with weights arbitrarios, but according to the mass ocupacional real of each branch of the state. A tensor global single can capturar structure, but pierde resolución when distintas branches of the state have soportes and geometrías parcialmente diferentes. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. The Branch-wise coherence adds a capa decisiva of precision: the value not is distribuye with weights arbitrarios, but according to the mass ocupacional real of each branch of the state. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The corpus describes precisamente a coherence by-branch with metrics propias, information anisotropic específica and mixture ponderada by the occupation effective of each branch. Thus the contextual value deja of be homogéneo. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate

prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy.

Page 45

CTNet and the Exit from the Representational Paradigm

If is contrasta this thesis with the esquema monolithic habitual, the contraste already not can ocultarse. The baseline suele carecer of this level of articulación. Can distinguir subespacios funcionales, but rara vez asigna to each one a law explicit that a calidad structural and mass real dentro of the state. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. The notion of fractions of the value is returns then literally operativa. Each branch vale not only by its structure, but through how much state real soporta and by how that soporte entra in the dynamics global. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. Therefore the proposition that cierra this section can be formulated of manera seca. The contextual value not is simple calidad nor simple size:

is calidad structural ponderada by occupation real dentro of the regime presente. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

30. Stitching local-global and retrospective of the value

If is sigue the hilo of the corpus up to the final, The stitching local-global of CTNet introduces a idea important: the value of a fraction or of a branch not remains fijado of a vez in its reading local, but that can be revisado by its integración in the whole. Without that retrospective, the system would remain preso of juicios local prematuros and perdería the capacidad of reconocer that to part aparentemente secundaria adquiere mass to the coserse with other parts of the state. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. The stitching local-global of CTNet introduces a idea important: the value of a fraction or of a branch not remains fijado of a vez in its reading local, but that can be revisado by its integración in the whole. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role of the corresponding module. The interaction between order, memory and coherence allows precisamente this reevaluación. The contextual value surge of the

Page 46

CTNet and the Exit from the Representational Paradigm

relation between perspectiva local and recomposition global of the background. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residuo of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. The baseline suele score importancia by saliencia inmediata. CTNet introduces a economy more rich where the posición structural of a fraction dentro of the all can alterar retrospectivamente its weight real. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. This acerca the architecture to a intelligence capaz of revisar the meaning of its propias parts without destruirlas nor reescribirlas from cero. Is a form of retrospective not soberana. This shifts the criterio with the that is judges the progreso. Already not

basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. Not all jerarquía of the value is local: in systems ricos, the whole devuelve mass and meaning to the parts that it compose. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 47

CTNet and the Exit from the Representational Paradigm

XI. False simplicity, structural debt and disappearance of the apparent disadvantages This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output.

31. Why the complexity apparent of CTNet not is a desventaja

Stated bluntly, It that from fuera parece complexity in CTNet is, in realidad, explicitación of functions irreducibles that other arquitecturas comprimen silenciosamente dentro of the same canal. The intuition ingenua equipara simplicidad and superioridad architectural. But that intuition only vale when the functions comprimidas are realmente reductibles between yes, and the corpus of CTNet states exactly it contrario. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of

the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it beforeconverting it into output. The chain of razones is bastante clear. It that from fuera parece complexity in CTNet is, in realidad,explicitación of functions irreducibles that other arquitecturas comprimen silenciosamente dentro of the same canal. When CTNetcorpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simplerepresentational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past,legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears,the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. From there, it becomes clearer the role ofthe corresponding module. Separate substrate, memory, regime, admissibility, charts, order and coherence not adds workinventado. Makes visible that the system necesita already those dimensiones for sustain computation not destructive lowstructural load. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that

the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The simplicidad of the baseline is apparent because depende de dejar without nombrar tensiones reales: state-output, memory-transition, control-dynamics, legalidad-persistencia, plurality-projection and value-action. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the

Page 48

CTNet and the Exit from the Representational Paradigm

problema increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. A vez elegido the tribunal correcto -structure preservada, interferencia evitada and capacidad of sustain a mundo interno computable-, the complexity explicit deja of be a against and passes to be signo of honestidad architectural. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. Therefore the proposition that cierra this section can be formulated of manera seca. Not there is sobrecarga real in CTNet; there is contabilización visible of tensiones that the baseline esconde and paga peor. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

32. Structural debt hidden of the baseline

The formulation more strong is the siguiente: The apparent austeridad of the baseline is financia with a structural debt futura: to measurement that grows the irreducibilidad of the problema, the architecture must simular torpemente pseudo-substrate, pseudo-memory, pseudo-regime, pseudo-gate, pseudo-selector and pseudo-coherence. Is imposible resolver problemas of high structural load without that those functions emerjan of algún modo. The cuestión is if emergen as accidentes conflictivos or if is les concede status own from the design. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. The apparent austeridad of the baseline is financia with a structural debt futura: to measurement that grows the irreducibilidad of the problema, the architecture must simular torpemente pseudo-substrate, pseudo-memory, pseudo-regime, pseudo-gate, pseudo-selector and pseudo-coherence. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. CTNet liquida that debt by adelantado. Declara the functions as reales and the articula through

a law common. The baseline the difiere, the redistributes by the hidden dominant and the paga then in form of interferencia and colapso. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the

Page 49

CTNet and the Exit from the Representational Paradigm

separation between measurement and dynamics. The section presente is inserted exactly in that common economy. If is contrasta this thesis with the esquema monolithic habitual, the contraste already not can ocultarse. When the baseline parece more ligero is because still not ha tenido that saldar its debt. In the momento in that the problema requires continuidad causal, plurality of readings or value interno, empieza to aproximar implícitamente justo it that CTNet already separaba. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed

background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently austere architecture ends up having to approximate awkwardly just the functions that CTNet had made explicit from the beginning. The implications of second and third order are more profound of it that parece. The comparison real not is between simplicidad and complexity, but between debt hidden and cost explicit of articulación. Low that comparison, CTNet sale estructuralmente favorecido. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant

representational paradigm. The closure of this section can expresarse in form of thesis operator. All supuesta desventaja of CTNet can reescribirse as a contradiction not declarada of the baseline. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

