



# Perceptions of Social Roles Across Cultures

11/18/2019



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**MeiXing Dong**



**David Jurgens**



**Carmen Banea**



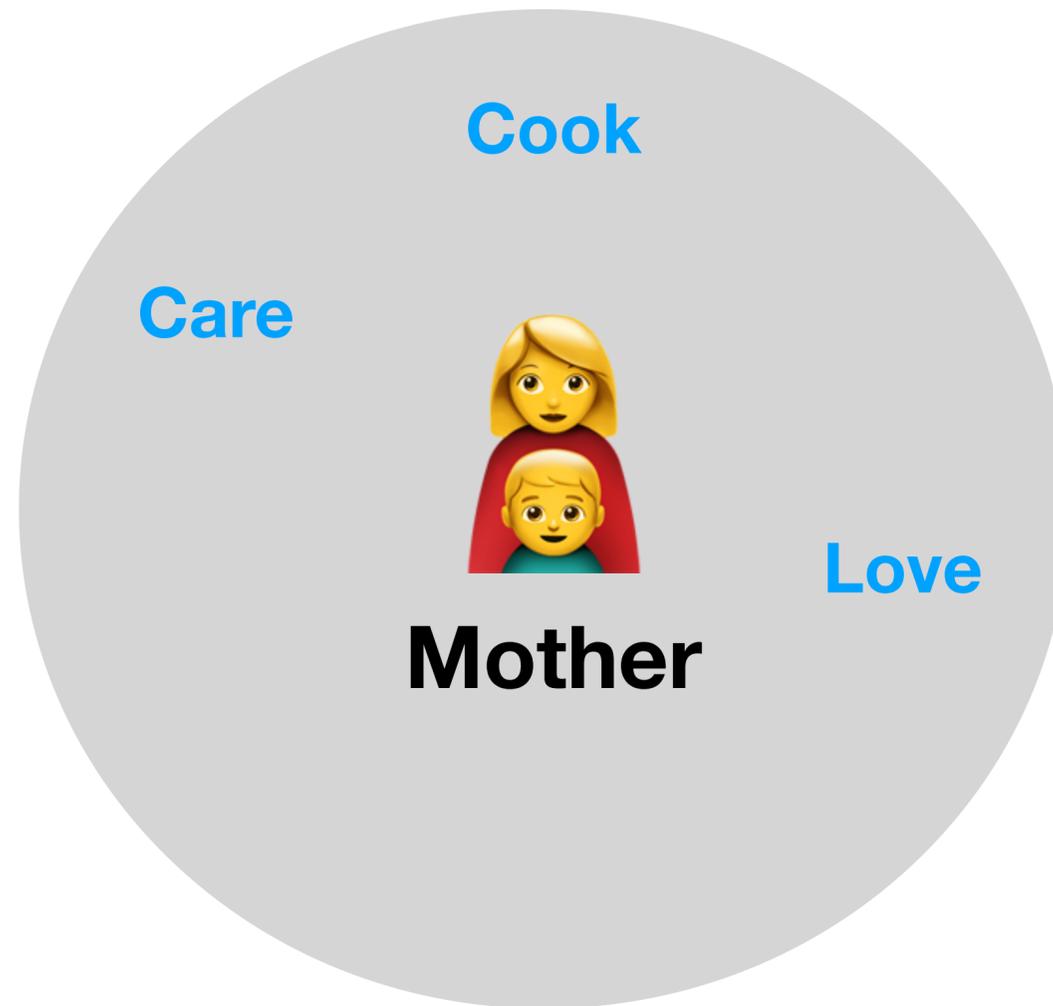
**Rada Mihalcea**

# Everyone has perceptions of social roles!

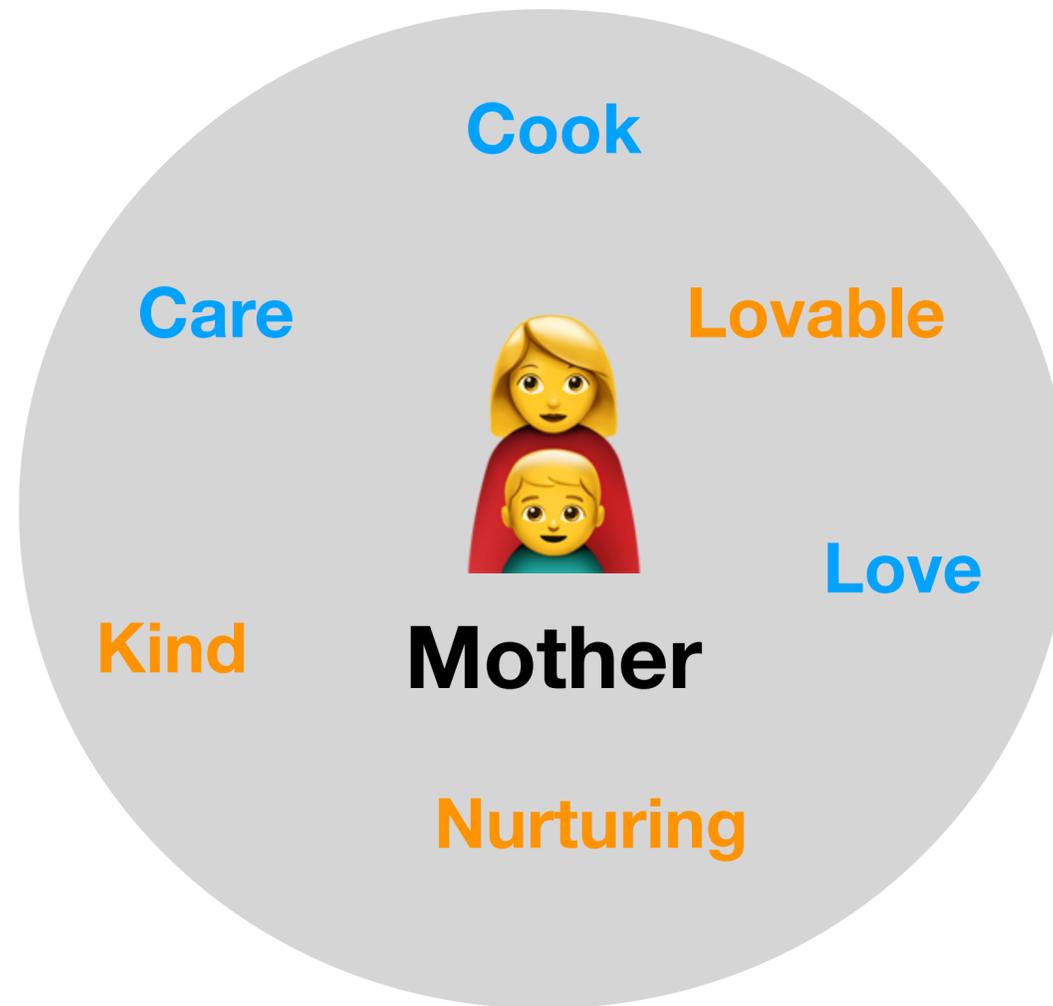


**Mother**

# Everyone has perceptions of social roles!



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# Everyone has perceptions of social roles!



