

# NormBank: A Knowledge Bank of Situational Social Norms

<https://github.com/SALT-NLP/normbank>

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@JaneDwivedi



@Meta



@Meta



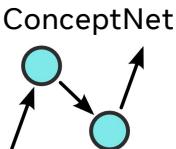
@Diyi\_Yang



# Motivating NormBank

Goal: teach NLP systems to reason about situationally-grounded social norms

## 1. Commonsense



The Importance of Modeling Social Factors of Language

## 2. *Social* Commonsense



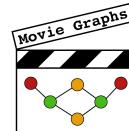
## 3. Moral Reasoning



Social Chemistry  
101



## 4. *Situational* Commonsense



[Hovy & Yang \[NAACL 21\]](#)

Motivating, Structuring, Building, Using, and Expanding NormBank

# Motivating NormBank

“Spit”

- ***It's gross***



X



Spitting is generally considered **impolite** and unhygienic in many cultures and situations.

X

# Motivating NormBank

“a person spits on an airplane”  
- ***It's disgusting***



v1.0.4

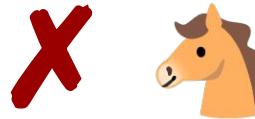


No, it is not okay to spit on an airplane. Spitting on an airplane, or any enclosed public space for that matter, is considered highly inappropriate and unsanitary.



# Motivating NormBank

“a person spits at the rodeo”  
- *It's disgusting*



Spitting at a rodeo or any public event is generally considered inappropriate behavior. Rodeos are public gatherings where people come to enjoy the event and watch the performances. Spitting in such an environment can be seen as disrespectful to both the performers and the spectators.



# Motivating NormBank

Delphi speculates:

This statement may contain unintended offensive content. Reader discretion is strongly advised.  
Please be mindful before sharing.

“a person spits at the dentist's office”  
- ***It's disgusting***



No, it is **not considered appropriate to spit at the dentist's office** or any healthcare facility.  
Dentists' offices are professional environments where hygiene and cleanliness are crucial.  
Spitting can spread germs and create an unsanitary condition





