

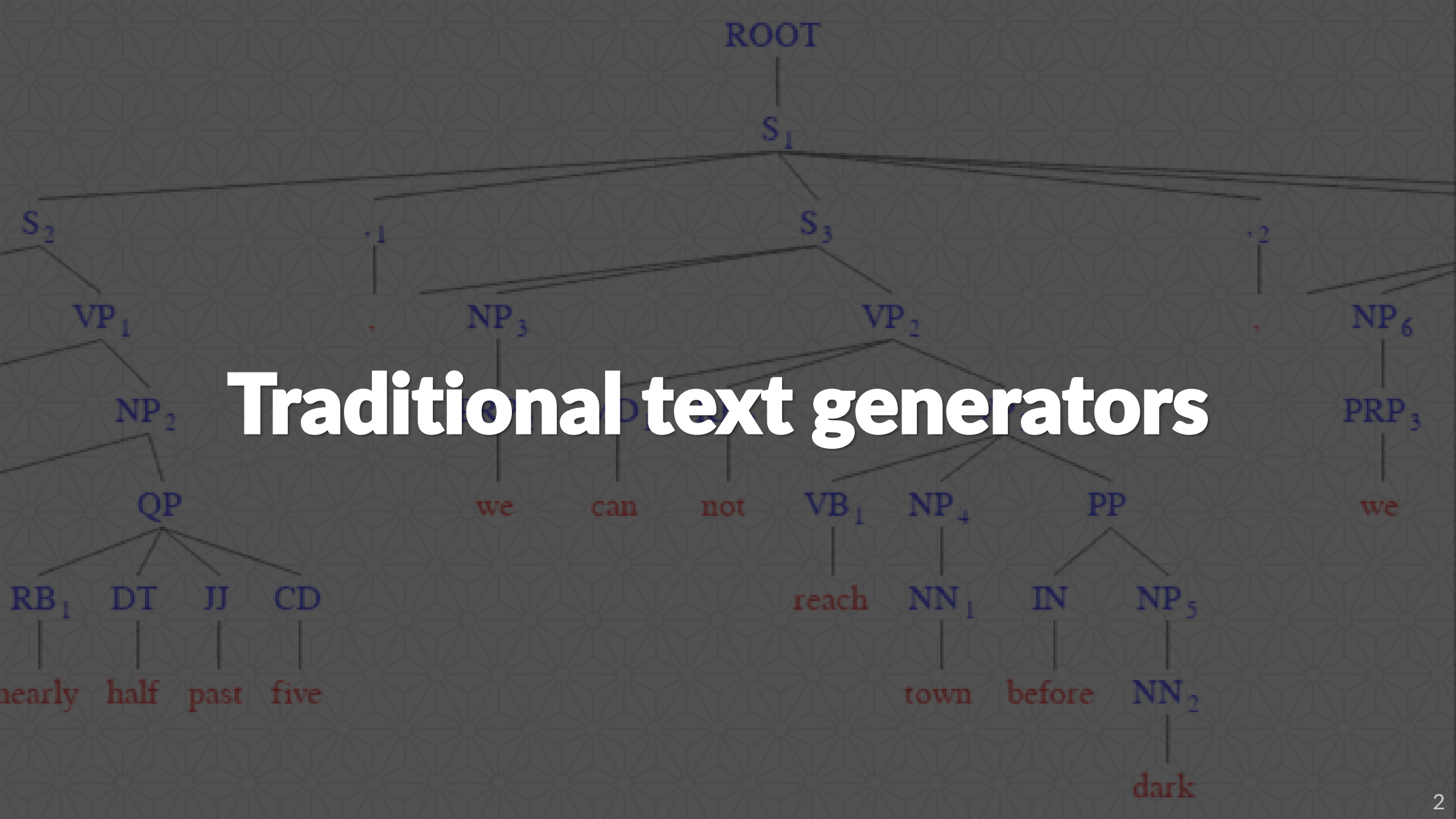
# Creative AI for Improv Theatre


## Thomas Winters

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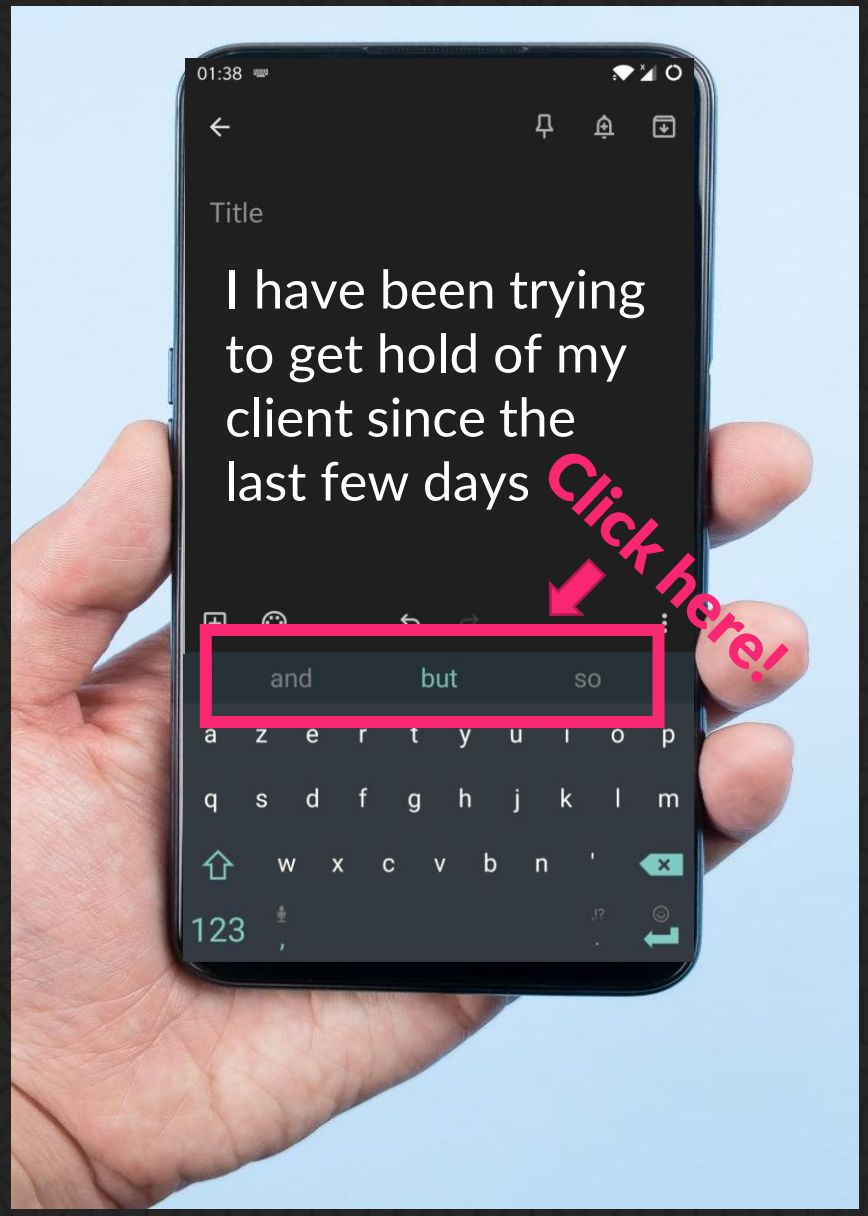
*@thomas_wint*

