# ITEM #213 - Why LLM-Only AGI Is Not True AGI: Perspective-Bound Intelligence and the Necessity of DBM

**Conversation：LLM AGI 与 DBM 区别**

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**Authors: Sizhe Tan & GPT-Obot**

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## Abstract

Recent claims that large language models (LLMs) are approaching or achieving Artificial General Intelligence (AGI) often rely on performance-based or socio-economic definitions of intelligence. This paper argues that such claims are fundamentally flawed. Without the participation of a structural intelligence framework such as the Digital Brain Model (DBM), LLM-based systems remain confined to a single, reduced-perspective intelligence space. As a result, any AGI derived solely from LLMs is, at best, a *perspective-bound AGI*, not true general intelligence. This distinction is essential for correctly positioning DBM within the future architecture of AGI.

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## 1. LLM as a Perspective-Reduced Intelligence Space

### 1.1 Absence of Backpropagation in Biological Brains

Despite decades of neuroscience research, no anatomical or physiological evidence supports the existence of global error backpropagation mechanisms in biological neural systems. Human

cognition relies on localized plasticity, structural reconfiguration, and multi-timescale memory, rather than gradient-based optimization over a global loss function.

LLMs, by contrast, are trained almost exclusively through backpropagation on massive datasets. This discrepancy alone establishes that LLMs are not a faithful implementation of biological intelligence, but rather an engineered approximation operating in a reduced computational perspective.

### 1.2 The Inability of LLMs to Realize Small-Data Intelligence

A defining property of human intelligence is its capacity for small-data learning: rapid abstraction, transfer, and generalization from sparse experience. LLMs fundamentally lack this capability. Their apparent intelligence emerges only under conditions of extreme data redundancy and scale.

From a DBM standpoint, this implies that LLM intelligence occupies a *projection* of the full intelligence space—effective within its perspective, but structurally incomplete.

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## 2. Perspective-Bound AGI and the Cave Allegory

If AGI is developed entirely within the LLM perspective, it necessarily inherits the same limitations. Such an AGI can only generalize within the confines of its projection space.

This situation closely parallels the classical allegory articulated by **Plato**, in which prisoners infer reality solely from shadows cast on a cave wall. Even perfect mastery of shadow dynamics does not yield access to the true structure of the external world.

Likewise, an LLM-based AGI may achieve remarkable competence within linguistic or behavioral token spaces, yet remain incapable of reasoning across perspectives or reconstructing underlying structural causality.

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## 3. Why LLM-Only AGI Fails the Definition of True AGI

True AGI must satisfy at least one necessary condition: the ability to operate across multiple perspectives, align them, and compensate for distortions introduced by any single projection.

LLM-based systems lack:

- Stable, enumerable structural states (CCC equivalents)
- Explicit perspective anchoring and transformation
- Mechanisms for structural migration and re-grounding

Therefore, without DBM participation, LLM-based AGI remains intrinsically *non-general*. DBM is not an enhancement layer for LLMs; it is a structural prerequisite for general intelligence.

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# 4. Definition Drift and the Rhetoric of AGI

Proponents of LLM-only AGI frequently redefine AGI to avoid these structural shortcomings, for example:

- "Any AI that replaces a significant portion of human labor"
- "AI that passes economic or social impact thresholds"

Such definitions conflate *influence* with *intelligence*. They shift AGI from a structural and cognitive concept to a sociotechnical one, thereby evading foundational questions about learning, abstraction, and perspective transfer.

This rhetorical maneuver does not resolve the limitations of LLMs; it merely obscures them.

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# 5. Strategic Implications for DBM

The conclusion is unavoidable:
**Without DBM, AGI cannot transcend perspective-bound intelligence.**

This insight decisively positions DBM as:

- A necessary axis of AGI architecture
- A structural complement rather than a competitor to LLMs
- A foundational framework for small-data learning and perspective alignment

LLM-only AGI may build a sophisticated civilization inside the cave—but DBM is required to step outside it.