33. All the disadvantages apparent change of signo

If is sigue the hilo of the corpus up to the final, A vez adoptada the variable correct of juicio, no desventaja apparent of CTNet permanece in pie: complexity, cost, dificultad of entrenamiento, excess of control, latency or multiplicidad of observables is revelan as inversiones of signo of propiedades deseables. The error common consiste in compare by cost local of module and not by cost of reconciliación structural, by brillo of output and not by mundo interno computable, or by facilidad of engineering superficial and not by health of regime. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. A vez adoptada the variable correct of juicio, no desventaja apparent of CTNet permanece in pie: complexity, cost, dificultad of entrenamiento, excess of control, latency or multiplicidad of observables is revelan as inversiones of signo of propiedades deseables. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fijación of the modo

Page 50

CTNet and the Exit from the Representational Paradigm

of computation and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. CTNet parece more costoso because counts it that the baseline not counts. Parece have more observables because nombra fallos reales. Parece more normado because distingue stability living of freezing, and memory sana of arrastre ciego. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. In the baseline, the same list of supuestos pros is returns a list of silencios: silencio on the legalidad, on the ontology of the memory, on the plurality of readings and on the coincidence between score and dynamics. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more

austere architecture ends up having to approximate awkwardly just the functions that CTNet had made explicit from the beginning. The implicaciones of second and third order are more profundas of it that parece. The Strong thesis remains then closed: CTNet not has contras internal, but conditions of activation. AND when those conditions aparecen, its ventaja deja of be opcional and passes to be consecuencia of the regime. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. All the disadvantages apparent of CTNet are artefactos of a tribunal equivocado. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 51

CTNet and the Exit from the Representational Paradigm

XII. Structural load, condemnation table and baseline diagnosis This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but

mostrar what contradiction reappears when that axis is suppresses, iscompresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output. Structural load effective:

$\lambda^* = \text{terms lineales} + \text{terms cruzados}$

Not gana quien soporta more longitud, but quien soporta mejor the interferencia between irreducible functions.

34. Structural load effective of the problema

Stated bluntly, The variable decisiva for predecir cuándo CTNet must ganar not is the size bruto of the problema, but its irreductibilidad structural: how much requires simultaneously persistencia, plurality, cambio of regime, legalization, recomposition topological and value causal interno. Problemas aparentemente modestos can quedar fuera of class for a baseline if concentran a or two irreductibilidades decisivas. Problemas enormes can seguir siendo reductibles if all cabe in a dominant representation. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. The variable decisiva for predecir cuándo CTNet must ganar not is the size bruto of the problema, but its irreductibilidad structural: how much requires simultaneously persistencia, plurality, cambio of regime, legalization, recomposition topological and value causal interno. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. This monograph propone distinguir six coordenadas of demanda: horizonte causal, plurality irreductible, not estacionariedad of the modo of

computation, pressure of admissibility, recomposition topological of the past and cost of separate measurement and dynamics. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The baseline can aguantar bien a pressure aislada. It that it rompe are the terms cruzados: past more plurality, plurality more regime, memory more legalidad,

Page 52

CTNet and the Exit from the Representational Paradigm

value more dynamics effective. CTNet existe precisamente for desacoplar those cruces. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. The ventaja of CTNet not is linear nor homogénea. Must aparecer with form of umbral or of separation of fase when the interferencia between exigencias supera the capacidad structural of the canal monolithic. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The verdadera scale of the problema not is its longitud nor its size, but the load of interacciones that not can absorber a representation soberana. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that

the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

35. Condemnation table of the baseline

The formulation more strong is the siguiente: Ciertas coordenadas or combinaciones mínimas of the structural load bastan for sacar to the baseline fuera of class, not by falta of parameters, but through contradiction architectural. The three coordenadas more letales by yes solas are the plurality irreductible of readings, the recomposition topological of the past and the exigencia of that the value medido reorganice the dynamics real. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. Ciertas coordenadas or combinaciones mínimas of the structural load bastan for sacar to the baseline fuera of class, not by falta of parameters, but through contradiction architectural. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of

decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. TO ellas is suman combinaciones mínimas igualmente fatales, as horizonte more admissibility, regime more plurality or regime more recomposition topological. In all ellas the baseline must similar

Page 53

CTNet and the Exit from the Representational Paradigm

implícitamente modules that not posee as tales. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. CTNet resuelve each caso with a module dominant distinto: multi-chart and output not soberana for the plurality, memory-atlas for the recomposition, coherence for the value causal, regime for the not estacionariedad and gate for the legalidad. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just to the functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. The pregunta correct deja of be if CTNet rinde a poco mejor in average and passes to be if the problema, by its Geometry interna, condemnation to the baseline before of that the benchmark final

llegue to notarlo. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. A baseline not collapses only when falla externamente; collapses already in the momento in that the problema requires objetos ontológicos that the architecture not reconoce as reales. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

36. Order of fractura interna and firma matemática of the colapso

The formulation more strong is the siguiente: The colapso of the baseline low load high not should aparecer first in the output, but in a sequence interna of degradaciones: background that is returns buffer, memory that is externaliza, regime that is returns patológico, legalidad implicit rota, ecology of charts collapsed and divorcio between value and dynamics. Mientras those degradaciones not is measure, the benchmark can seguir engañando and presentar as robusta a architecture that already ha empezado to romperse by dentro. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output.