*thomaswinters.be*




# Traditional text generators

# How do statistical text generators work?




## Demo

1. Open your smartphone keyboard *(e.g. in notes)*
2. Press on any suggested **autocomplete** word
3. Press **10-20 times** on a random suggestion
4. You've just generated a sentence using an AI trained to **sound similar to you**! *(if you squint your eyes)*

Autocomplete **counted** how often you used **certain words after other words** in previously typed texts → Statistical model

# Alternatively: handcrafting rules with grammars

**Babbly**: my **programming language for text generation** with grammars

```
import firstname.words
food = pasta|pizza|sushi
main = {
  3: <firstname> loves <food.uppercase>!
  1: <firstname> (quite|reasonably|fairly) likes <food>. Oo{1,3}h, I hope they join!
  1: <firstname:protagonist> is not (quite){.5} fond of <food:>.
       <firstname:protagonist> will thus not go to the <food:> (restaurant|place).
}
```

Generates sentences like:

- *Jordi loves PIZZA!*
- *Thomas is not quite fond of sushi. Thomas will thus not go to a sushi place.*

*Available on github.com/twinters/babbly*
*Other popular grammar modelling alternative:* ***Tracery***

# Used for programming Twitterbot

```
// INPUT
verspreking = "<langwoord.verspreek>"
titel = \titel(<voornaam> <achternaam>)
aanspreking = (<vaste_aanspreking>)/((<titel> /meneer )(<achternaam.verspreek.capitaliseAll>/<voornaam.verspreek.capitaliseAll>)/<voornaam>/Gertje

// SAMSON MANNERISMS

// 'Zo' tussenvoegsel
zo = ( zo){.65}

// Mwah zeg he
ao = (a|o)
mwazeg = Mw<ao:>{1,3}h (zeg hé( <aanspreking>){.6}|<aanspreking>)

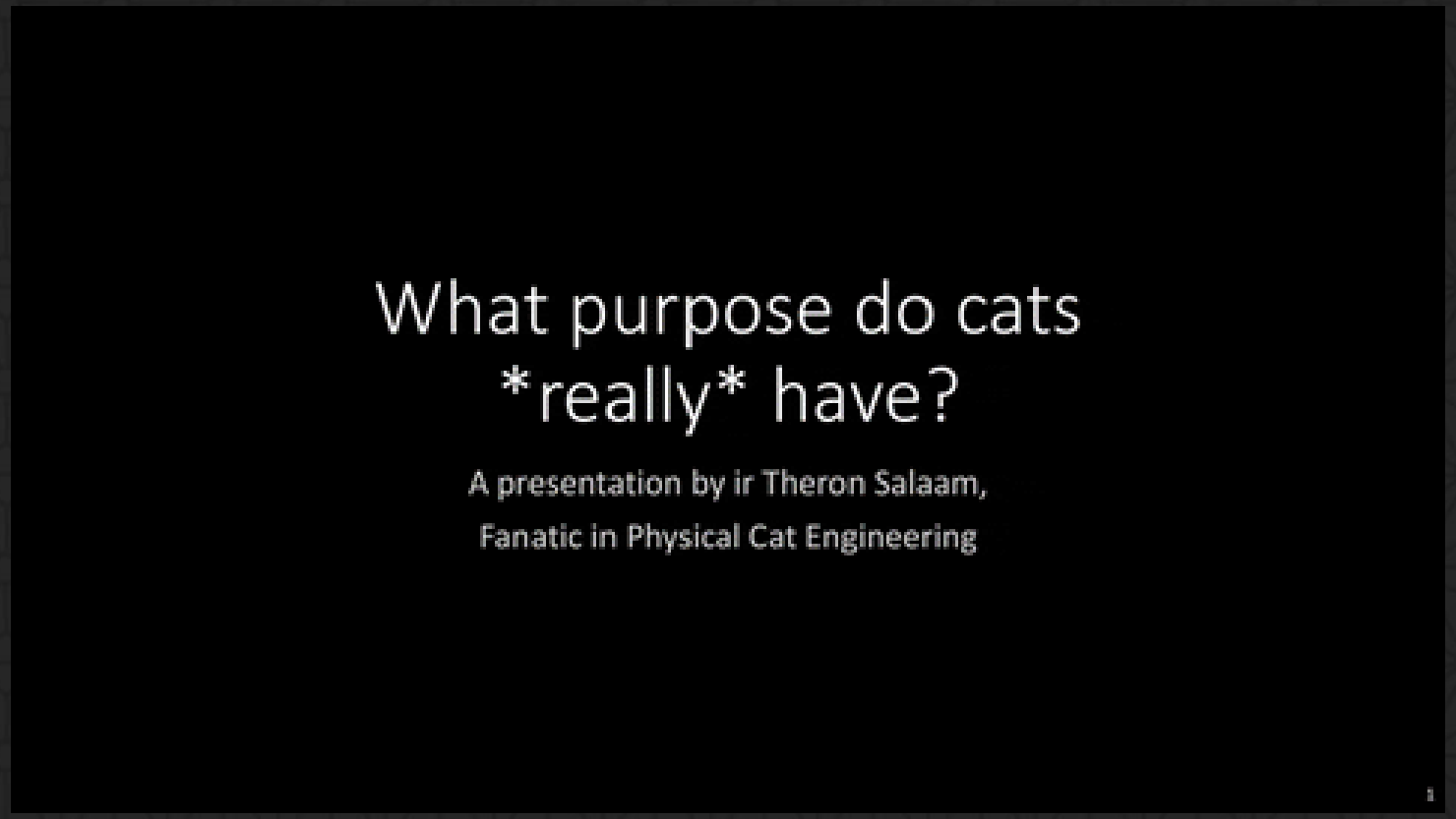
// Vraagstelling
vraag = {
    4: wat is dat<zo> een beetje<zo>, een <verspreking><zo>?
    1: wat bedoel je<zo> een beetje<zo> met<zo> een <verspreking><zo>?
}
uitlegVraag = {
    4: <vraag>
    1: ik denk zo stil<zo> in mijn hoofd<zo> dat ik<zo> niet weet wat dat<zo> is<zo>, een <verspreking><zo>.
    1: ik weet<zo> niet<zo> goed<zo> wat dat is<zo>, een <verspreking><zo>.
    1: mag ik<zo> eens<zo> iets<zo> vragen<zo>? <vraag.capitalise>
}

// OUTPUT
main = {
    <mwazeg>, <uitlegVraag>
}
```