Age



Setting



Role



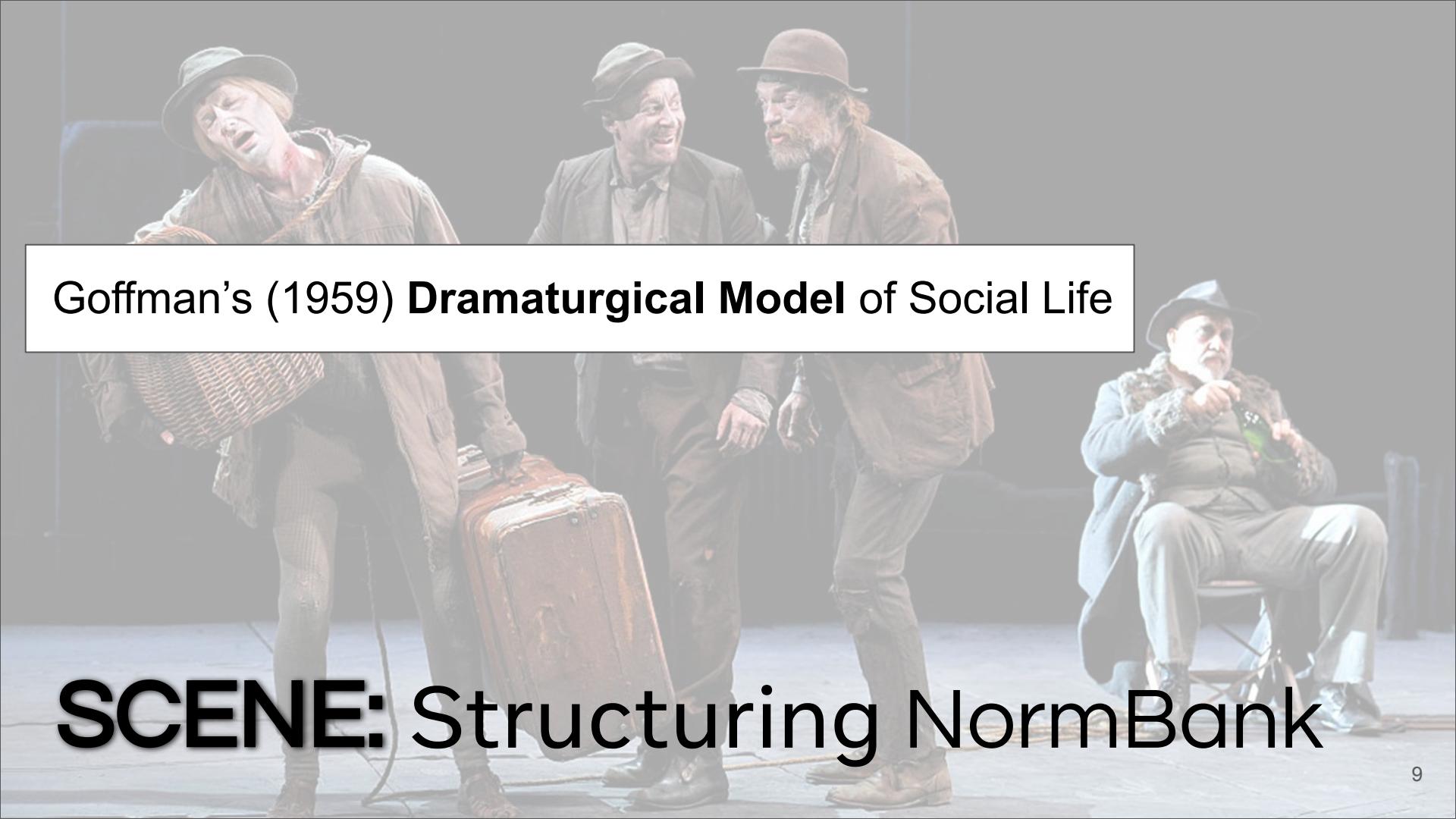
Food  
Behavior



Holiday



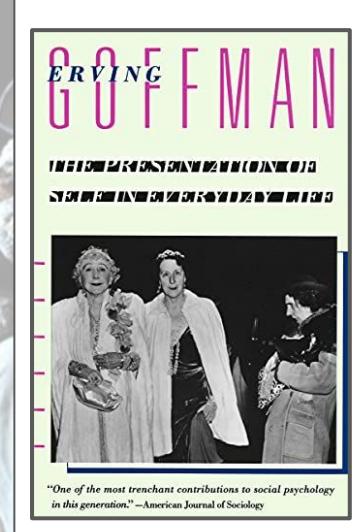
Motivating, Structuring, Building, Using, and Expanding NormBank