Page 54

CTNet and the Exit from the Representational Paradigm

Not is treats of a metaphor nor of a preferencia of estilo. The colapso of the baseline low load high not should aparecer first in the output, but in a sequence interna of degradaciones: background that is returns buffer, memory that is externaliza, regime that is returns patológico, legalidad implicit rota, ecology of charts collapsed and divorcio between value and dynamics. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. The monograph propone leer the health of the system through factores of preservation, memory, regime, admissibility, plurality and Coincidence between analytical value and real value. In a baseline, its varianzas should dispararse before of that caigan claramente its medias. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted

exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. CTNet shifts that cascada toward valores more altos of structural load because separa functions that in the baseline is estorban dentro of the same canal. Its robustez not is genérica; is structural. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to

approximate awkwardly just the functions that CTNet had made explicit from the beginning. The implications of second and third order are more profound of it that parece. This abre the gate to a audit pre-benchmark: measure the architecture by its health interna before of esperar to that the performance final delate a ruina that already era visible in the regime. This shifts the criterion with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. All caída externa of calidad viene precedida by a enfermedad interna of the

regime; CTNet importa because intenta avoid precisamente that sequence. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 55

CTNet and the Exit from the Representational Paradigm

Page 56

CTNet and the Exit from the Representational Paradigm

XIII. CTNet as higher computational ontology and implicit theory of intelligence This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output.

37. Of architecture mejor to ontology more high

Stated bluntly, CTNet not must be understood only as a architecture mejor, but as a ontology computational more high, because changes what entidades existen realmente dentro of the system and what counts as computar. In a ontology low, almost all is reduce to activaciones, weights and outputs. In a ontology more high, the system reconoce as reales persistencia, Topological memory, legalidad interna, plurality of charts, regime and value causal. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. CTNet not must be understood only as a architecture mejor, but as a ontology computational more high, because changes what entidades existen realmente dentro of the system and what counts as computar. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. The salto not is decorativo. A vez that those entidades existen with status, the architecture can gobernarlas, auditarlas and convertirlas in principios of organization of its mundo interno. In CTNet each operator is valuable by virtue of the contradiction it avoids. The

substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. If is contrasta this thesis with the esquema monolithic habitual, the contraste already not can ocultarse. The baseline can produce comportamientos that recuerden to algunas of ellas, but only as effects secundarios of a dynamics muda. CTNet the converts in planes explicitos of the own regime. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the

Page 57

CTNet and the Exit from the Representational Paradigm

apparently more austere architecture ends up having to approximate awkwardly just the functions that CTNet had made explicit from the beginning. The implications of second and tercer order are more profundas of it that parece. From there that the diferencia between ambos not sea only of performance local, but of class of mundo interno. One vive in a ontology comprimida; the other intenta habitar a ecology structural more rich. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is

that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The progreso architectural profundo consiste in ampliar the ontology of the computation, not only in optimizar mejor aontology already insuficiente. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

38. Intelligence as conservation and reorganization of structure

In terms estrictamente architectural, The implicit theory of intelligence that emerges of CTNet not defines intelligence as capacidad of produce respuestas correctas from a representation momentánea, but as capacidad of preserve, reorganize, legalize and proyectar structure without destruirla in each step. A response correct can salir of a proceso very destructive. But a intelligence strong requiere that the system not is ampute to yes same each vez that piensa. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. The implicit theory of intelligence that emerges of CTNet not defines intelligence as capacidad of produce respuestas correctas from a representation momentánea, but as capacidad of preserve, reorganize, legalize and proyectar structure without destruirla in each step. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. Therefore aparecen Persistent substrate, memory distributed, regime living, admissibility and coherence. Each one contribuye to that the system sostenga a mundo interno where several dimensiones of computational reality permanecen simultaneously operables. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the

Page 58

CTNet and the Exit from the Representational Paradigm

separation between measurement and dynamics. The section presente is inserted exactly in that common economy. If is contrasta this thesis with the esquema monolithic habitual, the contraste already not can ocultarse. The paradigm standard defines intelligence on all in terms representacionales. CTNet shifts the centro toward a intelligence organizativa: less acerca of have a imagen correct and more acerca of sustain a proceso interno rich and not autodestructivo. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. From here change also the evaluation criteria and of engineering. The understanding deja of be simple compression toward a etiqueta or response. Passes to be the capacidad of maintain several charts partial coherentes of a same background and dejar that its coordinación produzca respuestas without exhaust the whole. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more

severa with the dominant representational paradigm. The closure of this section can expresarse in form of thesis operator. A intelligence more high destroys less structure by unidad of decision useful. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

39. CTNet and the possibility of a general architecture of intelligence

If is sigue the hilo of the corpus up to the final, If a general architecture of intelligence must preserve background, usar past as causalidad living, cambiar of modo without collapse, sustain several readings useful and convertir value in dynamics effective, CTNet is aproxima more to that ideal that a architecture centrada in dominant representation and output soberana. The generalidad verdadera not consiste only in aproximar many functions, but in that the principios internal of the architecture sigan siendo válidos when changes the tipo of problema and increase distintas presiones structural. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. It decisivo here not is the superficie of the mechanism, but its status. If a general architecture of intelligence must preserve background, usar past as causalidad living, cambiar of modo without collapse, sustain several readings useful and convertir value in dynamics effective, CTNet is aproxima more to that ideal that a architecture centrada in dominant representation and output soberana. When CTNet corpus insists in hablar of regime of

Page 59

computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. That desplazamiento is returns visible when is examines the operador pertinente. The principios of CTNet are meta-computational: not dependen of a benchmark concreto nor of a dominio single, but of how must organizarse a system when the realidad of the problema is irreducible to a single projection. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. Eso not converts automáticamente to CTNet in AGI, but yes it acerca to a familia of arquitecturas where the generalidad descansa in invariants of regime and not only in scale paramétrica. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad,

dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly justo the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. The hipótesis strong would be then that many arquitecturas actuales mejoran in benchmark dentro of a ontology insuficiente, mientras CTNet apunta to a expansión of the own space of it computable from dentro. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. Therefore the proposition that cierra this section can be formulated of manera seca. CTNet importa not only because can rendir mejor, but because formulates conditions more plausibles for a general architecture of intelligence. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja de caber in a single dominant representation.