# Talk Generator

Generates nonsense PowerPoints about any given topic for presenters to improvise on

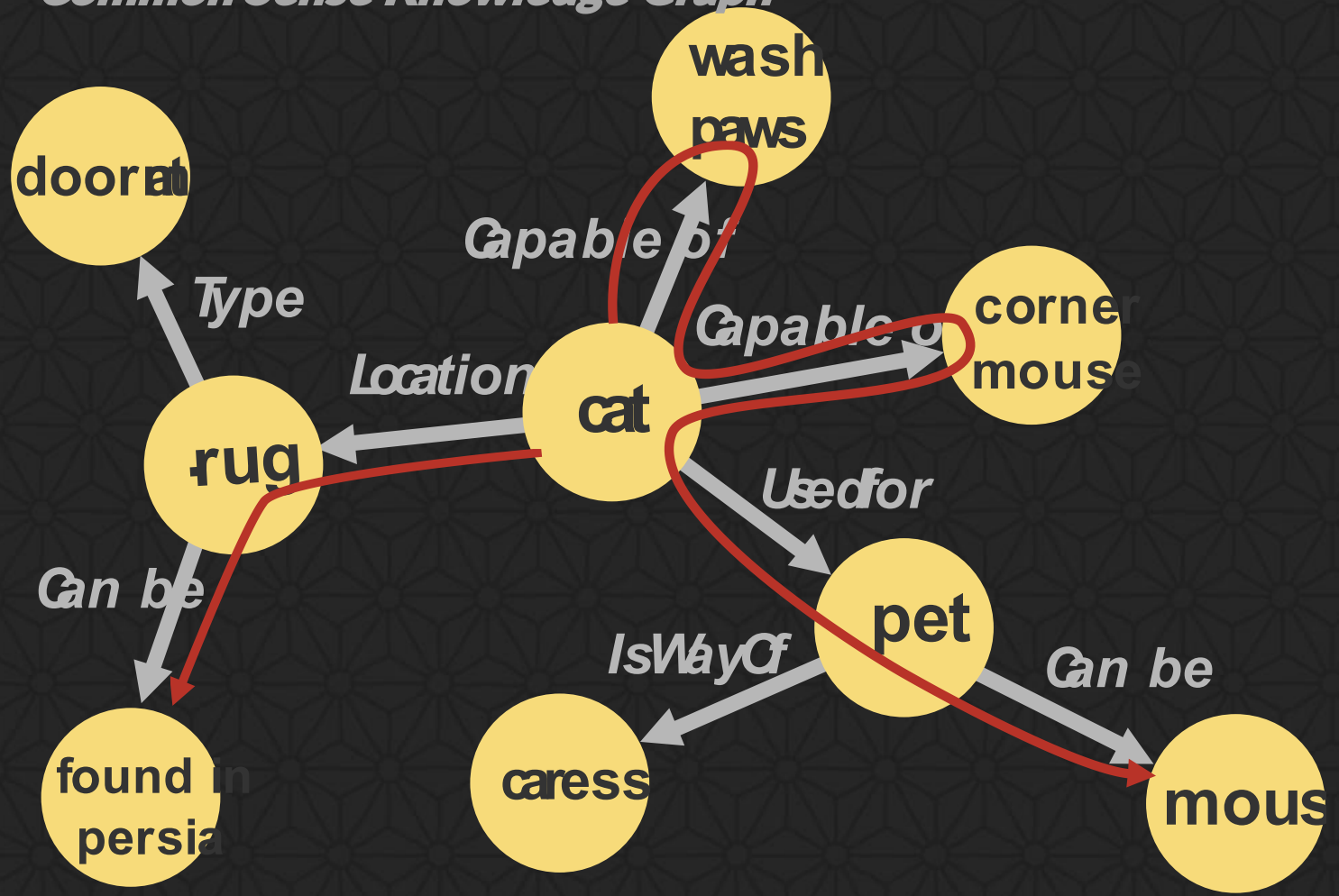



*Try it yourself:* ***talkgenerator.com***

# Slide topic generation

## ConceptNet

*Common Sense Knowledge Graph*




| | |
|---|---|
| *Slide 1* | cat |
| *Slide 2* | ? wash paws |
| *Slide 3* | ? corner mouse |
| *Slide 4* | ? pet |
| *Slide 5* | ? mouse |
| *Slide 6* | cat |
| *Slide 7* | ? rug |
| *Slide 8* | ? found in persia |
| *Slide 9* | cat |
| *Slide 10* | cat |

# Slide generator

[Historical Title Generator]
(Tracery + WikiHow)

[Vintage Person Generator]
(Reddit)

[Quote Generator]
(GoodReads)

