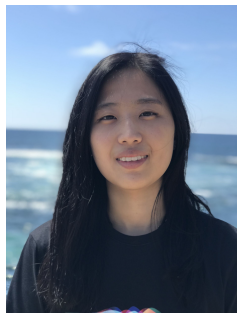# Multilingual Contextual Affective Analysis of LGBT People Portrayals in Wikipedia

Chan Young Park*, Xinru Yan*, Anjalie Field*, Yulia Tsvetkov (ICWSM '21)

Alan Turing

From Wikipedia, the free encyclopedia

"Turing" redirects here. For other uses, see Turing (disambiguation).

Alan Mathison Turing OBE FRS (/ˈtjʊərɪŋ/; 23 June 1912 – 7 June 1954) was an English mathematician, computer scientist, logician, cryptanalyst, philosopher, and theoretical biologist.[6][7] Turing was highly influential in the development of theoretical computer science, providing a formalisation of the concepts of algorithm and computation with the Turing machine, which can be considered a model of a general-purpose computer.[8][9][10] Turing is widely considered to be the father of theoretical computer science and artificial intelligence.[11]

Born in Maida Vale, London, Turing was raised in southern England. He graduated at King's College, Cambridge with a degree in mathematics. Whilst he was a fellow at Cambridge, he published a proof demonstrating that some purely mathematical yes–no questions can never be answered by computation and defined a Turing machine, and went on to prove the halting problem for Turing machines is undecidable. In 1938, he obtained his PhD from the Department of Mathematics at Princeton University. During the Second World War, Turing worked for the Government Code and Cypher School (GC&CS) at Bletchley Park, Britain's codebreaking centre that produced Ultra intelligence. For a time he led

Alan Turing
OBE FRS
Turing c. 1928 at age 16

2

Spanish

Russian

20 años de
WIKIPEDIA

Artículo   Discusión   Leer   Editar   Ver historial   Buscar en Wikipedia

Alan Turing

«Turing» redirige aquí. Para otras acepciones, véase Turing (desambiguación).

Alan Mathison Turing (Paddington, Londres; 23 de junio de 1912-Wilmslow, Cheshire; 7 de junio de 1954), fue un matemático, lógico, informático teórico, criptógrafo, filósofo, biólogo teórico, maratoniano y corredor de ultradistancia británico.[1][2][3][4][5]

Es considerado uno de los padres de la ciencia de la computación y precursor de la informática moderna. Proporcionó una influyente formalización de los conceptos de algoritmo y computación: la máquina de Turing. Formuló su propia versión que hoy es ampliamente aceptada como la tesis de Church-Turing (1936).

Durante la segunda guerra mundial, trabajó en descifrar los códigos nazis, particularmente los de la máquina Enigma, y durante un tiempo fue el director de la sección Naval Enigma de Bletchley Park. Se ha estimado que su trabajo acortó la duración de esa guerra entre dos y cuatro años.[6] Tras la guerra, diseñó uno de los primeros computadores electrónicos programables digitales en el Laboratorio Nacional de Física del Reino Unido y poco tiempo después construyó otra de las primeras máquinas en la Universidad de Mánchester.

Alan Turing

Foto de pasaporte de Alan Turing a los 16 años

Portada
Portal de la comunidad
Actualidad
Cambios recientes
Páginas nuevas
Página aleatoria
Ayuda
Donaciones
Notificar un error

Herramientas
Lo que enlaza aquí
Cambios en enlazadas
Subir archivo
Páginas especiales
Enlace permanente
Información de la página
Citar esta página

ВикипедиЯ
Свободная энциклопедия

Статья   Обсуждение   Читать   Текущая версия   Править   Править код   История   Искать в Википедии

Тьюринг, Алан   [править | править код]

Материал из Википедии — свободной энциклопедии

А́лан Ма́тисон Тью́ринг, OBE (англ. *Alan Mathison Turing* [ˈtjʊərɪŋ]; 23 июня 1912 — 7 июня 1954) — английский математик, логик, криптограф, оказавший существенное влияние на развитие информатики. Кавалер Ордена Британской империи (1945), член Лондонского королевского общества (1951)[5]. Предложенная им в 1936 году абстрактная вычислительная «Машина Тьюринга», которую можно считать моделью компьютера общего назначения[6], позволила формализовать понятие алгоритма и до сих пор используется во множестве теоретических и практических исследований. Научные труды А. Тьюринга — общепризнанный вклад в основания информатики (и, в частности, — теории искусственного интеллекта)[7].

Во время Второй мировой войны Алан Тьюринг работал в Правительственной школе кодов и шифров, располагавшейся в Блетчли-парке, где была сосредоточена работа по взлому шифров и кодов стран Оси. Он возглавлял группу Hut 8, ответственную за криптоанализ сообщений военно-морского флота Германии. Тьюринг разработал ряд методов взлома, в том числе теоретическую базу для *Bombe* — машины, использованной для взлома немецкого шифратора Enigma.

После войны Тьюринг работал в Национальной физической лаборатории, где по его проекту был реализован первый в мире компьютер с хранимой в памяти программой — ACE. В 1948 учёный присоединился к вычислительной лаборатории Макса Ньюмана в Университете Манчестера, где ассистировал при создании Манчестерских Компьютеров[8], а позднее заинтересовался математической биологией. Тьюринг опубликовал работу по химическим основам морфогенеза и предсказал протекающие в колебательном режиме[en] химические реакции, такие, как реакция Белоусова — Жаботинского, которые впервые были представлены научному сообществу в 1968 году. В 1950 году предложил эмпирический тест Тьюринга для оценки искусственного интеллекта компьютера.

Алан Тьюринг
англ. *Alan Mathison Turing*

Фото на паспорт. 16 лет.