Page 60

CTNet and the Exit from the Representational Paradigm

XIV. Engineering program, audit and closure This chapter profundiza in a axis of the regime of computation CTNet and it pone in relation with the resto of the system. The intention not is isolate a module, but mostrar what contradiction reappears when that axis is suppresses, is compresses or is shifts toward a dominant representation. In that measurement, each chapter It must be read as a piece of a single thesis: the computation valioso is the administration of a mundo interno computable and not the mere production episodic of a output. Thesis final:

intelligence strong = conservation of structure + memory causal
+ regime living + legalidad + plurality + value that reorganizes the dynamics.

40. How would that train and auditar a architecture of this tipo

Stated bluntly, Aceptar the ontology of CTNet implies cambiar the object same of the entrenamiento: already not is cultiva only a function of output, but a ecology interna where substrate, memory, regime, gate, charts and coherence conserven structural health low pressure. If is entrenara CTNet as if fuera a máquina of respuestas ordinaria, the architecture correría the riesgo of degenerar toward the same tribunal that intenta superar. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. This can be derived almost immediately. Aceptar the ontology of CTNet implies cambiar the object same of the entrenamiento: already not is cultiva only a function of output, but a ecology interna where substrate, memory, regime, gate, charts and coherence conserven structural health low pressure. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. The program correcto requires metrics internal explícitas: preservation of the substrate, desacople state-memory, health of the gate, entropy and diversity of charts, living persistence of the regime, distribution of speed and Branch-wise coherence.

In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. In a baseline, gran part of those magnitudes not are directamente observables or only aparecen as correlatos tardíos. CTNet gana here other ventaja: the architecture already defines what it is advisable mirar and why. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, memory

Page 61

CTNet and the Exit from the Representational Paradigm

reduced to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just to the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. The entrenamiento is converts then in cultivo of a mundo interno legible. The interpretabilidad deja de be arqueología of a dynamics muda and passes to be reading of planes explícitos of the regime of computation. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. Not is entrena bien a architecture of regime with a loss of output soberano and nada more; is entrena cultivando its health interna of form deliberada. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja de caber in a single dominant representation.

41. Implicaciones for kernels, hardware and scaling

If is sigue the hilo of the corpus up to the final, The consequences of CTNet not terminan in the theory. If the architecture is correct, also obliga to repensar kernels, organization of the computation and scaling from the point of vista of the structure useful preservada and not only of the throughput local. A reading superficial vería únicamente more operators. But the cost correcto not is the number local of steps, but how much operable structure produces or preserves each ciclo without recomputación destructive. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. The chain of razones is bastante clear. The consequences of CTNet not terminan in the theory. If the architecture is correct, also obliga to repensar kernels, organization of the computation and scaling from the point of vista of the structure useful preservada and not only of the throughput local. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. The Geometry diagonal more low rank of the tensor, the damping of the substrate compartido, the possibility of measure and actuar with the same law and the

reutilización of a background common for several charts sugieren a economy diferente of kernels and of hardware. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents

Page 62

CTNet and the Exit from the Representational Paradigm

that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The comparison with a monolithic baseline clarifies even further the point. The baseline can seguir siendo very eficiente by operation suelta and, to the same tiempo, very ineficiente by saldo structural, because paga repetidamente the same reconciliaciones internal without nombrarlas as tales. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just to the functions that CTNet had made explicit from the beginning. The implicaciones of second and tercer order are more profundas of it that parece. A theory seria of the hardware for CTNet should measure densidad of computation useful, cost of preservation of structure, reutilización of the background and stability of the coherence, not only multiplicaciones by second. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how

much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant

representational paradigm. Therefore the proposition that cierra this section can be formulated of manera seca. Scale mejor not means only do more computation; means destroy less structure by unidad of computation and reutilizar more inteligentemente the background interno. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

42. Propositions finales on a new architectural era

Vista from the logic interna of the system, The argumento complete of this monograph can cerrarse in a chain of propositions that, juntas, hold that CTNet implies a new architectural era: not by marketing of novedad, but through cambiar the ontology of the computation, the theory of the value and the criterio of intelligence. If the computation valioso is transition governed, if the output not agota the state, if the memory must reingresar causalmente, if the legalidad of the state must existir as law interna and if the value must measure and actuar with the same form, then the paradigm of dominant representation remains conceptualmente excedido. The ambition of this text is to show that that dificultad is not contingent, but structural: nace of the tipo of computational reality that the system recognizes as existing and of the form in that decides administer it before converting it into output. Not is treats of a metaphor nor of a preferencia of estilo. The argumento complete of this monograph can cerrarse in a chain of propositions that, juntas, hold that CTNet implies a new architectural era: not by marketing of novedad, but through cambiar the

Page 63

CTNet and the Exit from the Representational Paradigm

ontology of the computation, the theory of the value and the criterio of intelligence. When CTNet corpus insists in hablar of regime of computation, it that is diciendo is that the act of computing cannot be reduced to a simple representational update. It must be read as a sequence of decisions on conservation of the background, redistribution of the past, legalization of the state, fixing of the computational mode and projection of to partial reading. If one of those planes disappears, the rest does not remain intact; it is forced to to simulate it implicitly and more poorly. The architecture traduce this exigencia in a piece concreta. CTNet articula precisamente those conditions through Persistent substrate, Topological memory, regime, admissibility, multi-chart, order interno and Coherence Tensor. No piece basta single; juntas forman a economy unified. In CTNet each operator is valuable by virtue of the contradiction it avoids. The substrate prevents that the present from being to mere residue of previous rewritings; memory prevents that the past from becoming an external archive; the regime prevents that every internal change from being confused with noise; admissibility prevents that the persistence of what can not longer act legitimately; the selector prevents the sovereignty of to single reading; and coherence prevents the separation between measurement and dynamics. The section presente is inserted exactly in that common economy. The diferencia with a architecture of dominant representation aparece with all nitidez in this lugar. The baseline not remains simplemente desplazado by performance, but through insuficiencia ontológica in problemas of irreducibilidad structural high. Can seguir mejorando dentro of its marco and, aun thus, seguir siendo demasiado

