AI Assessment

“[Various aspects of] artificial [intelligence] … have skewed off … to find specialized niches …

“Text recognition and document scanning are … beginning to provide a significant new input medium for computer systems.

“… the original vision of creating a true, humanlike intelligence that started so much of this research remains as unrealized as ever.”

Hogan, *Mind Matters*, p. 199
Distance Assessment

- Overall AI assessment
- FH domain
  - Match / Merge Consolidation
    - Non-FH domains
    - Contrast FH and classical AI applications
    - Contrast machine and human methods
    - Corridor methods
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Family History versus Classical AI

- Recorded with intent
- No resampling possible
- Missing / occulted data
- Definitive structure
  - complexity in resolving issues
- Back story

... back story

... back story
Three Images
Three Images
Three Images
Three Top Strips
Three Middle Strips
Short Image Sequence
Long Sequence
Missing Elements: Occultation

- Human visual field
  - unifying fragments
- McCloud
  - closure
- Restak
  - fill-in
- Hogan
  - emergent properties
Missing Elements: Closure

- Human visual field
  - unifying fragments
- McCloud
  - closure
- Restak
  - fill-in
- Hogan
  - emergent properties
Compare: machine, human

Classical AI
- High Leverage
- Strong Methods
- Very Precise Criteria
- Exacting Evaluation
- Reductivistic
  - simplicity
  - Occam
- Uncertainty
  - handled as defect

Classical Human
- Low Leverage
- “Weak” Methods
- Imprecise Criteria
- Arbitrary Evaluation
- Non-reductivistic
  - complexity
  - Rube Goldberg
- Uncertainty
  - Fill in missing data
  - Closure
Contrast: machine, human

Classical AI
- Syntactic methods in pattern recognition
- Statistic methods in pattern recognition
- Self-Organizing systems
- Image processing
- Feature extraction
- Symbol manipulation / LISP / List Processing
- Pattern matching
- Games / Decision Trees / Searches
  - pruning
  - combinatorix
- Chess / Music / Mathematics
- Data mining
- Dualism / Pumps
- Natural languages / Translation
  - Eliza
- Semantic nets / associative nets
- Neural nets
- Self-modifying code / Genetic programming
- Models / Metaphors / Analogies / Parallels
- Distances / Models / Methods / Contexts
- Probabilities
  - Bayes theorem

Classical Human
- Limited by time, money, energy, patience
- Persistence
- Comparison
- Parallels, metaphors, models, analogies
- Negotiation
  - concession ladder
- Tool collectors
- Common sense
- Expectation
  - foresight
- Belief
New Taxonomy within AI

• Handling of Missing / Occulted data
• Concentration / Distribution of Features
• Graphical and symbolic processing
  – Blurring the borderline
• Parallelism / Metaphors
• Limited Reductivism
• Holographic

leads to
• Corridor Methods
Conclusions

• Artificial Intelligence
  – niche applications
  – no generalized solutions

• Unique human “fill-in” ability
  – deal with hidden / occulted data
  – reach closure

• Corridor Methods