



## Computational creativity:

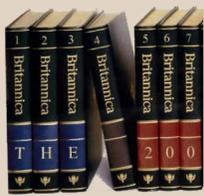
can we build computational models of human creativity?

- ▶ music composition,
- ▶ poetry,
- ▶ storytelling, etc.
- ▶ For use in **tools** for humans
- ▶ Insight into **human creativity**

## Storytelling

Creative storytelling requires:

### 1. lots of **world knowledge**



*Humans can't fly*  
*Adults have boring lives*

### 2. some good **fictional ideas**



*What if a boy could fly and he never grew up?*

### 3. knowledge of typical/plausible **sequences of events**



*X wants to kill Y*  
*X sees Y*  
*→ X attacks Y*

## Events

Addressing (3) by using NLP techniques to learn from real stories.

- ▶ Automatic analysis of texts to extract **events** that happen in them
- ▶ Build **statistical models** of events that typically occur one after another
- ▶ Given the start of a story, suggest what might happen next using statistics

X drinks →

- ▶ X gambles
- ▶ X eats
- ▶ X pours out something
- ▶ X thirsts
- ▶ X smokes



X telephones →

- ▶ X hangs up
- ▶ X calls up
- ▶ Someone calls up X
- ▶ X lunches



Examples of related events found by the system.

Try it out for yourself!

Using this, we can build a system that can:

- ▶ generate ordinary event sequences (tropes)
- ▶ introduce unexpected events

## Natural Language Processing

**Natural Language Processing** can help us with all of these

NLP is a field of **artificial intelligence**: building computational systems for interpreting and generating text in human language

## The What-If Machine

**Idea**: try generating stories from an idea to measure **narrative potential** and select the most promising ideas.

## Generating Ideas

Simple method:

- ▶ Extract facts from text
- ▶ Change bits of them to make fictional ideas

*What if JFK was elected pope?*

(from *JFK was elected president*)

*What if Tony Blair converted to Islam?*

(from *Tony Blair converted to Catholicism*)