

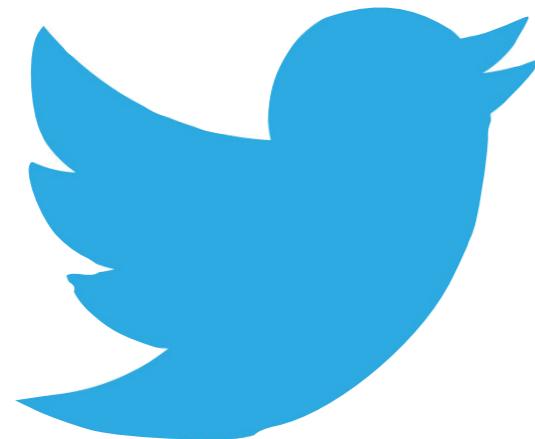
NETS 213: CROWDSOURCING
AND HUMAN COMPUTATION

Crowdsourcing and Translation

Professor Callison-Burch



facebook®



TED
IDEAS WORTH SPREADING

coursera

IBM



duolingo

The Duolingo logo features a green cartoon owl with large white eyes and an orange beak, positioned above the brand name.

Machine translation

- Translation rules are learned bilingual texts using machine learning techniques

Arabic

فالتعذيب لا يزال يمارس على نطاق واسع

وتتم عمليات الاعتقال والاحتجاز دون سبب بصورة
روتينية

وحان وقت التحلّى بال بصيرة والشجاعة السياسية .

...

English

Torture is still being practised on a wide scale.

Arrest and detention without cause take place routinely.

This is a time for vision and political courage

...

Chinese

我国 能源 原材料 工业 生产 大幅度 增长 .

非国大 要求 阻止 更多 被 拘留 人员 死亡 .

...

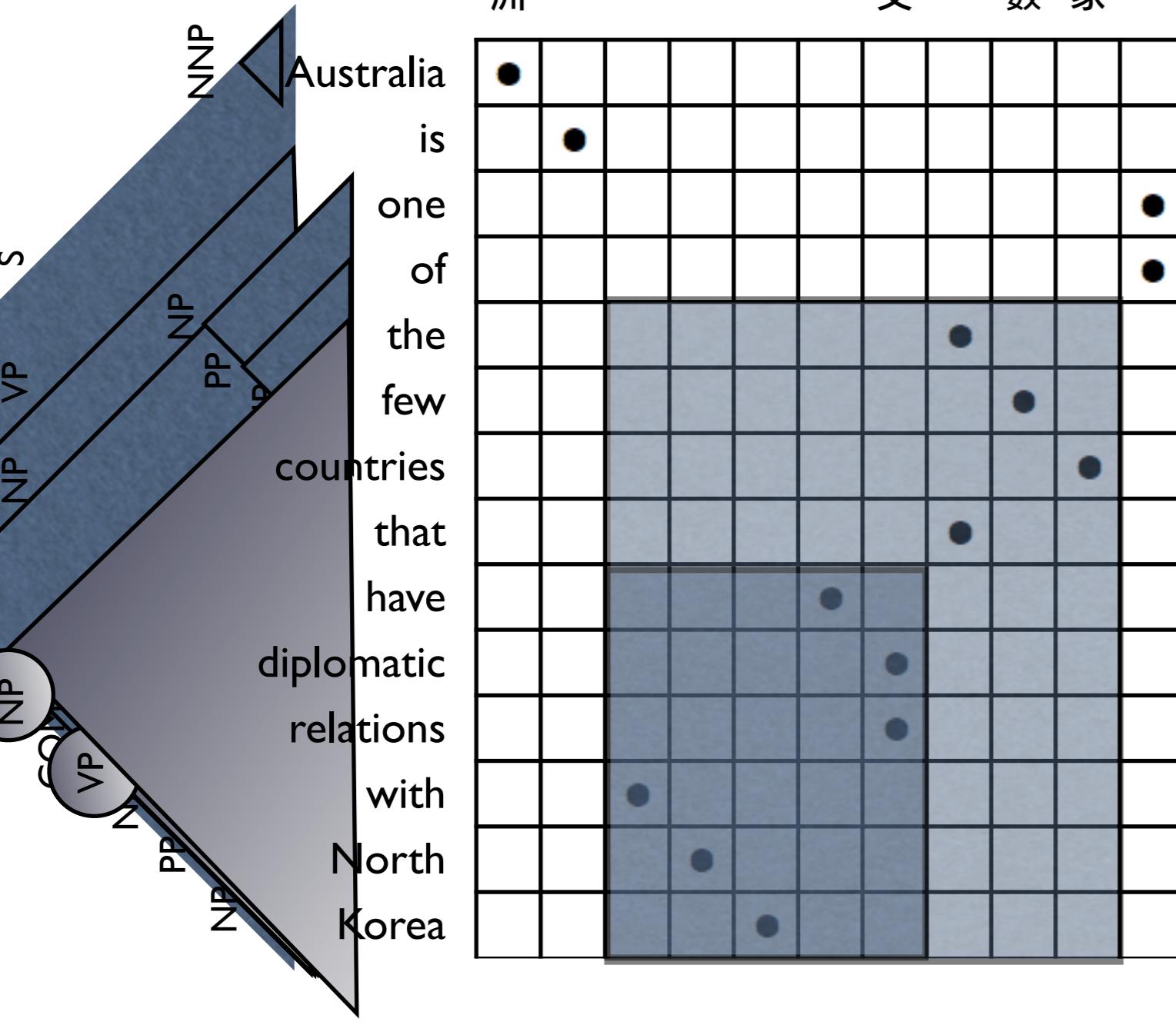
English

China's energy and raw materials production up.

ANC calls for steps to prevent deaths in police custody .

...

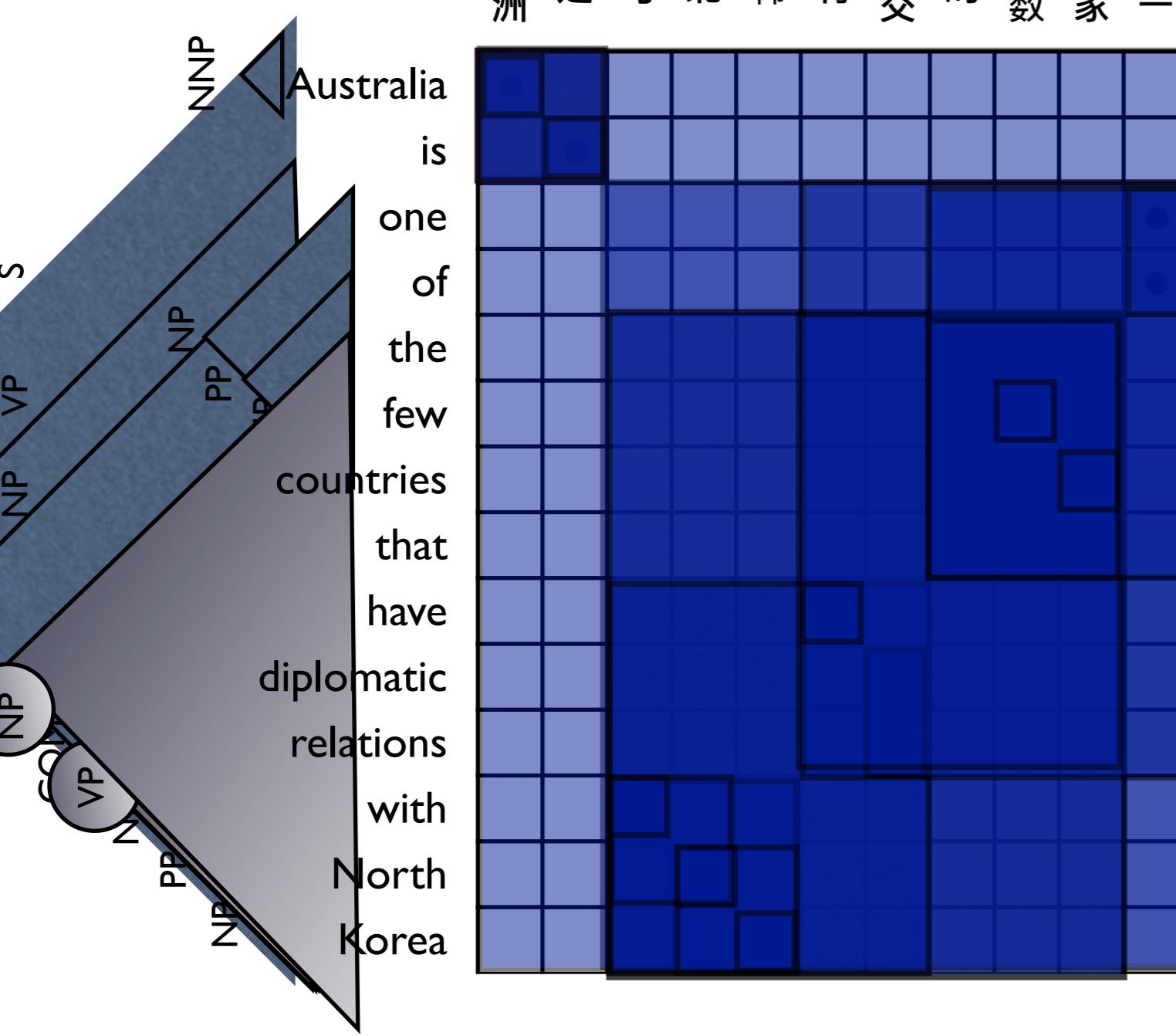
Extracting Translation Rules



$\text{VP} \rightarrow \text{与 北 韩 有 邦 交}$,
have diplomatic relations
with North Korea

$\text{NP} \rightarrow \text{与 北 韩 有 邦 交}$
的 少 数 国 家, the few
countries that have
diplomatic relations with
North Korea

Extracting Translation Rules



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have diplomatic relations
with North Korea

$\text{NP} \rightarrow \text{与 北 韩 有 邦交}$
的 少 数 国 家, the few
countries that have
diplomatic relations with
North Korea

Example translation for Urdu

	Urdu	English
S →	NP① VP②	NP① VP②
VP →	PP① VP②	VP② PP①
VP →	V① AUX②	AUX② V①
PP →	NP① P②	P② NP①
NP →	<i>hamd ansary</i>	<i>Hamid Ansari</i>
NP →	<i>na}b sdr</i>	<i>Vice President</i>
V →	<i>namzd</i>	<i>nominated</i>
P →	<i>kylye</i>	<i>for</i>
AUX →	<i>taa</i>	<i>was</i>

NP1
hamd ansary

NP2
na}b sdr

P3
kylye

V4
namzd

AUX5
taa

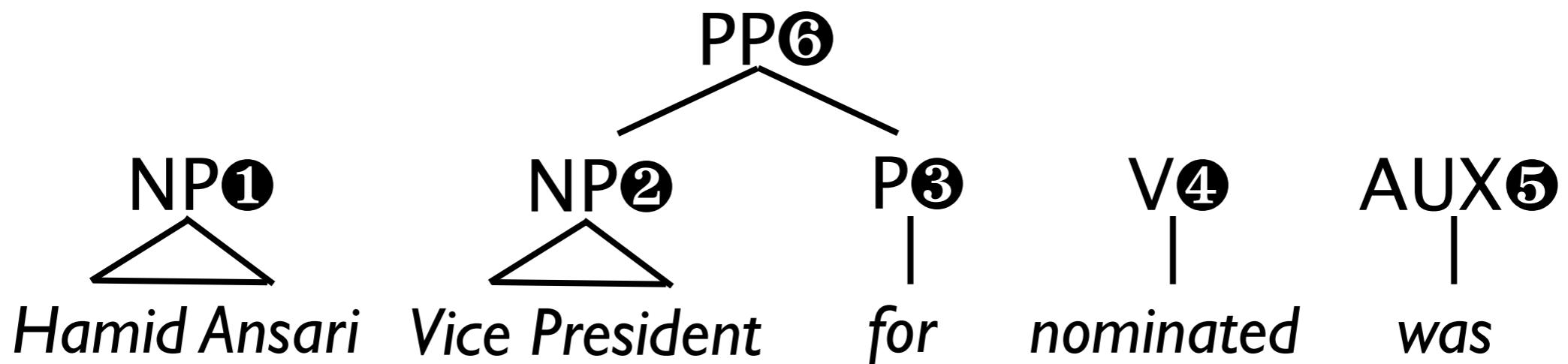
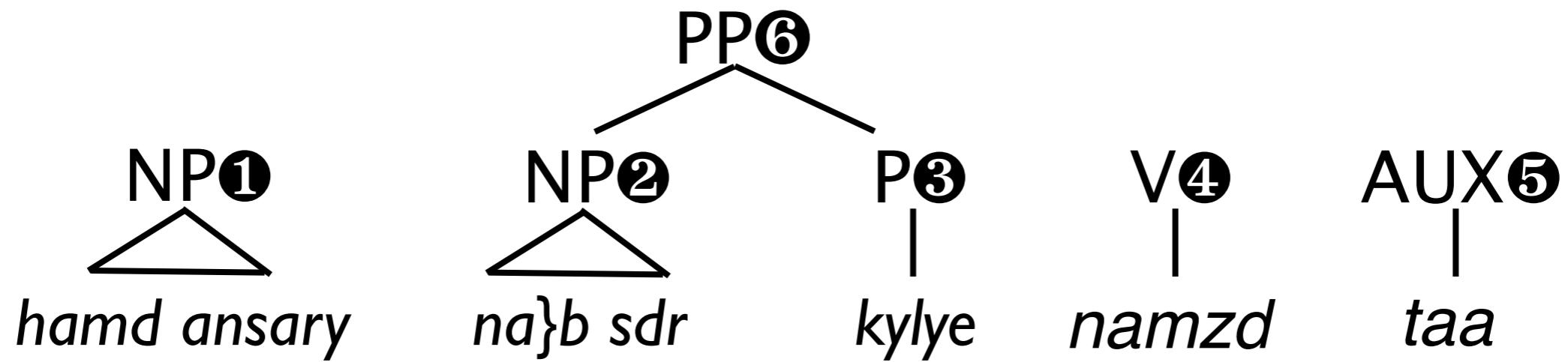
NP1
Hamid Ansari