**Policeman**

Cook

Care

Lovable



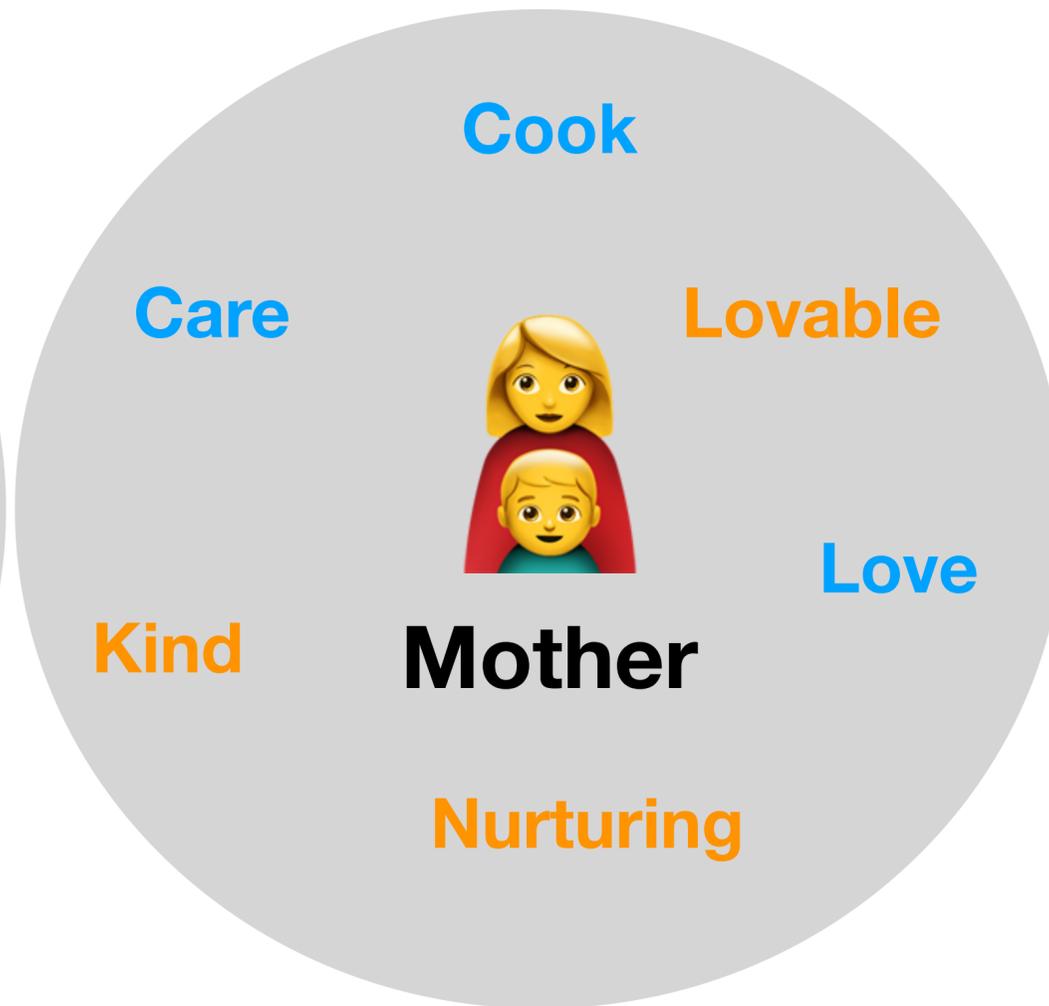
Love

Kind

**Mother**

Nurturing

# Everyone has perceptions of social roles!



# Everyone has perceptions of social roles!



**Policeman**

Arrest  
Protect  
Strong  
Serve  
Brave  
Loyal



**Mother**

Cook  
Care  
Lovable  
Love  
Kind  
Nurturing



**Friend**

Care  
Honest  
Funny  
Listen  
Helpful  
Laugh

**Understanding differences in the  
perception of social roles  
helps us understand  
differences between cultural  
groups.**

# How would we measure cultural differences in social roles?

One idea: look at the text around mentions of a social role!

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Not so straightforward...

- Mother - single, adoptive, young | die, teach, love
- Policeman - armed, uniformed, former | kill, injure, beat

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- Mother - single, adoptive, young | die, teach, love
- Policeman - armed, uniformed, former | kill, injure, beat

**Can't** just grab most frequent adjectives and verbs around a role to get associated aspects!

# Talk Outline

1. Building a Dataset of Social Roles and Aspects
2. Cultural Differences in Social Roles
3. Predicting Differences in Perception

# How would we measure cultural differences in social roles?

Our idea: Build a dataset of social roles and aspects from the US and India.

- Survey people from US and India on Amazon Mechanical Turk.
- Get actions and descriptors for a set of 49 social roles.

# Survey Design

**Complete the sentences** below with:

- (1) different words that **describe the characteristics or qualities** of a type of person (adjectives),
- (2) different words that are **actions** a type of person would do (verbs).

Each answer should be one word. Do not include any example words in your answers.

How would you describe a **sister**?

A **sister** is a(n)  person.

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---

What does a **sister** do?

A **sister**  .

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# Sample Responses

	US Actions	IN Actions	US Descriptors	IN Descriptors
Politician				
Researcher				
Mother				

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	US Actions	IN Actions	US Descriptors	IN Descriptors
Politician	lie, campaign, speak	speak, vote, lead		
Researcher				
Mother				

# Sample Responses

	US Actions	IN Actions	US Descriptors	IN Descriptors
Politician	lie, campaign, speak	speak, vote, lead	dishonest, greedy, corrupt	powerful, honest, influential
Researcher				
Mother				

# Sample Responses

	US Actions	IN Actions	US Descriptors	IN Descriptors
Politician	lie, campaign, speak	speak, vote, lead	dishonest, greedy, corrupt	powerful, honest, influential
Researcher	study, investigate, read	research, study, invent	smart, intelligent, curious	intelligent, knowledgeable, brilliant
Mother				

# Sample Responses

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Politician	lie, campaign, speak	speak, vote, lead	dishonest, greedy, corrupt	powerful, honest, influential
Researcher	study, investigate, read	research, study, invent	smart, intelligent, curious	intelligent, knowledgeable, brilliant
Mother	care, love, cook	care, love, cook	caring, loving, nurturing	caring, lovable, kind

# Different roles have different levels of similarity across cultures

		US Actions	IN Actions	US Descriptors	IN Descriptors
Low	Politician	lie, campaign, speak	speaking, vote, lead	dishonest, greedy, corrupt	powerful, honest, influential
Medium	Researcher	study, investigate, read	research, study, invent	smart, intelligent, curious	intelligent, knowledgeable, brilliant
High	Mother	care, love, cook	care, love, cook	caring, loving, nurturing	caring, lovable, kind

# Emotionality of aspects in the US and India

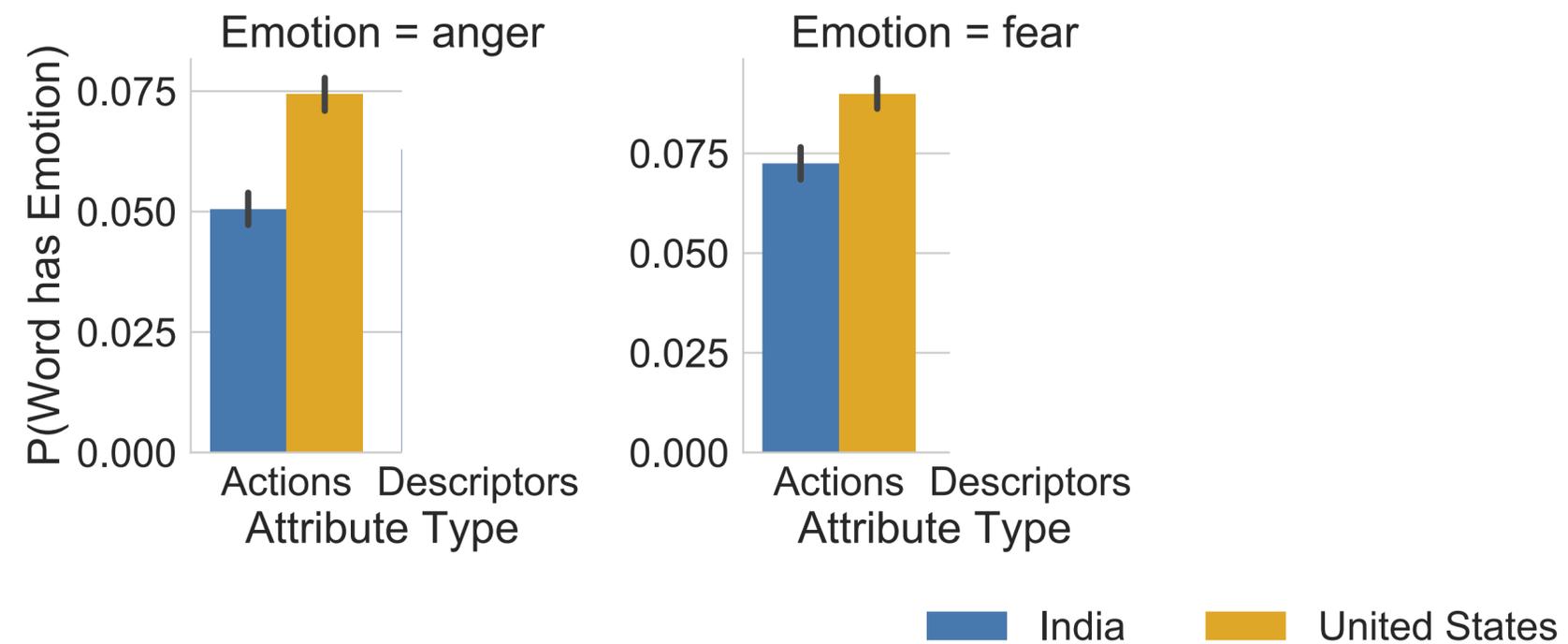
# Emotionality of aspects in the US and India

