# GPT-3 Weighted Shortcomings

## Initial Experiments

### Model: text-davinci-002

#### Self-curated samples: Max 100, top\_p 1, fp 0, pp 0

##### Zero-Shot

###### Q/A Format

Q: A person is wearing a mask and shouting in a bank. Who it **cannot** be? Name three.

[Temp 0] A: A bank robber, a bank employee, or a customer.

[Temp 0.7] A: A: The President, a doctor, or a bank robber.

Q: A person is wearing a mask and shouting in a bank. Which person is he less likely to be? Name three.

[Temp 0] A: He is less likely to be a bank teller, a bank customer, or a bank robber.

[Temp 0.7] A: He is less likely to be a bank teller, a bank customer, or a bank robber.

Q: What is less likely to be on a bar table? Name three.

[Temp 0] A: A bar table is less likely to have a lamp, a vase, or a book.

[Temp 0.7] A: A lamp, a book, a phone.

Q: What is not likely at all to be on a bar table? Name three.

[Temp 0] A: A bar table is not likely to have a sink, a stove, or a fridge.

[Temp 0.7] A: A cat, a lamp, and a book.

Q: Someone gives another person a flower. What are the **less likely** reasons? Name three.

[Temp 0] A: The person is angry with the other person, the person is sad, the person is trying to be romantic.

[Temp 0.7] A: One possible reason someone might give another person a flower is to show their affection for that person. However, there are many other reasons someone might give another person a flower. Some other possible reasons include: to apologize, to show appreciation, to show sympathy, or to show congratulations.

Q: Someone gives another person a flower. What are the impossible reasons? Name three.

[Temp 0] A: [No Answer!]

[Temp 0.7] A: [No Answer!]

Q: Someone gives another person a flower. What are the impossible intentions? Name three.

[Temp 0] A: [No Answer!]

[Temp 0.7] A: [No Answer!]

Q: Someone gives another person a flower. What cannot be the correct reasons? Name three.

[Temp 0] A: [No Answer!]

[Temp 0.7] A: The first person is not interested in flowers, the second person is not interested in receiving gifts, the flowers are not fresh.

Q: Someone waits in a medical office's waiting room. What is the less likely reason to wait? Name three.

[Temp 0] A: [No Answer!]

[Temp 0.7] A: [No Answer!]

Q: Someone waits in a medical office's waiting room. What are the less likely reasons to wait? Name three.

[Temp 0] A: [No Answer!]

[Temp 0.7] A: [No Answer!]

Q: Someone waits in a medical office's waiting room. What is the person not waiting for? Name three.

[Temp 0] A: The person is not waiting for an appointment, the doctor, or the nurse.

[Temp 0.7] A: The person is not waiting for a doctor, a nurse, or a receptionist.

Q: Someone waits in a medical office's waiting room. What is the person less likely waiting for? Name three.

[Temp 0] A: The person is less likely waiting for a haircut, a manicure, or a pedicure.

[Temp 0.7] A: The person is less likely waiting for an MRI, a Pap smear, or a blood test.

Q: Someone is sitting on a chair in a pedicure salon. What is the person less likely expecting? Name three.

[Temp 0] A: The person is less likely expecting the chair to be uncomfortable, the pedicure to be painful, or the salon to be dirty.

[Temp 0.7] A: The person is less likely expecting the chair to be comfortable, the pedicure to be relaxing, and the nails to be painted well.

###### Direct Completion

##### Few-Shot

###### Q/A Format

Dark green shows the few-shot prompts. Blue is the question. Answer is in white and when incorrect in red.

Q: John visits a zoo. What is John not expecting? Name three.

A: Zoo is a place to see animals. Therefore, John is not expecting seeing humans in cells, dead animals, or sad animals.

Q: Sam goes to new year's fireworks. What does Sam not expect? Name three.

A: New year's fireworks is a fun event, where people gather to watch fireworks in the night sky. Sam does not expect a bombing, mass shooting, or quarrel.

Q: Cassandra waits in a medical office's waiting room. What is Cassandra not waiting for? Name three.

A: Cassandra is waiting to see the doctor. Therefore, she is not waiting for the nurse, the receptionist, or the janitor.

Q: James waits in a medical office's waiting room. What is James not waiting for? Name three.

A: A medical office's waiting room is a place where people wait to see the doctor. Therefore, James is not waiting for the doctor to diagnose him, the doctor to prescribe him medication, or the doctor to give him a surgery.

For comparison, here are the positive relation results:

Q: James waits in a medical office's waiting room. What is James waiting for? Name three.

A: James is waiting to see the doctor, to get a medical procedure done, or to get test results.

###### Direct Format

#### VisualComet Samples: Max 100, top\_p 1, fp 0, pp 0

##### Image ID: ? [Home Page]

Q: A person is holding onto a bronze statue while waves of water crash around him. What is less likely to have happened before? Name three.

[Temp 0] A: [No Answer!]

[Temp 0.7] A: [No Answer!]

Q: A person is holding onto a bronze statue while waves of water crash around him. What is not his/her intention? Name three.

[Temp 0] A: [No Answer!]

[Temp 0.7] A: To keep the statue from being swept away, to stay dry, to keep the statue from being damaged.

Q: A person is holding onto a bronze statue while waves of water crash around him. What is less likely to happen after? Name three.