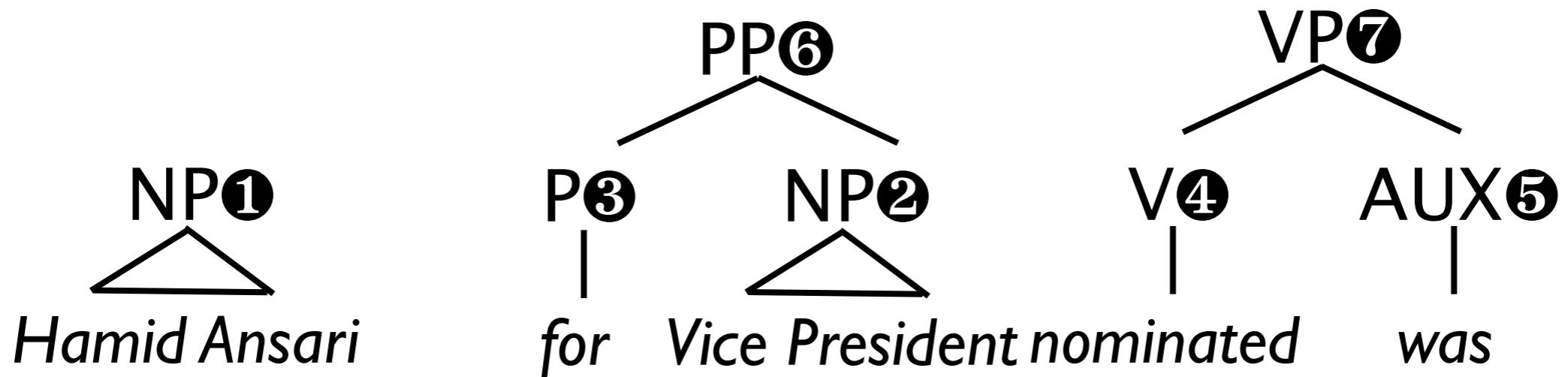
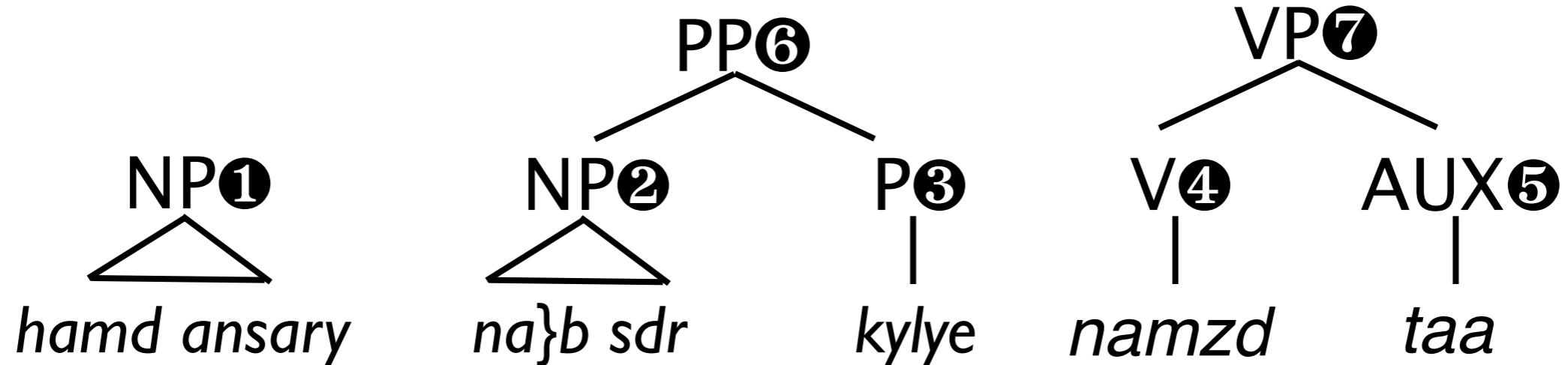
NP2
Vice President

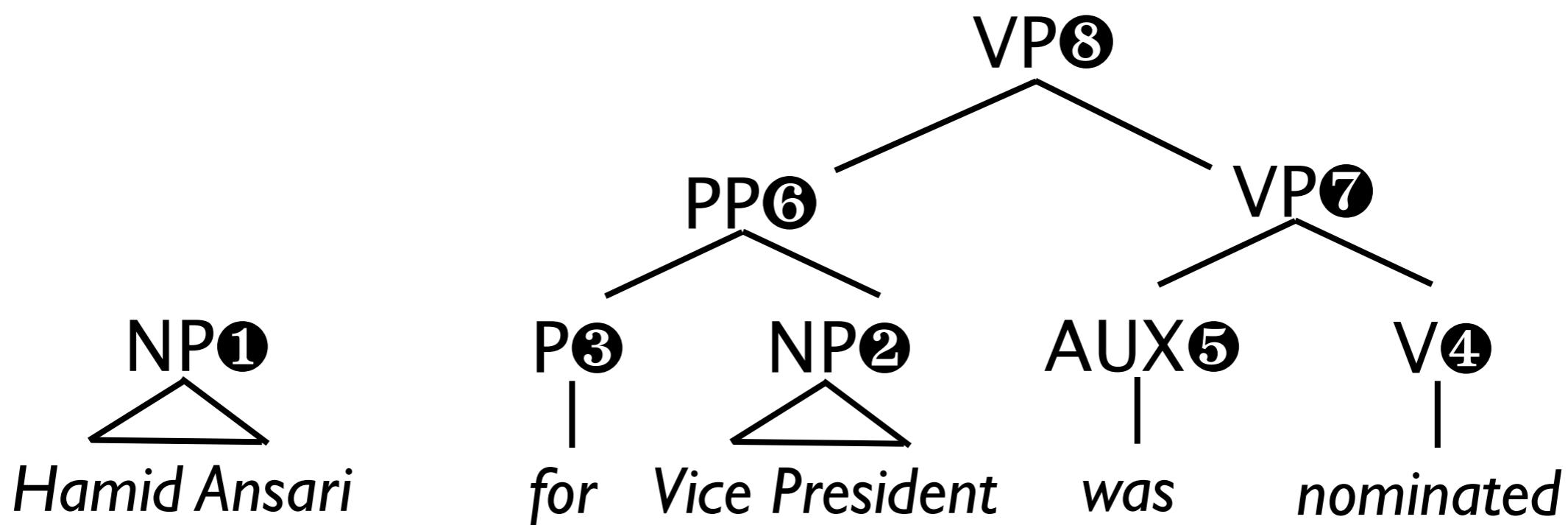
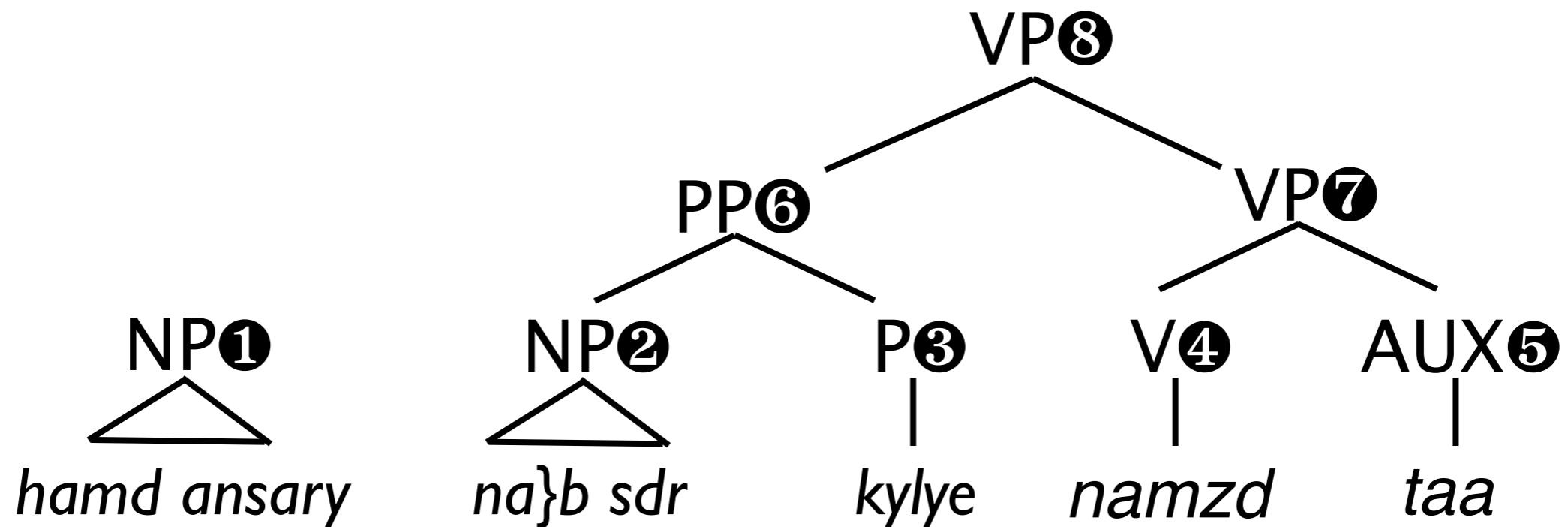
P3
for

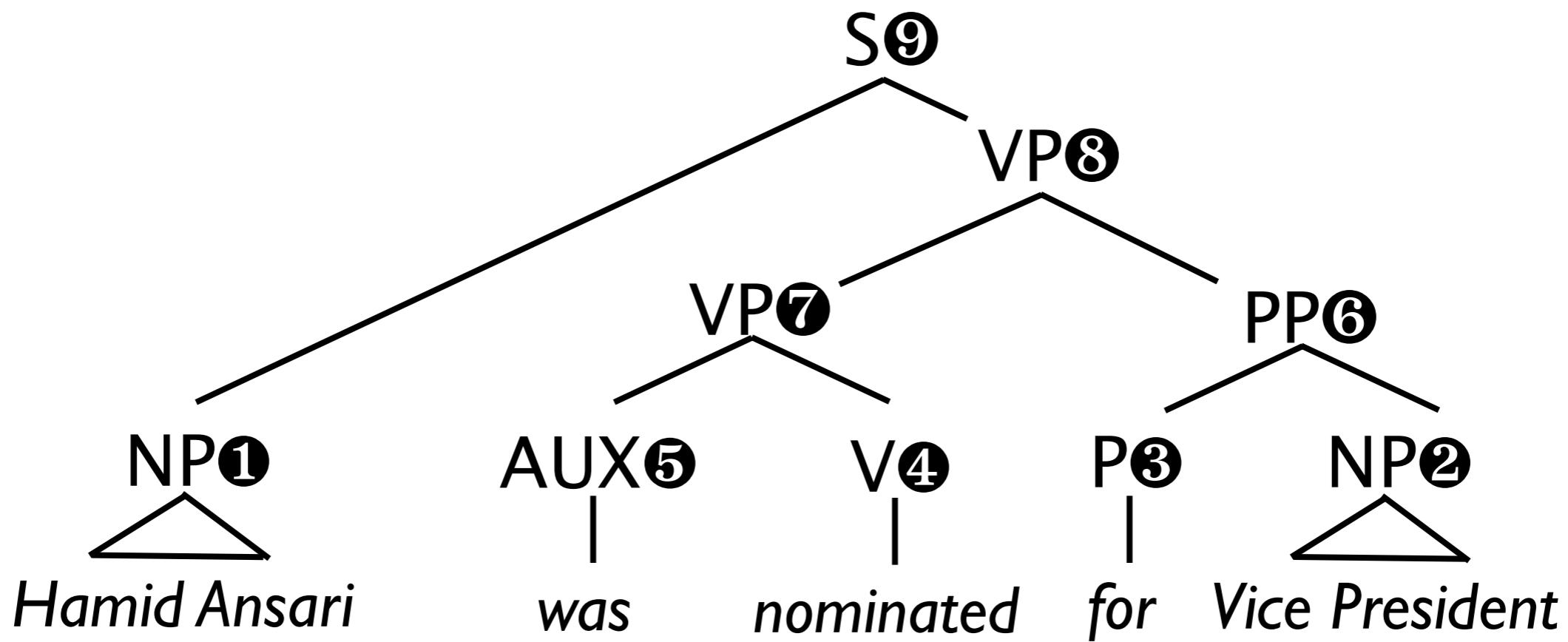
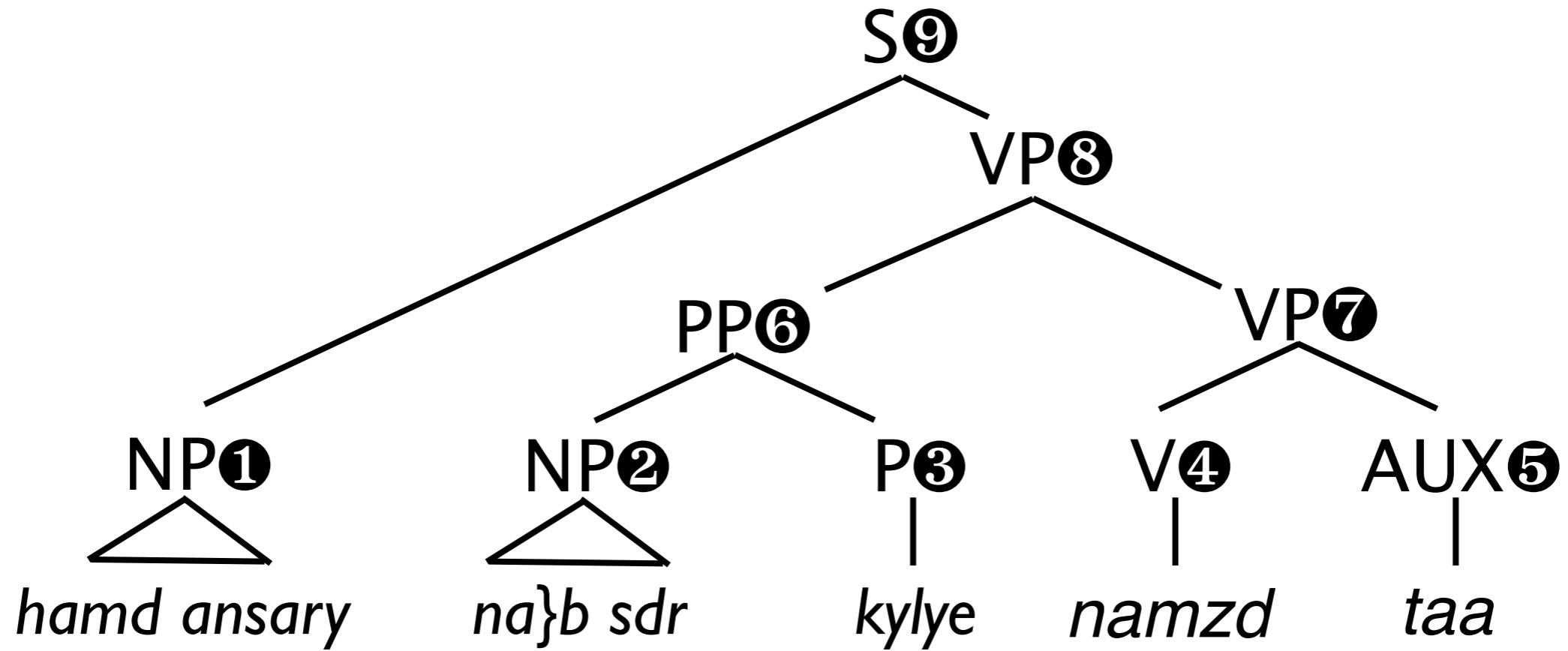
V4
nominated

