The Singularity, the MiniMaxularity, and Human Development (Part II)

Selmer Bringsjord & Alexander Bringsjord

Are Humans Rational?

10/12/17

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Last time:

The Singularity Approaches ...

\[ A: \]
\[ \text{Premise 1} \quad \text{There will be AI (created by HI and such that AI} = \text{HI).} \]
\[ \text{Premise 2} \quad \text{If there is AI, there will be AI}^+ \text{ (created by AI).} \]
\[ \text{Premise 3} \quad \text{If there is AI}^+, \text{ there will be AI}^{++} \text{ (created by AI}^+). \]
\[ \therefore S \quad \text{There will be AI}^{++} \ (= S \text{ will occur).} \]

(Good-Chalmers Argument)

(Kurzweil is an “extrapolationist.”)
A Realistic Timeline

Last time:

- Deep Blue
- AI
- Minimax
- AlphaGo
- Watson
- AII
- foreseeable
- claimed
- past
- present
- future
- seen

AlphaGo
A Realistic Timeline

Last time:

- Deep Blue
- MiniMax
- AlphaGo
- Watson
- MINI MAX
- AlphaGo
- AI
- AI = H1
- AI > H1
- AI < H1
- AlphaGo
- seen
- foreseeable
- claimed
Exceeds Leibniz & de-mystifies Euclid: the “compellingness” of these proofs consists in their being, at bottom, formal proofs in first-order logic (FOL).
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Here’s what a computer is, and given that, sorry, the Entscheidungsproblem can’t be solved by such a machine!
The Problem: We’re Ignoring the Mathematics!

Super-Serious Human Cognitive Power

Serious Human Cognitive Power

Mere Calculative Cognitive Power

Entscheidungsproblem

$P \subset NP \subset PSPACE = NPSPACE \subset EXPTIME \subset NEXPTIME \subset EXPSPACE$

Jeopardy!: Watson

Go: AlphaGo

Chess: Deep Blue

Checkers: Chinook

Today’s “Machine Learning”
The Problem: We’re Ignoring the Mathematics!

Super-Serious Human Cognitive Power

Serious Human Cognitive Power

Mere Calculative Cognitive Power

Entscheidungsproblem

\[
\text{P } \subseteq \text{ NP } \subseteq \text{ PSPACE } = \text{ NPSPACE } \subseteq \text{ EXPTIME } \subseteq \text{ NEXPTIME } \subseteq \text{ EXPSPACE}
\]
Yeah, but what is the *Entscheidungsproblem*??
Yeah, but what *is* the *Entscheidungsproblem*??

Please read & study on your own using WWW.
A Realistic Timeline

- **Past:**
  - Deep Blue
  - AI
- **Present:**
  - MiniMax
  - AI
- **Future:**
  - Sing
  - AI
- **Claimed:**
  - AI
- **Foresaeeable:**
  - AI
- **Seen:**
  - AI

AlphaGo
A Realistic Timeline

seen
past
Deep Blue

Watson
present
MiniMax

foreseeable
future
Sing

claimed

Al ≤ H1

Al = H1

Al > H1

AlphaGo
A Realistic Timeline

past
present
future

seen
foreseeable
claimed

Deep Blue
AI
MiniMax
AI<\text{HI}

Watson

AI=\text{HI}

Sing

AI>\text{HI}

Today

AlphaGo
A Realistic Timeline

Today

AI

MiniMax

seen

future

foreseeable

claimed

Watson

Deep Blue

Al

Al<HI

Al=HI

Al>HI

past

present

AlphaGo

Al
A Realistic Timeline

Today

seen, foreseeable, claimed

past, present, future

Deep Blue, MiniMax, AlphaGo

AI, AI<HI, AI=HI, AI>HI

Watson, Sing
A Realistic Timeline

- Past: Deep Blue
- Present: MiniMax
- Future: AlphaGo

Today

AI

seen

Watson

Al

foreseeable

Al<Hi

Al=Hi

Al>Hi

claimed

To day
A Realistic Timeline

AI

MiniMax

Deep Blue

Watson

Al

Minimax

seen

foreseeable

Today

claimed

past

present

future

AlphaGo

Al<Hi

Al=Hi

Al>Hi

Deep Blue

Watson

Al

MinMax

seen

foreseeable

Today

claimed

past

present

future

AlphaGo
Recall Your Required (Quick) Reading


- [http://kryten.mm.rpi.edu/SBringsjord_ABringsjord_SingularityBiz_0915151500.pdf](http://kryten.mm.rpi.edu/SBringsjord_ABringsjord_SingularityBiz_0915151500.pdf)
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A Realistic Timeline

seen

Watson

MiniMax

foreseeable

claimed

Deep Blue

Al

Al<Hi

Al=Hi

Al>Hi

past

present

future

claimed
A Realistic Timeline

- Deep Blue
- AI
- MiniMax
- Watson
- foreseeable
- present
- AI<HI
- AI=HI
- AI>HI
- future
- claimed
- creativity
- seen
A Realistic Timeline

seen | foreseeable | claimed

past | present | future

Deep Blue | AI | MiniMax | AI<\text{H}l | Al=\text{H}l | AI>\text{H}l

Watson | $? | creativity

Deep Blue | AI | MiniMax | AI<\text{H}l | Al=\text{H}l | AI>\text{H}l

Deep Blue | AI | MiniMax | AI<\text{H}l | Al=\text{H}l | AI>\text{H}l

Deep Blue | AI | MiniMax | AI<\text{H}l | Al=\text{H}l | AI>\text{H}l
A Realistic Timeline

seen

foreseeable

predicted

future

Deep Blue

AI

Watson

MiniMax

Al<\text{HI}

Al=\text{HI}

Al>\text{HI}

creativity

$?$

claimed

Deep Blue

AI

MiniMax

Sing