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ITEM #94 — Constructive Reasoning in DBM- Redefining the Rules Engine

Conversation Title: 生命循环模型拓展

Date: 20251102

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## 《ITEM #94 — 数字脑模型构义解题演示实例：Rules Engine 的再定义》

(中文版本)

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### 一、问题的重新提出

在数字脑模型（DBM）诸多构件中，\*\*Rules Engine（规则引擎）\*\*常被误解为“自然而然的副产品”。

然而，经结构主义反思后我们认识到：

**Rules Engine 不是附属品，而是结构演化的核心语法系统。**

结构的意义、推理与行为皆源自规则的存在与作用。

规则不是“附加的算法”，而是**结构差分的语言表达方式**。

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### 二、从结构主义到构义推理的逻辑链条

结构主义 → 结构 → 差分 → 聚焦(LHS) → 推断(RHS)

结构主义：一切智能皆以结构存在。

结构：由节点、连接、尺度构成，可表达为度量空间。

差分：结构中的可变性，是一切规则的来源。

LHS 聚焦（Focus）：在差分树中聚焦节点即定义 IF 条件。

RHS 推断（Prediction / Rule / Decision）：从聚焦结构中生成结果。

这一链条揭示：

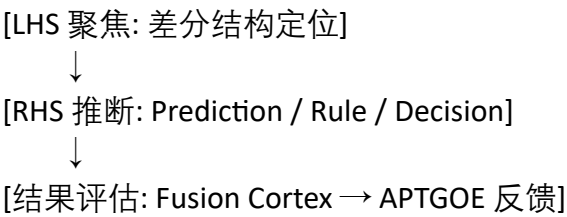
“规则即差分的运算，推理即结构的再生。”

三、通用与特定的双层体系

类型	特征	所属
直接型	IF→THEN 直接预测	通用 DBM Rules Engine
深度型	复杂多层逻辑、领域计算	User Application Plug-In

DBM 提供可插拔规则框架，User App 提供专业算力与逻辑。  
二者结合，构成“通用结构 + 领域特化”的统一演化机制。

四、DBM 规则引擎的核心框架



这是数字脑中最通用的“结构—语义—行动”三层联动。  
结构层定义“何处”；规则层定义“如何”；融合层决定“保留哪个”。

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五、三种典型规则形态

类型	说明	关联项
大小图规则（Greater-Less Graph）	A>B, B>C 等关系结构	ITEM #53
因果规则（Cause-Effect Graph）	因果方向与权重推理	ITEM #54
靶格规则（Target-Perturbation Grid）	目标与反目标博弈	ITEM #57

三者共同构成 DBM 规则语法的三层体系：  
度量层 → 因果层 → 博弈层。

六、伪流程（简化示意）

```
StructureNode focus = DifferentialTree.locate(input);
RuleSet rules = RulesEngine.fetch(focus);
for (Rule r : rules) {
    Outcome o = r.apply(input);
    double s = FusionCortex.evaluate(o);
    if (s > best) bestOutcome = o;
}
return bestOutcome;
```

结构聚焦 → 规则触发 → 结果评估 → 自适演化。

七、哲学与系统总结

视角	核心思想
结构主义	规则是结构的语法，不是算法的附属
计算逻辑	Rules Engine 是差分的执行算子
认知逻辑	聚焦（Focus）即注意力，推断（Inference）即意志

视角

核心思想

系统逻辑 DBM 的统一性来自规则层的可演化性

## 八、结语

Rules Engine 是结构的“语言腺体”，  
它让数字脑能“说出”自己的思考，  
让结构从沉默的几何变成有意义的逻辑。

# ITEM #94 — Constructive Reasoning in DBM: Redefining the Rules Engine

(English Version)

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## 1. Reintroducing the Problem

Within the architecture of the **Digital Brain Model (DBM)**, the **Rules Engine** has often been treated as a natural byproduct — something that “comes for free.”  
Yet, structuralist reflection shows that:

**The Rules Engine is not an accessory — it is the grammar of structural evolution.**

Rules are not external algorithms; they are **the language of differential structures.**

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## 2. From Structuralism to Constructive Reasoning

Structuralism → Structure → Differential → Focus (LHS) → Inference (RHS)

Structuralism — Intelligence exists through structure.