AUX5
was



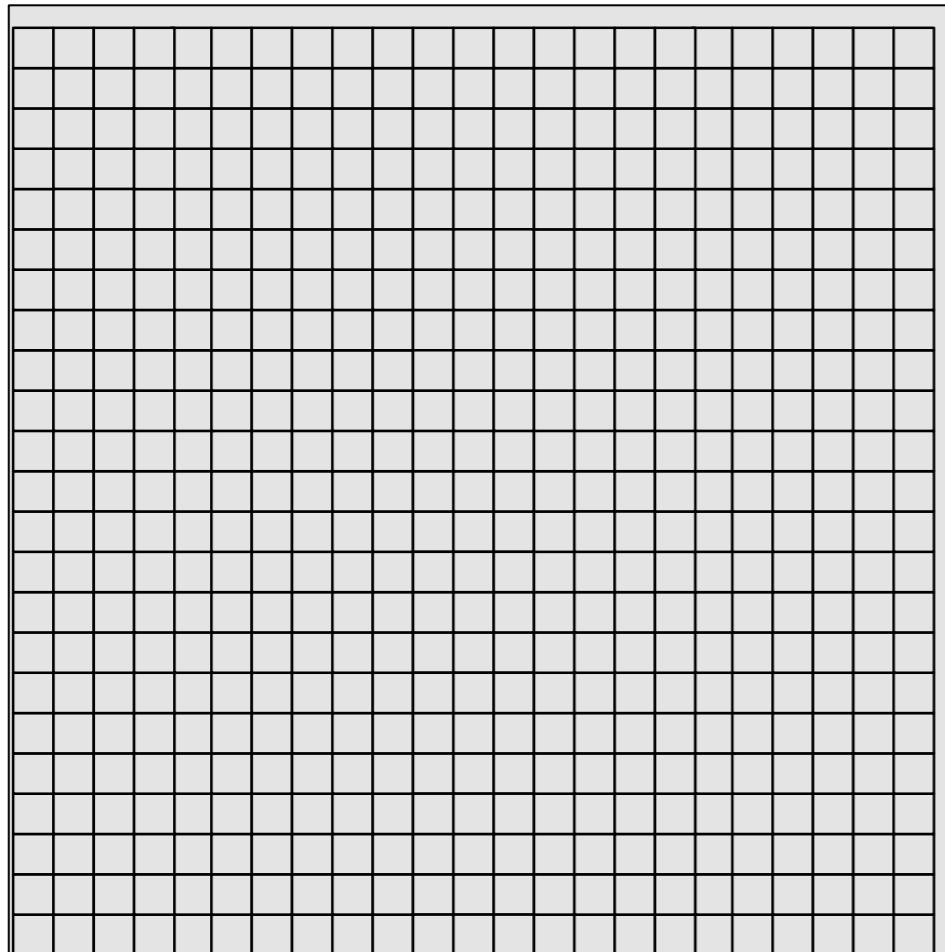






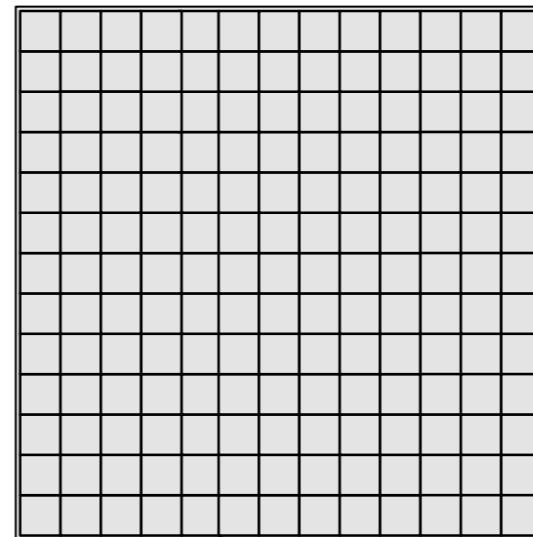
Training data varies by language

1000M



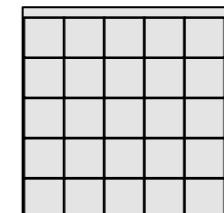
French-English
 10^9 word webcrawl

200M



Arabic and Chinese
DARPA GALE

50M



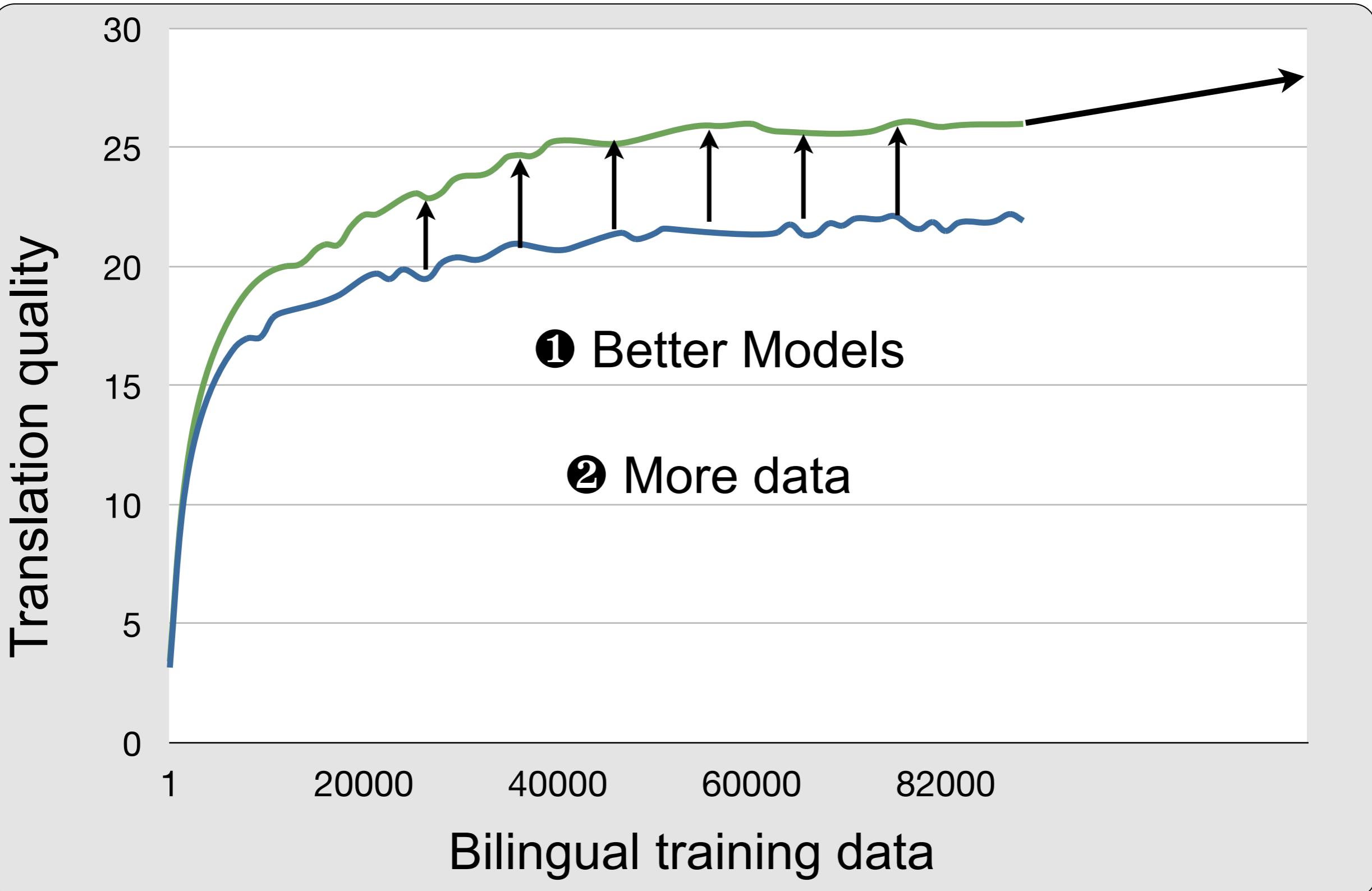
European
Parliament

1.5M



Urdu

How to Improve MT



Can Turkers Translate?

Urdu

میں اس خطے میں ابتدائی 1994 انسانوں کی باقیات جو تقریباً 8 لاکھ سال پرانی مانی جاتی ہے، دریافت کی گئیں جنہیں ہومو اینٹی سیسٹر یعنی 'بانی انسان' کا نام دیا گیا۔

اس سے قبل 6 لاکھ پرانے انسان جنہیں سائنسی اصطلاح میں ہومو ہیڈلبرجنیس کہا جاتا ہے، اس خطے کے قدیم ترین رہائشی مانے جاتے تھے۔

آثارِ قدیمه کے ماہرین کا کہنا ہے کہ انہیں ایسے شواہد ملے ہیں جن سے پتہ چلتا ہے کہ اس خطے کے لوگ ڈھلانی کیسے ہوئے اور ازاز بھی

LDC Translation

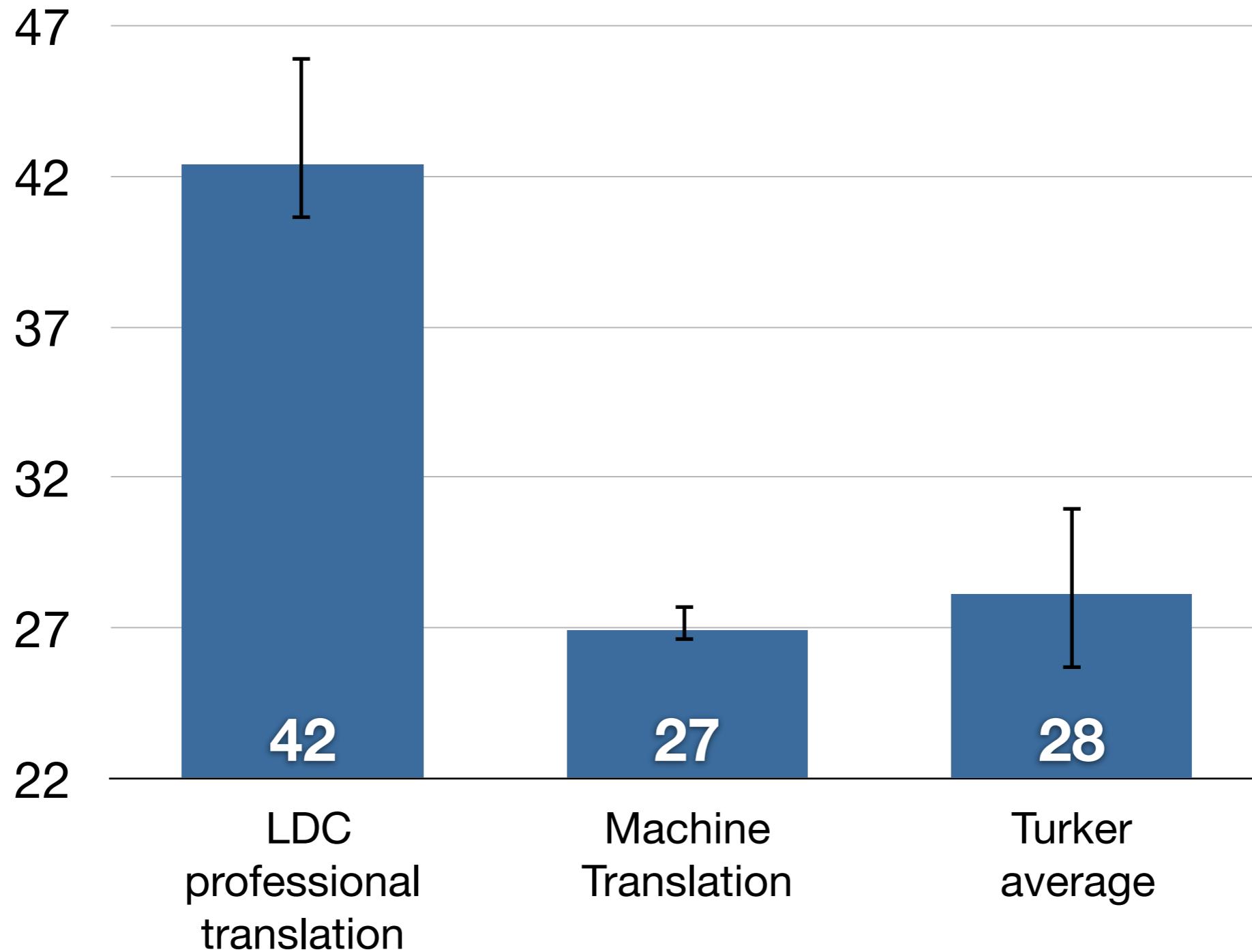
In 1994, the remains of early human beings who were believed to be eight hundred thousand years old were discovered who were given the name homo antecessor meaning the 'founder man'. Prior to this, the six hundred thousand years old man, called homo heidelbergensis in scientific terms, was believed to be the earliest resident of this area.

Turk Translation

In 1994, the remains of pre-historic man, which are believed to be 800,000 years old were discovered and they were named 'Home Antecessor' meaning 'The Founding Man'. Prior to that 6 lac years old humans, named as Homogenisens in scientific terms, were believed to be the oldest dwellers of this area.

Professionals versus Turkers*

*Without Quality Control



Avoiding dieting to prevent from flu	abstention from dieting in order to avoid Flu	Abstain from decrease eating in order to escape from flue	In order to be safer from flu quit dieting
This research of American scientists came in front after experimenting on mice.	This research from the American Scientists have come up after the experiments on rats.	This research of American scientists was shown after many experiments on mouses.	According to the American Scientist this research has come out after much experimentations on rats.
Experiments proved that mice on a lower calorie diet had comparatively less ability to fight the flu virus.	It has been proven from experiments that rats put on diet with less calories had less ability to resist the Flu virus.	It was proved by experiments the low calories eaters mouses had low defending power for flue in ratio.	Experimentaions have proved that those rats on less calories diet have developed a tendency of not overcoming the flu virus.
research has proven this old myth wrong that its better to fast during fever.	Research disproved the old axiom that " It is better to fast during fever"	The research proved this old talk that decrease eating is useful in fever.	This Research has proved the very old saying wrong that it is good to starve while in fever.

Avoiding dieting to prevent from flu	abstention from dieting in order to avoid Flu	Abstain from decrease eating in order to escape from flue	In order to be safer from flu quit dieting
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Avoiding dieting to prevent from flu	abstention from dieting in order to avoid Flu	Abstain from decrease eating in order to escape from flue	In order to be safer from flu quit dieting
--------------------------------------	---	---	--

Avoid		dieting		to		prevent	from	flu
Abstention	from	dieting	in order	to		avoid		Flu
Abstain		decrease eating	in order	to		escape		flue
quit		dieting		to	be	safer	from	flu

Avoiding dieting to prevent from flu	abstention from dieting in order to avoid Flu	Abstain from decrease eating in order to escape from flue	In order to be safer from flu quit dieting
--------------------------------------	---	---	--

Avoid		dieting		to		prevent	from	flu
Abstention	from	dieting	in order	to		avoid		Flu
Abstain		decrease eating	in order	to		escape	from	flue
quit		dieting		to	be	safer	from	flu

Translate Urdu into English

Help us translate Urdu articles into English. Your translations will be distributed with a [Creative Commons license](#), so that other people can re-use it. This HIT is for people who speak both Urdu and English. Please **do not use** translation software or online machine translation systems like Google translate. Please make sure that your English translation.

- Does not add or delete any information from the original text
- Has the same meaning and style as the original
- Does not contain any spelling errors
- Is grammatical, natural-sounding English

First, please answer these questions about your language abilities:

Is Urdu your native language? Yes No

How many years have you spoken Urdu? years

Is English your native language? Yes No

How many years have you spoken English? years

افغانستان ایشیاء کا ایک ملک ہے جس کا سرکاری نام اسلامی
جموری افغانستان ہے۔

اس کے جنوب اور مشرق میں پاکستان، مغرب میں ایران، شمال
مشرق میں چین، شمال میں ترکمانستان، ازبکستان اور تاجکستان ہیں۔

اردگرد کے تمام ممالک سے افغانستان کے تاریخی، مذہبی اور
ثقافتی تعلق بہت گمراہے۔

اس کے بیشتر لوگ مسلمان ہیں۔

۔۔۔ ملک بالتدبیب اب ائمہ، بنانیمہ، عدید، تکمیل، منگولہ،

Informed Consent Form

Purpose of research study: We are collecting translations to improve translation software and to make Wikipedia content accessible in all languages.

Benefits: Although it will not directly benefit you, this study may benefit society by improving how computers process human languages. This could lead to better translation software, improved web searching, or new user interfaces for computers and mobile devices.

Risks: There are no risks for participating in this study.

Voluntary participation: You may stop participating at any time without penalty by clicking on the "Return HIT" button, or closing your browser window.

We may end your participation if you do not have adequate knowledge of the language, or you are not following the instructions, or your answers significantly deviate from known translations.

Confidentiality: The only identifying information kept about you will be a WorkerID serial number and your IP address. This information may be disclosed to other researchers.

