AGI-20 Tutorial
OpenCog, PLN and Pattern Miner

Nil Geisweiller, Matt Ikle

SingularityNET & OpenCog Foundations

Preparation

1. Install docker
   - Debian/Ubuntu

     ```
     sudo apt install docker.io
     ```
   - Arch/Manjaro

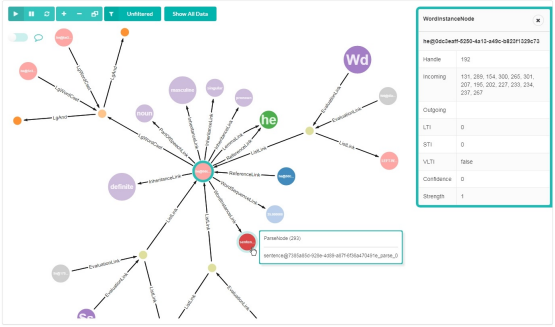
     ```
     sudo pacman -S docker
     ```
2. Download docker image (1.6GB)

   ```
   sudo docker pull ngeiswei/opencog:agi20
   ```

OpenCog

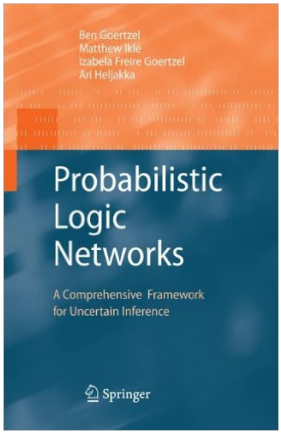
Framework for AGI

1. Hypergraph Database:
   - AtomSpace
   - Atomese: query, rewrite and more
2. Mind Agents (cognitive processes):
   - Reasoning: PLN, Miner
   - Learning: MOSES, Miner
   - Decision: OpenPsi (Bach's MicroPsi)
   - Language Processing
   - Attention Allocation



Download docker image: `sudo docker pull ngeiswei/opencog:agi20`

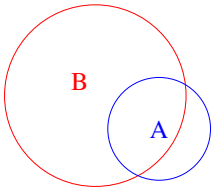
PLN



- Probability Theory
- Uncertainty management
- Common sense reasoning
- Mathematical reasoning
- Resource management

Download docker image: `sudo docker pull ngeiswei/opencog:agi20`

PLN: the basics




```
(Subset (stv s c)
    A
    B)
```

Definitions:

- `Subset A B` = $P(B|A)$
- `s` = strength = $P(B|A) = \frac{|A \cap B|}{|A|}$
- `c` = confidence = $\frac{|A|}{|A| + K}$

Truth Value = Second order distribution

Download docker image: `sudo docker pull ngeiswei/opencog:agi20`