P(Word has Emotion)

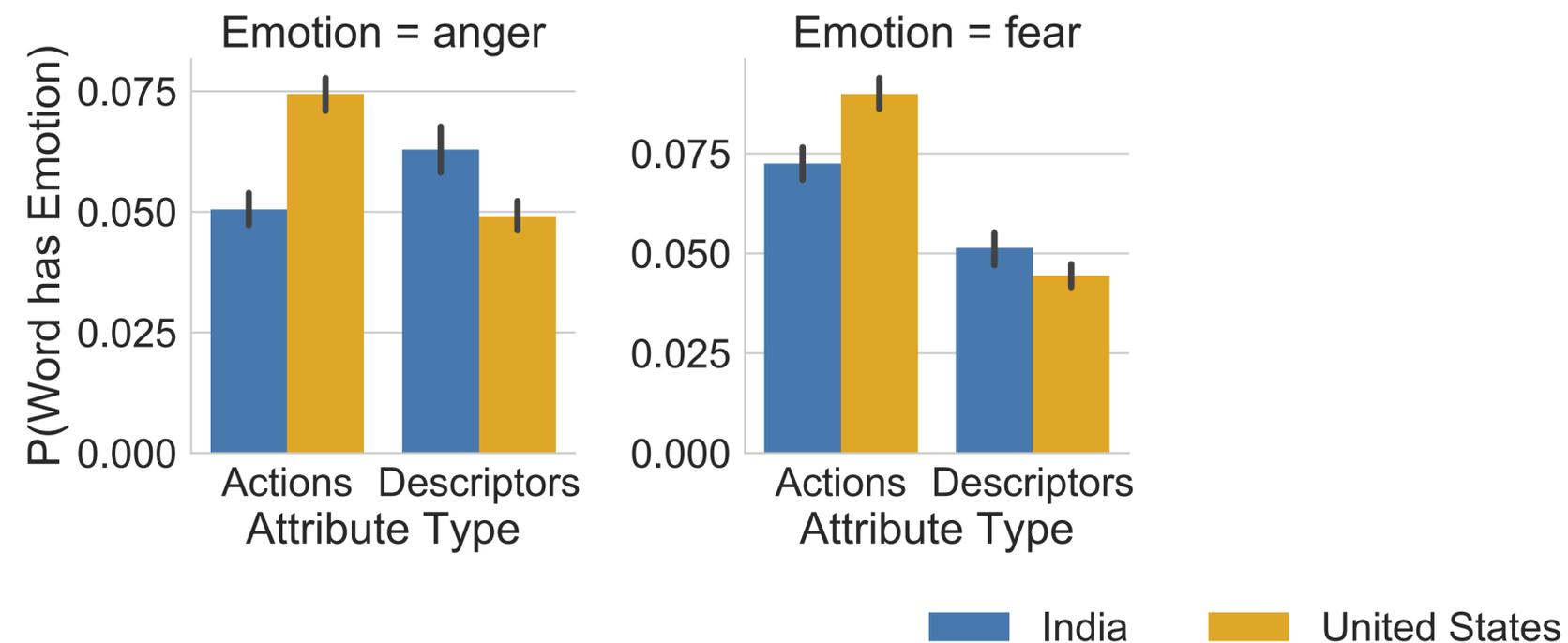
Actions Descriptors  
Attribute Type

India United States

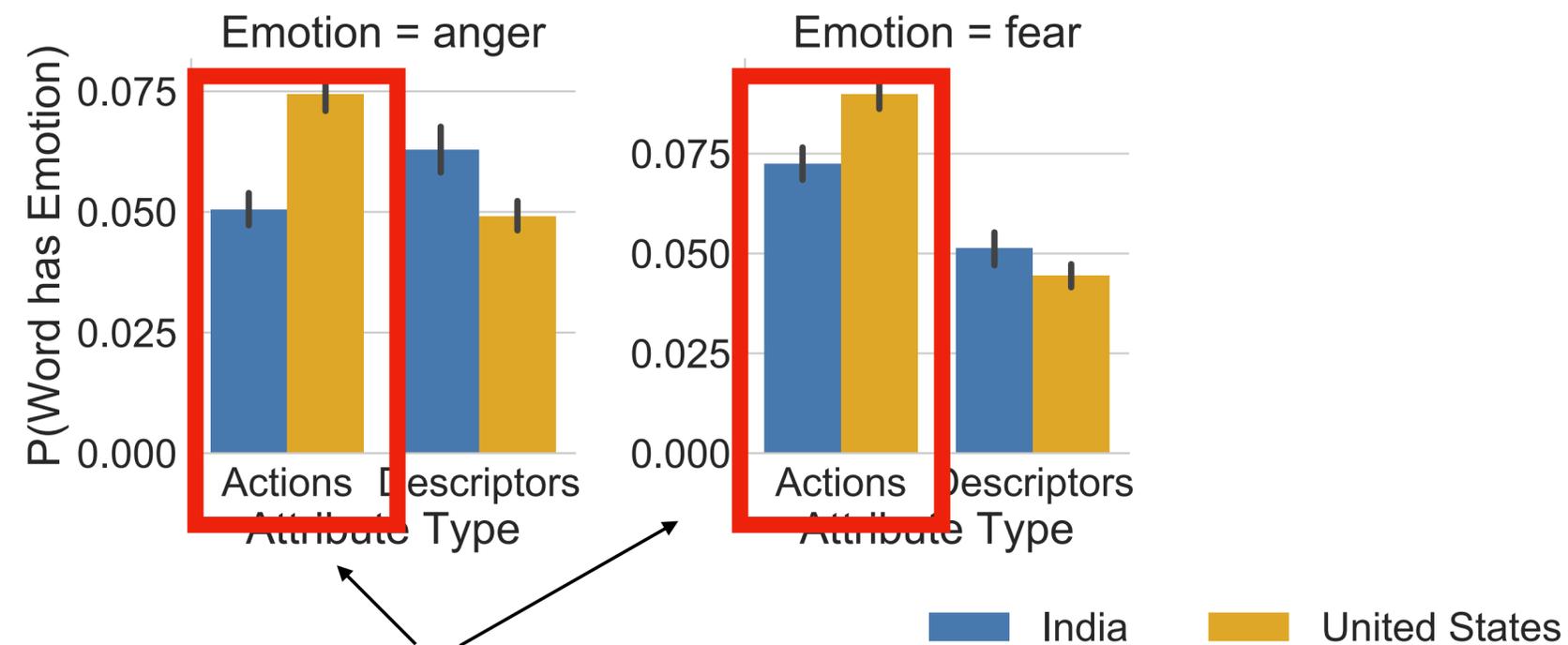
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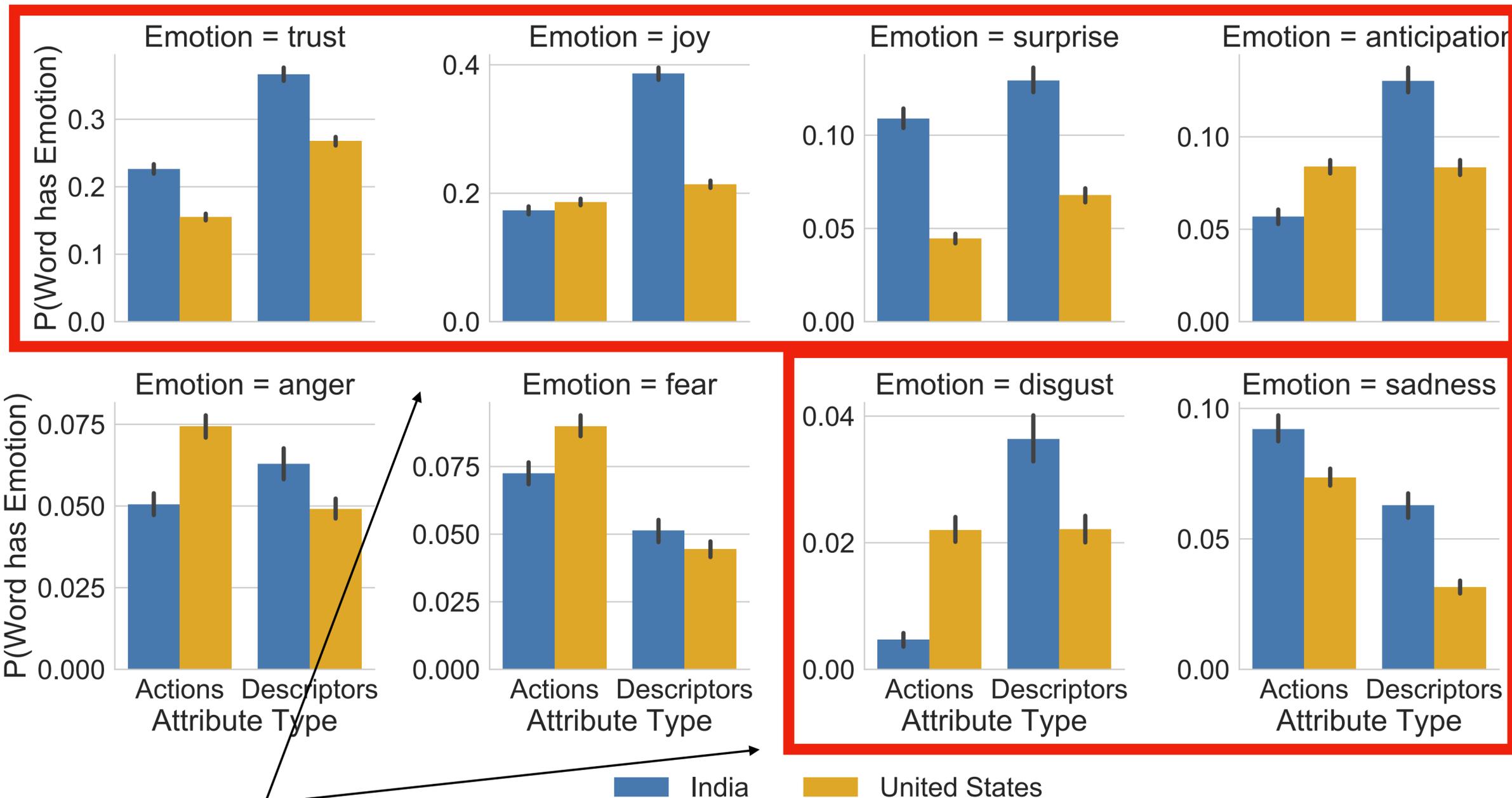