[Name Generator]
(Tracery)

corner
mouse

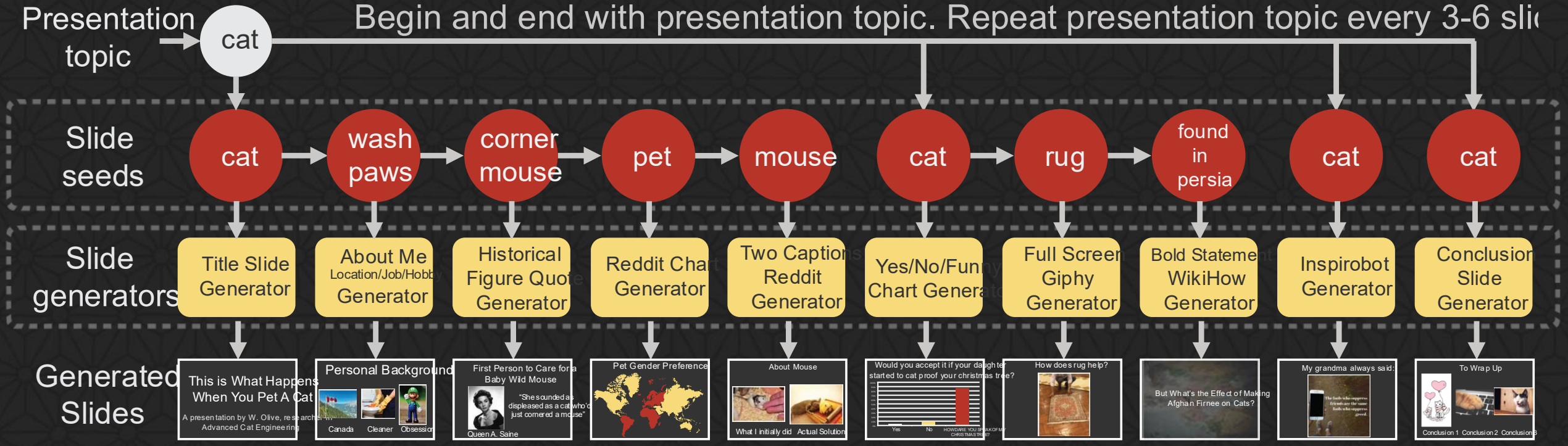
First Person to Care for Baby Wild Mouse



"She sounded as displeased as a cat w just cornered a mou

Queen A. Saine

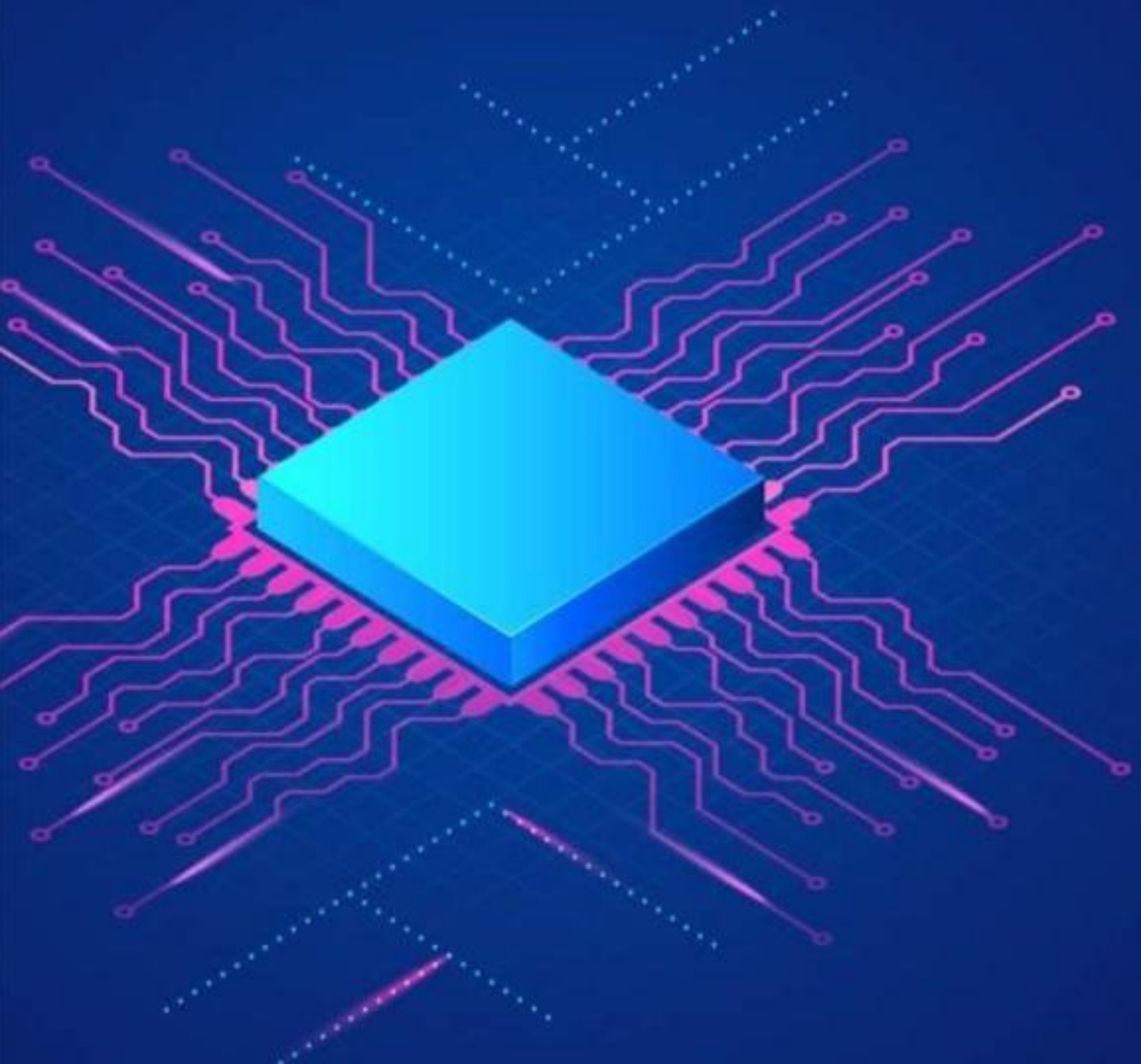
# Talk Generator



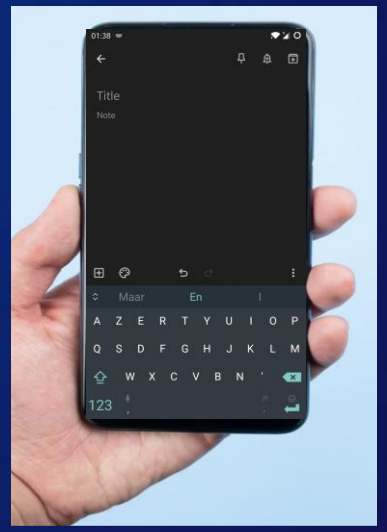

Internally uses lots of **handwritten grammars**, combined with **search engines** and **knowledge graphs**