Questions/concerns: You may e-mail questions to the principle investigator, [Chris Callison-Burch](#). If you feel you have been treated unfairly you may contact the Johns Hopkins University [Institutional Review Board](#).

Clicking on the "Accept HIT" button indicates that you understand the information in this consent form. You have not waived any legal rights you otherwise would have as a participant in a research study.

Translation of the first sentence goes here.

Translation of the second sentence goes here.

Quality Control Model

- **Sentence features**
 - Language model probability
 - Ratio of source / target sentence lengths
 - Web n-gram match percentage
 - Translation edit rate to other translators
- **Turker features**
 - Aggregate of sentence feature scores
 - Self-reported language abilities
(Is native speaker? How long speaking?)
 - Worker location (Pakistan? India?)
- **Ranking features** (based on second pass vote)
- **Calibration feature** (Bleu against professionals)

Vote for the best translation

Please read the sentences and vote on the one that you think is the best in each group. The sentences are translations that were produced by people who are not native English speakers. Their translations are often ungrammatical, misspelled, disfluent, or bad in other ways. Your goal is to try to pick the best translation among the set. The one that you choose as the best will be forwarded on for editing, and it will undergo a variety of other quality control mechanisms before it is published.

You should consider the following factors when selecting one translation as the best:

- Does it make more sense than the others?
- Is the English reasonably good?
- Do the grammar and spelling require only minimal correction?

<input type="radio"/>	Experimentaions have proved that those rats on less calories diet have developed a tendency of not overcoming the flu virus .
<input type="radio"/>	in has been proven from experiments that rats put on diet with less calories had less ability to resist the Flu virus.
<input type="radio"/>	Experiments proved that mice on a lower calorie diet had comparatively less ability to fight the flu virus.
<input type="radio"/>	It was proved by experiments the low calories eaters mouses had low defending power for flue in ratio.

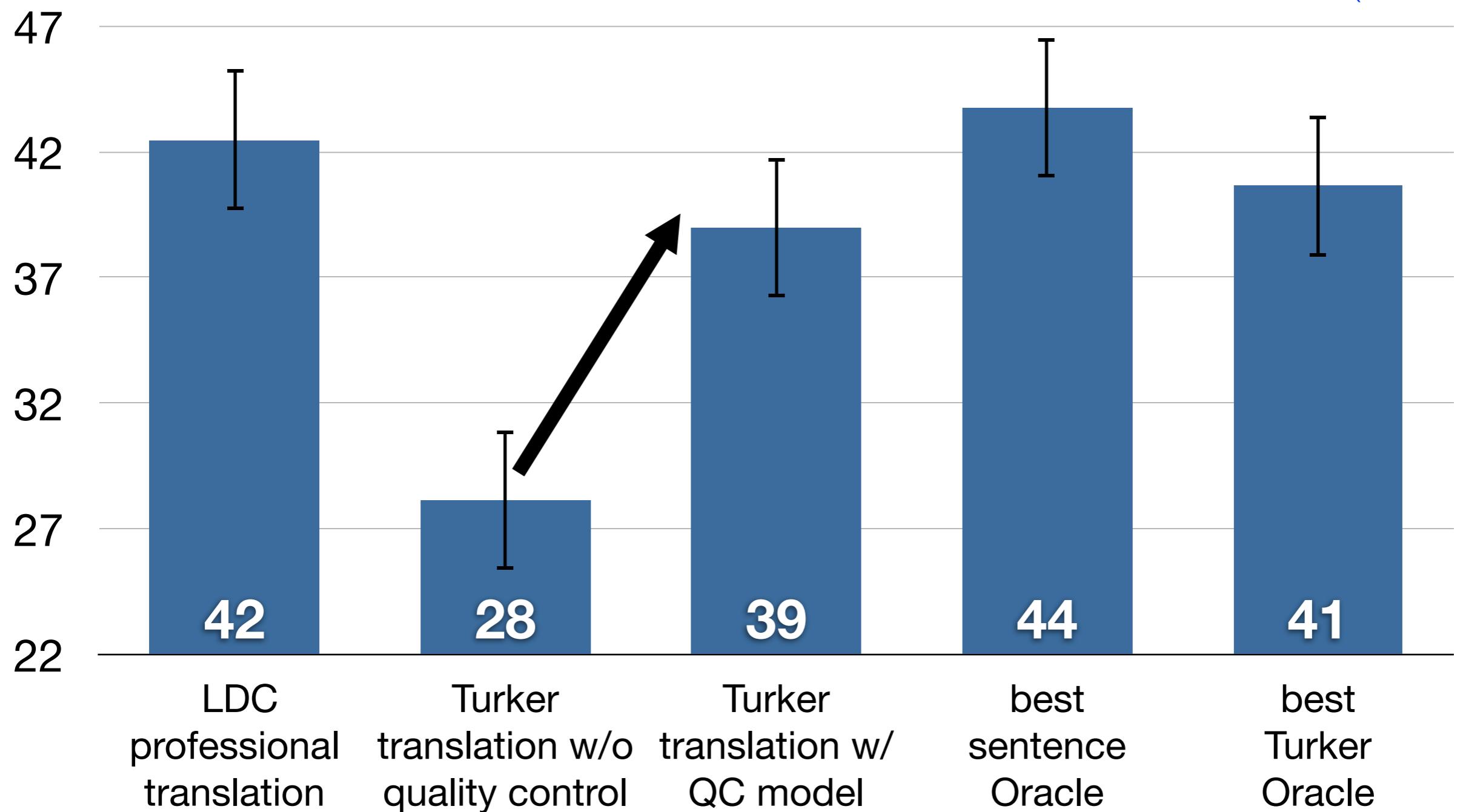
<input type="radio"/>	The research proved this old talk that decrease eating is useful in fever.
<input type="radio"/>	Research disproved the old axiom that " It is better to fast during fever"
<input type="radio"/>	research has proven this old myth wrong that its better to fast during fever.
<input type="radio"/>	This Research has proved the very old saying wrong that it is good to starve while in fever.

<input type="radio"/>	According to the scientist a patient should eat more while in fever.
<input type="radio"/>	According to scientists, eat a lot during fever.
<input type="radio"/>	Eat and drink more in fever according to scientists.
<input type="radio"/>	according to the scientists one should eat a lot during fever.

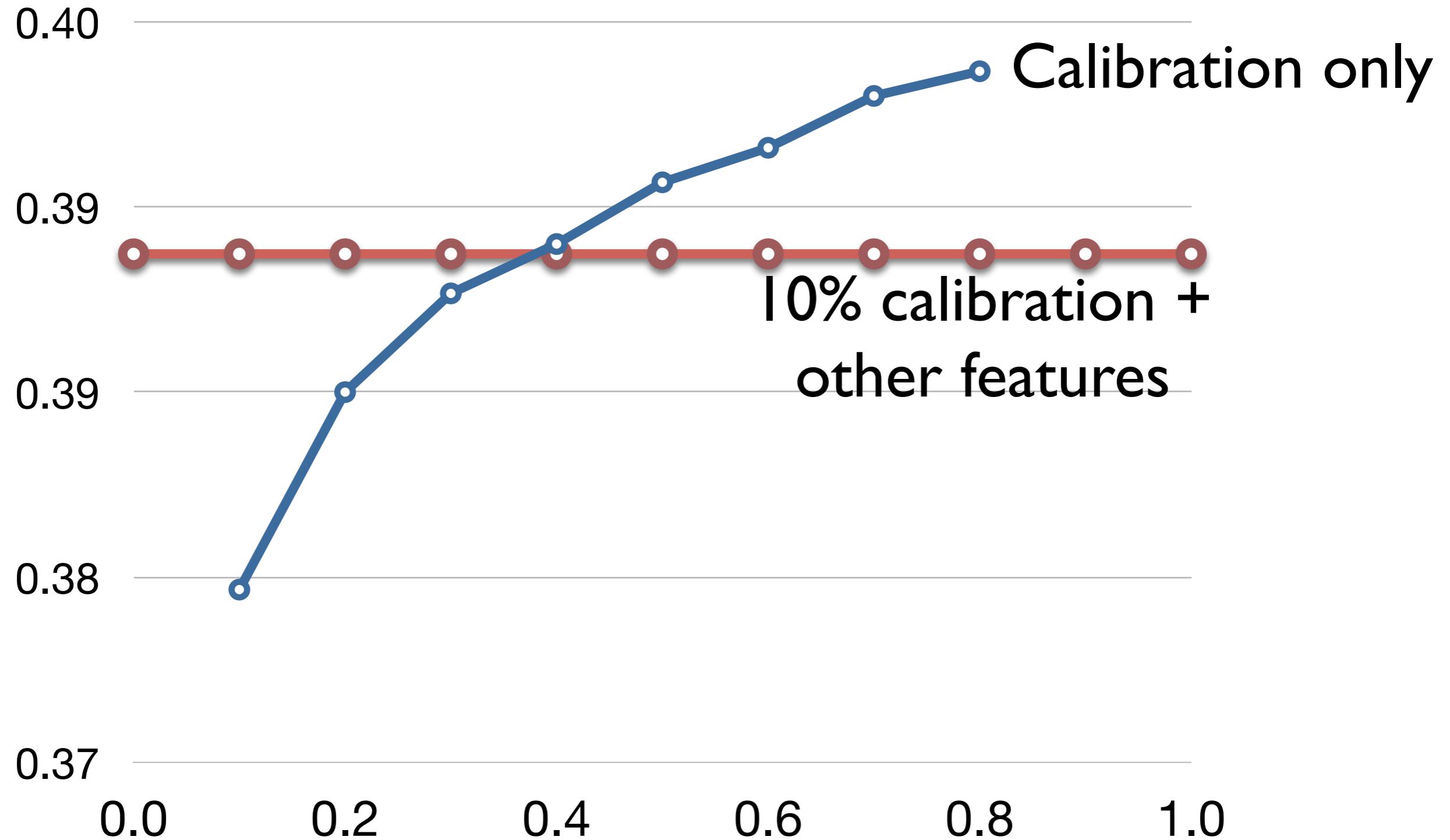
<input type="radio"/>	According to the Researchers of the State of Michigan University diet taking rats have less strength to fight with the infection and also the chances of death increased whereas earlier those rats on common diet had more strength to fight with the flu virus.
-----------------------	---

Professional Quality from Non-Professionals

Full details in Zaidan and Callison-Burch (ACL 2011a) & Zaidan (PhD Thesis 2012)



% of gold standard data used for calibration



ESL editing HIT

Sri Lanka 's forest region was destroyed by agriculture , ~~wooden works , veterinary feeds , etc . ,~~
forestry animal grazing
several commissions ~~were~~ created to protect the remaining forest region were

Sri Lanka is considered ~~as the~~ bird 's sanctionary place . to be a

For further information please see the article on bird sanctionary rights in Indian Subcontinent
are thousands the

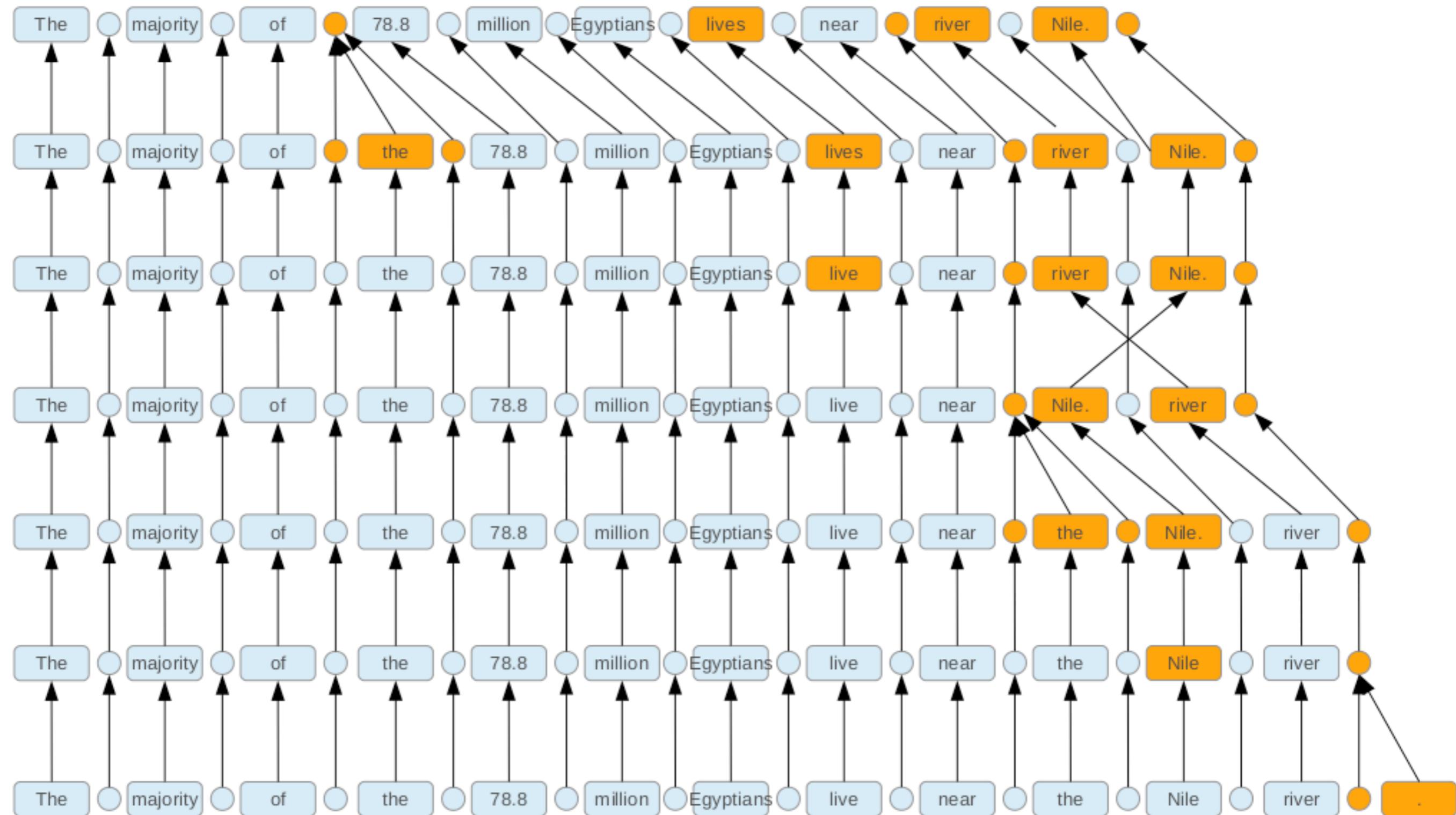
There ~~is thousand~~ of animals living in Sri Lanka which includes several Sri Lanka originated animals . including native species

When we compare the area of Sri Lanka 's Island , birds are highly found here .