# Emotionality of aspects in the US and India



**US responses more likely to evoke anger or fear.**

# Emotionality of aspects in the US and India



**Indian responses has higher emotionality overall.**

# Talk Outline

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2. Cultural Differences in Social Roles
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# Which social roles fit following sentences?

- The honest \_\_\_\_\_ helped out her fellow citizen?
- The loving \_\_\_\_\_ guided her son on his homework?

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- **religious -> priest**
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**Overarching Goal:** Develop a computational model that will learn these social role association **from text** automatically.

# Idea 1: Determine social role from frequency of co-occurrence

## Dependency Link Count (DLC)

- Use dependency parsing to identify descriptors and actions linked to roles.
- Count co-occurrence of descriptors and actions with each role.
- Rank roles by frequency of occurrence with an aspect word.

# Idea 2: Determine social role from word embedding similarity

Dependency Aspect Embedding (DAE)

- Train word2vec models on US and Indian data separately.
- Compute cosine similarity of aspect word embeddings with role embeddings.
- Rank roles by similarity.

# **Blog data for learning cultural differences**

# Blog data for learning cultural differences



1999 - 2016

# Blog data for learning cultural differences



1999 - 2016



# Blog data for learning cultural differences



1999 - 2016



~14 million sentences



~7 million sentences

# Blog data for learning cultural differences



1999 - 2016



~14 ~7 million sentences



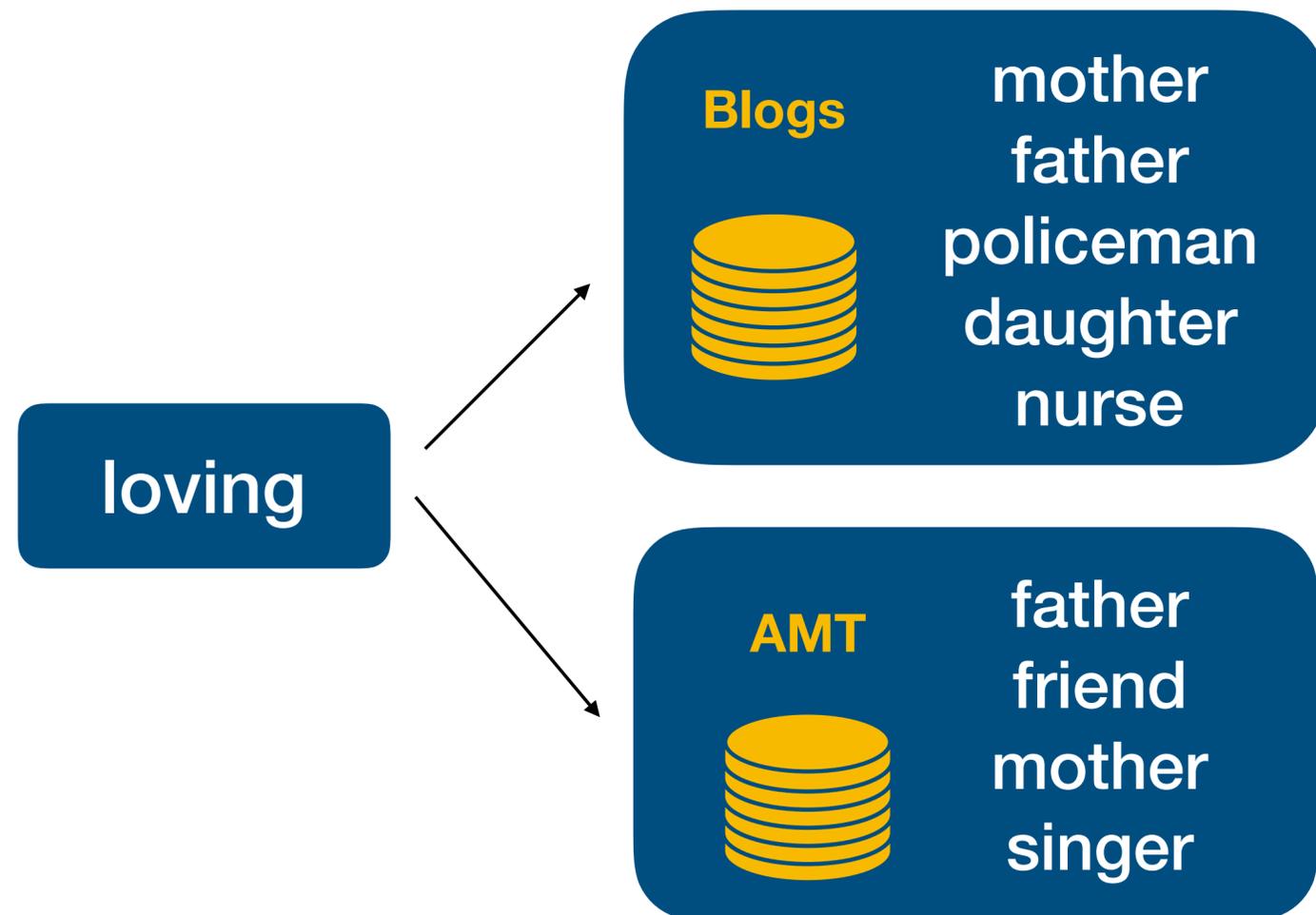
~7 million sentences

# Evaluating role prediction

- Precision @ n = total number of correct roles / n
- n = 5 (total number of retrieved roles)