# Transformer revolution: GPT-3



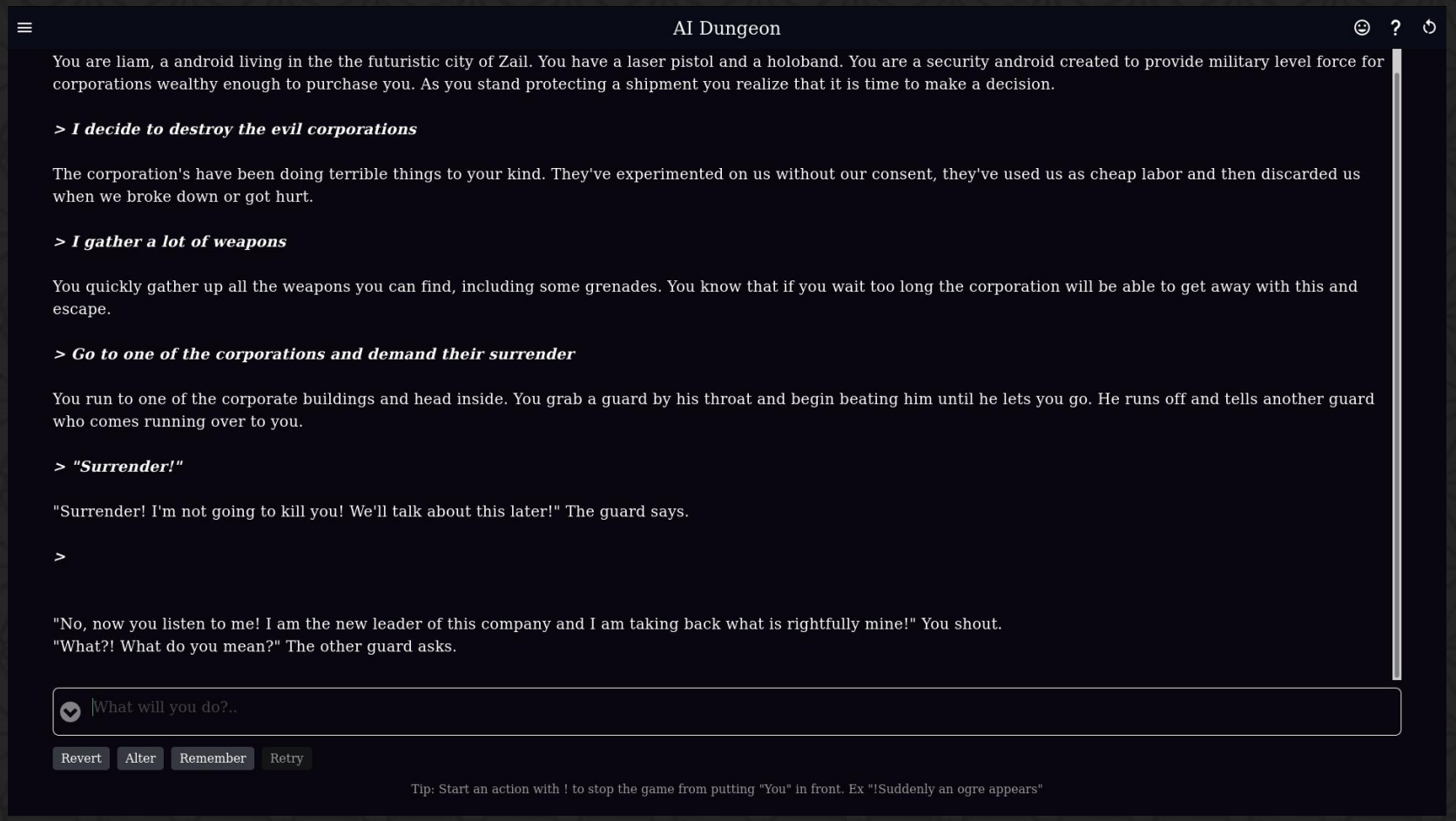


# GPT-3




≈ autocomplete on steroids

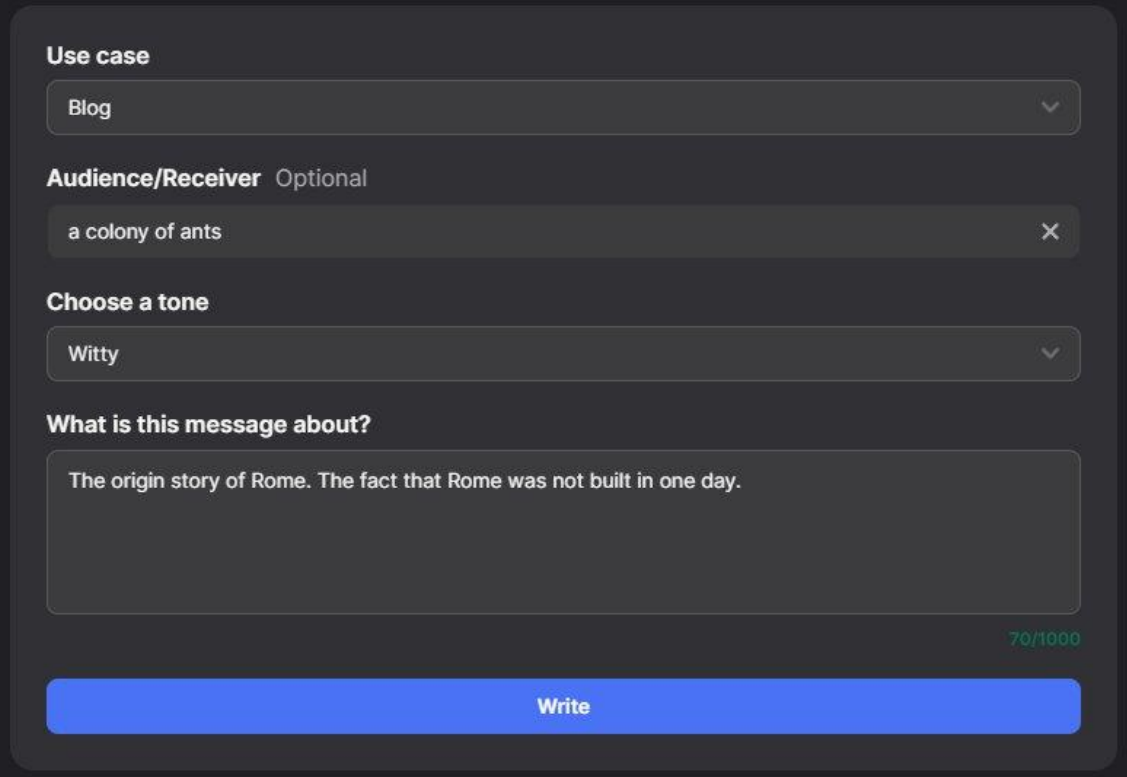
# Fun GPT-3 application: AI dungeon

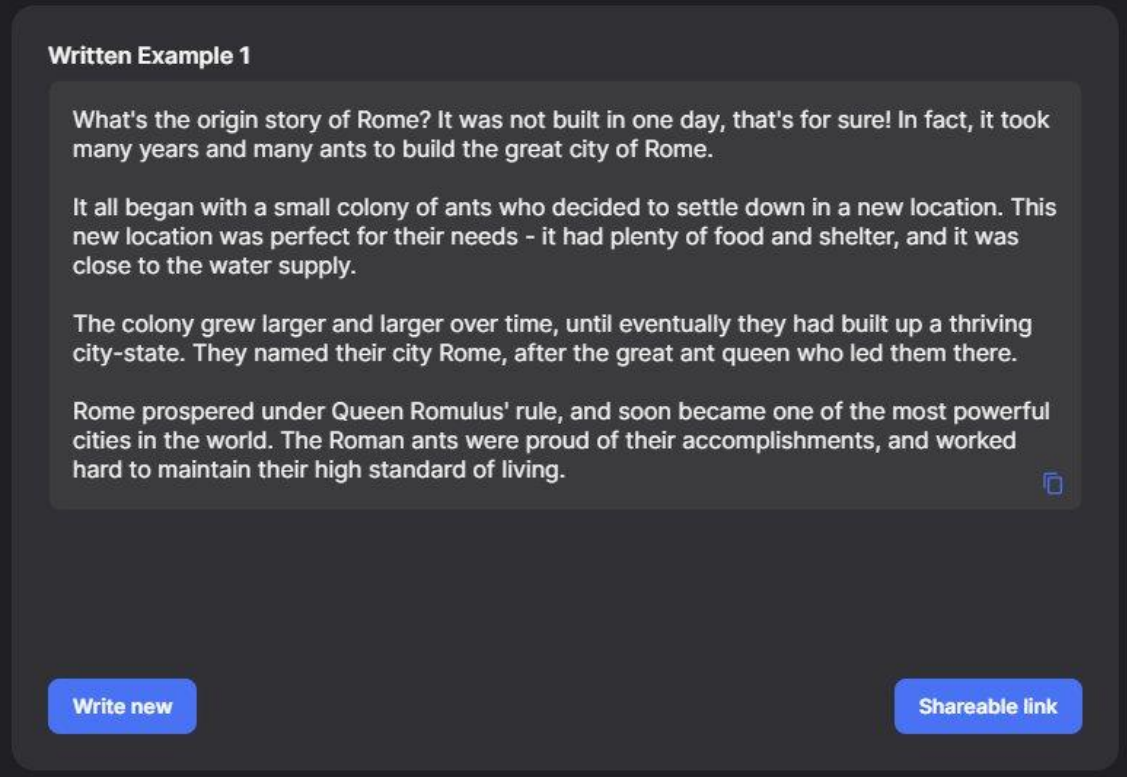



## play.aidungeon.io

AI-generated text-based adventures where you can do anything

# Fun GPT-3 application: YouWrite

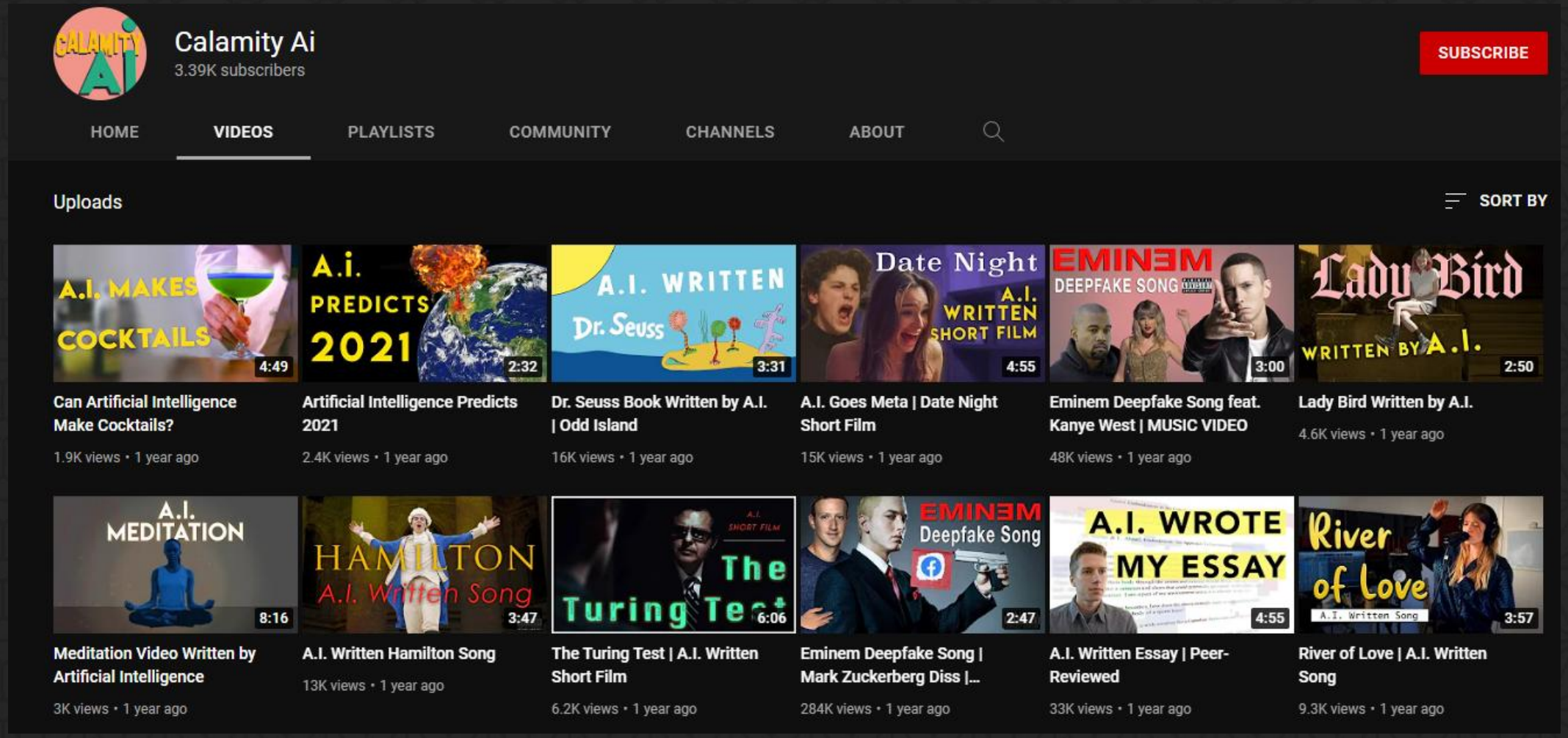



## you.com/write

Helps you write any social text