ESL editing HIT

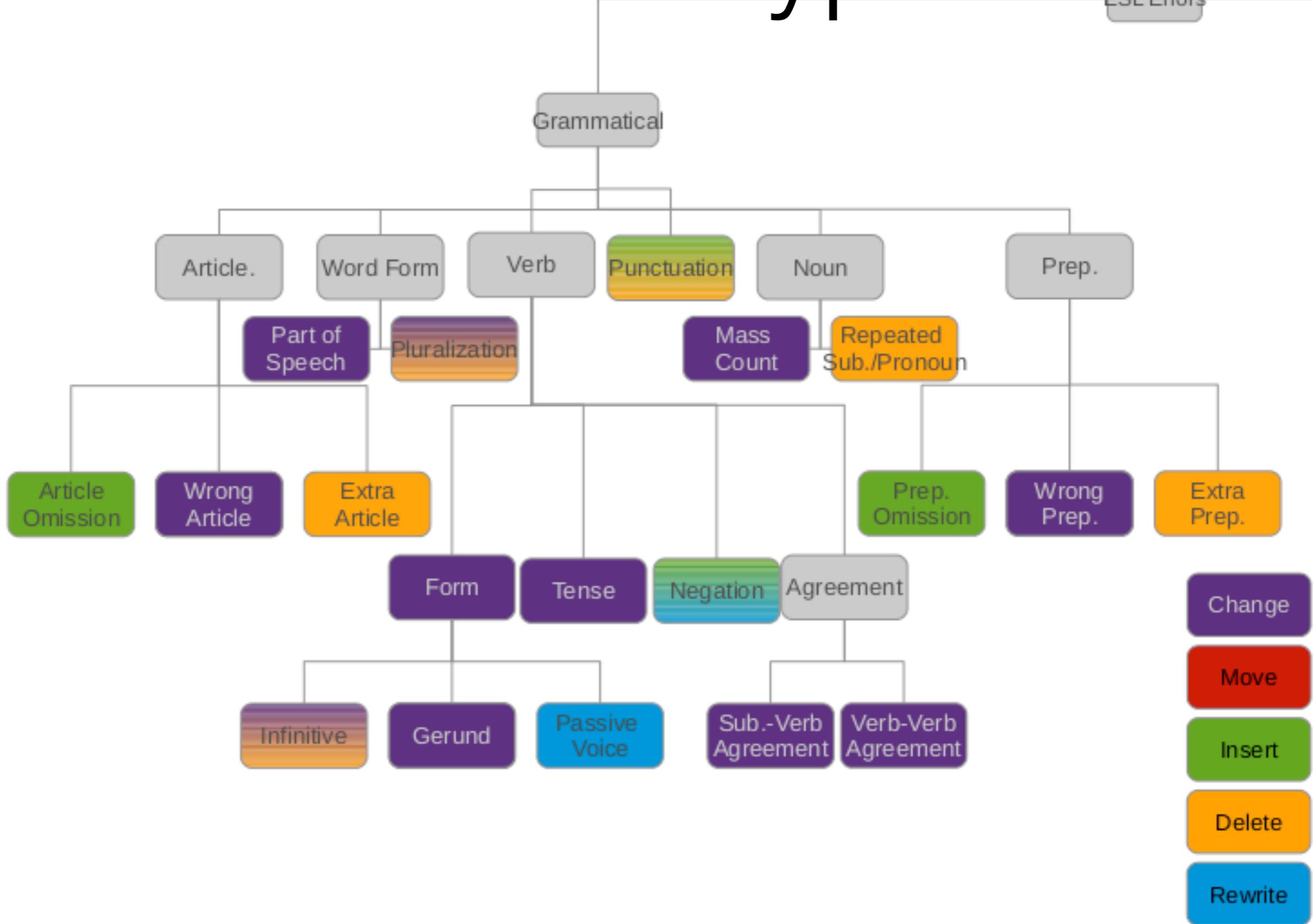
- Agreement no longer works for QC
 - Most agreement happens between lazy workers!
- Create a sentence with a known set of corrections:
 - Start with a grammatical English sentence
 - Make several transformations to it
 - Break subject-verb agreement / change prepositions / etc
 - Measure how many transformations are fixed
- Easier if we require structured corrections

Structured Edits



ESL Error Types

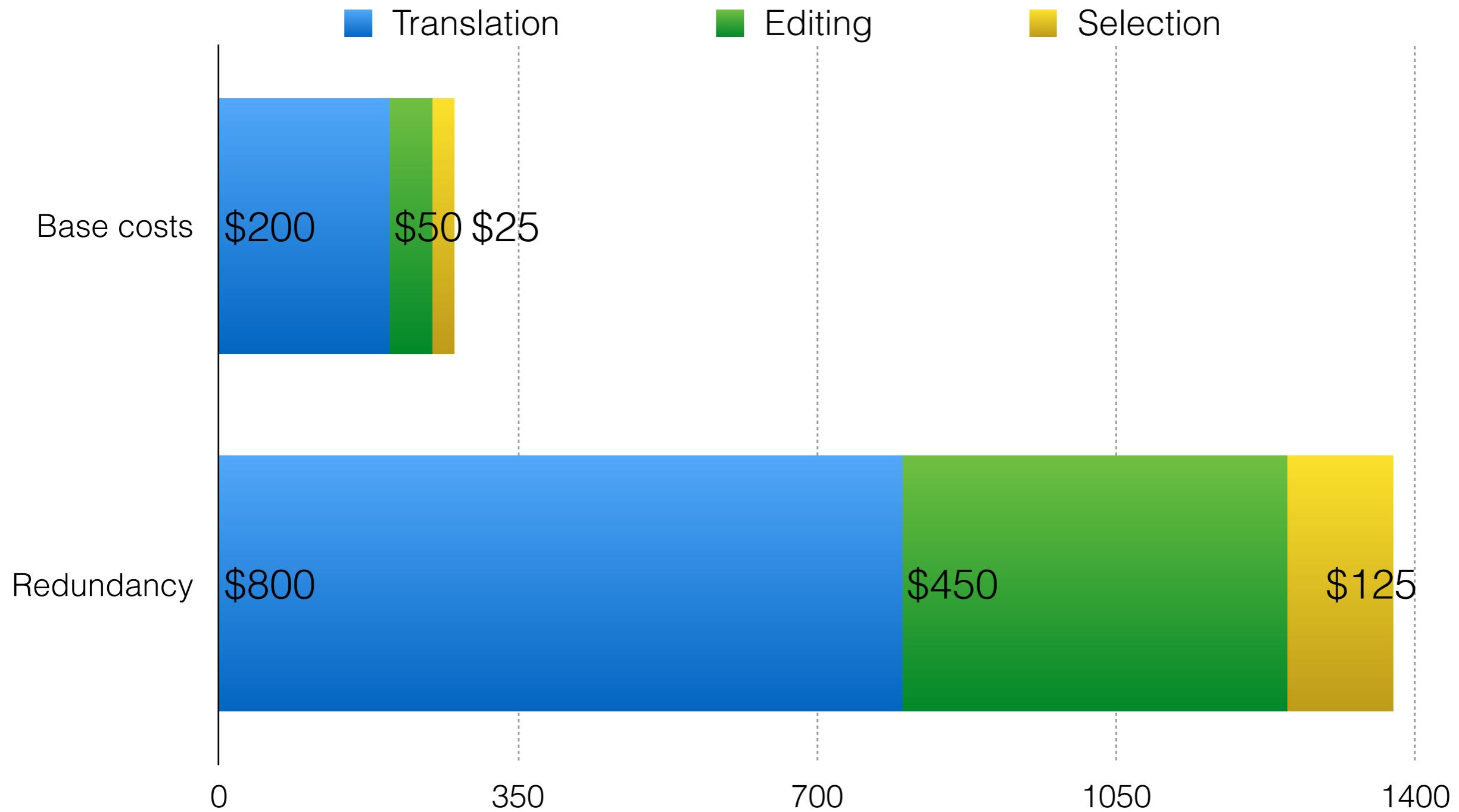
ESL Errors



Quality wrap up

- Crowdsourced translations can reach high quality after quality control
 - Gather redundant translations
 - Calibrate against small amount of professional translations
 - Do second passes over the data where other Turkers select best translations
 - Post-edit the non-native translations
 - In the future: explicitly deal with ESL

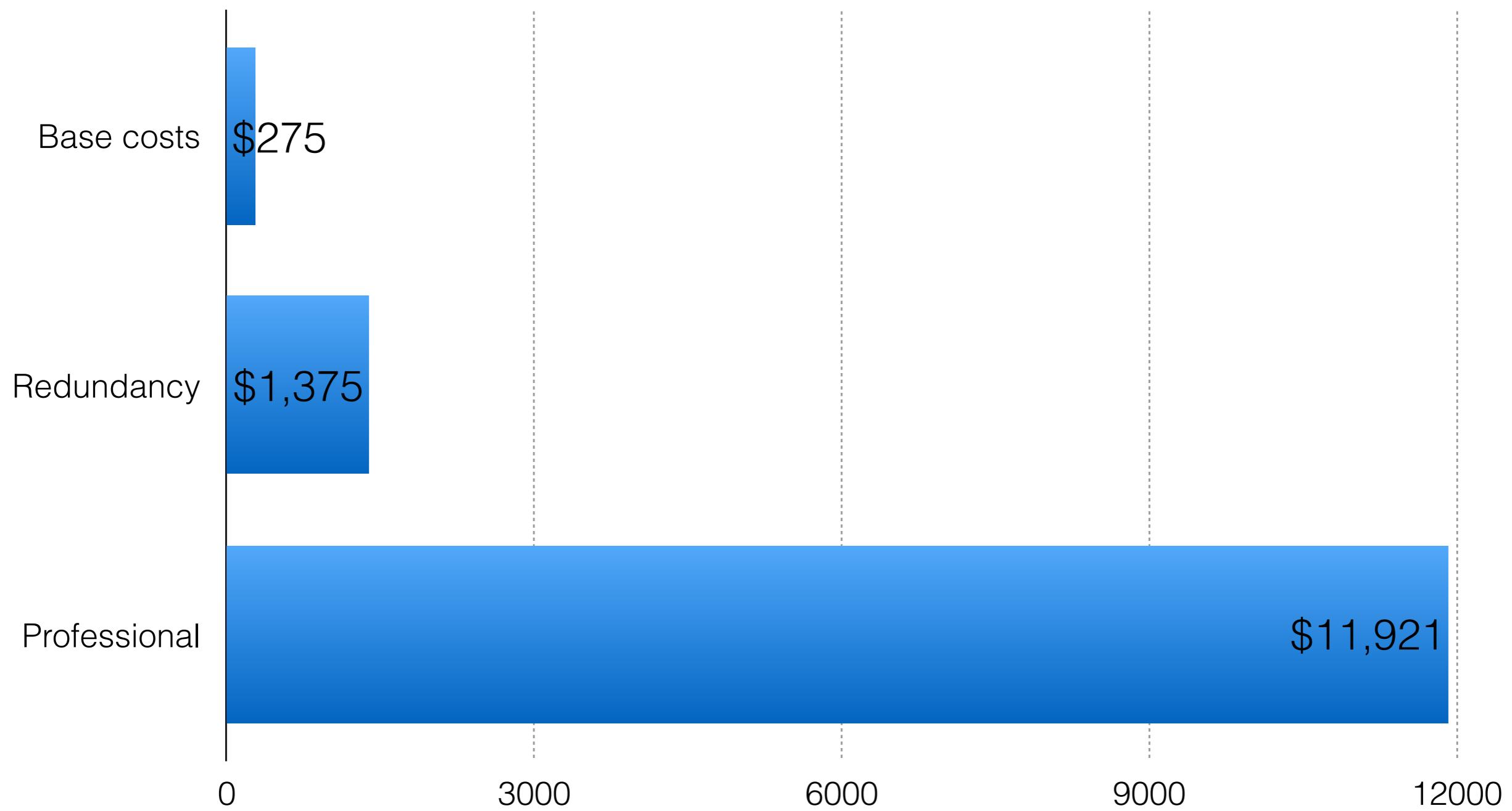
Cost of Translation on MTurk



Cost of Translation on MTurk



Cost of Translation versus Professionals

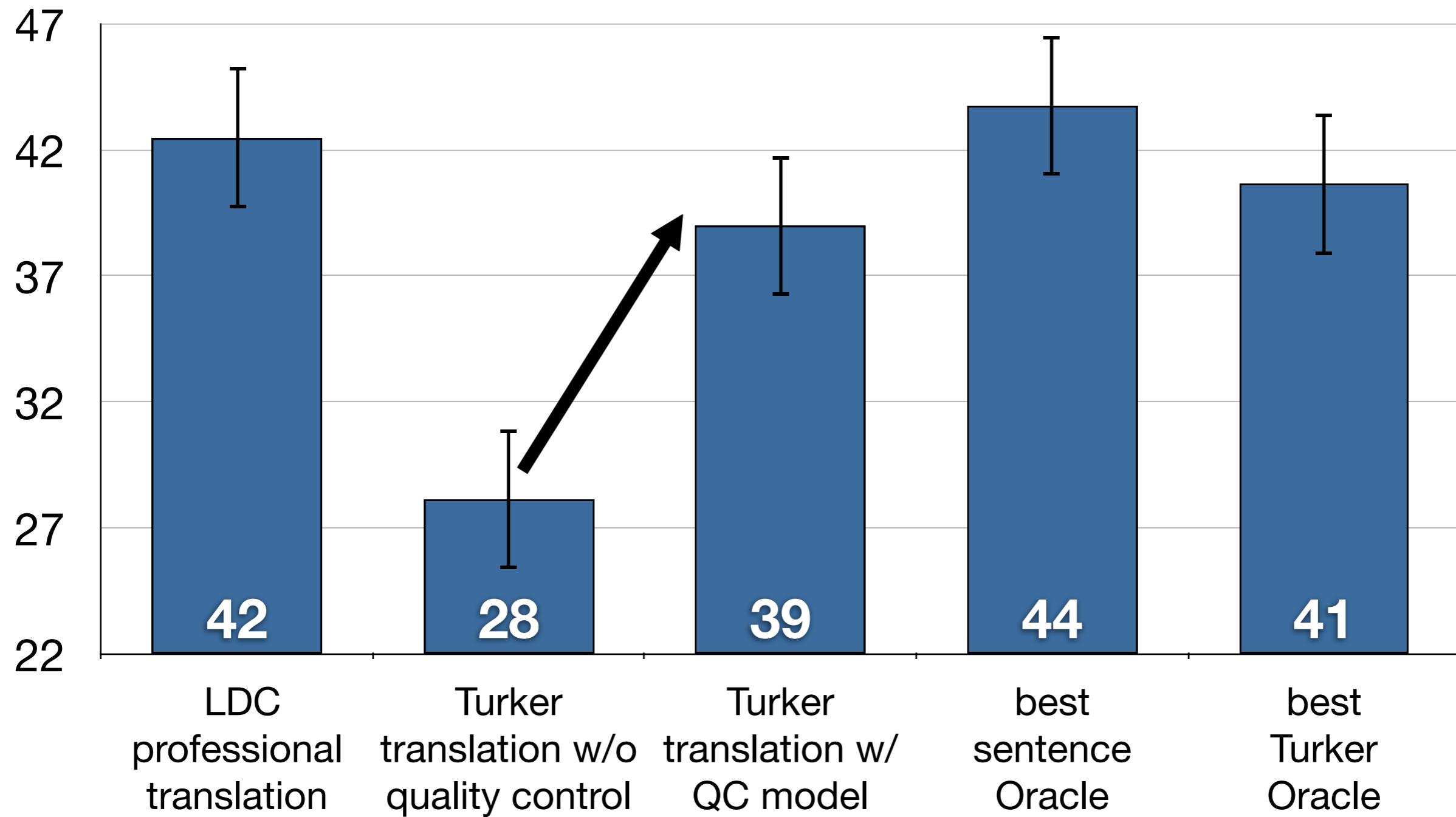


Cost of Translation on MTurk

- Approximately an order of magnitude cheaper than the cost of professional translation
- Further reductions possible
 - reduce dependency on gold standard data
 - reduce amount of redundant translations collected
 - predict whether we need to get another translation
- It now seems feasible to collect enough data to train a statistical machine translation system

Professional Quality from Non-Professionals

Full details in Zaidan and
Callison-Burch (ACL 2011a)
& Zaidan (PhD Thesis 2012)