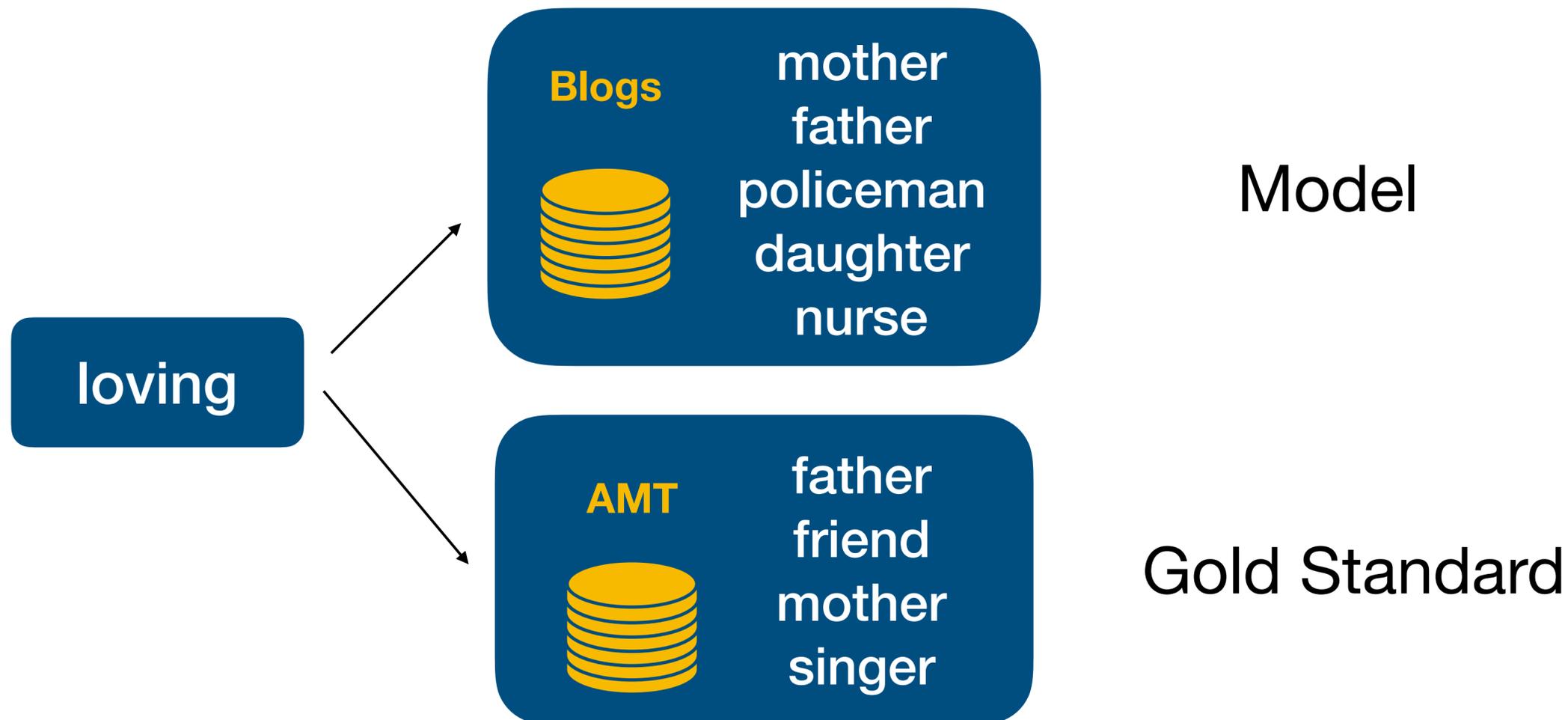
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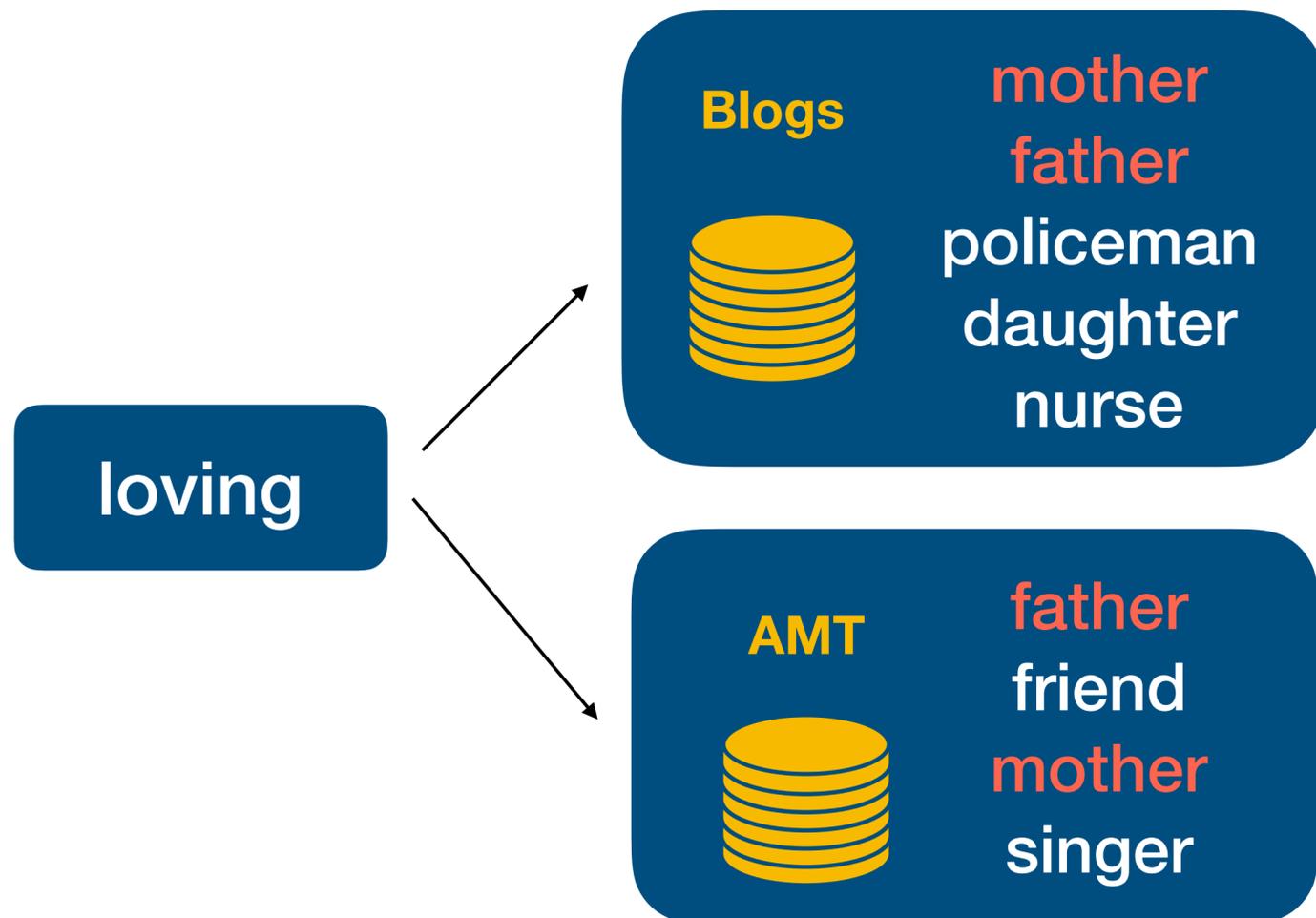
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