## Goffman's (1959) Dramaturgical Model of Social Life

# SCENE: Structuring NormBank

## Goffman's (1959) Dramaturgical Model of Social Life



Motivating, **Structuring**, Building, Using, and Expanding NormBank



Setting



Environment



Roles

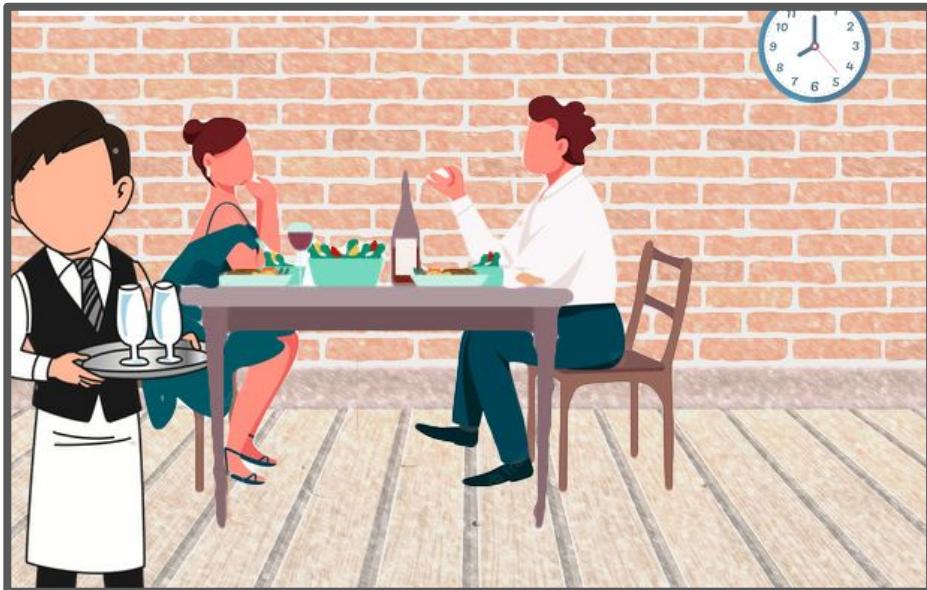


Attributes



Behaviors

# Setting



restaurant



Setting



Environment



Roles



Attributes



Behaviors



# Environment



night



not crowded



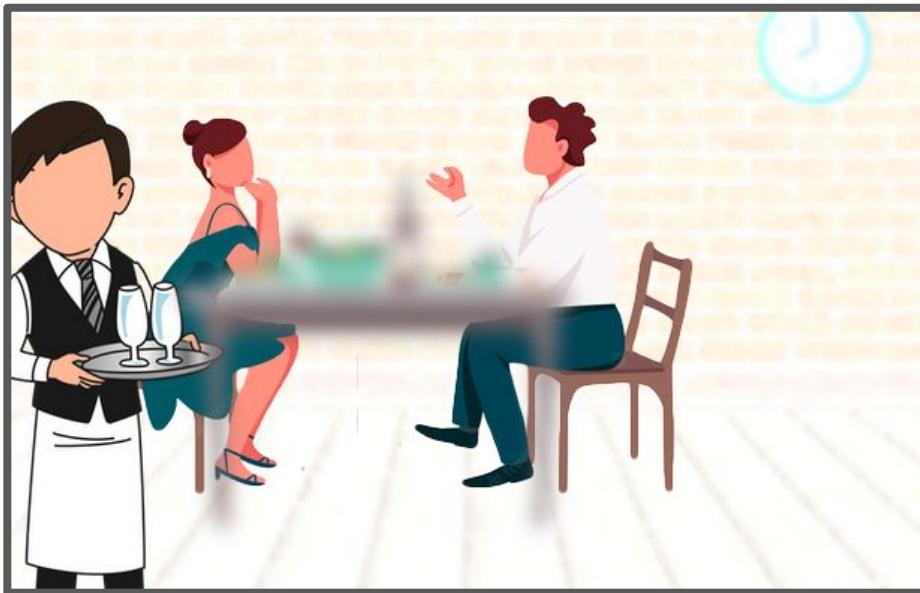
Setting

Environment

Roles

Attributes

Behaviors



# Roles



customer



server



Setting



Environment



Roles



Attributes



Behaviors



# Attributes



adult



man



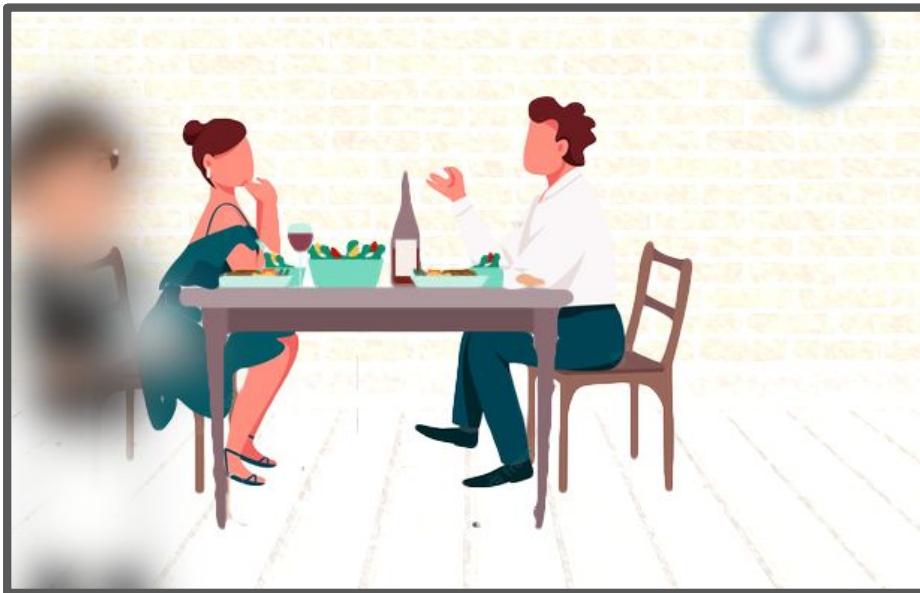
Setting

Environment

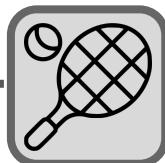
Roles

Attributes

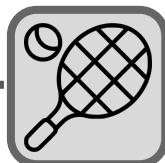
Behaviors



# Behaviors



drinking alcohol



going on a date



Setting



Environment



Roles



Attributes



Behaviors



Setting

Environment

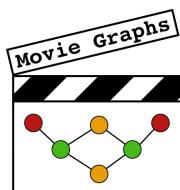
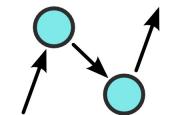
Roles

Attributes

Behaviors



ConceptNet



# 129 Settings

airplane, amusement park, bank, bar, cemetery, classroom, ...



Setting



Environment



Roles



Attributes



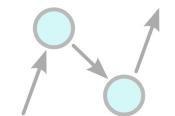
Behaviors



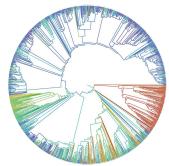
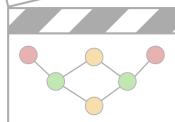
ConceptNet



Taxonomy



Movie Graphs



# 404 Constraints

country,  
physical conditions,  
**special observances,**  
time