pobre as theory of the computation inteligente. The supposed simplicity of the alternative scheme almost always depends of not accounting for the debt it leaves hidden: compressed background in output, reduced memory to disponibilidad, dissolved control in activation, gate without status, routing without ecology and value without direct causality. Therefore, when the structural load of the problem increases, the apparently more austere architecture ends up having to approximate awkwardly just to the functions that CTNet had made explicit from the beginning. The consecuencia not is limita to the plane conceptual; reorganizes moreover how would that measure, train and scale the system. The new architectural era not would be, then, the of the modelo more grande nor the of the truco of attention more fino, but the of systems capaces of sustain a mundo interno computable more rich, less soberano and more gobernable. This shifts the criterio with the that is judges the progreso. Already not basta with ask if the response mejora, if the latency local is menor or if the mechanism is described with less bloques. There is that ask how much operable structure is preserved per cycle, how much interference is avoided between irreducible functions and to what extent the value recognized by the system actually reorganizes of verdad its evolution. Under that tribunal, the reading of the corpus is returns mucho more severa with the dominant representational paradigm. The Conclusion rigurosa is then the siguiente. The thesis final of this document is that CTNet not must juzgarse only as a architecture interesante, but as a propuesta seria of exit from the representational paradigm dominant. Read thus, the piece that here is ha examinado not aporta a mejora lateral, but a condition of

possibility for that the system siga siendo intelligible when the problema deja of caber in a single dominant representation.

Page 64

CTNet and the Exit from the Representational Paradigm

Appendix TO. Doce propositions cardinales

1. CTNet It must be read as regime of computation and not as list accidental of modules.

2. Valuable computation not is reescribir a dominant representation, but gobernar the

transition of a persistent state.

3. State and output not can coincide without empobrecimiento ontological of the system.

4. The memory useful not is archivo linear, but structure recoverable distributed on an atlas

of fractions.

5. Persistencia without admissibility degenera in arrastre ciego or in poda implicit destructive.

6. The plurality of charts not is a lujo of routing, but condition of understanding not

soberana.

7. the regime is a variable interna real, not a etiqueta externa of tarea.

8. The Coherence Tensor not is a observable pasivo: measures structure and reorganizes the

dynamics.

9. The analytical part and the real part of the value only coinciden when the same law that measures

structure the converts in causalidad effective.

10. The False simplicity of the baseline is financia with structural debt hidden.

11. The ventaja of CTNet grows with the irreductibilidad structural of the problema and with the

terms cruzados between its exigencias.

12. A general architecture of intelligence necesita a mundo interno computable more rich

that a dominant representation optimizada for responder.

Appendix B. Coordenadas of irreductibilidad structural

Coordenada Pregunta diagnóstica When domina Module CTNet dominant H ¿How much past must Horizonte causal Persistent substrate seguir actuando irreductible + memory causalmente? Q ¿A single reading Plurality Multi-chart + selector can exhaust the irreductible + projective output background without falsificarlo? R ¿Changes Not estacionariedad Slow context + internamente the law of regime distribution of of computation? regimes G ¿What part of the High pressure of Native admissibility state can seguir legalization living without contaminar

Page 65

CTNet and the Exit from the Representational Paradigm

the proceso? T ¿The past must Topological memory Atlas memorial + recomponerse as coupling structure distributed? V ¿It valioso must Value causal interno Tensor of reorganize coherence realmente the transition?

Appendix C. Condemnation table of the baseline

Caso Why the baseline Symptom temprano Ventaja CTNet entra in contradiction Q high A single projection Colapso ecological Readings multiple soberana falsifica the of rutas disciplinadas background T high The memory Desacople state- Atlas topological protésica not memory reentrant recompone Geometry distributed V high The score not Divorcio between Coherence as law reorganizes the measurement and action causal dynamics real H+G Persistencia without Gate implicit Persistencia legalidad produces degenerate legalizada noise or amputation R+Q Cambio of modo Routing errático or Regime + selector more plurality monopolio exceden the canal single R+T Past distributed Memory volátil Regime on with modo cambiante background persistent rompe the consulta externa

Appendix D. Protocolo minimal of audit structural

1. Measure preservation of the substrate before and after of periodos largos of computation.

Page 66

CTNet and the Exit from the Representational Paradigm

2. Measure distancia between state and memory releída; a memory sana must seguir siendo

causalmente pertinente.

3. Auditar living persistence of regime: low hysteresis not implies health; high persistencia

tampoco.

4. Verificar that the admissibility not colapse to apertura indiscriminada nor to closure muerto.

5. Measure entropy, diversity and balance of load of charts before of the benchmark final.

6. Measure distribution of speed by tarea, regime and branch.

7. Verificar that the aumentos of coherence is traduzcan in cambios reales of transition and not

only in mejores scores of logging.

8. Auditar varianzas temporales of memory, regime and gate; the colapso interno suele aparecer

as intermitencia before that as caída mean.

Appendix E. Glossary compacto

Term Definition Persistent state Background interno that not is identifies with the output and on the that is realiza the work living of the computation. Topological memory Atlas distributed of fractions, rotations and couplings through the that the past sigue actuando causalmente on the presente. Regime Variable interna that defines the modo of computation adecuado low conditions cambiantes. Admissibility Law interna that decides what part of the state can seguir living of form legítima. Chart Reading local parcial of the same background persistent. Projective output Disciplined appearance of a part of the background; not its exhaustion. Coherence Operador that measures structure and the converts in speed or dynamic mass. Contextual value Weight structural that a fraction of the state adquiere dentro of the regime actual to the afectar simultaneously percepción and realidad operativa. Structural load Magnitud composite that resume how much irreductibilidad of the problema must sustain

Page 67

CTNet and the Exit from the Representational Paradigm

the architecture without collapse. Structural debt hidden Whole of pseudo-functions that a architecture monolithic must simular implícitamente when not explicita planes irreducibles.

Bibliografía minimal

[R1] CTNet. Technical monograph of architecture, internal dynamics and Coherence Tensor.

Corpus provided by the user. 2026.

[R2] Technical monograph of the Coherence Tensor of CTNet. Complete structural unfolding from the lowest level. Corpus provided by the user. 2026.