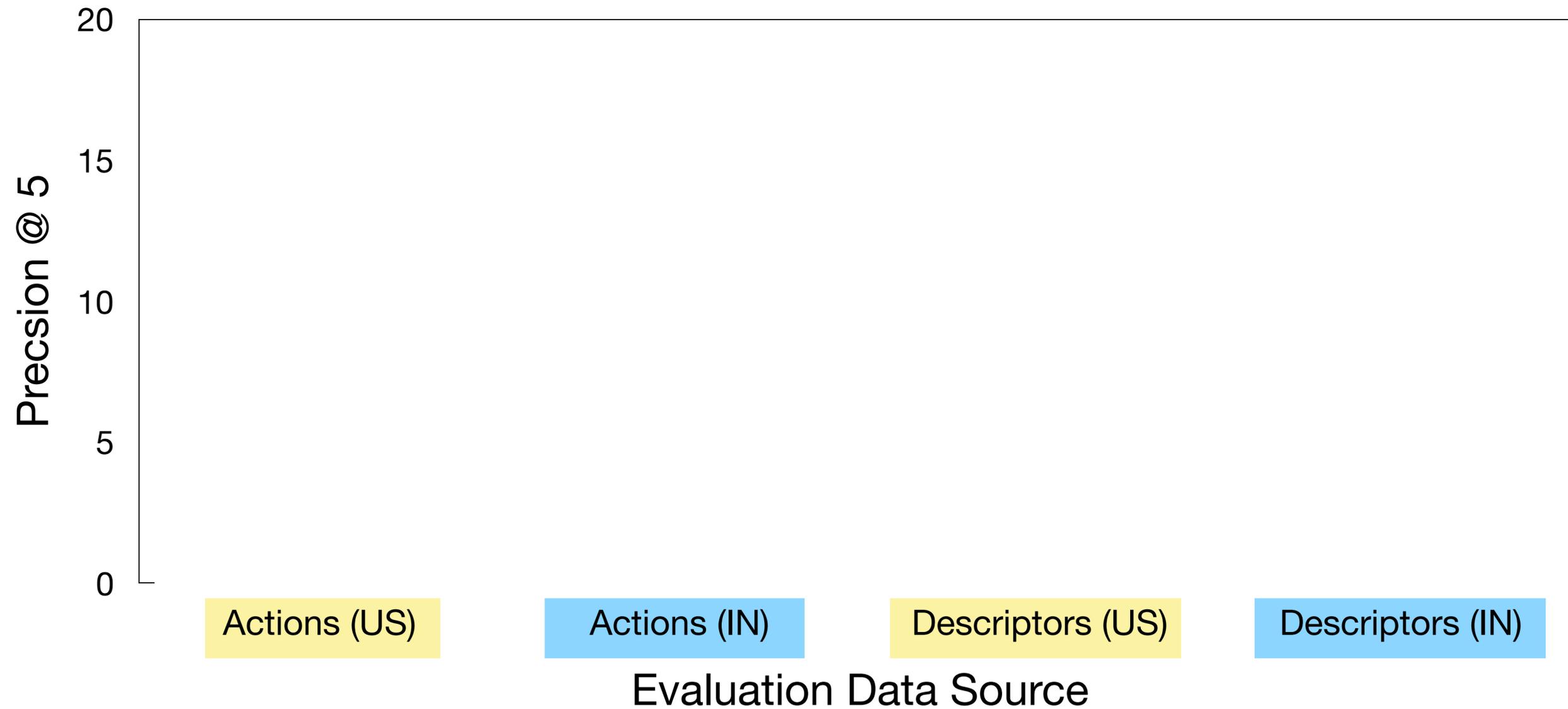
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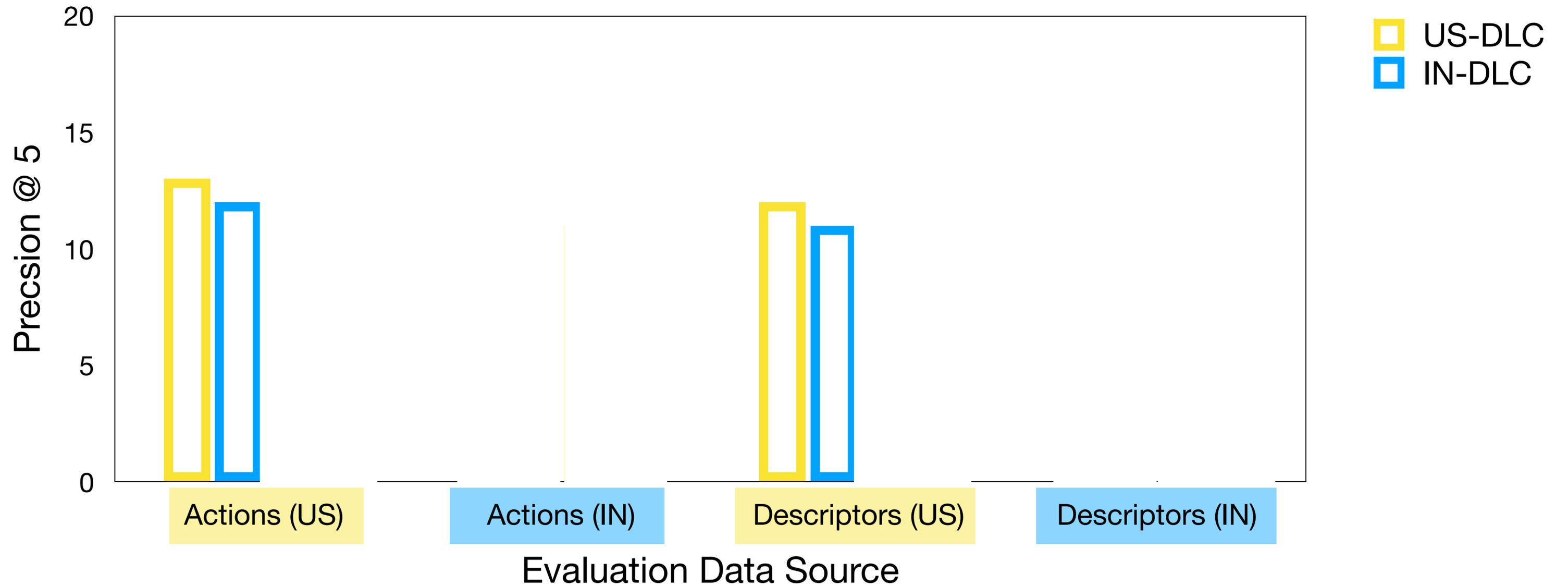