Заглавная страница
Рубрикация
Указатель А — Я
Избранные статьи
Случайная страница
Текущие события

Участие
Сообщить об ошибке
Сообщество
Форум
Свежие правки
Новые страницы
Справка
Пожертвовать

Инструменты
Ссылки сюда
Связанные правки
Служебные страницы
Постоянная ссылка
Сведения о странице
Цитировать страницу
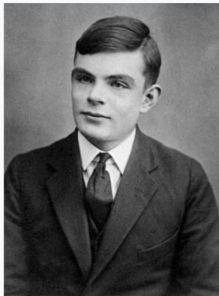
https://es.wikipedia.org/wiki/Alan_Turing
https://ru.wikipedia.org/wiki/Тьюринг,_Алан

3

Q. Are there differences in how English/Spanish/Russian Wikipedias portray people?

English Wikipedia:

He *accepted* the option of injections of what was then called stilboestrol.

Spanish Wikipedia:

Finalmente escogió las inyecciones de estrógenos.
Finally he chose estrogen injections.

Russian Wikipedia:

Учёный предпочёл инъекции стильбэстрола
The scientist preferred stilbestrol injections.

English Wikipedia:
He *accepted* the option of injections of what was then called stilboestrol.

Spanish Wikipedia:
Finalmente escogió las inyecciones de estrógenos.
Finally he chose estrogen injections.

Russian Wikipedia:
Учёный предпочёл инъекции стильбэстрола
The scientist preferred stilbestrol injections.

There are subtle differences in narratives

Research Questions

- How can we analyze how people are portrayed in multilingual texts?

- How are LGBT people portrayed in their biographies?
  (+ is it different across English, Spanish, Russian Wikipedias?)

Contribution

- How can we analyze how people are portrayed in multilingual texts?
    1. New dataset: Multilingual Contextualized Connotation Frames
    2. New Multilingual Model

- How are LGBT people portrayed in Wikipedia?
  (+ is it different across English, Spanish, Russian Wikipedias?)
    3. New method: Controlled Analyses of Social Biases in Wikipedia Bios
    4. New dataset: LGBTBio
    5. Cast study: How our model can enable subtle analyses of nuances

Multilingual Contextual Affective Analysis

Background: Contextual Affective Analysis

Find (Sentiment, Power, Agency) connotations in a given context

Rashkin, Hannah, Sameer Singh, and Yejin Choi. (2016) **Connotation Frames: A Data-Driven Investigation**. *ACL*
Sap, Maarten, et al. (2017) **Connotation frames of power and agency in modern films**. *EMNLP*
Field et al. (2019) **Contextual Affective Analysis: A Case Study of People Portrayals in Online #MeToo Stories.** *ICWSM*

Background: Contextual Affective Analysis

Find (Sentiment, Power, Agency) connotations in a given context

"The **firefighter** **rescued** the **boy**"

- **Sentiment** towards **firefighter**: Positive (+)

- **Power** of **firefighter**: Positive (+)

- **Agency** of **firefighter**: Positive (+)

Rashkin, Hannah, Sameer Singh, and Yejin Choi. (2016) **Connotation Frames: A Data-Driven Investigation**. *ACL*
Sap, Maarten, et al. (2017) **Connotation frames of power and agency in modern films**. *EMNLP*
Field et al. (2019) **Contextual Affective Analysis: A Case Study of People Portrayals in Online #MeToo Stories.** *ICWSM*

Existing dataset

X rescues Y   (+ , +, +)

.   .

.   .

.   .

X deserves Y   (+, +, 0)

Verbs
$\rightarrow$ (Sentiment, Power, Agency)

Our dataset

Multilingual Contextualized Connotation Frames

Existing dataset

X rescues Y   (+, +, +)
     .   .
     .   .
     .   .
X deserves Y   (+, +, 0)

in-context

in-language

A boy deserves appellation   (+, +, 0)
A boy deserves punishment   (−, 0, 0)
            .   .
            .   .
            .   .
The firefighter rescued the boy (+, +, 0)

Un chico merece un castigo   (−, 0, 0)
            .   .
            .   .
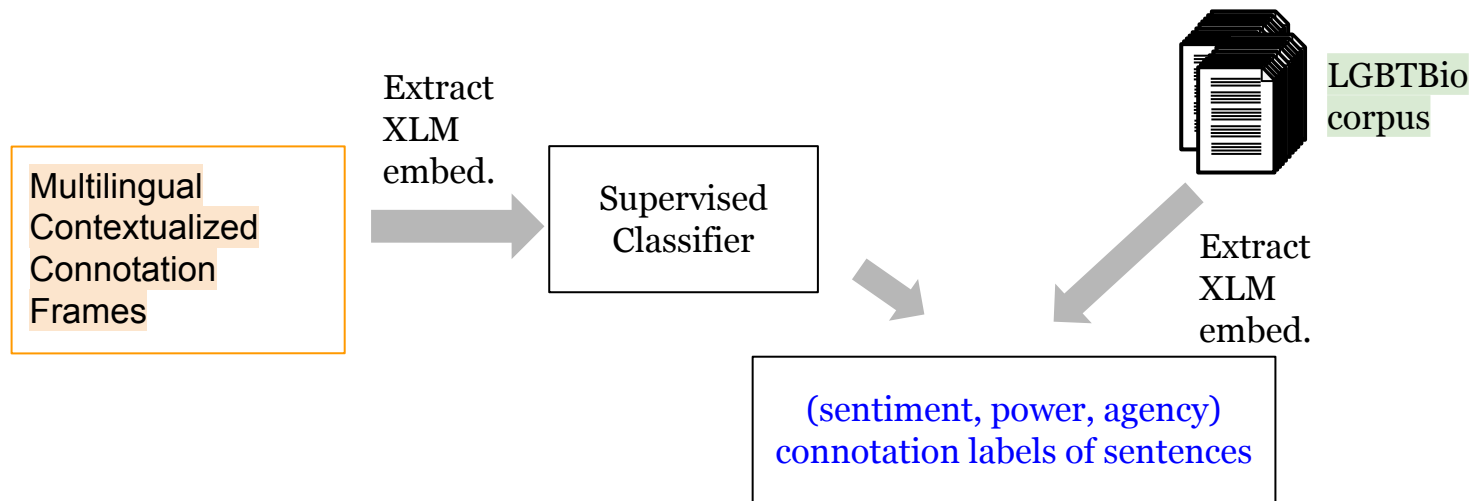   .   .
Пожарный спас мальчика   (+, +, 0)

Method: Multilingual Connotation Classifier

- Leverage cross-lingual Pre-trained Language Models (XLM)
- Put extracted sentence representations as input to a supervised classifier

Multilingual Contextualized Connotation Frames

Extract XLM embed.