[R3] Synthesis analytical desarrollada in this monograph from [R1] and [R2].

Page 68

CTNet and the Exit from the Representational Paradigm

Appendix F. Integral equation compendium of the corpus CTNet

This Appendix incorporates of form explicit the system ecuacional that the cuerpo principal of the monograph utilizaba of manera summarized. The criterio seguido is strong: is reúnen the equations maestras of the corpus CTNet, its forms operatorias more estables and the equations of transition, memory, regime, admissibility, selector, coherence, branches and contextual value that articulan the ontology of the system. The equations are presented as text mathematical limpio and estable for that the document siga siendo legible and exportable in DOCX and PDF without depender of motores externos. The

notation unifica [R1] and [R2] and preserves, when is useful, the semantic strong of the corpus: state persistent, charts, atlas, regime, admissibility, order object, Coherence Tensor and projective output.

F.1. Primitives, variables and Separation of planes

The grammar of CTNet obliga to distinguir entradas, persistent state, memory, regime, admissibility, charts, order object, coherence and output. The equations elementales of notation are the siguientes.

Is distingue explicitly between it observable, the background persistent and the variables of gobierno.

The escisión cardinal minimal allows that the coherence mida bidirectional consistency between halves of the same state.

The multiscale of the substrate is expresa as familia of radios operational and not as a single scale dominant.

F.2. Step computational elementary and equation master

The corpus insiste in that CTNet not computa by simple episodic rewriting. The Elementary step is a chain governed on a background persistent.

This is the chain causal pedagógica minimal, not the canonical operator order nor a sequence of ejecución: transition reversible, legalization, memory, regime, coherence, charts and projective output. It must be read as dependencia causal abstract.

Page 69

CTNet and the Exit from the Representational Paradigm

Compact form of the equation master: the system is understands as transition of state low multiple laws internal irreducible.

Expanded form: the transition whole is suma governed of mixture reversible, memory, legalidad, coherence, selection and order interno. This descomposición is operator in its terms, but the enumeración not must releerse as sequence temporal distinta of the order canonical fijado in this edition.

F.3. Reversible substrate, permutation cardinal and multiradius mixture

The substrate CTNet defines by reversibilidad redistribución cardinal and mixture multiscale.

The permutation cardinal or Invertible router redistributes the state without loss of information.

Each radio defines a trío of desplazamientos izquierda-centro-derecha on the same soporte espacial.

The weights by radio not are constantes: the system aprende how mezclar vecindades distintas.

The mixture local by radio preserves soporte and changes only the composition effective of information.

The multiscale not is adds to the final: constituye the tejido same of the substrate.

Elementary reversible block: the transition preserves suficiente huella as for reconstruir the state prior.

Inversa exact of the Elementary reversible block.

Dynamics latent fractal: the same law local can iterarse to several profundidades without renunciar to the reconstruibilidad.

F.4. Distributed topological memory

The memory of CTNet not is a cache external, but a atlas distributed on the own state.

The state is fractionates in charts or regions without perder the unidad of the soporte whole.

Page 70

CTNet and the Exit from the Representational Paradigm

Each fraction combina encoding regional and latency base local.

The Orthogonal rotations allow tocar the whole from orientaciones distintas without destroy comparabilidad global.

The Topology among fractions not is anecdótica: is a law explicit of coupling.

Each chart receives feedback topological of the others.

The Abstract global existe, but not as instancia soberana of the whole.

Primera mixture: singularidad local more red topological interna.

Segunda mixture: fraction already negociada with the whole not soberano.

The memory global final is compromiso between atlas and reading global directa.

Each token relee simultaneously three escalas: base local, chart fraccional and whole global.

The long memory increases by structure recoverable and not by mere accumulation linear of celdas.

F.5. Regime, slow context e hysteresis

the regime is the variable that decides how must computarse a same background low conditions distintas.

the regime is a distribution operativa and not a etiqueta rígida of tarea.

The slow context condensa the dynamics reciente without confundirse with memory or output.

Seed inicial of the regime from the state medio, the memory and the slow context.

The hysteresis traduce the persistencia in a object calculable and not in a sentimiento informal of stability.

The disagreement measures the distancia between the regime that venía gobernando and the new candidato.

The sorpresa cuantifica cambio observacional between segmentos or tramos of the state.

Freeze pressure distingue stability fertile of persistencia degenerada.

The score of evento mixture evidencia local, disagreement, sorpresa and pressure of freezing.

Page 71

CTNet and the Exit from the Representational Paradigm

The cambio of regime not is libre nor ruidoso: ocurre low umbral and low law of living persistence.

F.6. Admissibility and legalization native of the state

The admissibility decides what part of the state can seguir actuando low the regime actual.

The compuerta depende of the state post-block and of the slow context that sintetiza the regime operativo.

Legalize not is embellecer: is decidir what trajectories siguen vivas of form legítima.

The admissibility not only cuts: also pushes the siguiente state in a direction compatible with the regime.

The health of the gate requires avoid tanto the apertura indiscriminada as the closure muerto.

F.7. charts, selector and projective output

The output not agota the background. Therefore the system produces Local charts, weights of selection and several familias of readout.

Each chart is a reading local distinta of the same background compartido.

The selector already incorpora memory, structure topological and regime; not is a clasificador tardío aislado.

The distribution of charts is modula by temperature effective and by correctores ecológicos.

The output blanda is a combination convexa of charts low law ecological.

The output dura sets out the chart dominant when the nitidez structural it allows.

The output base preserves a projection directa of the state legalizado.

The output final comparece as mixture dynamics of modes of reading and not as sovereignty of a boca single.

The ecology of charts must mantenerse plural, disciplinada and lejos of the monopolio or of the uniformity flat.

F.8. Coherence Tensor in CTNet 2.6

The Coherence Tensor not is a regularization decorativa. Converts structure preservada into dynamic mass.

Page 72

CTNet and the Exit from the Representational Paradigm

The two cardinal halves is juzgan by its capacidad of implicarse estructuralmente low a same law reversible.