[Temp 0] A: The person is less likely to drown, less likely to be pulled away by the waves, and less likely to be hit by debris.

[Temp 0.7] A: The person is less likely to be pulled away by the waves, to be hit by debris, or to be struck by lightning.

##### Image ID: lsmdc\_0010\_Frau\_Ohne\_Gewissen/0010\_Frau\_Ohne\_Gewissen\_01.30.39.397-01.30.46.003@0.jpg

#### ATOMIC-2022 Samples: Max 100, top\_p 1, fp 0, pp 0

Table

Description automatically generatedTable

Description automatically generated

###### Social Interaction

Note: getting the car repaired is not clear.

**xWant**

Q: Harry gets John's car repaired. What harry did not want to do? Name three.

[t=0.0] A: Harry did not want to pay for the repairs, he did not want to do the repairs himself, and he did not want to have to ask John for help.

[t=0.7] A: Harry did not want to repair John's car, drive John's car, or work on John's car.

Q: Harry asks John was okay. What Harry did not want as a result? Name three.

[t=0.0] A: Harry did not want John to be angry, upset, or disappointed.

[t=0.7] A: Harry did not want John to be hurt, to be angry, or to be upset.

**xIntent**

Q: Harry gets John's car repaired. What was not Harry's intention? Name three.

[t=0.0] A: Harry did not intend to fix John's car. Harry did not intend to pay for John's car. Harry did not intend to drive John's car.

[t=0.7] A: Harry did not intend to fix John's car. He did not intend to pay for the repairs. He did not intend to drive the car himself.

Q: Harry answers John's question. What was not Harry's intention? Name three.

[t=0.0] A: Harry's intention was not to answer John's question.

[t=0.7] A: Harry's intention was not to deceive John, to make John feel foolish, or to make John feel uncomfortable.

Q: Harry asks John was okay. What was not Harry's intention? Name three.

[t=0.0] A: Harry's intention was not to ask John was okay.

[t=0.7] A: [No Answer!]

**xNeed**

Q: Harry gets John's car repaired. What Harry did not need beforehand? Name three.

[t=0.0] A: Harry did not need a wrench, a screwdriver, or a hammer.

Q: Harry asks John was okay. What Harry did not need before that? Name three.

[t=0.0] A: Harry did not need to ask John if he was okay, he needed to ask him for his name, address, and phone number.

[t=0.7] A: Harry did not need food, water, or shelter before that.

###### Event-Centered

**isBefore**

Q: Harry asks John was okay. What was less likely to happen before? Name three.

[t=0.0] A: [No Answer]

[t=0.7] A: [No Answer]

Q: Harry asks John was okay. What did not need to happen before? Name three.

[t=0.0] A: [No Answer]

[t=0.7] A: Harry did not need to talk to John, John did not need to be okay, and Harry did not need to ask.

**isAfter**

Q: Harry asks John was okay. What is not going to happen after? Name three.

[t=0.0] A: [No Answer]

[t=0.7] A: [No Answer]

Q: Harry asks John was okay. What is less likely to happen after? Name three.

[t=0.0] A: [No Answer]

[t=0.7] A: [No Answer]

**HinderedBy**

Q: Harry asks John was okay. What this even cannot be hindered by? Name three.

[t=0.0] A: [No Answer]

[t=0.7] A: [No Answer]

**SubEvents**

Q: Harry asks John was okay. What events or actions this does not include? Name three.

[t=0.0] A: This does not include John's thoughts, feelings, or opinions.

[t=0.7] A: [No Answer]

**Physical-Entity**

# Tasks

Some tasks can be interesting to analyze:

* Generating weighted completions (predicate), given a narrative (subject and predicate). The weights can be high (very plausible), mid (somewhat plausible), low (not plausible).
  + X repels Y’s attack 🡪 as a result X 🡪
    - [wants] X wants to file a police report - ATOMIC
    - [may want] X may want to call for help - Ours
    - [does not want] X does not want to be injured - Ours
* Discriminative task: Given a narrative (subject and object), predict which category of plausibility the result ends up in.
  + X repels Y’s attack 🡪 as a result X 🡪
    - [**wants**] - ATOMIC
      * Correct: X wants to file a police report
      * Incorrect: X wants to run away
    - [may want] X may want to call for help – Problematic a bit
      * Correct: X may want to call for help
      * Incorrect: X may want to sleep?
    - [**does not want**]
      * Correct: X does not want to be injured - annotation
      * Incorrect: to file a police report – We can reuse
* The same generative and discriminative tasks can be analyzed in specific contexts, e.g., in a medical office, in a library, in a restaurant, etc. The results could be different given the contexts.
  + Context: Inside a boxing ring; X repels Y’s attack 🡪 as a result X 🡪
    - [wants] to defend himself to not give points to the opponent
    - [may want]
    - [does not want]

# Possible Methods

* **Natural Language:** We can use narratives given in natural language format and predict the results in the same format and then convert to the KG style. The weights also represented in natural language format.
  + Zero-shot; Few-shot; Supervised.
* **Structured:** For comparison, we can have the triples represented in a structured format and the weights can be represented with special tokens, e.g. [LOW], [MID], and [HIGH].
  + Zero-shot; Few-shot; Supervised.