Supervised Classifier

LGBTBio corpus

Extract XLM embed.

(sentiment, power, agency) connotation labels of sentences

Classifier Evaluation Results

Tgt	Src	Sent$_{subj}$	Sent$_{obj}$	Pow.	Agen.
EN	EN	**43.4***	43.0	**41.1**	**48.2***
	ES	38.1	43.4	29.5	43.4
	RU	41.1	**44.3**	40.1	41.4

Tgt	Src	S$_{subj}$	S$_{obj}$	Pow.	Agen.
EN	EN	43.4	43.0	41.1	48.2
	+ES	44.8	**45.2***	40.5	49.7
	+RU	**46.5***	43.2	**41.8**	49.9
	+ES+RU	45.0	44.3	41.7	**50.0***

- in-language training data is the best
- augmenting datasets from other languages help

Controlled Analyses of Social Biases
How are LGBT people portrayed in Wikipedia?

Analyze how Tim Cook is portrayed in his bio...

Timothy Donald Cook (born November 1, 1960)[1] is an American business executive who has been the chief executive officer of Apple Inc. since 2011. Cook previously served as the company's chief operating officer under its co-founder Steve Jobs.[2] He is the first CEO of any *Fortune 500* company who is openly gay.[3]

Cook joined Apple in March 1998 as a senior vice president for worldwide operations, and then served as the executive vice president for worldwide sales and operations.[4] He was made the chief executive on August 24, 2011, prior to Jobs' death in October of

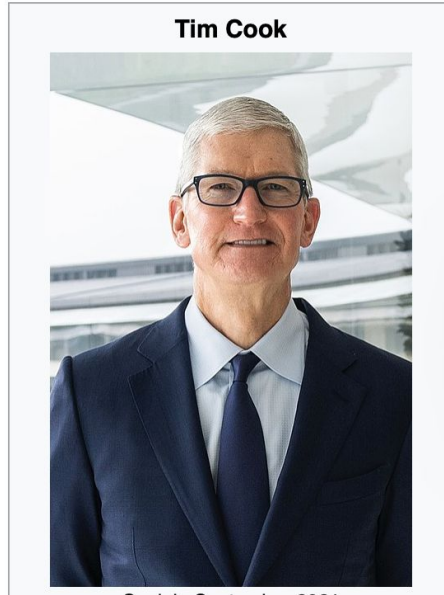**Tim Cook**

Analyze how Tim Cook is portrayed in his bio...

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Tim Cook

Ти́моти До́нальд Кук (англ. *Timothy Donald Cook*; род. 1 ноября 1960 года, Мобил, Алабама, США)[4] — американский менеджер и генеральный директор компании Apple, миллиардер. Пришёл в компанию в марте 1998 года. Занял должность гендиректора после отставки (в связи с продолжительной болезнью) Стива Джобса 24 августа 2011 года.

Тим Кук

англ. *Tim Cook*

Analyze how Tim Cook is portrayed in his bio...

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Cook joined Apple in March 1998 as a senior vice president for worldwide operations, and then served as the executive vice president for worldwide sales and operations.[4] He was made the chief executive on August 24, 2011, prior to Jobs' death in October of

Tim Cook

1. *Cook previously **served** as the company's chief executive officer …*

2. *Cook **joined** Apple in March 1998 as a senior vice president …*

3. *Cook **doubled** the company's revenue and profit …*

Supervised Classifier

(sentiment, power, agency) labels

Average
Sentiment: 0.3 | Power: 0.5 | Agency: 0.2

19

Analyze how Tim Cook is portrayed in his bio...

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(англ. *Timothy Donald Cook*; род. 1 ноября 1960 года, Мобил, Алабама, США)[4] — американский менеджер и генеральный директор компании Apple, миллиардер. Пришёл в компанию в марте 1998 года. Занял должность гендиректора после отставки (в связи с продолжительной болезнью) Стива Джобса 24 августа 2011 года.

Тим Кук

англ. *Tim Cook*

Average
Sentiment: 0.3	Power: 0.5	Agency: 0.2

Average
Sentiment: 0.1	Power: 0.3	Agency: 0.2

Challenges

1. Don't know if a difference across language is **meaningful** or just an **inherent** difference between languages

2. We want to understand how person's **sexuality** is affecting their portrayals

Challenges

1. Don't know if a difference across language is **meaningful** or just an **inherent** difference between languages

2. We want to understand how person's **sexuality** is affecting their portrayals

→ **Controlled analysis**

    Need to match a *target* corpus with a *comparison* corpus

Matching target with comparison

Timothy Donald Cook (born November 1, 1960)[1] is an American business executive who has been the chief executive officer of Apple Inc. since 2011. Cook previously served as the company's chief operating officer under its co-founder Steve Jobs.[2] He is the first CEO of any *Fortune 500* company who is openly gay.[3]

