

# Envisioning With Weblogs

## A KASW Position Paper

Andrew S. Gordon and Reid Swanson | University of Southern California | 09/03/2008



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# Commonsense knowledge in artificial intelligence

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- **A 50-year research history in Artificial Intelligence**
  - [McCarthy 59] *Programs With Common Sense*
- **The first wave: Logical formalizations of commonsense knowledge**
  - [Davis 04]
  - First-order logic, Modal logical, Naïve Physics movement, CYC
- **The second wave: Volunteer contributions from web communities**
  - [Lieberman 04] [Singh 04] [von Ahn 06]
  - Open Mind Common Sense
  - Thousands of web volunteers, Natural language, Alternative forms of inference
- **The third wave: Knowledge acquisition from the social web**
  - Tens of millions of weblog authors and social web contributors
  - Not a problem of extracting *neat* formal knowledge from *scruffy* text
  - Challenge: New forms of inference that exploit characteristics of the genre

# The central importance of *Envisioning*

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- **Envisioning: reasoning about states and events in time**
  - Present: current world model, goal management
  - Past: explanations, memory
  - Future: predictions, planning, threat detection
  - Imaginary: fiction, daydreaming, hypotheticals, counterfactuals
- **Required knowledge: How the world works**
  - Temporal: What happens next?
  - Causal: Why did this happen?
- **Biggest AI failure: Robust real-world envisionment systems**
  - No open-domain explanation systems
  - No open-domain planning systems
  - No story understanding systems
  - No open-domain personal assistants

# Cracking eggs

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- **The egg-cracking problem (E. Davis)**
  - A benchmark reasoning problem about a commonsense culinary practice
  - What happens if the egg-to-bowl impact is very quick or slow?
  - What if the bowl is smaller than the egg, or made out of cardboard?
  - What if the egg is hard-boiled?
- **Three formal solutions**
  - [Lifschitz 98] [Morgenstern 98] [Shanahan 98]
- **Thousands of narrative solutions in weblogs**

*“I cracked the egg into the bowl and then I saw it, yes a baby chicken was in the egg that was going to be our breakfast. I felt like I might be sick, but the rest of my family found this to be very interesting.”*

*- happymommy3 3/19/08*

# A new agenda for commonsense research

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## 1. Story extraction from Internet weblogs

- Can we gather up every story ever written in a weblog?
- [Gordon 07] 4.5 million stories, 66.5 million sentences, 1.06 billion words

## 2. Event understanding for story text

- Can we identify causal and temporal relations in story text?
- [Mani 06] TimeML; [Pan 07] event durations; [Mulkar 08] temporal relations

## 3. Case-based envisionment techniques

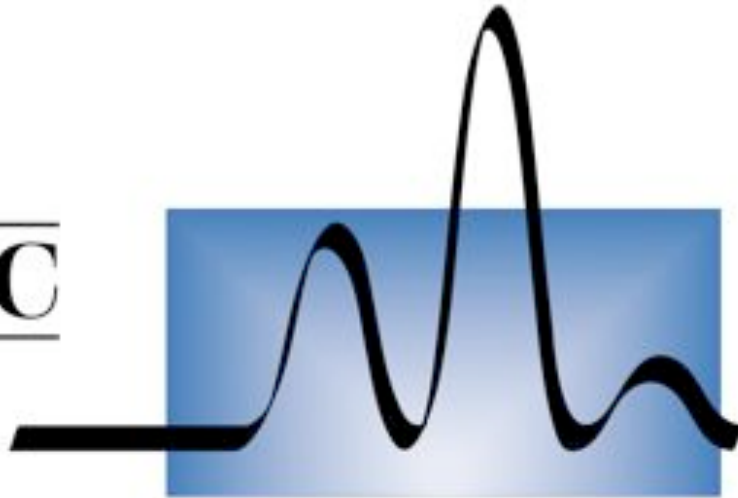
- Can we use millions of stories as knowledge about the world?
- [Manshadi 08] [Chambers 08] [Bejan 08] 3 similar generalization papers
- Our own work: Envisioning by story retrieval and adaptation

# Envisioning with weblogs

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