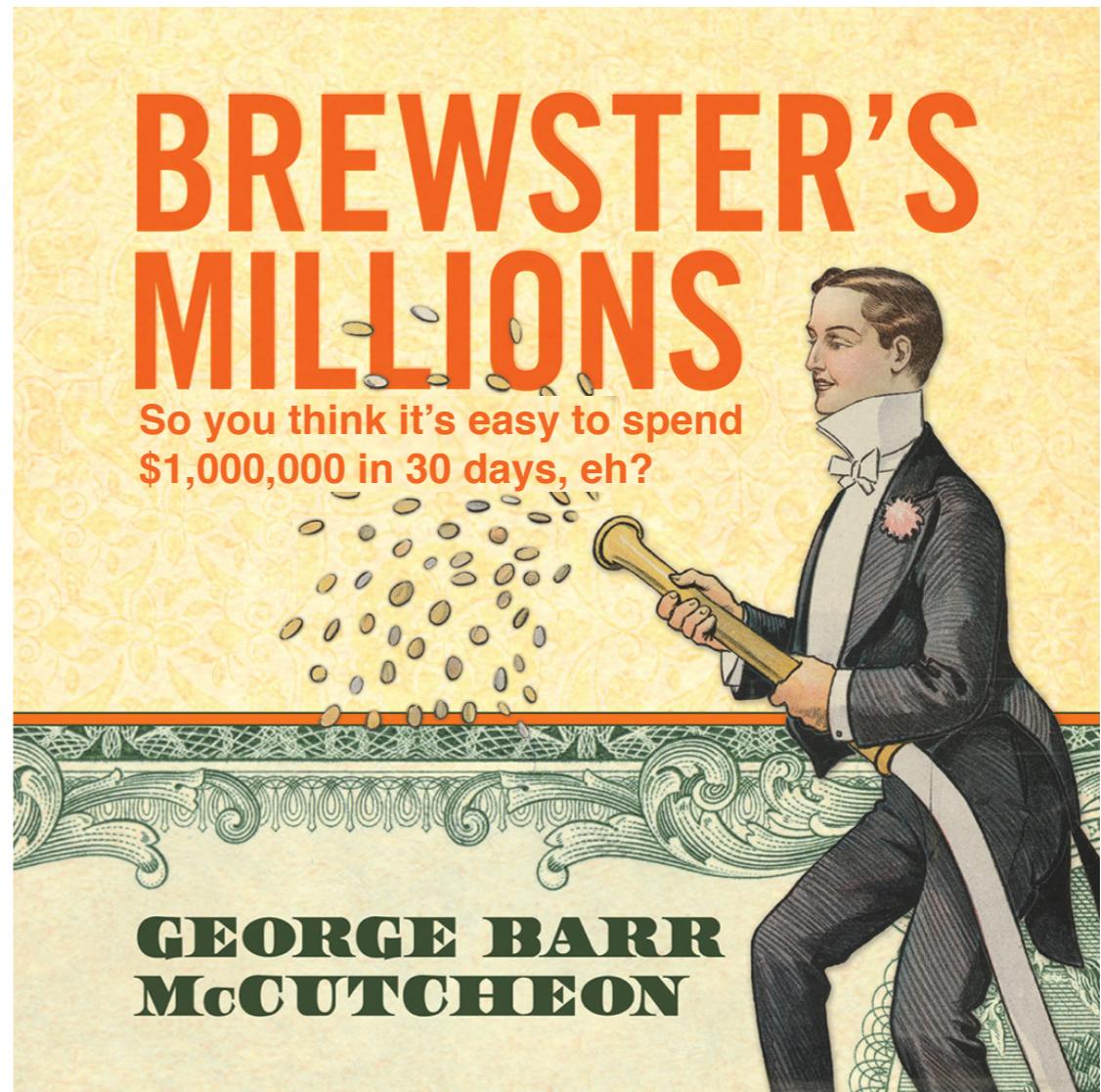


\$100,000 challenge

Surely it can't scale. I bet you can't spend my money fast enough.



- Ken Church bet me \$50k that I couldn't spend \$50k on MTurk in two months



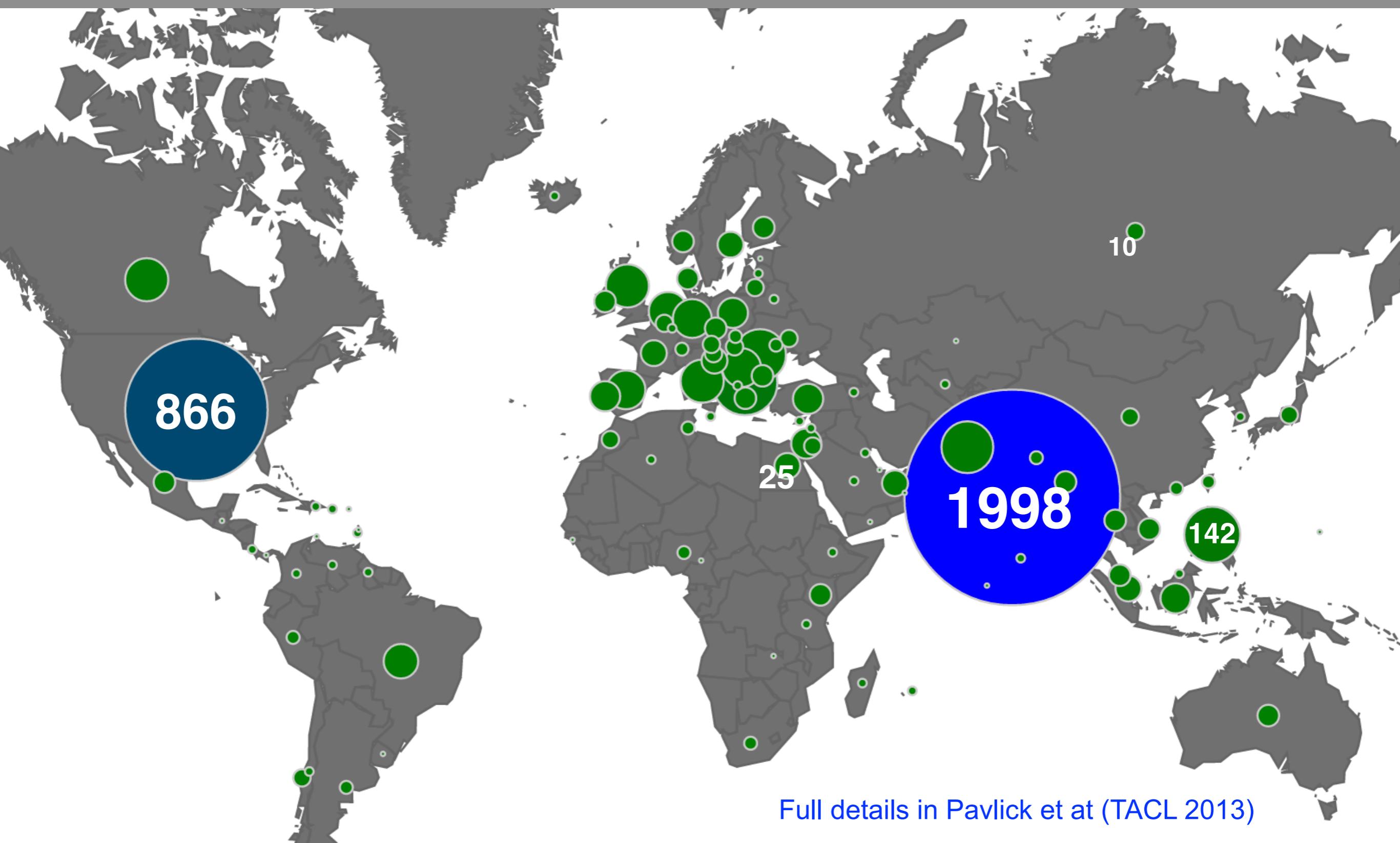
Leaderboard

Mechanical Turk Monitor: Top-1000 Recent Requesters

[General](#)[Top requesters](#)[Arrivals](#)[Completed](#)[Search](#)[About](#)

	Requester ID	Requester	#Task	#HITs	Rewards
1	Dolores Labs	A2IR7ETVOIULZU (RSS)	470	317857	33084.24
2	ContentGalore	A2XL3J4NH6JI12 (RSS)	674	10622	17554.6
3	SpeechInk	A1AQ7EJ5P7ME65 (RSS)	9019	13613	12876.67
4	CastingWords	A3MI6MIUNWCR7F (RSS)	9454	14036	8947.02
5	QuestionSwami	AD7C0BZNKYGYV (RSS)	629	4116	4750.37
6	Chris Callison-Burch	A32TTE4XXN6MQZ (RSS)	11	9961	4458.02
7	Smartsheet.com Clients	A1197OGL0WOQ3G (RSS)	434	38212	3118.28
8	retaildata	AD14NALRDOSN9 (RSS)	8	50288	3110.85
9	Classify This	A1CTI3ZAWTR5AZ (RSS)	25	94590	1891.8
10	Andrew Stephen	A1Y25F6MZCMQGY (RSS)	3	22705	1131.25
11	Dolores Labs 2	A3JX8WONBL5N9X (RSS)	34	8976	1043.27
12	RelevanceQuest	A8RMEN71ICE57 (RSS)	15	47881	1029.92
13	Crowd Task	AFAOUHS65HNDS (RSS)	4	2388	955.6
14	nlds.soe.ucsc.edu	A1HI9DWCF794RE (RSS)	4	4702	933.9

Language Demographic Study



Survey

Is {language} your native language?

How many years have you spoken {language}?

Is English your native language?

How many years have you spoken English?

What country do you live in?

Self-reported Native Languages

English	689	French	63	Vietnamese	34
Tamil	253	Polish	61	Macedonia	31
Malayalam	210	Urdu	56	Cebuano	29
Hindi	149	Tagalog	54	Swedish	26
Spanish	131	Marathi	48	Bulgarian	25
Telugu	87	Russian	44	Swahili	23
Chinese	86	Italian	43	Hungarian	23
Romanian	85	Bengali	41	Catalan	22
Portuguese	82	Gujarati	39	Thai	22
Arabic	74	Hebrew	38	Lithuanian	21
Kannada	72	Dutch	37	Punjabi	21
German	66	Turkish	35	Others	≤ 20

Translation Task

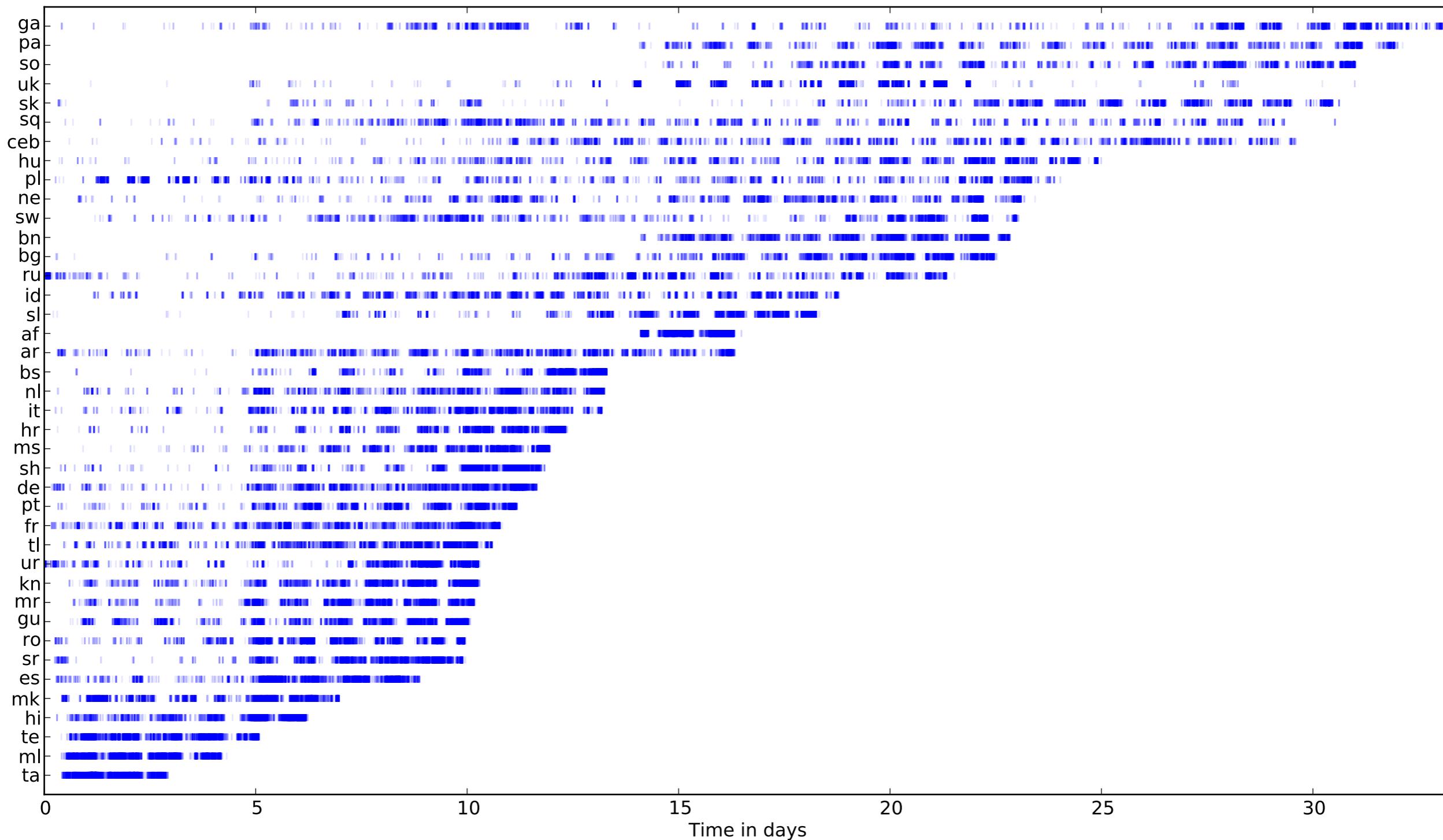


- 100 languages with the most articles
- 1,000 most viewed articles
- 10,000 most frequent words