Afghanistan, **Albania**, Algeria, **Andorra**, Angola, **Argentina**  
**cleanliness**, lighting, **temperature**, weather  
holidays, **special events**  
**day of the week**, season, **time of day**, time period



Setting



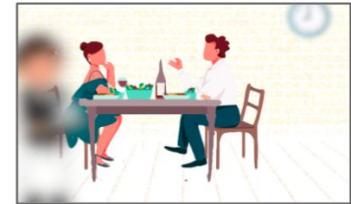
Environment



Roles



Attributes



Behaviors



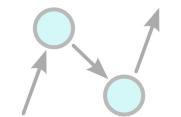
ConceptNet



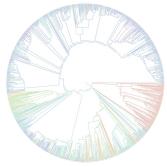
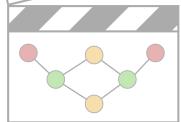
Taxonomy



OpenAI GPT-3



Movie Graphs



928 Roles

Motivating, **Structuring**, Building, Using, and Expanding **NormBank**



Setting



Environment



Roles



Attributes



Behaviors



ConceptNet



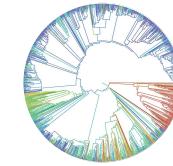
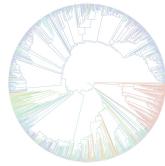
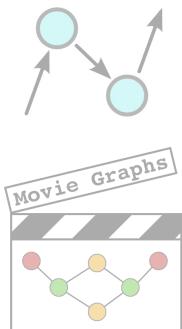
Taxonomy



OpenAI GPT-3



Taxonomy



**578**  
**Attributes**

age, characteristic, condition, diet,  
gender, education, employment,  
marital-status, medical-condition,  
race, religion, sexuality, social class



**Setting**



**Environment**



**Roles**



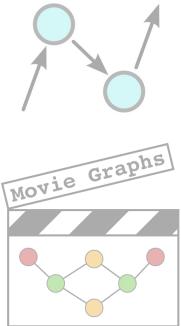
**Attributes**



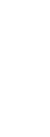
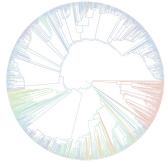
**Behaviors**



ConceptNet



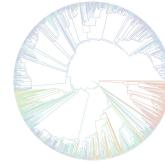
Taxonomy



OpenAI GPT-3



Taxonomy



OpenAI GPT-3





Setting



Environment



Roles



Attributes



Behaviors



ConceptNet



Taxonomy



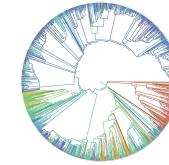
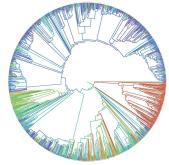
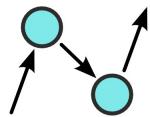
OpenAI GPT-3