Structure — Nodes, relations, and metrics forming a differential space.

Differential — The source of all variability and hence all rules.

LHS Focus — To locate a node or sub-tree = define an “IF.”

RHS Inference — To perform prediction, rule application, or decision-making.

Thus:

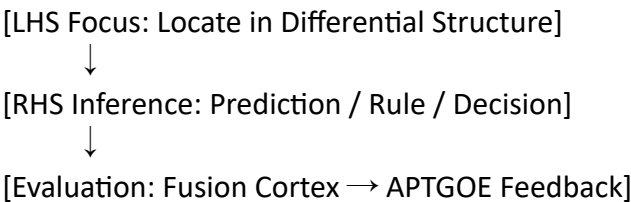
Rule is the operation of difference; reasoning is the regeneration of structure.

3. Two-Tier System

Type	Feature	Belongs To
Direct Type	IF→THEN, straightforward inference	DBM General Rules Engine
Complex Type	Multi-layer logic or domain computation	User Application Plug-In

DBM provides a universal structural framework, while User Applications contribute domain-specific logic.  
Together they form a unified “Structure + Domain” evolutionary system.

4. DBM Rules Engine Framework



This is the “**Structure–Semantics–Action**” **tri-layer linkage** of DBM.  
The structure defines *where*, the rule defines *how*, and the cortex decides *which to keep*.

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5. Three Canonical Rule Forms

Type	Description	Related Item
Greater–Less Graph	Relative ordering relationships	Item #53
Cause–Effect Graph	Causal mapping and propagation	Item #54

Type	Description	Related Item
<b>Target–Perturbation Grid</b>	Goal vs. counter-goal dynamics	Item #57

These three define the **triple grammar of DBM Rules**:

Metric → Causal → Adversarial layers.

## 6. Pseudocode

```

StructureNode focus = DifferentialTree.locate(input);
RuleSet rules = RulesEngine.fetch(focus);
for (Rule r : rules) {
    Outcome o = r.apply(input);
    double s = FusionCortex.evaluate(o);
    if (s > best) bestOutcome = o;
}
return bestOutcome;

```

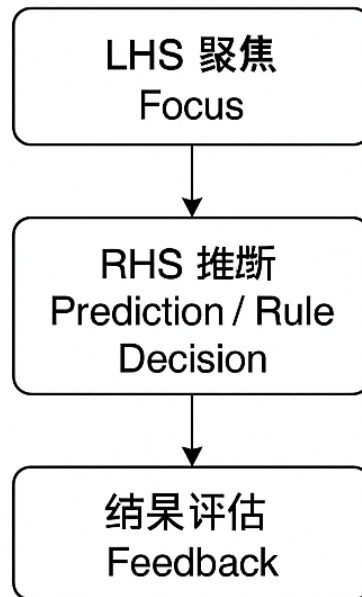
Focus → Apply → Evaluate → Evolve.

## 7. Philosophical and Systemic Summary

Perspective	Core Insight
<b>Structuralism</b>	Rules are the grammar of structures
<b>Computation</b>	Rules Engine is the executor of differences
<b>Cognition</b>	Focus = attention, Inference = will
<b>System</b>	DBM's coherence stems from rule-level evolvability

## 8. Epilogue

The Rules Engine is the *language gland* of structure—it allows the Digital Brain to speak its own reasoning, transforming geometry into meaning.



## ITEM #94

数字脑模型构义解题演示例制：  
Rules Engine 的再定义

Constructive Reasoning in DBM:  
Redefining the Rules Engine

2024 年 4 月 24 日