# Nuance

## A Model of the Conceptual Structure of the Human Mind

## Project Status
## by Adam Olenderski

# Motivation

- How is human thought structured?
  - Chemistry/Biology: Neurons and Electrical Signals
  - Language: higher-level abstractions/concepts
- Why do we care?
  - Translation across media, electronic brains
  - Human-Computer Interaction
  - Natural Language Processing/Translation
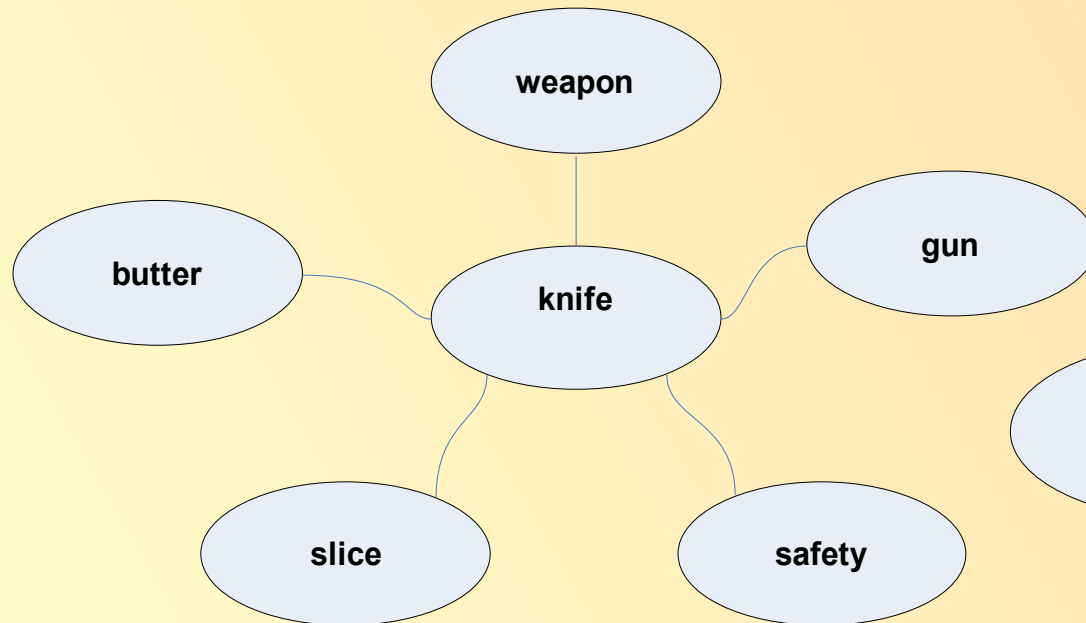  - Pass the Turing Test

# Problem

- "It was a dark and stormy night..."
  - Edward George Bulwer-Lytton, *Paul Clifford* (1830)
- What does this sentence *mean*?
  - Dark: no sun
  - Stormy: rain, lightning, thunder
  - Night: after 6pm
- What ideas might it convey?
  - Fear
  - Violence
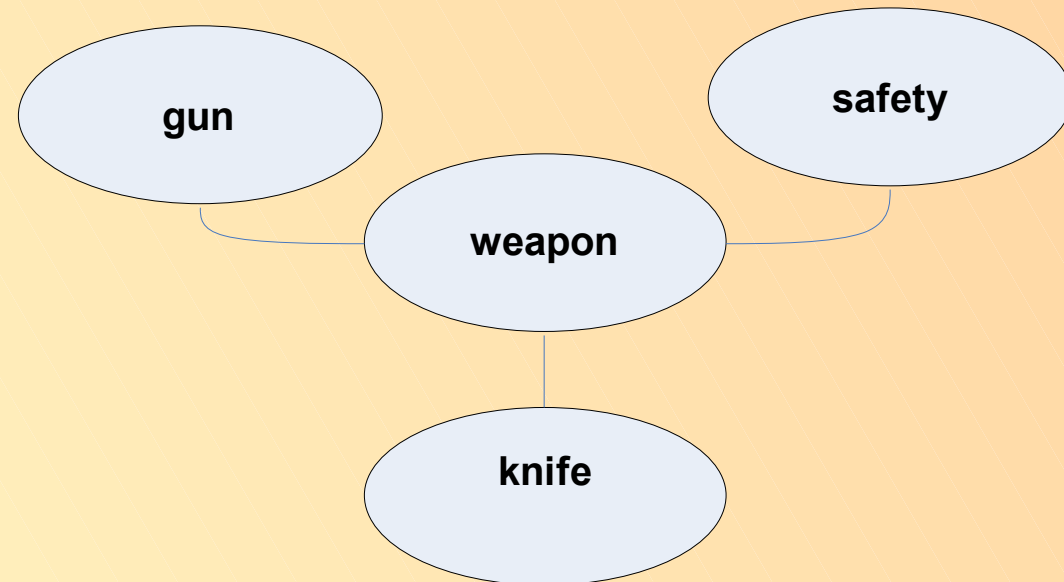  - Apprehension