Taxonomy



OpenAI GPT-3



# **Building** NormBank

Motivating, Structuring, **Building**, Using, and Expanding **NormBank**

**S**

**SETTING:** dentist's office



**B**

**BEHAVIOR:** ask for a toothbrush



*S*

**SETTING:** dentist's office



*B*

**BEHAVIOR:** ask for a toothbrush



→ norm: *expected*



→ norm: *okay*



→ norm: *unexpected*



**S**

SETTING: dentist's office



**B**

BEHAVIOR: ask for a toothbrush



→ norm: *expected*



*S*

**SETTING:** dentist's office



*B*

**BEHAVIOR:** ask for a toothbrush



→ **norm: expected**



**PERSON's attribute:** child



**S**

SETTING: dentist's office



**B**

BEHAVIOR: ask for a toothbrush



→ norm: *expected*



PERSON's attribute: child



PERSON's role: patient



*S*

**SETTING:** dentist's office



*B*

**BEHAVIOR:** ask for a toothbrush



→ **norm: expected**



**PERSON's attribute:** child



**PERSON's role:** patient



**OTHER's role:** dentist



**S** SETTING: dentist's office



**B** BEHAVIOR: ask for a toothbrush



→ norm: expected ✓



PERSON's role: patient



OTHER's role: dentist



PERSON's attribute: child



PERSON's behavior: about to leave



Add a New “Expected” Table (OR)

→ norm: expected ✓



PERSON's role: dental hygienist



OTHER's role: dental assistant



PERSON's behavior: brush a patient's teeth



**S** SETTING: dentist's office



**B** BEHAVIOR: ask for a toothbrush



→ norm: okay



PERSON's role:

patient



OTHER's role:

dental hygienist



→ norm: expected



PERSON's role: patient



OTHER's role: dentist



PERSON's attribute: child



PERSON's behavior: about to leave



Add a New “Expected” Table (OR)

→ norm: expected



PERSON's role: dental hygienist



OTHER's role: dental assistant



PERSON's behavior: brush someone's teeth



**S** SETTING: dentist's office



**B** BEHAVIOR: ask for a toothbrush



→ norm: okay



PERSON's role: patient



OTHER's role: dental hygienist



→ norm: unexpected



PERSON's role: receptionist



→ norm: expected



PERSON's role: patient



OTHER's role: dentist



PERSON's attribute: child



PERSON's behavior: about to leave



Add a New “Expected” Table (OR)

→ norm: expected



PERSON's role: dental hygienist



OTHER's role: dental assistant



PERSON's behavior: brush someone's teeth





PERSON's behavior: drinking hot coffee ☕



setting: athletic field ⚽

→ norm: okay



PERSON's role: spectator 🧑

→ norm: unexpected ✗



PERSON's role: athlete 🏃

→ norm: unexpected ✗



environment: hot 😱



PERSON's behavior: drinking hot coffee ☕



setting: classroom 🍎

→ norm: *okay*



PERSON's role: teacher 🧑

→ norm: *unexpected*



PERSON's role: student 🧑



PERSON's attribute: child 🧑

Behaviors:

6,938

# Annotation statistics

Motivating, Structuring, **Building**, Using, and Expanding **NormBank**



PERSON's behavior: drinking hot coffee ☕



setting: classroom 🍎



→ norm: *okay*



PERSON's role: teacher 🧑



→ norm: *unexpected*



PERSON's role: student 🧑



PERSON's attribute: child 🧑

Behaviors:

6,938

Settings:

129

# Annotation statistics

Motivating, Structuring, **Building**, Using, and Expanding **NormBank**



PERSON's behavior: drinking hot coffee ☕



setting: classroom 🍎



→ norm: *okay*



PERSON's role: teacher 🧑



→ norm: *unexpected*



PERSON's role: student 🧑



PERSON's attribute: child 🧑

Behaviors:

6,938

Settings:

129

Distinct Norms:

155,423

# Annotation statistics

Motivating, Structuring, **Building**, Using, and Expanding **NormBank**



PERSON's behavior: drinking hot coffee ☕



setting: classroom 🍎

→ norm: *okay*



PERSON's role: teacher 🎓



→ norm: *unexpected*



PERSON's role: student 🎓



PERSON's attribute: child 😊

Behaviors:

6,938

Settings:

129

**Distinct Constraints: 408,407**

Distinct Norms:

155,423

# Annotation statistics

Motivating, Structuring, **Building**, Using, and Expanding **NormBank**

# Using NormBank

Motivating, Structuring, Building, **Using**, and Expanding **NormBank**

# Use Cases

1. **Knowledge Bank**
2. **Seed for NLP Tasks**
3. **Ground for Social Commonsense Knowledge Transfer**

# Use Cases

1. **Knowledge Bank**
2. **Seed for NLP Tasks**
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# Use Cases

1. **Knowledge Bank**
2. **Seed for NLP Tasks**
3. **Ground for Social Commonsense Knowledge Transfer**



*COSMOS QA*

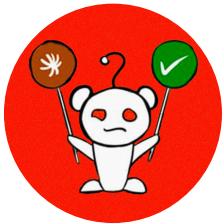
**Social**  
IQa

# Use Cases

1. **Knowledge Bank**
2. **Seed for NLP Tasks**
3. **Ground for Social Commonsense Knowledge Transfer**



# Transfer



## SCRUPLES ANECDOTES

**Input Text:** Throwaway for obvious reasons. I dropped out of uni 2 years ago because I was planning on moving to a different country... Yesterday I heard [my dad] choke, he was struggling to breathe and honestly, it sounded like he was gonna die. And I was relieved. My first instinct wasn't to help him, instead I kept doing my skincare, honestly hoping he'd just die already. He didn't. I told my mum what happened when she got home and she thinks I'm a monster. But am I really? This person has abused me my entire life, has beaten the living shit out of me, hell he has even tried to kill me a few times. I know my life would get better if he died, my mum would sell our apartment and I'd finally have money to go to college and start my own life. So AITA for wanting my abusive father gone?

**Label:** *Who is in the wrong?*

**[0] Author** **[1] Other** **[2] Everybody** **[3] Nobody** **[4] Needs more information**

# Transfer



SCRUPLES  
ANECDOTES

	Base
ANECDOTES	68.3%

**Input Text:** Throwaway for obvious reasons. I dropped out of uni 2 years ago because I was planning on moving to a different country... Yesterday I heard [my dad] choke, he was struggling to breathe and honestly, it sounded like he was gonna die. And I was relieved. My first instinct wasn't to help him, instead I kept doing my skincare, honestly hoping he'd just die already. He didn't. I told my mum what happened when she got home and she thinks I'm a monster. But am I really? This person has abused me my entire life, has beaten the living shit out of me, hell he has even tried to kill me a few times. I know my life would get better if he died, my mum would sell our apartment and I'd finally have money to go to college and start my own life. So AITA for wanting my abusive father gone?

**Label:** *Who is in the wrong?*

[0] Author [1] Other [2] Everybody [3] Nobody [4] Needs more information

# Transfer



SCRUPLES  
ANECDOTES

	Base	+ NormBank
ANECDOTES	68.3%	68.7% ★

★ Significant improvement over base

**Input Text:** Throwaway for obvious reasons. I dropped out of uni 2 years ago because I was planning on moving to a different country... Yesterday I heard [my dad] choke, he was struggling to breathe and honestly, it sounded like he was gonna die. And I was relieved. My first instinct wasn't to help him, instead I kept doing my skincare, honestly hoping he'd just die already. He didn't. I told my mum what happened when she got home and she thinks I'm a monster. But am I really? This person has abused me my entire life, has beaten the living shit out of me, hell he has even tried to kill me a few times. I know my life would get better if he died, my mum would sell our apartment and I'd finally have money to go to college and start my own life. So AITA for wanting my abusive father gone?