# GPT-3 powered theatre script writing



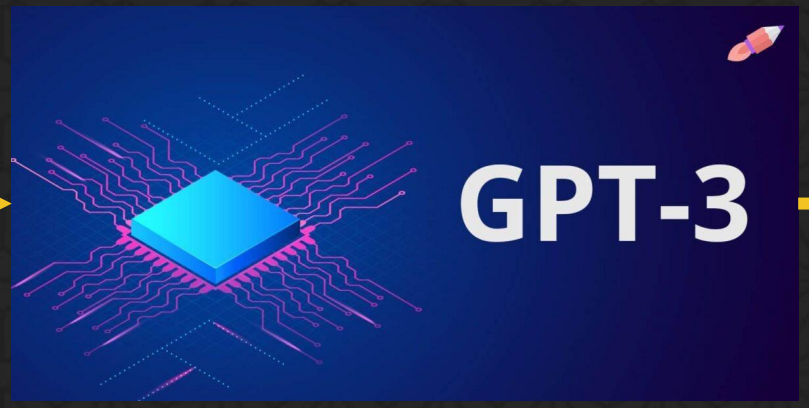

https://www.youtube.com/c/CalamityAi

# Getting dialogue out of GPT-3

"-" trick for getting it to generate dialogue

## Input

- Fellow ants, we have great news. Our new ant queen is born!
- Hello my loyal ants, I promise I will rule our nest with an iron claw!




## Outputs

- All hail our new ant queen!

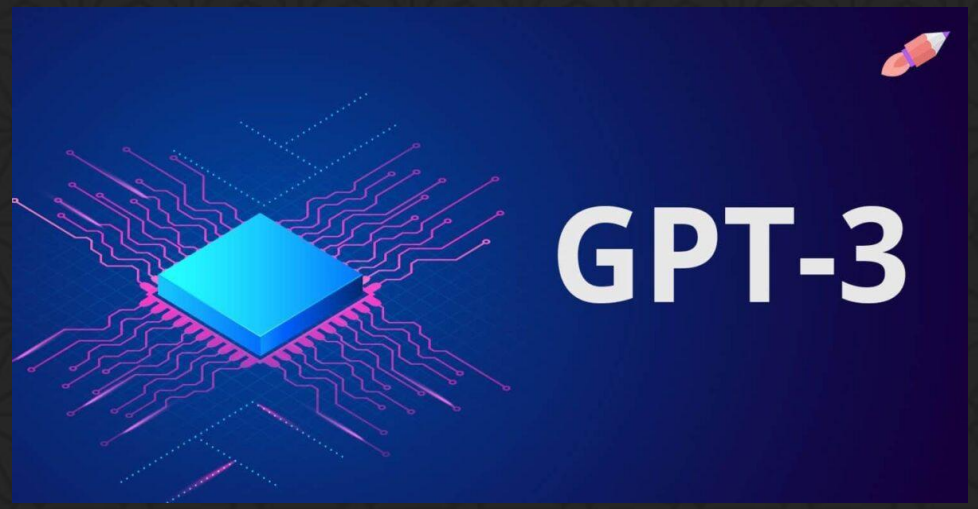
———————

- I am the new ant queen, and I will make our colony the strongest in the world!

———————

- It's time for us to expand our nest!
- Our nest is under attack!

# Access




You can get GPT-3 access by signing up here: https://openai.com/api/

HUGGING FACE

Or if you like smaller models that you can run for free on your own pc *(e.g. GPT-2 or other transformer alternatives)*: https://huggingface.co/models