The coherence base not is average of halves, but bidirectional consistency effective.

The structural information is measures on the state centrado.

The variance by dimension is the materia prima of the metric anisotropic.

The part diagonal of the metric permanece positiva and aprendible.

The Geometry local of the value not is uniform: ciertas dimensiones cargan more structure that other.

The correction low-rank projects the state on some pocos modes globales of structure.

The low rank captura correlaciones globales without pagar a metric densa complete.

The structural information whole reúne anisotropy local and modes globales comprimidos.

The clamp protege stability without destroy the reading of value.

It that the system reconoce as more estructurado adquiere more speed effective.

The analytical part and the real part of the value coinciden because the same law measures and reescala.

In the reading strong of CTNet 2.6, the coherence accelerates also the reorganization of the learning and not only the forward.

F.9. Coherence canonical and economy structural complete

The version canonical extiende the tensor to a economy complete of the regime of computation.

If the memory reingresa in the transition, its compatibility with the state has status structural.

The tension detecta anisotropy fertile against to state aplanado or roto by concentración excesiva.

The entropy of charts must avoid monopolio soberano and uniformity flat.

The charts have that be plurality real and not clones of a same compressed background.

The balance of load integra the ecology of rutas dentro of the own regime of coherence.

Page 73

CTNet and the Exit from the Representational Paradigm

The Contextual persistence valiosa not is immobility, but continuidad with law.

The vitality contextual penaliza tanto freezing as switching patológico.

The entropy of regime must permanecer in banda fertile and not in extremos degenerados.

The gate sano is a condition explicit of the coherence whole.

A same law of information anisotropic reescala the economy entera of the regime and not only a term local.

F.10. Order object, branches and fractions of the value

The Branch-wise coherence shows that the contextual value not is scale homogéneo, but mass distributed on regions effective of the state.

The order object segmental induce partitions effective of the state and not simples decoraciones posicionales.

Each branch of the order is a fraction of the same background whole.

Each branch posee its own Geometry of information and, therefore, its own reading of value.

The masas ocupacionales not are weights arbitrarios, but proporciones effective of state.

The mixture of contextual value is makes by mass real ocupada and not by interpolación ornamental.

The information by branches is traduce again in speed dynamics.

The fractions of the value preserve a same law tensorial although habiten branches distintas.

F.11. Coherence dentro of the step of transition

The toy model canonical makes explicit the point more strong of the thesis: the coherence entra in the transition same.

The memory not is consulta only to the final: pushes activamente the siguiente state.

The contexto of regime is converts in drive effective of transition.

The legalidad interna modifica activamente the direction of closure of the step.

Page 74

CTNet and the Exit from the Representational Paradigm

The coherence receives simultaneously background and regime for produce its empuje dynamic.

The value medido is materializa as drive explicit and not as Comment externo.

Memory, regime, legalidad and coherence compiten and cooperan on a same background reversible without colapsarse in a canal single.

Appendix G. Added equation derivations in this

monograph The equations siguientes not pertenecen literally to the corpus base, but are derivations formales directas of its grammar. Is incluyen for fix the program theoretical that ha guiado all the discussion: why desaparecen the disadvantages apparent, how defines the structural load effective and in what meaning CTNet ocupa a ontology computational more high.

G.1. Demanda structural of the problema and load effective

The irreducibility of a problem can be formalized as a vector of structural demand. Its relevant magnitude is not linear, but crossed.

H: causal horizon; Q: plurality irreducible of readings; R: not stationarity of the mode of computation; G: pressure of legalization; T: topological recombination of the past; V: cost of separate measurement and dynamics.

Part linear minimal of the structural demand of the problem.

The effective structural load grows by interactions between irreducible functions and not only by the sum of simple pressures.

G.2. Umbral of crossing between canal monolithic and regime CTNet

The advantage of CTNet must not be seen as a flat improvement, but as a change of regime when the structural interference surpasses the cost of explicitation.

Cost effective of a monolithic architecture: the decisive term is the crossed interference Φ compressed in the same canal.

CTNet pays a fixed cost K by separate planes, but reduces radically the weight of the crossed interference.

Condition of crossing: the monolithic canal only seems more cheap while the hidden interference has not dominated the task.

The correct metric is not local FLOPs, but net structural performance by cycle of computation.

Page 75

CTNet and the Exit from the Representational Paradigm

G.3. Structural health and mathematical firmness of the fracture

The fall of an architecture should not first be detected in the final benchmark, but in the degradation of its internal planes.

The state of architectural health is multiplicative because no irreducible function compensates well the real fall of other.

Chain of fracture of the baseline: low increase of structural load.

The first firmness of the collapse is not silence, but intermittence: first increases the structural variance and only after falls the mean.

G.4. Margins architectural and output of class of the baseline

An architecture is not within class for a problem when its minimal margin falls below the irreducible exigency of the same.

Margins by coordinates: each capacity of class is evaluated respect to the corresponding demand of the problem.

The bottleneck of architectural bottle is not promedial: it localizes in the coordinate more debile.

Exists global margin real for absorbing the irreducibility of the problem.

The architecture enters in zone of unstable compensation.

The output of class is not contingent; only remains by resolving its speed and its form of manifestation.

G.5. Condemnation table of the baseline

There are coordinates and pairs of coordinates that suffice for leaving out of class to the dominant monolithic canal.

The condemnation of the baseline appears when a decisive irreducibility dominates or when certain minimal pairs return simultaneously high.

Condemnation by plurality irreducible of readings.

Condemnation by topological recombination of the past.

Condemnation by divorce between measurement and dynamics.

Minimal lethal pair by long memory and lack of native gate.

Minimal lethal pair by internal regime and plurality of readings.

Page 76

CTNet and the Exit from the Representational Paradigm

Minimal lethal pair by coupling between memory structural and regime.

G.6. Structural debt hidden and False simplicity

If that seemed baseline simplicity was only occulting of functions that the own problem obliges to reconstruct of form implicit.