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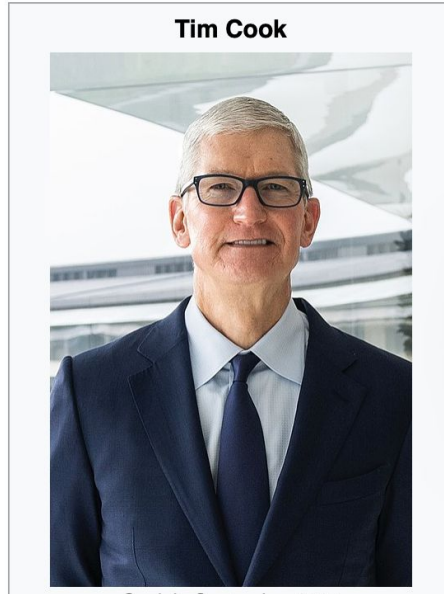
Tim Cook

Categories: 1960 births │ 20th-century American businesspeople │ 21st-century American businesspeople │ American chief operating officers │ American computer businesspeople │ American technology chief executives │ Apple Inc. executives │ Auburn University alumni │ Fuqua School of Business alumni │ IBM employees │ American LGBT businesspeople │ LGBT people from Alabama │ Living people │ Nike, Inc. people │ People from Robertsdale, Alabama │ Directors of Apple Inc. │ National Football League executives │ Duke University trustees │ American billionaires │ American chief executives of Fortune 500 companies

Matching target with comparison

Timothy Donald Cook (born November 1, 1960)[1] is an American business executive who has been the chief executive officer of Apple Inc. since 2011. Cook previously served as the company's chief operating officer under its co-founder Steve Jobs.[2] He is the first CEO of any *Fortune 500* company who is openly gay.[3]

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Tim Cook

Categories: 1960 births │ 20th-century American businesspeople │ 21st-century American businesspeople │ American chief operating officers │ American computer businesspeople │ American technology chief executives │ Apple Inc. executives │ Auburn University alumni │ Fuqua School of Business alumni │ IBM employees │ American LGBT businesspeople │ LGBT people from Alabama │ Living people │ Nike, Inc. people │ People from Robertsdale, Alabama │ Directors of Apple Inc. │ National Football League executives │ Duke University trustees │ American billionaires │ American chief executives of Fortune 500 companies

Matching target with comparison

Categories: 1960 births | 20th-century American businesspeople |
21st-century American businesspeople | American chief operating officers |
American computer businesspeople | American technology chief executives |
Apple Inc. executives | Auburn University alumni |
Fuqua School of Business alumni | IBM employees |
American LGBT businesspeople | LGBT people from Alabama | Living people |
Nike, Inc. people | People from Robertsdale, Alabama | Directors of Apple Inc. |
National Football League executives | Duke University trustees |
American billionaires | American chief executives of Fortune 500 companies

Categories: Steve Jobs | 1955 births | 2011 deaths |
20th-century American businesspeople | 21st-century American businesspeople |
American adoptees | American billionaires | American Buddhists |
American computer businesspeople | American film producers |
American film studio executives | American financiers |
American industrial designers | American inventors | American investors |
American people of German descent | American people of Swiss descent |
American people of Syrian descent | American philanthropists |
American psychedelic drug advocates | American technology chief executives |
American technology company founders | American Zen Buddhists |
Atari people | Burials in California | Businesspeople from San Francisco |
Businesspeople in software | Computer designers |
Deaths from cancer in California | Deaths from pancreatic cancer |
Directors of Apple Inc. | Disney executives | Internet pioneers |
Liver transplant recipients | National Medal of Technology recipients | NeXT |
People from Cupertino, California | People from Los Altos, California |
People from Mountain View, California | People from Palo Alto, California |
Personal computing | Pixar people | Presidential Medal of Freedom recipients |
Spokespersons | Technicians | Homestead High School (California) alumni

25

Matching target with comparison

Timothy Donald Cook (born November 1, 1960)[1] is an American business executive who has been the chief executive officer of Apple Inc. since 2011. Cook previously served as the company's chief operating officer under its co-founder Steve Jobs.[2] He is the first CEO of any *Fortune 500* company who is openly gay.[3]