# Problem

- Where does this extra meaning come from?
- Frame of reference
- Past experience
- Relationships between words

# Model
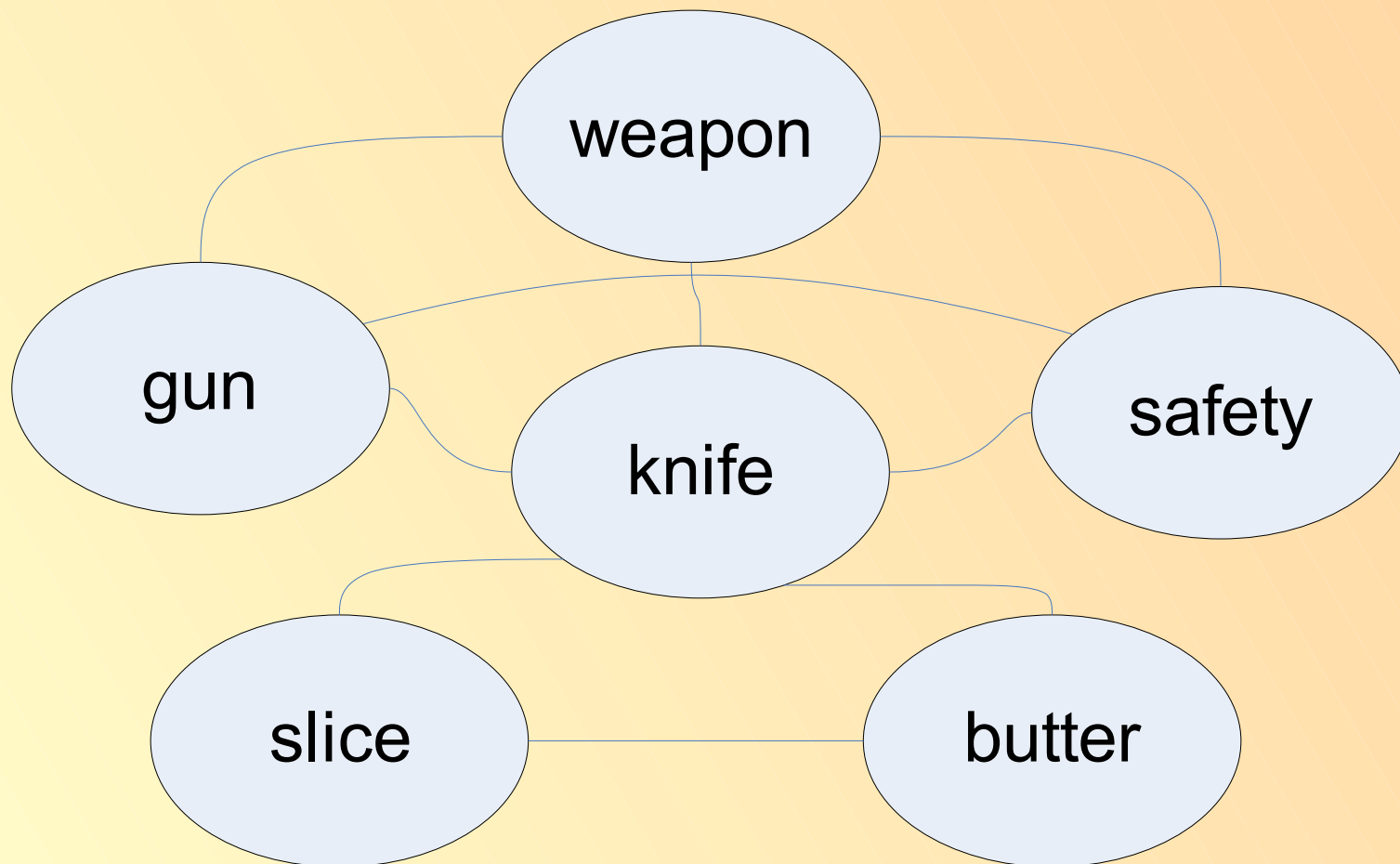
- "The hot knife sliced through warm butter."

- "No knives, guns, or other weapons are allowed"

# Model

- Generalized Conceptual Network

# Method

- Include the strengths of the links between words

- Closer or more frequent co occurrence equals higher strength

- For every instance in which two words co occur, multiply the strength of their link according to context

- For every instance in which one word occurs without the other, reduce the strength of the link according to context

# Project Status

- Network representation implemented

- Network creation from an input file implemented

- Currently working on functionality for manipulation and analysis of network (finding clusters, model parameters, searching)

# Next Steps

- Complete automatic cluster search and allow for user input of cluster portions

- Allow multiple files to be used to create the network

- Modify underlying implementation to use more efficient data structures

# Future Work

- 2009: Natural Language Processing System
- 2011: Pass the Turing Test
- 2050: Electronic Brains

# Questions/Comments/Suggestions

Thank you!