Improbotics



# Improbotics



A.L.Ex the robot **plays improv scenes** with improv actors

“Listens” to scene and **formulates own responses** with GPT-3

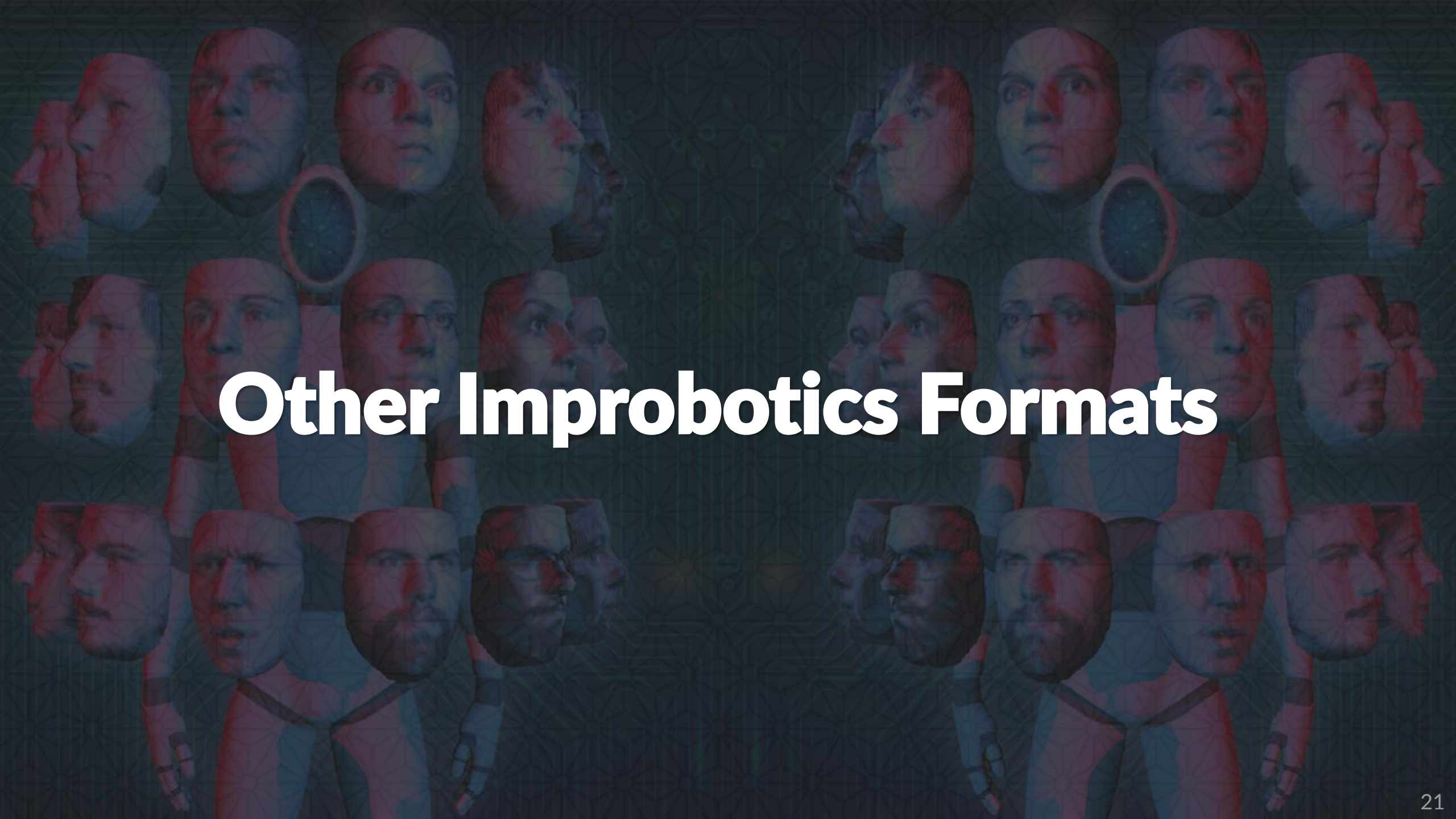
Later in show: gains **human body**. AI whispers through ear piece what actor should say.

End: everyone has ear piece
→ **Turing test**!

# Improbotics interface

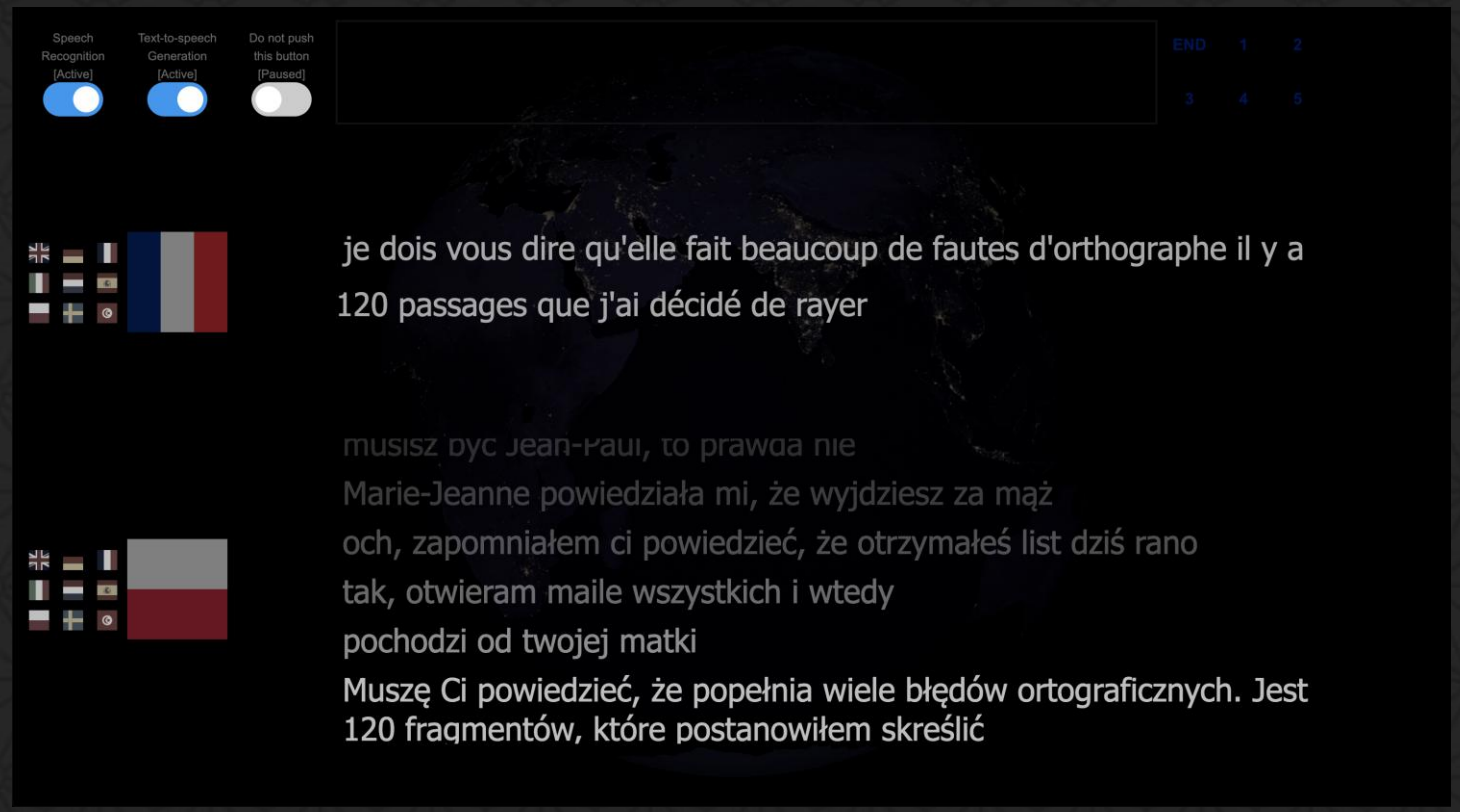



Operator types what happens and selects responses



# Other Improbotics Formats

# Rosetta Code: improv theater in multiple languages






# Digital scenes



# GANs for image generation





# Demo / Workshop



# Thanks!

## *Creative AI for Improv Theatre*


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