

Action-Based Semantics (AbS) & Two-Machine Artificial Agents (AM²)

Key Concept:

A new theory of meaning, **Action-Based Semantics (AbS)**, proposes that symbols **derive meaning from actions** performed by agents, rather than relying on pre-existing semantic structures.

Two-Machine Artificial Agents (AM²):

- **M1:** Interacts with the environment, mapping actions to internal states.
- **M2:** Processes internal states and associates them with symbols, ensuring **semantic grounding**.
- **Symbol-action association:** Meaning is formed through **internal state transitions & abstraction**.

Core Principles:

- ✓ **Praxiological Approach:** Meaning **emerges from interactions**, not predefined structures.
- ✓ **No Semantic Precommitment:** AbS respects the **Zero Semantic Commitment Condition (Z condition)**.
- ✓ **Autonomous Semantic Development:** Agents learn meanings without external intervention.
- ✓ **Learning Through Interaction:** AM² evolves by engaging with its **environment & other agents**.

Applications & Implications:

- **Grounding AI semantics** without requiring predefined symbolic knowledge.
- Enhancing **AI's ability to interpret and communicate meaning autonomously**.
- Addresses the **Symbol Grounding Problem (SGP)** by linking symbols to real-world actions.
- **Evolution of meaning** through **Hebb's Rule & Evolutionary Local Selection Algorithm (ELSA)**.
- **Shared lexicon development** via “**guessing games**” and **semantic interactions** over generations.