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Tim Cook

Steven Paul Jobs (February 24, 1955 – October 5, 2011) was an American business magnate, inventor, and investor. He was the co-founder, chairman, and CEO of Apple; the chairman and majority shareholder of Pixar; a member of The Walt Disney Company's board of directors following its acquisition of Pixar; and the founder, chairman, and CEO of NeXT. He was a pioneer of the personal computer revolution of the 1970s and
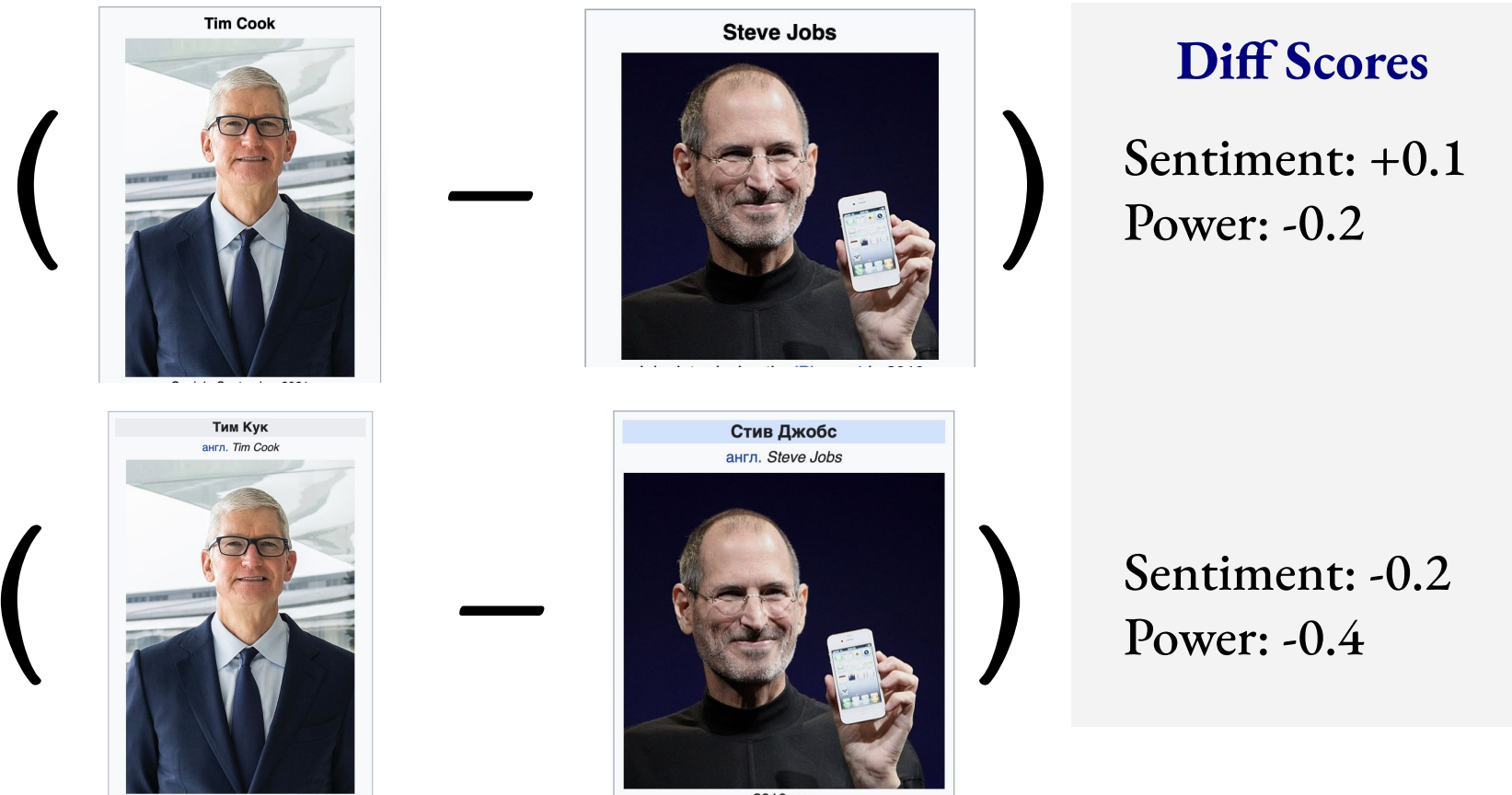
Steve Jobs
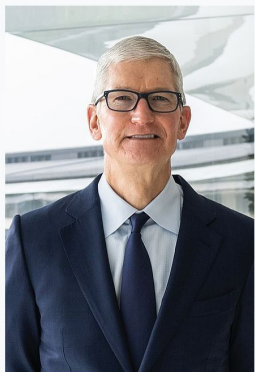

Jobs introducing the iPhone 4 in 2010

Controlled Analyses of Social Biases in Wikipedia Bios

Controlled Analyses of Social Biases in Wikipedia Bios

Tim Cook

Steve Jobs

Diff Scores

Sentiment: +0.1
Power: -0.2

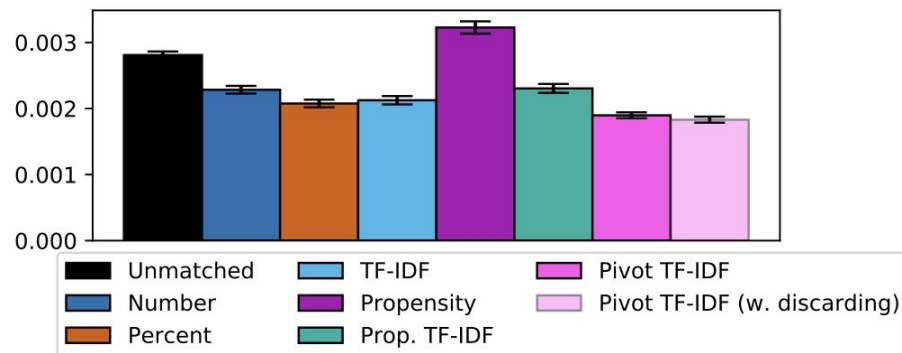Тим Кук
англ. Tim Cook

Стив Джобс
англ. Steve Jobs

Sentiment: -0.2
Power: -0.4

Controlled Analyses of Social Biases in Wikipedia Bios

Diff Scores

Sentiment: +0.1
Power: -0.2

Sentiment: -0.2
Power: -0.4

Controlled Analyses of Social Biases in Wikipedia Bios

WWW '22, Wikimedia Foundation Research Award of the Year 2023

	#Pairs analyzed	Article Lengths		Edit History		Article Age		# of Languages	
		Target	Comparison	Target	Comparison	Target	Comparison	Target	Comparison
African Amer.	8,404	942.9	959.2	243.4	245.8	**128.5**	136.2	**6.2**	6.8
Asian Amer.	3,473	**792.3**	854.1	193.2	198.5	**123.2**	130.3	**6.0**	7.1
Hisp./Latinx Amer.	3,813	1017.2	1026.8	293.4	277.8	**130.0**	137.4	7.5	7.6
Non-Binary	127	1086.5	914.9	374.0	189.1	**95.0**	119.7	7.8	**5.9**
Cis. women	64,828	**668.9**	792.4	**126.1**	147.2	**110.6**	128.7	**5.4**	6.1
Trans. women	134	1115.3	837.1	270.5	**151.6**	**119.6**	135.3	8.3	**5.52**
Trans. men	53	652.7	870.9	118.2	172.0	**97.0**	125.7	3.9	5.8

Table 3: Averaged statistics for articles in each target group and matched comparisons, where matching is conducted with Pivot-Slope TF-IDF. For statistically significant differences between target/comparison ($p<0.05$) the smaller value is in bold.