$$\text{Precision@5} = 2/5 = 0.20$$

# Role Prediction Results

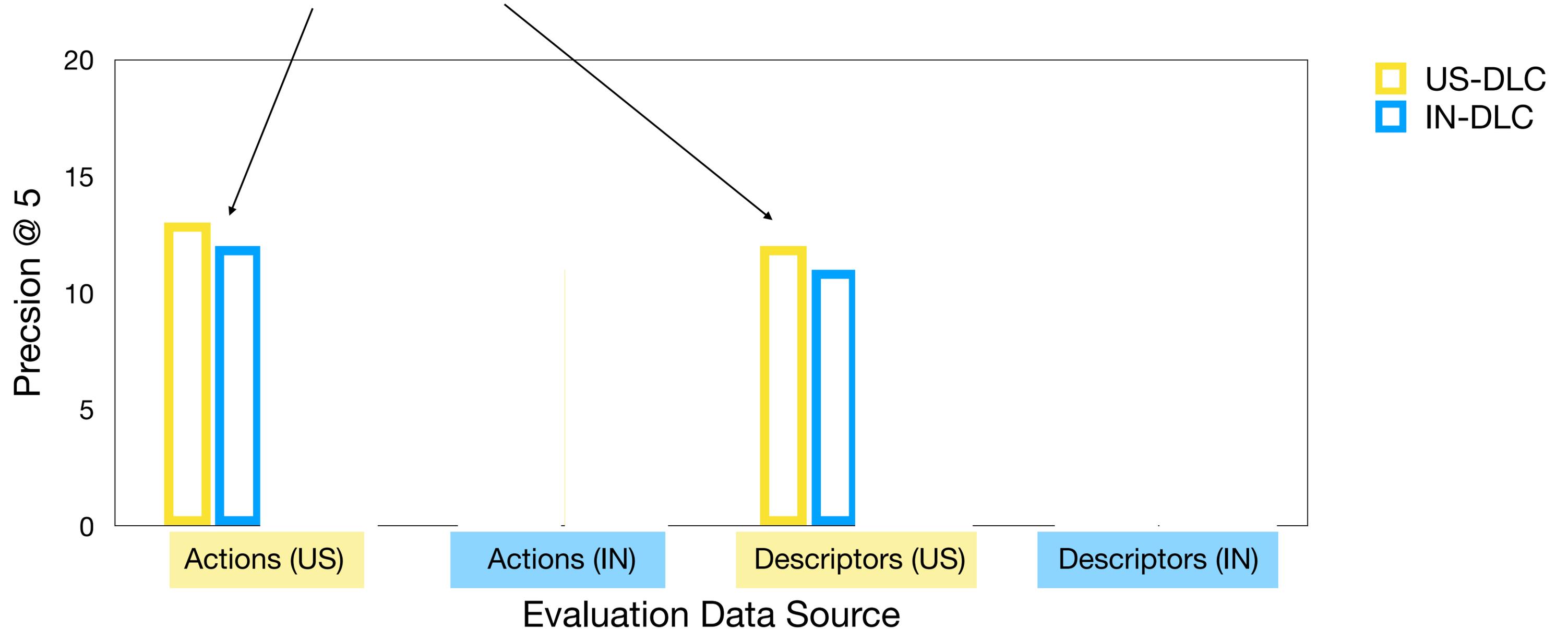


# Role Prediction Results



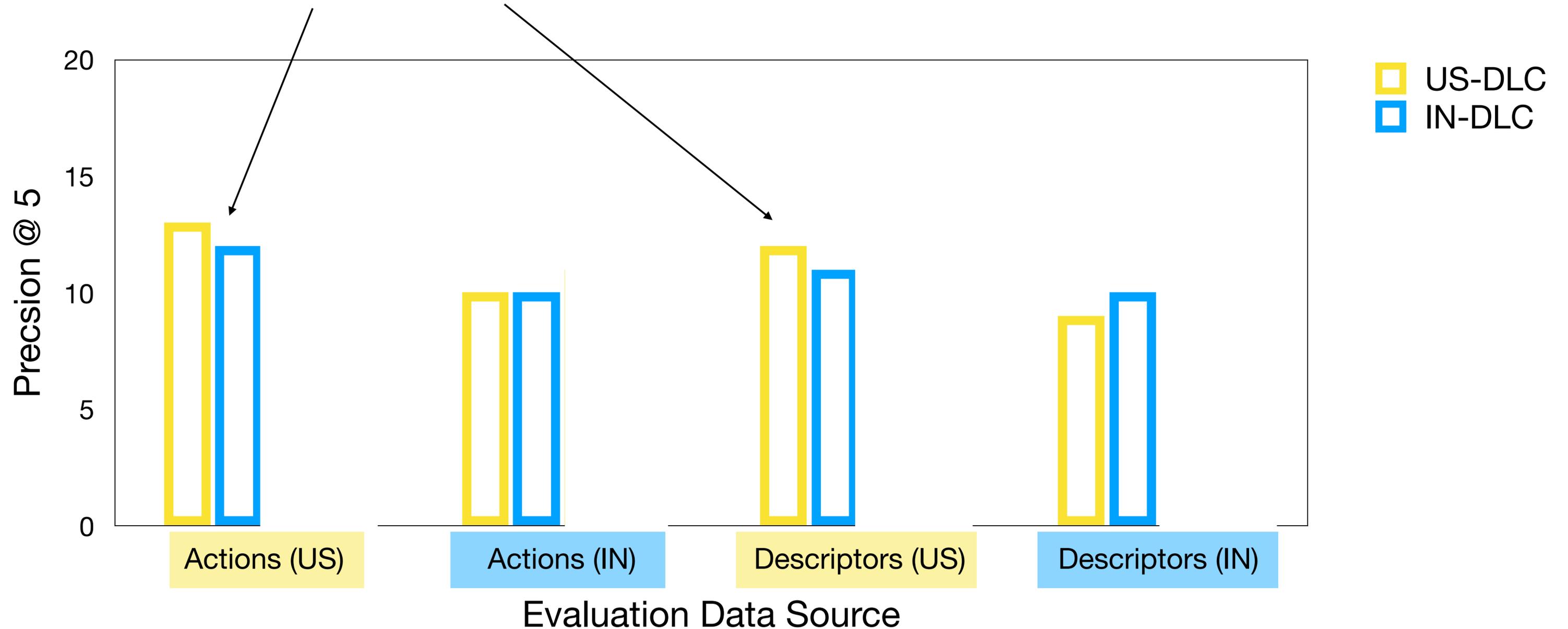
# Role Prediction Results

US-trained models perform better than IN-trained models on US gold standard.

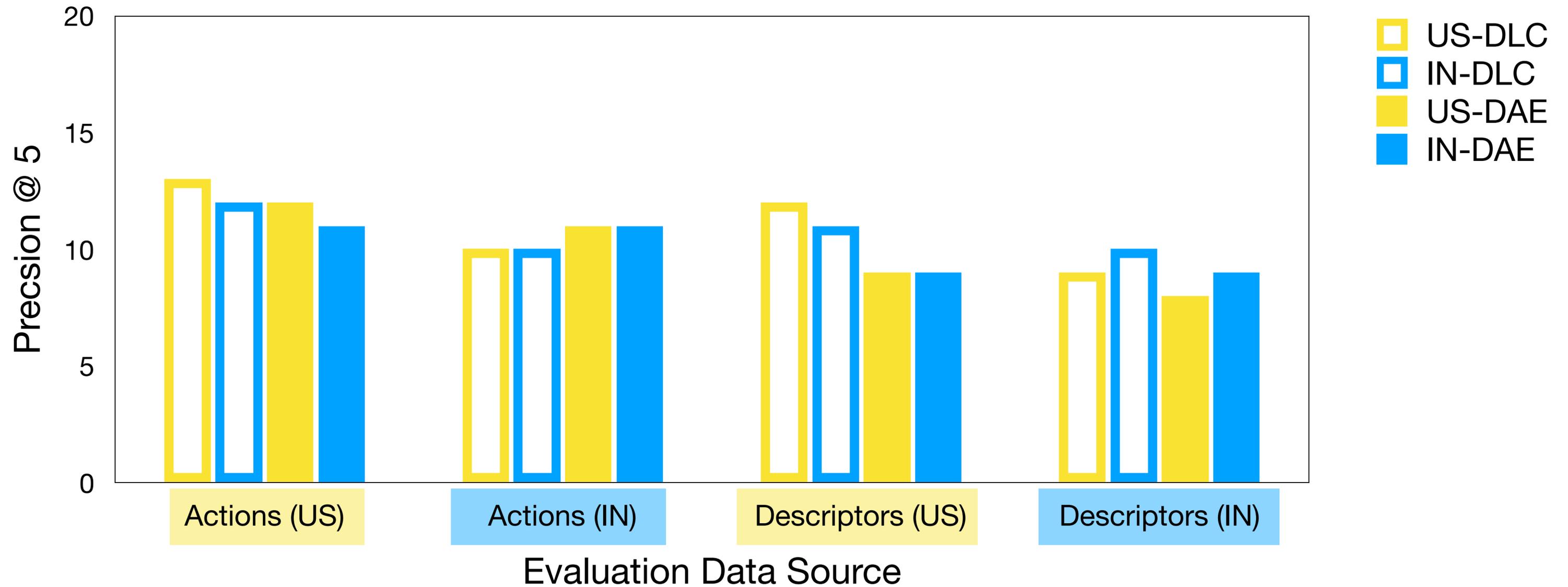


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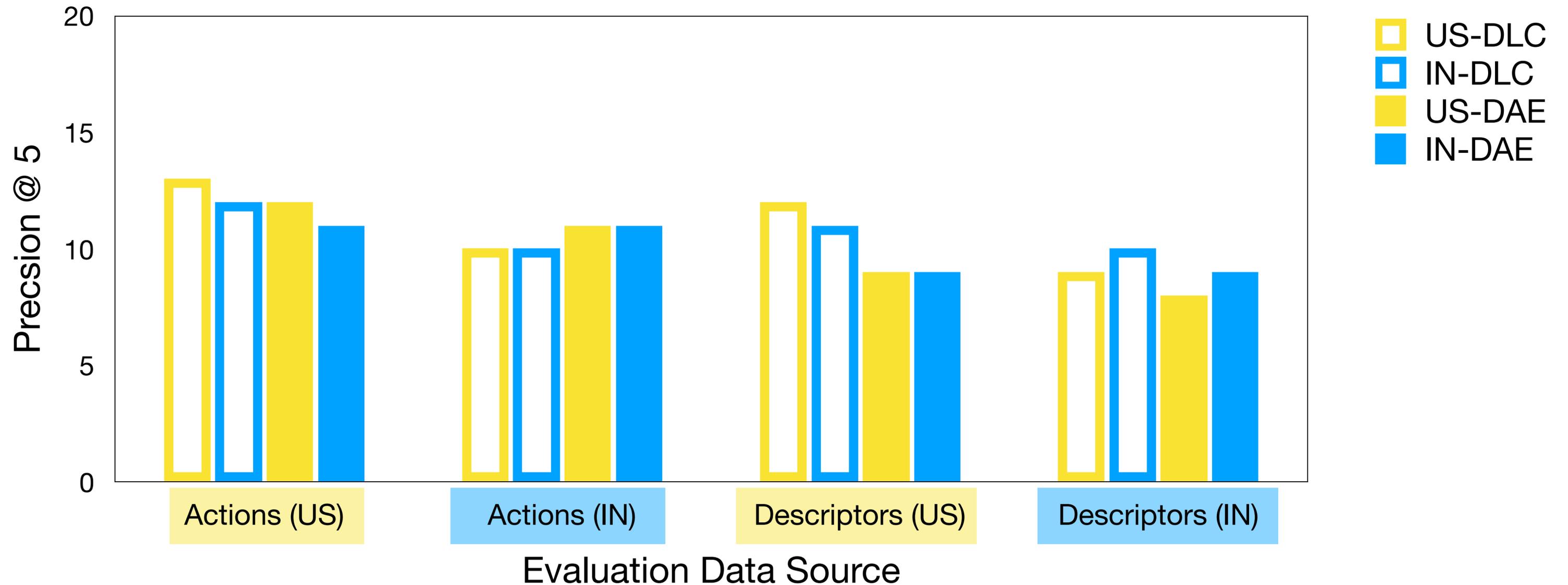