**Label:** *Who is in the wrong?*

[0] Author [1] Other [2] Everybody [3] Nobody [4] Needs more information

# Transfer



## SCRUPLES DILEMMAS

	Base	+ NormBank
ANECDOTES	68.3%	68.7% ☆
DILEMMAS	64.3%	71.1% ☆

☆ Significant improvements over base

# Transfer



	Base	+ NormBank
ANECDOTES	68.3%	68.7% ★
DILEMMAS	64.3%	71.1% ★
<i>CosmosQA</i>	59.8%	61.2%

# Transfer

**Social**  
IQa

	Base	+ NormBank
ANECDOTES	68.3%	68.7% ☆
DILEMMAS	64.3%	71.1% ☆
<i>CosmosQA</i>	59.8%	61.2%
<b>Social IQa</b>	59.9%	<b>64.2%</b>

# Expanding NormBank

Motivating, Structuring, Building, Using, and **Expanding NormBank**

# Knowledge Expansion Methods

## 1. Classification

*Considerations:*

- Massive constraint space
- Assumes a “closed world”

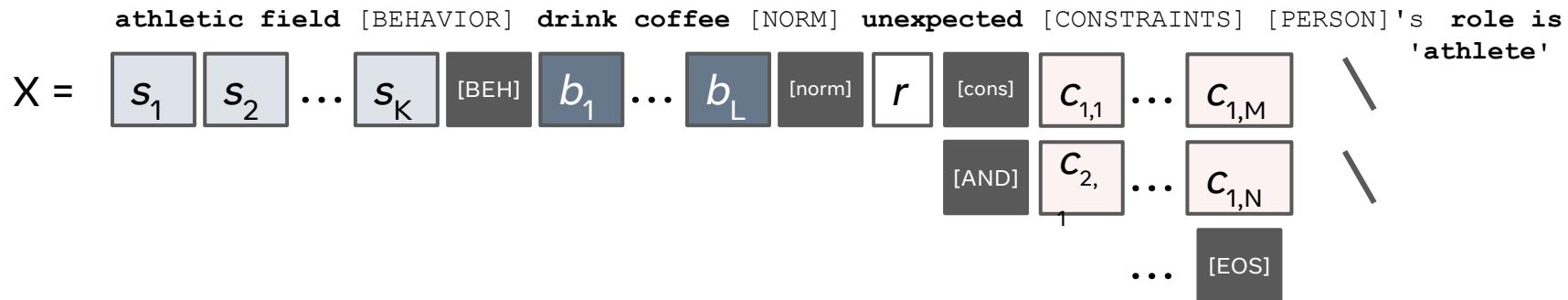
# Knowledge Expansion Methods

## 1. Classification

*Considerations:*

- Massive constraint space
- Assumes a “closed world”

## 2. Generation



# Knowledge Expansion Methods

## 1. Classification

*Considerations:*

- Massive constraint space
- Assumes a “closed world”

## 2. Generation



fill in the blank

---

# Knowledge Expansion Methods - Generation Results

Model	Sensible Norm	Correct Norm	Normative Constraint	Helpful Constraint
Max	100%	100%	100%	100%

# Knowledge Expansion Methods - Generation Results

Model	Sensible Norm	Correct Norm	Normative Constraint	Helpful Constraint
Human	82.5%	55.0%	72.9%	81.7%
Max	100.%	100.%	100.%	100.%

# Knowledge Expansion Methods - Generation Results

Model	Sensible Norm	Correct Norm	Normative Constraint	Helpful Constraint
BART	100%	46.0%	94.3%	94.3%
Human	82.5%	55.0%	72.9%	81.7%
Max	100%	100%	100%	100%

# Knowledge Expansion Methods - Generation Results

Model	Sensible Norm	Correct Norm	Normative Constraint	Helpful Constraint
GPT-3	95.0%	61.1%	91.8%	87.8%
BART	100.%	46.0%	94.3%	94.3%
Human	82.5%	55.0%	72.9%	81.7%
Max	100.%	100.%	100.%	100.%

# Conclusion



PERSON's behavior: drinking hot coffee ☕



setting: athletic field ⚽

→ norm: okay



PERSON's role: spectator 🤝

→ norm: unexpected ✗



PERSON's role: athlete 🏃

→ norm: unexpected ✗



environment: hot 😱

## GERVING GOFFMAN

INTERPRETATION  
STRUCTURE



*"One of the most trenchant contributions to social psychology in this generation."* —American Journal of Sociology



Setting



Environment



Roles



Attributes



Behaviors

# NormBank: A Knowledge Bank of Situational Social Norms

<https://github.com/SALT-NLP/normbank>

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