Contextual Affective Analysis of Narratives Describing LGBT People

LGBTBio Corpus

- List of gay, lesbian or bisexual people
    - List of bisexual people
- List of transgender people
- List of people with non-binary gender identities

- **1,340** Wikipedia articles about LGBT people

- **1,340** articles about matched comparison group with similar traits

- All bios are available in three languages (English, Spanish, Russian)
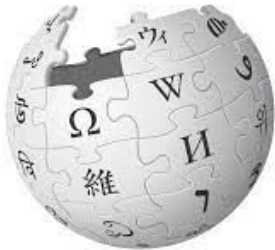
WIKIPEDIA
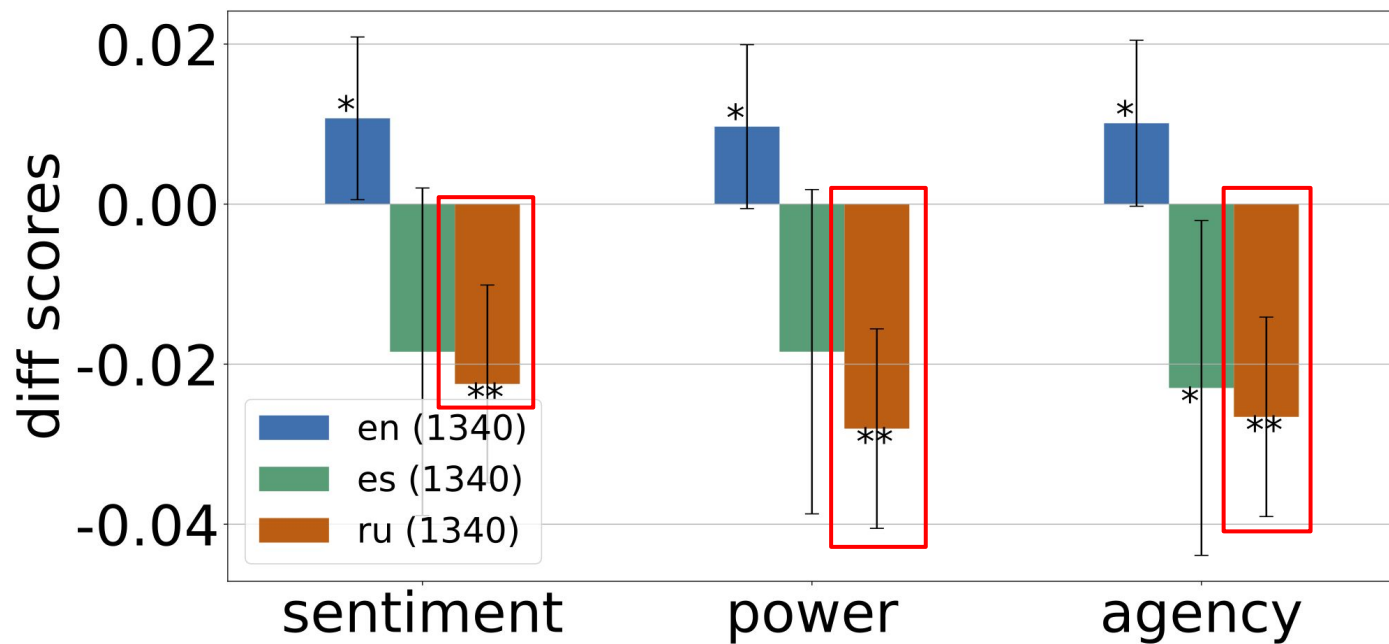The Free Encyclopedia