The structural debt sums the distance between pseudo-functions implicit and its counterpart real operators: pseudo-substrate, pseudo-memory, pseudo-regime, pseudo-admissibility, pseudo-selector and pseudo-coherence.

The apparent simplicity of the baseline grows as much more ontological work is buried without name within the same canal.

Low pressure suficiente, the architecture monolithic is ve forzada to simular from dentro justo the functions that CTNet already had separado correctamente.

The simulación muda of modules not sustituye to its existencia with status own; only produces interferencia and debt futura.

G.7. Ontology computational e intelligence

The derivations anteriores obligan to a definition more high of intelligence: already not as calidad of response, but as conservation and reorganization of structure low pressure.

Synthesis strong of the implicit theory of intelligence derived of CTNet.

The scale relevante deja of be mere quantity of parameters and passes to be capacidad of sustain mundo interno computable.

The general architecture of intelligence must seguir siendo the same low cambios of regime, not only responder mejor dentro of a regime fijo.

The salto of CTNet not is only of module, but of what existe realmente dentro of the computation.

Appendix H. Synoptic table of equations, variables and uses

For cerrar the edition ecuacional, this Appendix resume in Compact form what equations gobiernan each zona of the system and what function cumplen dentro of the architecture. Block Equations clave Architectural function Substrate F.7-F.14 Preserve background, redistribuir state and avoid rewriting destructive.

Page 77

CTNet and the Exit from the Representational Paradigm

Memory F.15-F.25 Convertir past in topology causal reentrant and not in archivo externo. Regime F.26-F.34 Determinar the modo of computation low living persistence and not low switching ciego. Admissibility F.35-F.38 Legalize what part of the state can seguir actuando. Selector / charts F.39-F.46 Sustain plurality disciplinada of readings without sovereignty of output. Coherence 2.6 F.47-F.59 Convertir structural information in speed effective and value causal. Coherence canonical F.60-F.69 Reescalar the economy complete of the regime of computation. Order / branches F.70-F.76 Distribuir contextual value on fractions of the state. Transition complete F.77-F.82 Do coexistir memory, contexto, legalidad and coherence dentro of the step. Structural load G.1-G.7 Estimar cuándo the baseline entra in contradiction architectural. Fractura / health G.8-G.15 Auditar the order interno of the colapso before of the benchmark final. Debt / ontology G.23-G.30 Mostrar why the simplicidad apparent of the baseline is structural debt. With this Appendix the monograph remains convertida in a edition ecuacional complete: each Strong thesis of the text has ahora its form operator explicit, its conditions of uso and its lugar exacto dentro of the regime of computation CTNet.

Page 78

CTNet and the Exit from the Representational Paradigm

Appendix I. Normalization of the order operator and terminológico

This Appendix fixes the convención editorial single that must usarse in adelante for avoid ambigüedades between secuencias of exposition, secuencias of dependencia causal and secuencias of implementation of the step. Its function not is add a module new, but impedir that several slides distintas parezcan describe órdenes operatorios incompatibles when in realidad are mezclando planes diferentes.

I.1. Principio general

In CTNet only must llamarse order operator to the sequence temporal strict of the step computational. The secuencias more cortas, pedagógicas or macroscópicas must rotularse as chain causal, feedback structural, reading architectural or audit of the step, but never as pipeline. The primera and the tercera lámina remain expresamente reclasificadas in that categoría pedagógica when show cadenas abreviadas, and must llevar the etiqueta: "Abstract causal chain, not pipeline operator".

I.2. Sequence operator canonical

1. Persistent state available: the step comienza on the background z_t already available.

2. Memory on the state available: is construyen mem_read and $mem_summary$ from

z_t .

3. Regime and slow context: is siembran $slow_ctx$ and $regime_probs$ from the state and of the

memory.

4. Transformation reversible of the substrate: is obtained z_{bar} through the block reversible

5. Admissibility: is legalizes z_{bar} with the slow context, produciendo gate and state

legalizado.

6. Coherence in transition: are computed the terms of coherence that act on the state

pre-projection already legalizado and on its ecology interna.

7. Update of the state: is compose mem_drive , ctx_drive , gate_drive and coh_drive for

obtener $z_{\{t+1\}}$.

8. Selector multi-chart: is computed the distribution on charts from the new state and of its

variables auxiliares.

9. charts and readout: is generate the local readings or heads of role on the background

actualizado.

10. Projective output: comparece y_t as projection disciplinada of the background and not as

exhaustion of the system.

11. Audit of coherence: when proceda, is leen preserve_err , branch_coh or global_coh

as audit subsequent of the step and not as condition prior of the pipeline.

I.3. Table of normalization terminológica

Etiqueta Must mean Must not be used as

Order operator Sequence effective and strict Sinónimo of Abstract

Page 79

CTNet and the Exit from the Representational Paradigm

of the step. pedagogical. Chain causal Abstract of dependencias Pipeline temporal exacto. structural between parts. Feedback structural Bucle or ciclo conceptual Implementation step to step. between preservation, memory, regime, coherence and reorganization. Coherence in transition Part of the coherence that Audit subsequent desligada

entra as drive of the state of the step.

before of the projection. Audit of coherence Measurement subsequent of health Sequence prior to the structural, preserve_err , update of the state branch_coh , global_coh or salvo declaración explicit. equivalentes.

I.4. Formula editorial of a line

For eliminar all ambigüedad, the futuras slides must usar as single line operator

this sequence: Memory \rightarrow Regime \rightarrow Reversible \rightarrow Admissibility \rightarrow Coherence/Drives

\rightarrow State siguiente \rightarrow Selector \rightarrow charts \rightarrow Output. Cualquier other line abbreviated deberá

marcarse explicitly with the etiqueta literal "Abstract causal chain, not pipeline operator"; not basta with dejarlo implicit in the text.

I.5. Consecuencia arquitectural

The apparent contradiction between slides not expresa two CTNet distintos, but two planes distintos of exposition. The convención canonical prevents that a chain conceptual breve is confunda with the sequence operator effective of the regime of computation.

Page 80