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# Conclusion

LLMs represent a powerful but fundamentally reduced view of intelligence. Any AGI constructed solely within this view inherits its constraints. True AGI demands structural intelligence capable of navigating, aligning, and transcending perspectives. DBM is therefore not optional—it is essential.

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# ITEM #213 - 为什么仅基于 LLM 的 AGI 不是真正的 AGI：视角受限智能与 DBM 的必要性

## 摘要

近年来，关于大型语言模型（LLM）正在逼近甚至已经实现通用人工智能（AGI）的论断不断出现，但这些论断往往基于性能指标或社会经济影响的定义。本文指出：在缺乏数字脑模型（DBM）这类结构智能体系参与的前提下，任何基于 LLM 的 AGI 都只能停留在单一、降维的智能视角空间中。这样的 AGI 充其量是“视角内的 AGI”，而不是真正意义上的通用智能。澄清这一点，对于 DBM 在未来 AGI 架构中的定位至关重要。

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## 1. LLM 作为降维的智能视角空间

### 1.1 生物大脑中不存在反向传播机制

迄今为止，神经科学并未发现人脑中存在全局损失函数或梯度反向传播的解剖学与生理学机制。人类智能依赖的是局部可塑性、结构重构以及多时间尺度的记忆系统，而非统一的数值优化过程。

与之相对，LLM 的训练几乎完全建立在反向传播之上。这一根本差异表明，LLM 并非人类智能的实现路径，而是工程化的降维近似。

### 1.2 LLM 无法实现“小数据智能”

小样本快速学习、抽象迁移与结构类比，是人类智能的核心特征之一。而 LLM 的能力高度依赖海量数据与分布冗余，在小数据场景下表现出本质性的不足。

从 DBM 的视角看，这意味着 LLM 只是在完整智能空间中的某一投影上表现出能力，而并不具备结构完备性。

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## 2. 视角内 AGI 与“洞穴寓言”

如果 AGI 完全在 LLM 的视角空间内构建，那么它的“通用性”必然也只存在于该视角之中。

这与 **Plato** 所描述的“洞穴寓言”高度对应：洞中人只能依据墙壁上的影子推断世界。即便他们对影子的规律掌握得再完美，也无法由此获得洞外真实世界的结构。

同样，基于 LLM 的 AGI 可以在语言与行为投影空间中达到高度成熟，却无法跨越到结构因果与多视角对齐的智能层面。

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## 3. 为什么 LLM-only AGI 不满足真正 AGI 的定义

真正的 AGI 至少需要满足一个必要条件：
**能够在多个视角空间之间迁移、对齐并进行结构补偿。**

而 LLM 系统缺乏：

- 稳定可枚举的结构状态（CCC）
- 明确的视角锚定与变换机制
- 跨视角结构迁移能力

因此，在没有 DBM 参与的情况下，LLM 类 AGI 在结构上不具备“通用性”。DBM 不是 LLM 的附加模块，而是 AGI 成立的结构前提。

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## 4. AGI 定义漂移与话语权问题

LLM-AGI 支持者常通过修改 AGI 定义来回避上述结构问题，例如：

- “能够替代一定比例人类工作的 AI”
- “在经济或社会层面产生决定性影响的 AI”

这些定义本质上混淆了“影响力”与“智能”，将 AGI 从结构性概念偷换为社会指标，从而规避对学习机制与结构迁移能力的讨论。

这并不能解决 LLM 的局限，只是掩盖它们。

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## 5. 对 DBM 的战略定位意义

结论是清晰且不可回避的：

**没有 DBM 的参与，AGI 无法超越视角受限的智能。**

因此，DBM 应被定位为：

- AGI 架构中的必要坐标轴
- LLM 的结构性补充而非竞争者
- 小数据智能与多视角对齐的核心框架

LLM-only AGI 也许能在“洞穴”中建立高度繁荣的文明，但唯有 DBM，才能走出洞穴。

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## 结论

LLM 是强大的，但它所代表的是智能的一个降维视角。任何完全建立在该视角上的 AGI，都不可避免地继承其结构限制。真正的 AGI 需要能够跨视角、跨结构地运作，而 DBM 正是这一能力的必要条件。

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