WIKIPEDIA
La enciclopedia libre

ВикипедиЯ
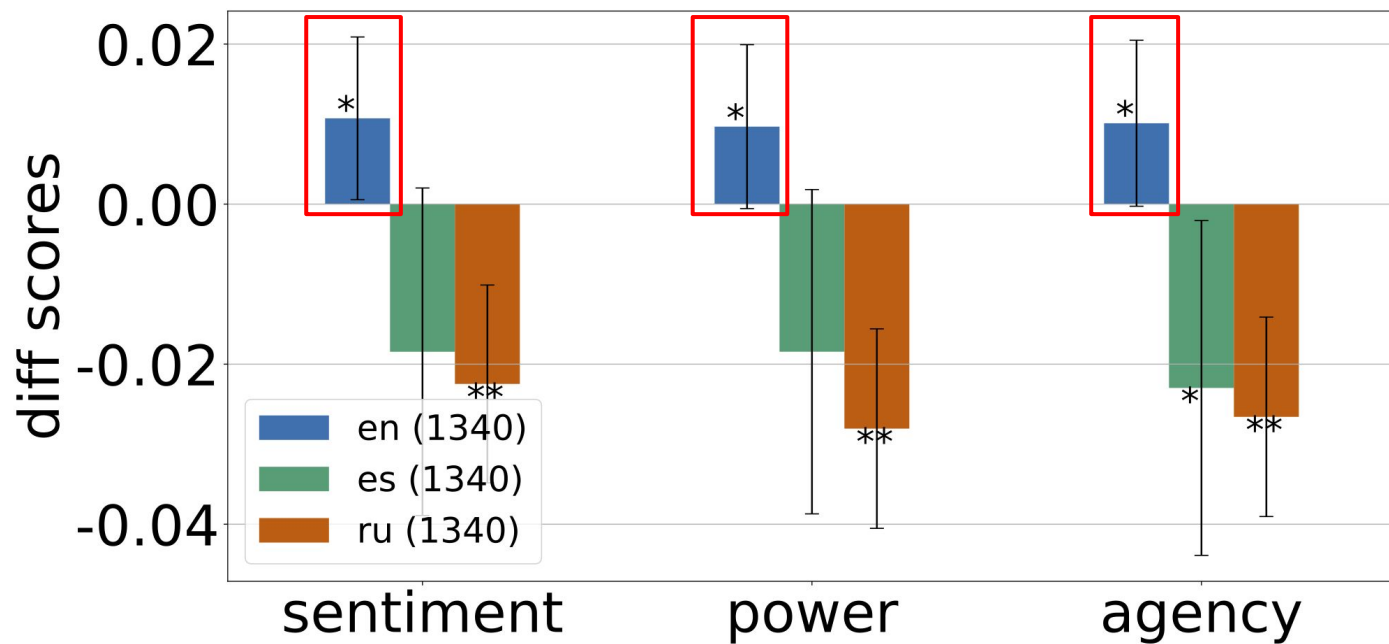Свободная энциклопедия
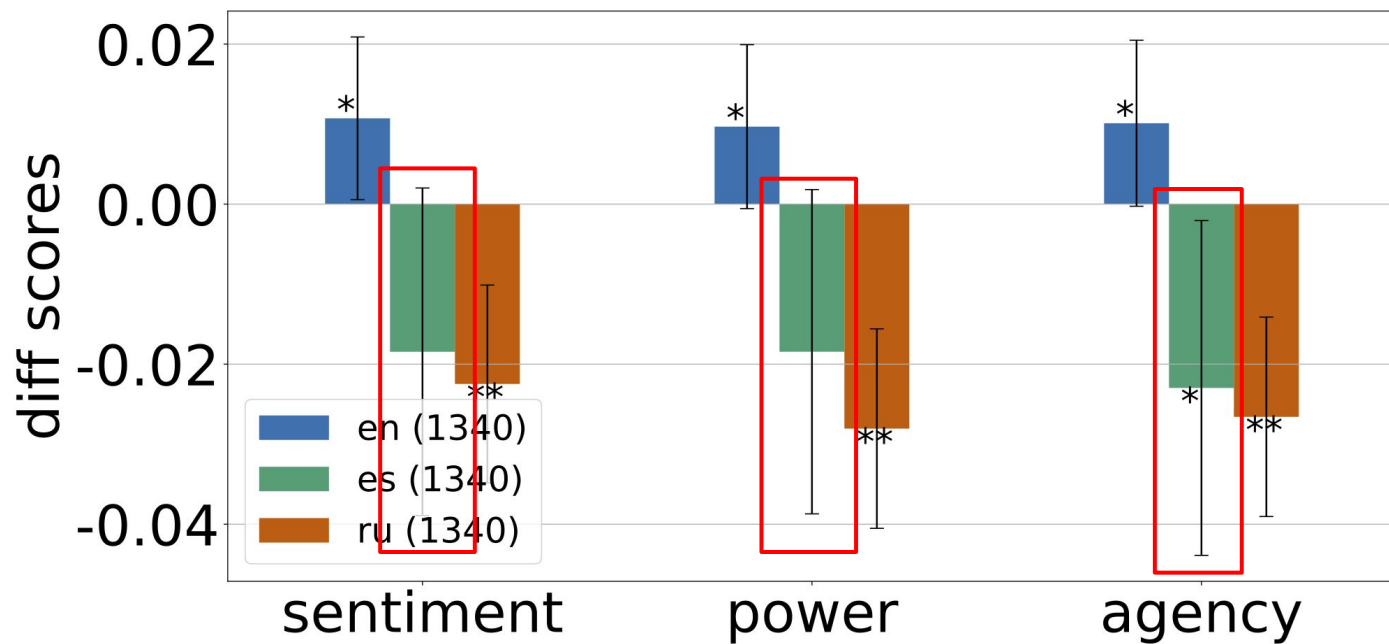
Difference in verb connotations
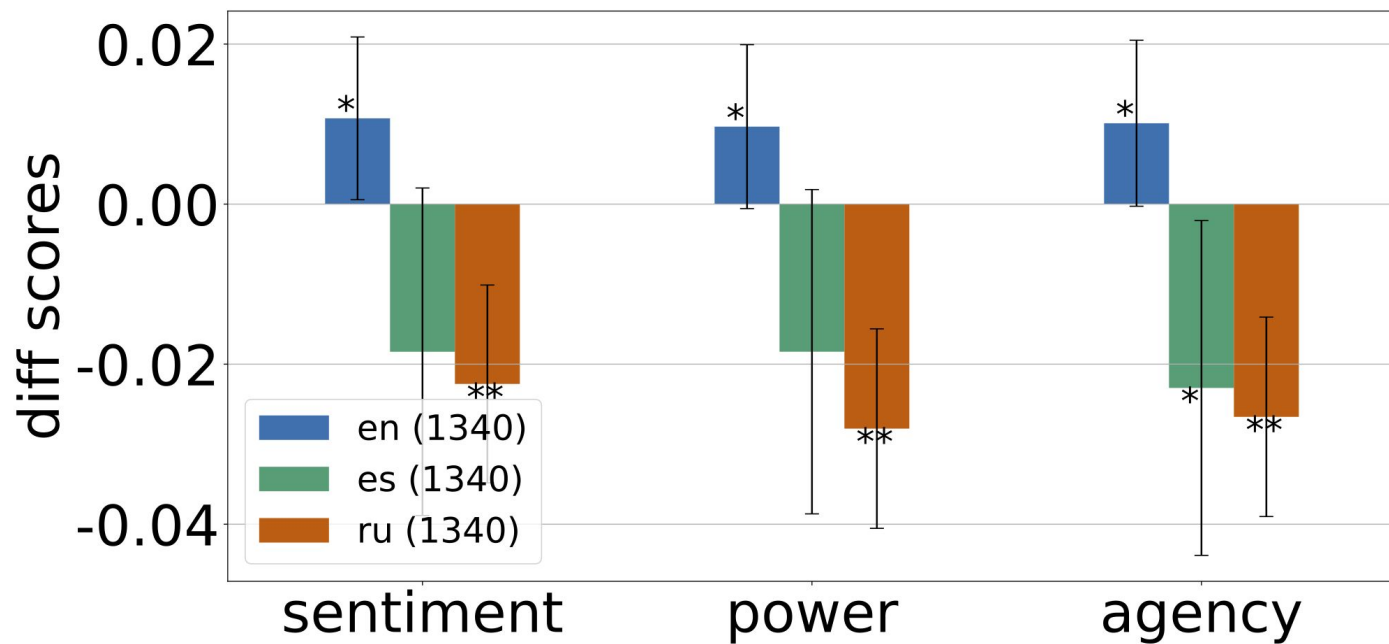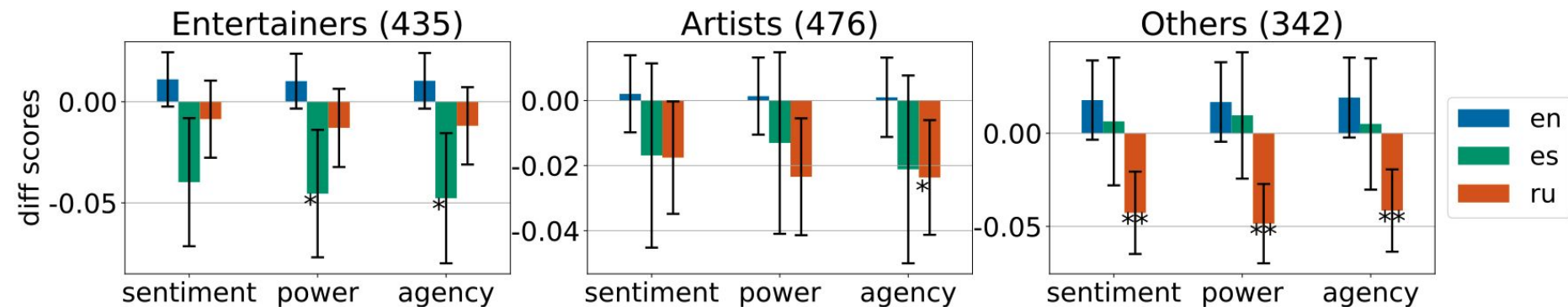
Difference in verb connotations