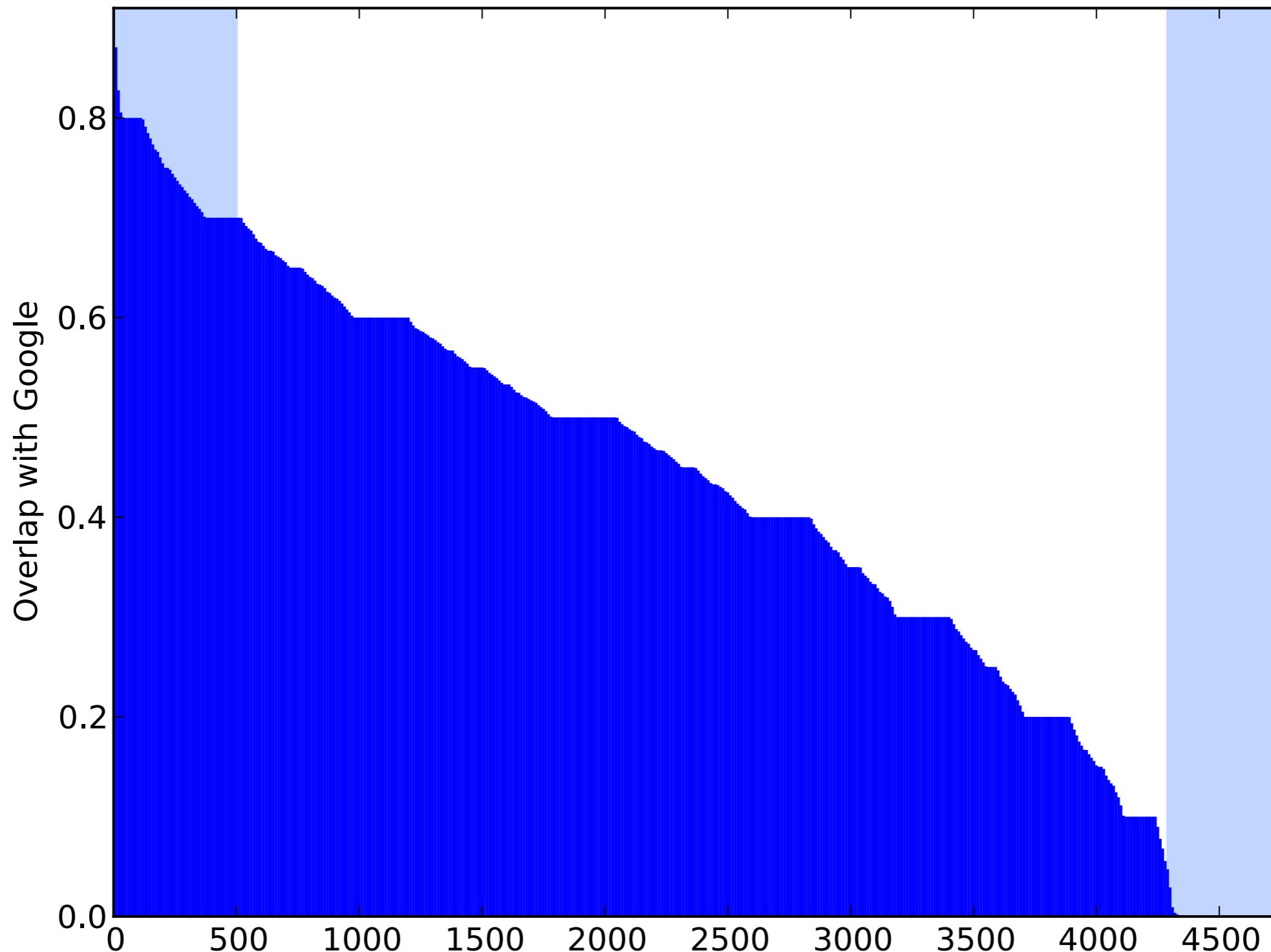


Afrikaans	Czech	Italian	Norwegian (bokmal)	Swahili
Albanian	Danish	Japanese	Norwegian (nynorsk)	Swedish
Amharic	Dutch	Javanese	Pashto	Tagalog
Arabic	Esperanto	Kannada	Persian	Tamil
Aragonese	Finnish	Kapampangan	Piedmontese	Tatar
Armenian	French	Kazakh	Polish	Telugu
Asturian	Galician	Korean	Portuguese	Thai
Azerbaijani	Georgian	Kurdish	Punjabi	Tibetan
Basque	German	Latvian	Quechua	Turkish
Belarusian	Greek	Lithuanian	Romanian	Ukrainian
Bengali	Gujarati	Low saxon	Russian	Urdu
Bishnupriya	Haitian	Luxembourgish	Serbian	Uzbek
Bosnian	Hebrew	Macedonian	Serbo-croatian	Vietnamese
Breton	Hindi	Malagasy	Sicilian	Walloon
Bulgarian	Hungarian	Malayalam	Sindhi	Waray-waray
Catalan	Icelandic	Malay	Slovak	Welsh
Cebuano	Ido	Marathi	Slovenian	West frisian
Central_bicolano	Ilokano	Neapolitan	Somali	Wolof
Chinese	Indonesian	Nepali	Spanish	Yoruba
Croatian	Irish	Newar/Nepal Bhasa	Sundanese	Zazaki

Time to complete 10,000 translations



Cheating with Google Translate



Quality Control

Wikipedia page titles connected by inter-language links,
removing pairs for which

- either title was longer than a single word
- English word didn't appear in Wordnet
- English Wikipedia page was a subcategory of person or place
- titles were identical or one was a substring of the other

Quality Control

Do these words have the same meaning?

[copra](#) and [part of](#)

- Yes No Related but not synonymous
 Word is misspelled

[lactation](#) and [lactiation](#)

- Yes No Related but not synonymous
 Word is misspelled

[loam](#) and [laterite, rich brick-colored soil containing iron and aluminum; loam, soil rich in decaying matter](#)

- Yes No Related but not synonymous
 Word is misspelled

[salvia](#) and [salvia \(plant\)](#)

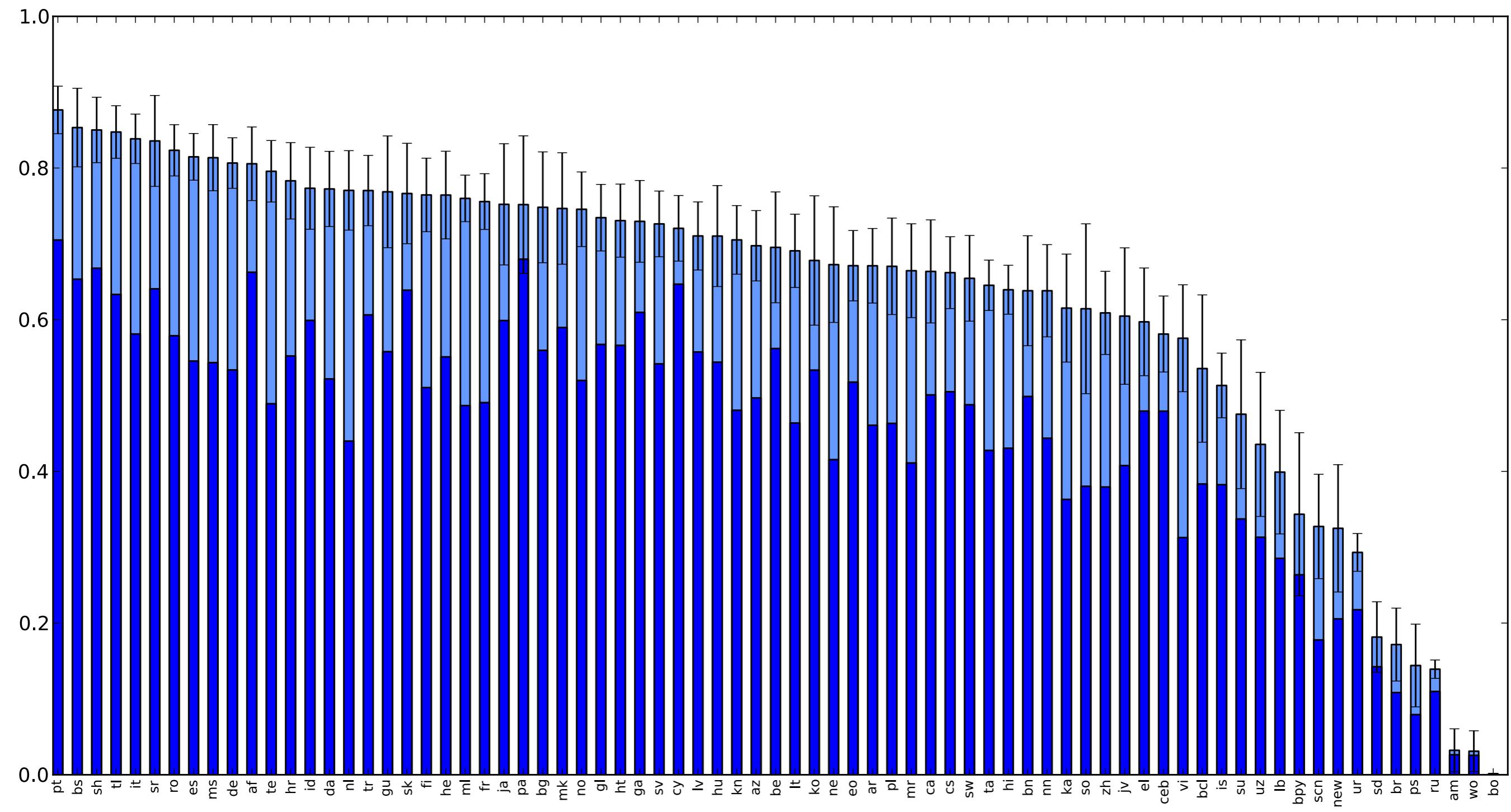
- Yes No Related but not synonymous
 Word is misspelled

[demo](#) and [show](#)

- Yes No Related but not synonymous
 Word is misspelled

Translation Quality

$$\text{Quality}(l_i) = \frac{\sum_{t_j \in \text{turkers}[i]} \text{Quality}(t_j)}{|\text{turkers}[i]|}$$



Translation Quality

	Avg. Turker quality (# Ts)		Primary locations of Turkers in region	Primary locations of Turkers out of region
	In region	Out of region		
Hindi	0.63 (296)	0.69 (7)	India (284) UAE (5) UK (3)	Saudi Arabia (2) Russia (1) Oman (1)
Tamil	0.65 (273) **	0.25 (2)	India (266) US (3) Canada (2)	Tunisia (1) Egypt (1)
Malayalam	0.76 (234)	0.83 (2)	India (223) UAE (6) US (3)	Saudi Arabia (1) Maldives (1)
Spanish	0.81 (191)	0.84 (18)	US (122) Mexico (16) Spain (14)	India (15) New Zealand (1) Brazil (1)
French	0.75 (170)	0.82 (11)	India (62) US (45) France (23)	Greece (2) Netherlands (1) Japan (1)
Chinese	0.60 (116)	0.55 (21)	US (75) Singapore (13) China (9)	Hong Kong (6) Australia (3) Germany (2)
German	0.82 (91)	0.77 (41)	Germany (48) US (25) Austria (7)	India (34) Netherlands (1) Greece (1)
Italian	0.86 (90) *	0.80 (42)	Italy (42) US (29) Romania (7)	India (33) Ireland (2) Spain (2)
Amharic	0.14 (16) **	0.01 (99)	US (14) Ethiopia (2)	India (70) Georgia (9) Macedonia (5)
Kannada	0.70 (105)	NA (0)	India (105)	
Arabic	0.74 (60) **	0.60 (45)	Egypt (19) Jordan (16) Morocco (9)	US (19) India (11) Canada (3)
Sindhi	0.19 (96)	0.06 (9)	India (58) Pakistan (37) US (1)	Macedonia (4) Georgia (2) Indonesia (2)
Portuguese	0.87 (101)	0.96 (3)	Brazil (44) Portugal (31) US (15)	Romania (1) Japan (1) Israel (1)
Turkish	0.76 (76)	0.80 (27)	Turkey (38) US (18) Macedonia (8)	India (19) Pakistan (4) Taiwan (1)
Telugu	0.80 (102)	0.50 (1)	India (98) US (3) UAE (1)	Saudi Arabia (1)
Irish	0.74 (54)	0.71 (47)	US (39) Ireland (13) UK (2)	India (36) Romania (5) Macedonia (2)
Swedish	0.73 (54)	0.71 (45)	US (25) Sweden (22) Finland (3)	India (23) Macedonia (6) Croatia (2)
Czech	0.71 (45) *	0.61 (50)	US (17) Czech Republic (14) Serbia (5)	Macedonia (22) India (10) UK (5)
Russian	0.15 (67) *	0.12 (27)	US (36) Moldova (7) Russia (6)	India (14) Macedonia (4) UK (3)
Breton	0.17 (3)	0.18 (89)	US (3)	India (83) Macedonia (2) China (1)

Language Feasibility

[Full details in Pavlick et al \(TACL 2013\)](#)

workers	quality	speed	
many	high	fast	Dutch, French, German, Gujarati, Italian, Portuguese, Romanian, Serbian, Spanish, Tagalog, Telugu
		slow	Arabic, Hebrew, Irish, Punjabi, Swedish, Turkish
	medium or low	fast	Hindi, Marathi, Tamil, Urdu
		slow	Bengali, Bishnupriya Manipuri, Cebuano, Chinese, Nepali, Newar, Polish, Russian, Sindhi, Tibetan
few	high	fast	Bosnia, Croatian, Macedonian, Malay, Serbo-Croatian
		slow	Afrikaans, Albanian, Aragonese, Asturian, Basque, Belarusian, Bulgarian, Central Bicolano, Czech, Danish, Finnish, Galician, Greek, Haitian, Hungarian, Icelandic, Ilokano, Indonesian, Japanese, Javanese, Kapampangan, Kazakh, Korean, Lithuanian, Low Saxon, Malagasy, Norwegian (Bokmal), Sicilian, Slovak, Slovenian, Thai, Ukrainian, Uzbek, Waray-Waray, West Frisian, Yoruba
	medium or low	slow	Amharic, Armenian, Azerbaijani, Breton, Catalan, Georgian, Latvian, Luxembourgish, Neapolitan, Norwegian (Nynorsk), Pashto, Piedmontese, Somali, Sudanese, Swahili, Tatar, Vietnamese, Walloon, Welsh
none			Esperanto, Ido, Kurdish, Persian, Quechua, Wolof, Zazaki

Full Sentence Translations

پاکیستان نے بھی پ्रتیکار س्वरूپ ۲۸ مارچ ۱۹۹۸ میں چھ پرما�وں پریکشنا کر دالے۔

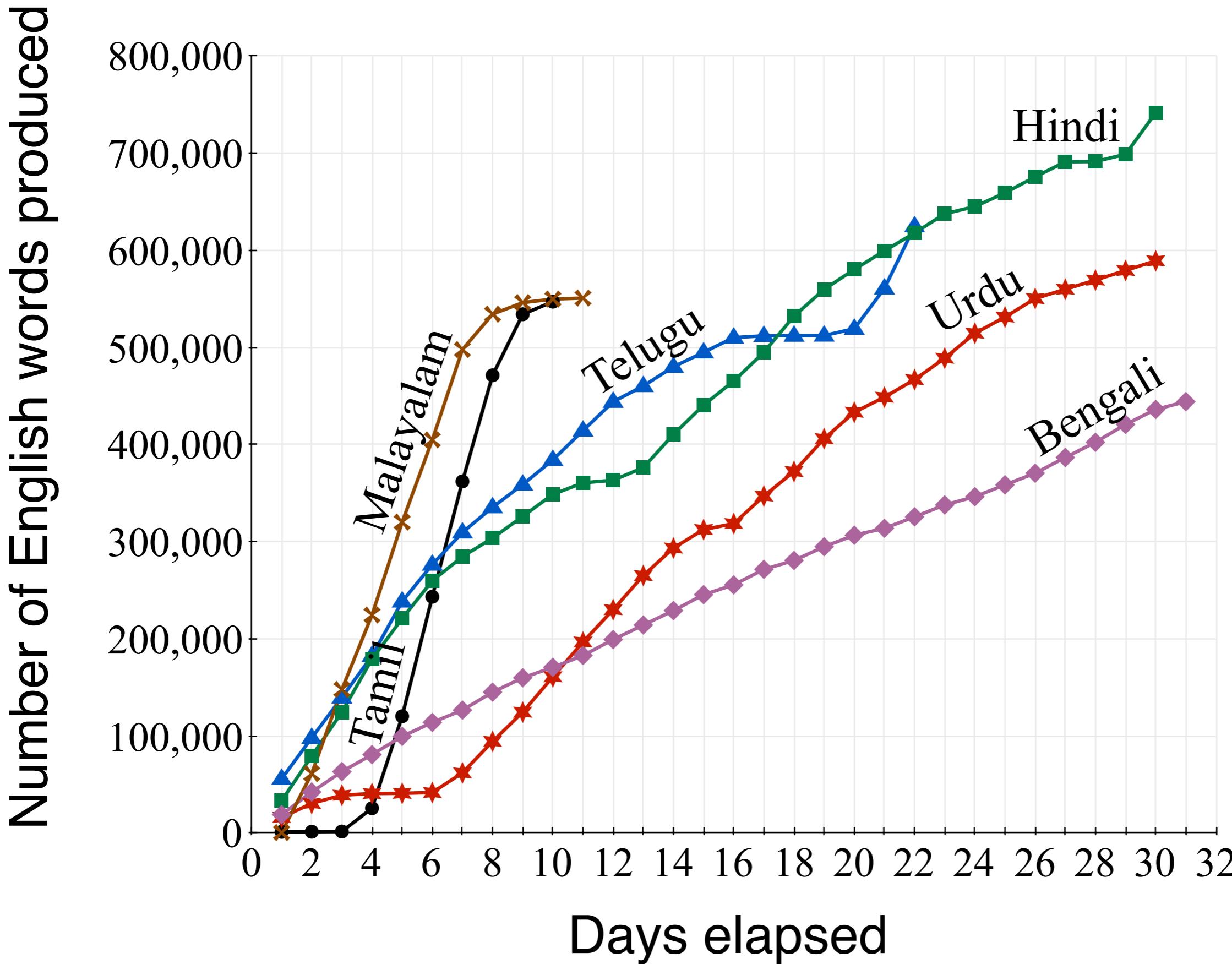
In retribution pakistan also did six nuclear tests on 28 may 1998.