# Role Prediction Results



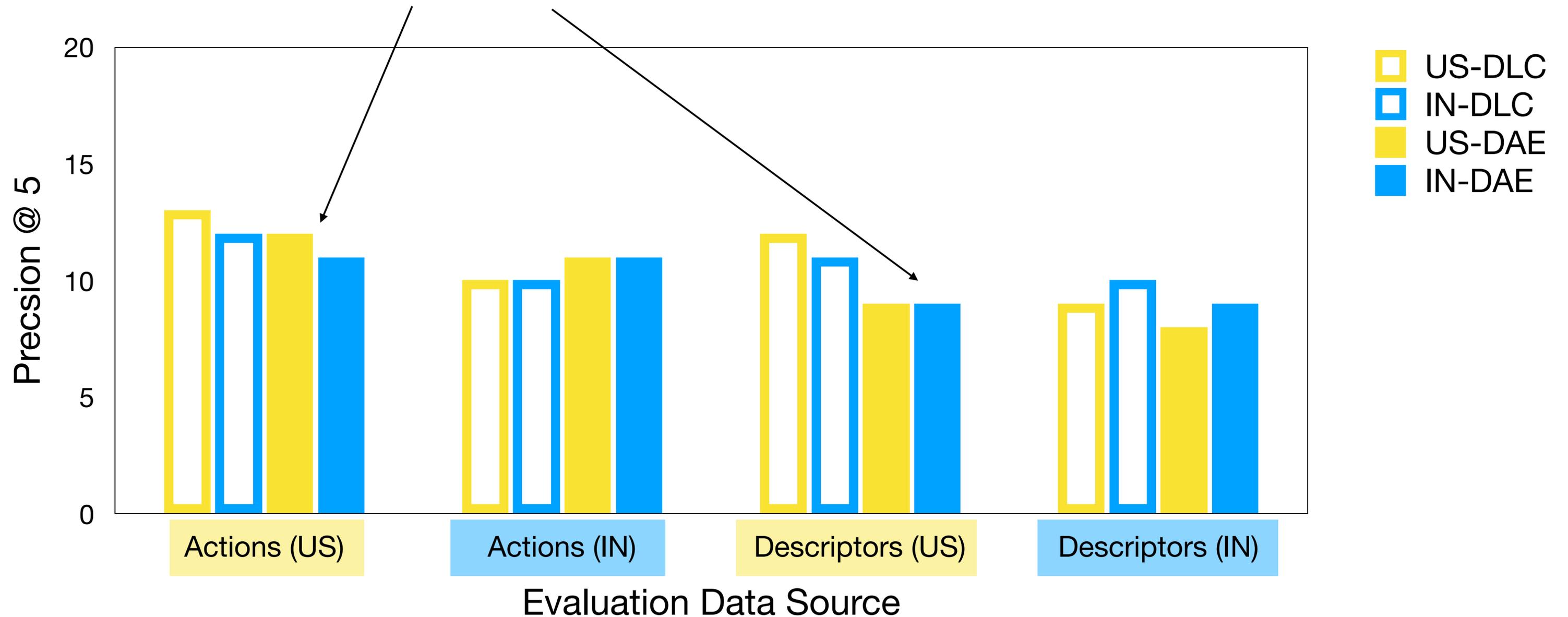
# Role Prediction Results

Equal or better performance when the data of the countries match.



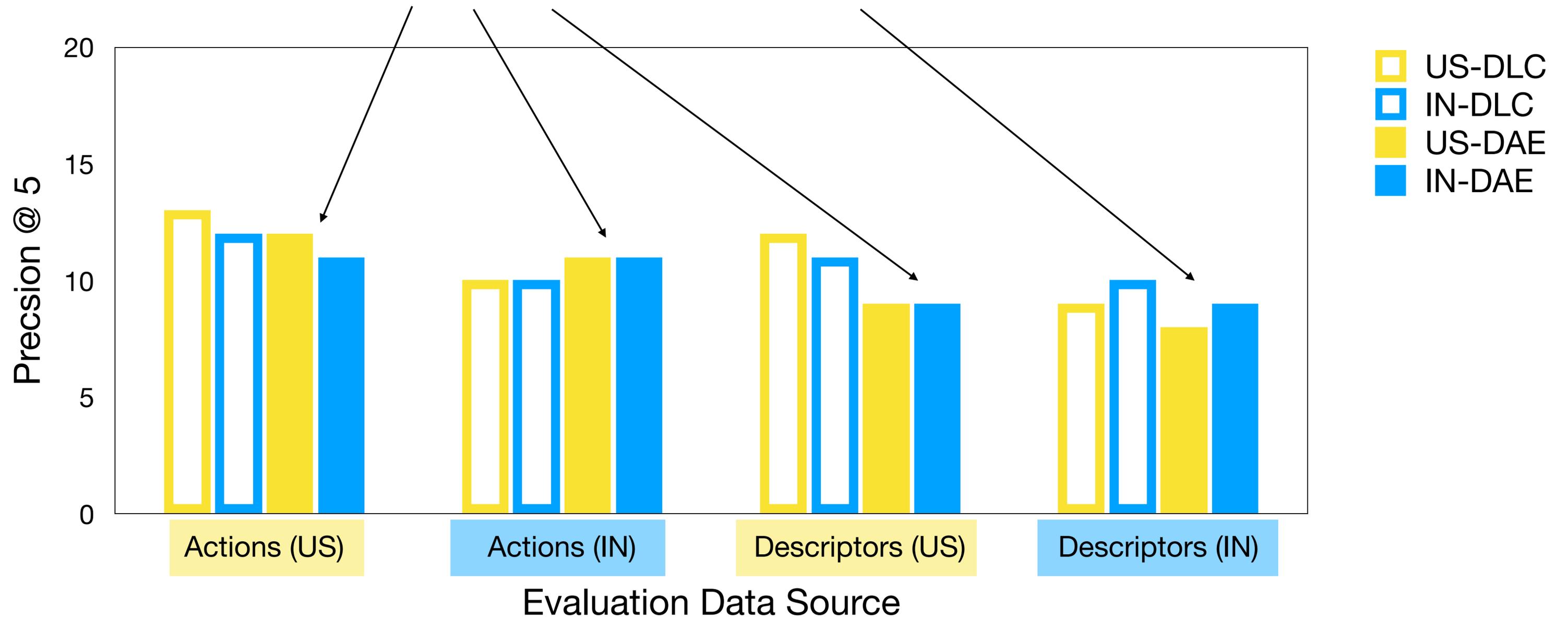
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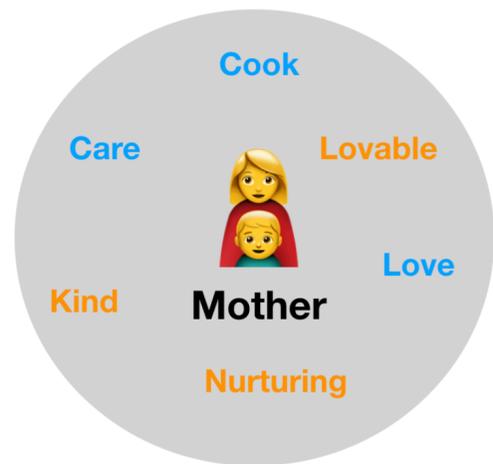


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# Summary

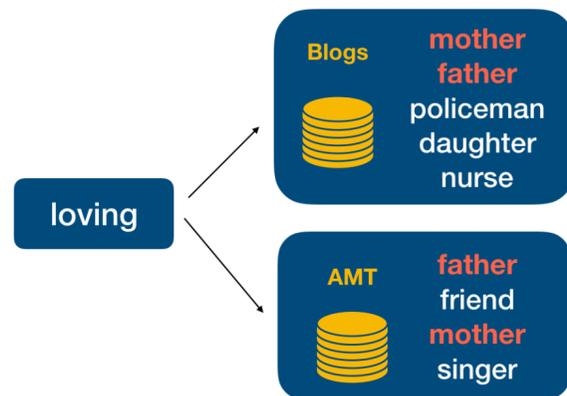
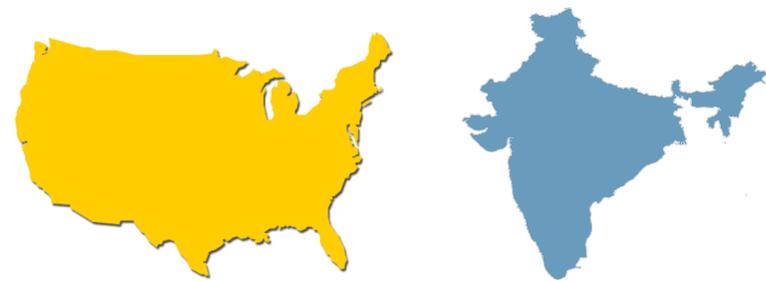


Introduced **new dataset of social roles** and perceived aspects:

<http://lit.eecs.umich.edu/downloads.html>

Revealed **cross-cultural variations** in perceptions of roles.

**Extracted perceptions of social roles** automatically from text.





# Thanks!

Our data is available at:

<http://lit.eecs.umich.edu/downloads.html>



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