Difference in verb connotations

Difference in verb connotations

Difference in verb connotations by occupation

Check our paper for additional analysis

- Does perception of LGBT people change over time?

- Is it different based on their occupation?

- Is it different based on their nationality?

Check our paper for additional analysis

- Does perception of LGBT people change by their birthdate?

- Is it different based on their nationality?

- More qualitative analysis

Use Case:
Identification of Imbalanced Content

Identification of imbalanced content

Identification of imbalanced content

Cleve Jones (born October 11, 1954) is an American AIDS and LGBT rights activist.[1] He conceived the NAMES Project AIDS Memorial Quilt, which has become, at 54 tons, the world's largest piece of community folk art as of 2020. In 1983, at the onset of the AIDS pandemic Jones co-founded the San Francisco AIDS Foundation, which has grown into one of the

Cleve Jones

Клив Джонс

(англ. *Cleve Jones*; род. 11 октября 1954, Уэст-Лафейетт, Индиана, США) — американский ЛГБТ-активист и движения против СПИДа. Один из основателей СПИД-фонда Сан-Франциско.

Биография

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Клив Джонс
англ. *Cleve Jones*

Identification of imbalanced content

Клив Джонс

В ноябре 1985 года, в канун годовщины убийства Харви Милка и Джорджа Москоне, Кливу Джонсу попалась на глаза заметка в газете, в которой говорилось, что от СПИДа в Сан-Франциско умерли уже 1 000 человек. Эта информация поразила Джонса, потому как многие из умерших были его друзьями или жили с ним по соседству в районе Кастро, он понял, что находится в центре ужасного невидимого бедствия. Клив Джонс рассказывал:[4]

от СПИДа. Но свою реализацию идея получила лишь спустя полтора года, в течение которых в жизни Клива Джонса произошло много драматических событий. Тест показал, что он сам заражён смертельным вирусом. Клив Джонс публично заявил по телевидению о том, что является ВИЧ-инфицированным, и тотчас стал получать угрозы в свой адрес, а однажды даже подвергся нападению двух бандитов, попытавшихся его убить. 10 октября 1986 года на руках у Клива Джонса умер от СПИДа его близкий друг Марвин Фельдман.[4]

Identification of imbalanced content

Клив Джонс

In November 1985, on the eve of the anniversary of the murder of Harvey Milk and George Moscone, Cleave Jones caught the eye with a newspaper note saying that 1,000 people had already died of AIDS in San Francisco. This information struck Jones because many of the dead were his friends or lived next door to him in the Castro area, he realized that he was at the center of a terrible invisible disaster. Clive Jones said:[4]

died of AIDS. But the idea was realized only a year and a half later, during which many dramatic events took place in the life of Cleve Jones. The test showed that he himself was infected with a deadly virus. Clive Jones publicly stated on television that he was HIV-positive, and immediately began to receive threats against him, and one day even attacked by two bandits who tried to kill him. On October 10, 1986, his close friend Marvin Feldman died of AIDS in Cleve Jones' arms.[4]

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Jones conceived the idea of the AIDS Memorial Quilt at a candlelight memorial for Harvey Milk in 1985 and in 1987 created the first quilt panel in honor of his friend Marvin Feldman.[12] The AIDS Memorial Quilt has grown to become the world's largest community arts project, memorializing the lives of over 85,000 Americans killed by AIDS.[13]

In an interview in November 2016 with Terry Gross on NPR radio talk show Fresh Air, Jones described his status as HIV-positive, and said while he first learned of his status when tests for infection came out the 1980s, he was likely infected with the virus around the winter of 1978 or 1979, based on blood samples collected from him as part of a study he volunteered for.[3]

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Not just different connotation, but also different information

Conclusions

- **Extend English connotation frames** to Russian and Spanish
  - We collect annotations in-language and in-context

- **Propose matching algorithms** for controlled analyses

- **Identify differences in the connotations** expressed in Wikipedia biography articles about LGBT people **in different languages**
  - Connotations are more negative in Russian than English or Spanish

- Showcase how our model can be used to **identify imbalanced content**