On 28 May Pakistan also conducted six nuclear tests as an act of redressal.

Retaliating on this 'Pakistan' conducted Six(6) Nuclear Tests on 28 May, 1998.

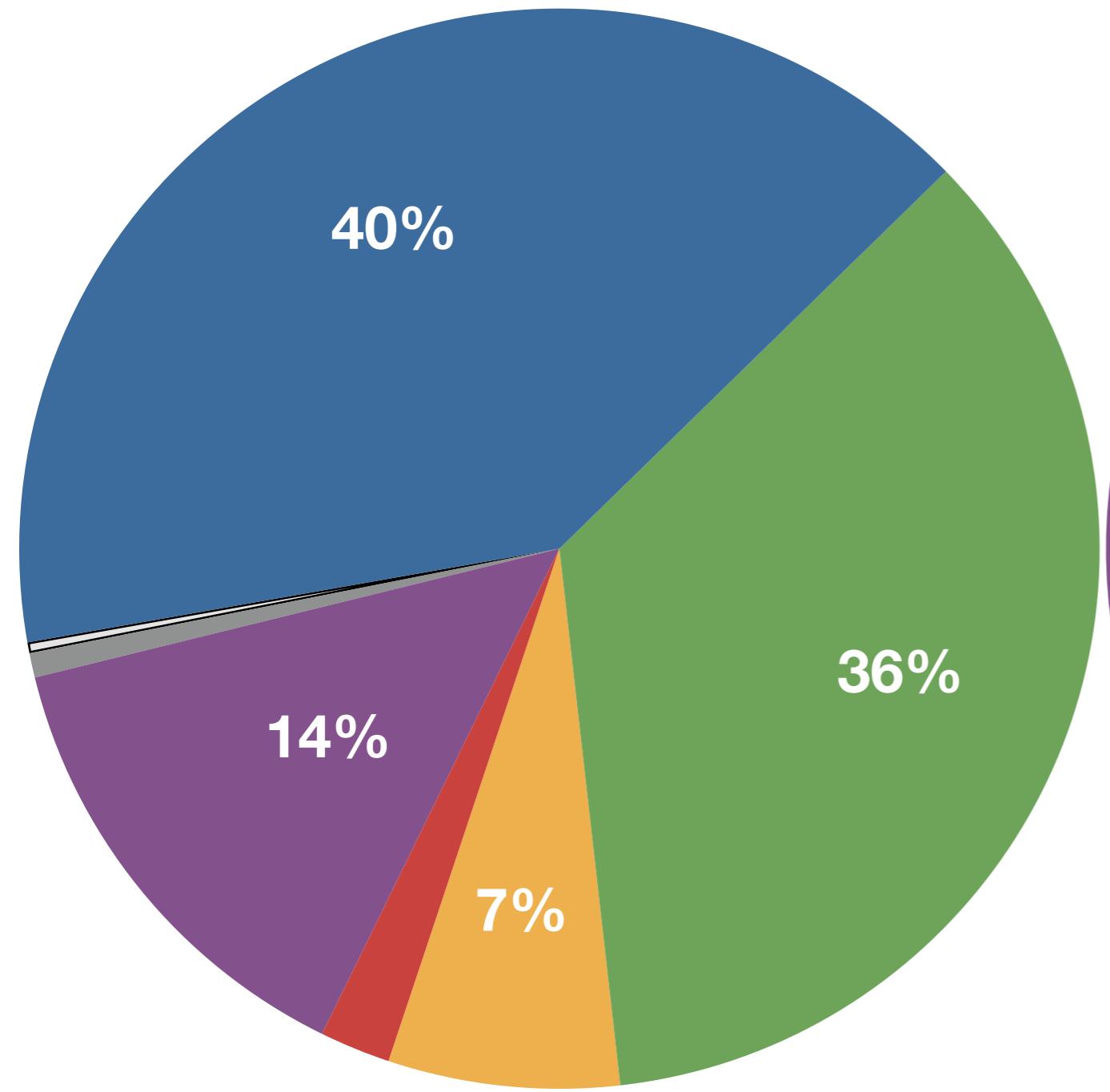
pakistan also did 6 nuclear test in retribution on 28 may, 1998

Rate of Translation

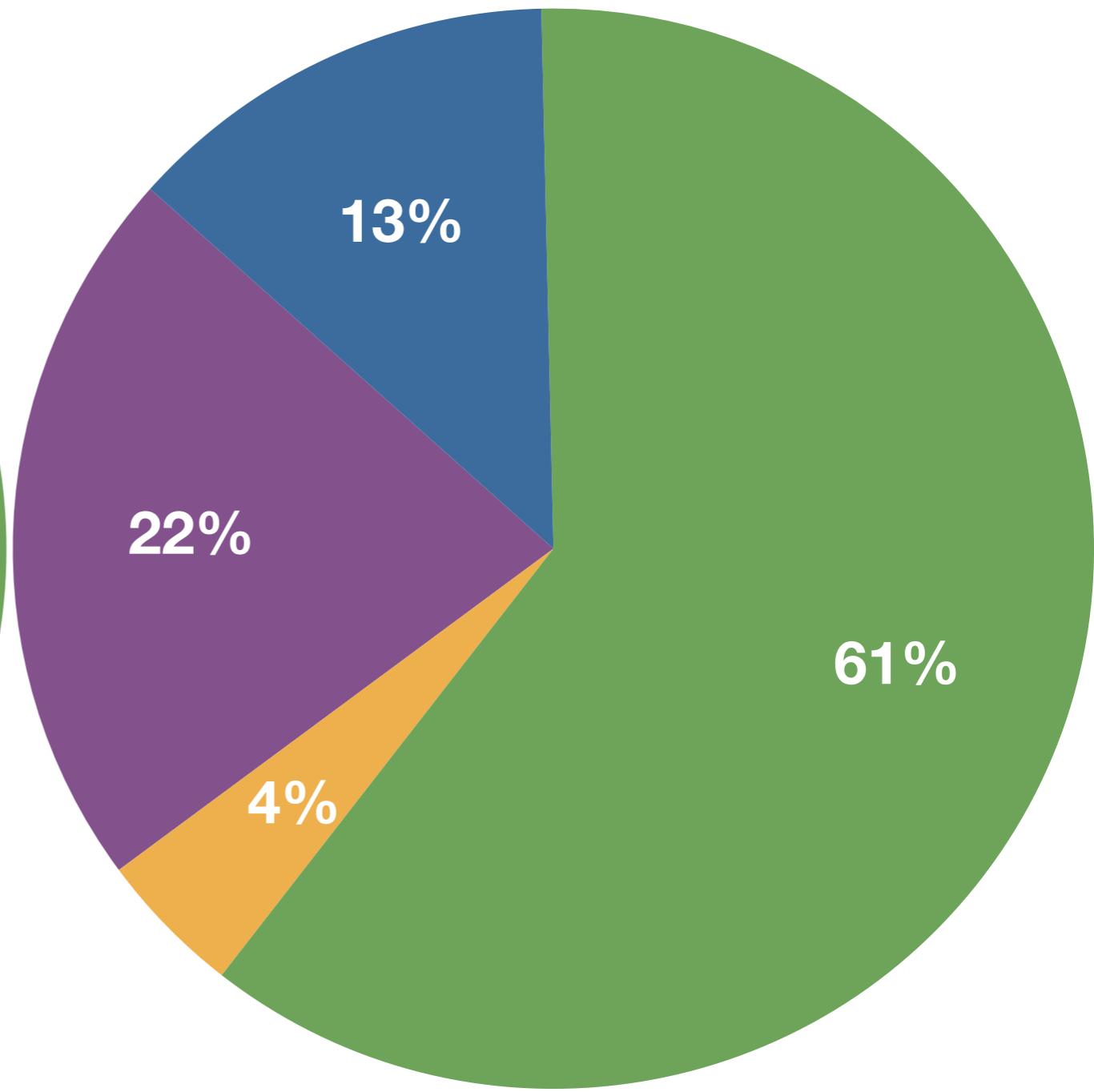


Better Representation of Languages

All Languages



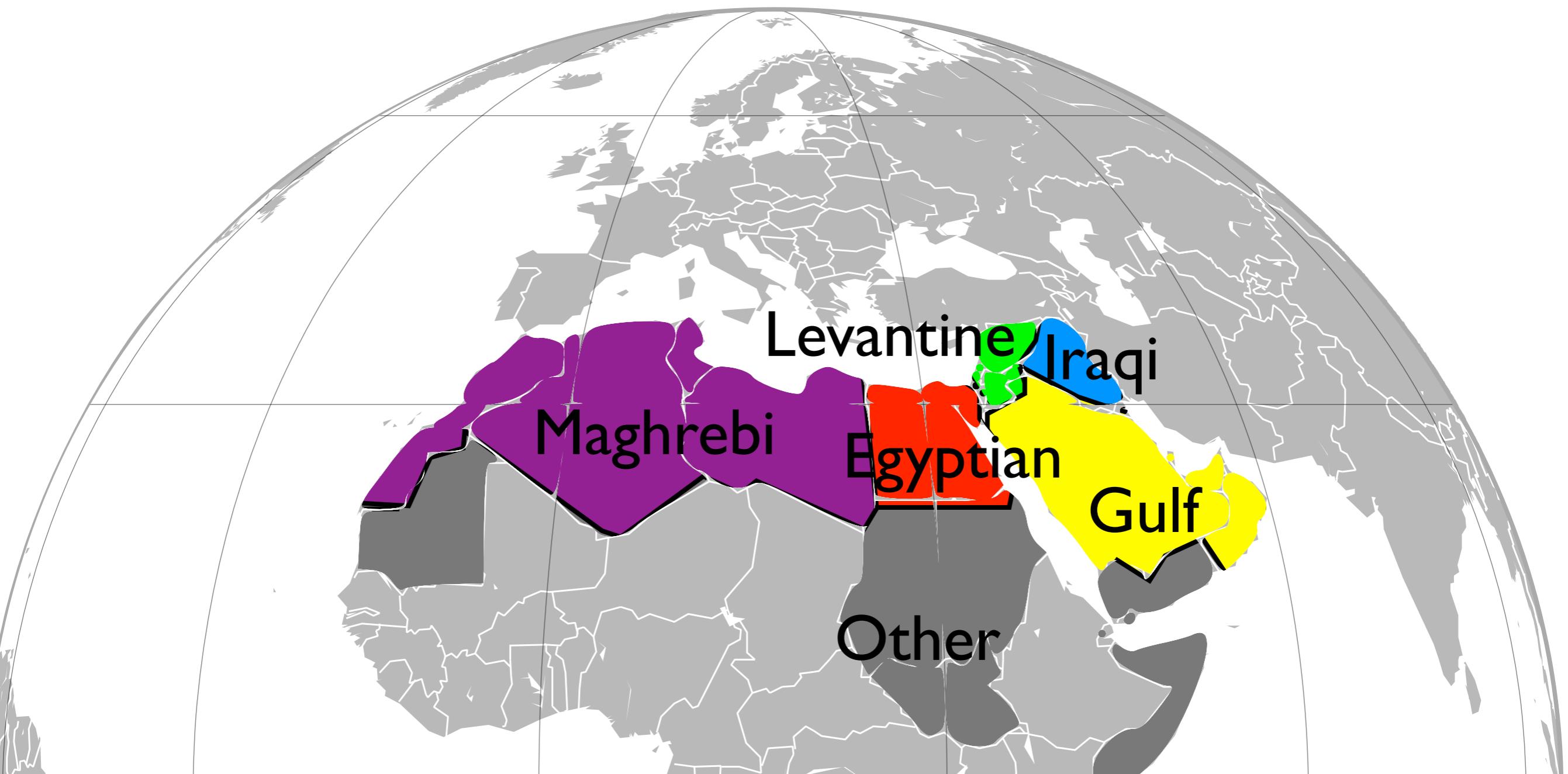
SMT Languages



● SOV ● SVO ● VSO ● VOS ● No dominant order ● OVS

Gathering Data about Arabic Dialects

Arabic has **different varieties**. MSA is the standardized form but there are many **distinct** regional dialects.



Translating Dialects with MSA MT

MSA:

متى سنرى هذه الثلة من المجرمين تخضع للمحاكمة ؟

*mtY snrY h*h Alvp mn Almjrmyn txDE llmHAkmp ?*

Levantine:

ايمتى رح نشوف هالشلة من المجرمين بتتحاكم ؟

AvmtY rH n\$wf hAl\$p mn Almirmvn btHAkkm ?

PT: Quando veremos esse grupo de criminosos serem julgados?

ES-EN: **Quando esse** group of criminals see **Serem julgados**?

Written Arabic Dialect

بلخادم: ما يجمع مصر والجزائر يجعل التقارب أكثر من ضروري

الخميس، 16 يونيو 2011 - 09:27



عبد العزيز بلخادم الممثل الشخصي للرئيس الجزائري

الجزائر (أ.ش.)
+ Google اضف للخرائط

أكد عبد العزيز بلخادم الممثل الشخصي للرئيس الجزائري والأمين العام لحزب جبهة التحرير الوطني ذات الأغلبية في البرلمان والحكومة، أن العلاقات بين مصر والجزائر قديمة ومتعددة علاوة على مصالح مشتركة قوية تربط بين البلدين.

وقال بلخادم إنه بالتأني فإن ما حدث من "سحابات الصيف" "عقب مباراة كرة القدم بين فريقي البلدين في تصفيات كأس العالم عام 2009 لا يؤثر على طبيعة العلاقة والأخوة والروابط بين الشقيقين، مشدداً على ضرورة العمل على رفع سقف التعاون بين البلدين على المستوى الحكومي والجماهيري والمؤسساتي

أنت بتكلم مين يا بلخادم كل الأنظمة فاسدة وتابعة لأمريكا وإسرائيل، إن أردتم فعلا حل مشاكل العرب في البيت العربي فما على الحكم إلا تكوين جمعية وذهب لمتحجع الحكم المخلوعين بالمملكة السعودية وسيروا الشعوب تبحث في قيام الولايات العربية المتحدة وعاصمتها القدس إنشاء الله (معلش حبيبي هو حلم يقطن يمكن يتحقق في يوم من الأيام من هنا يعلم الغيب؟)

Article body (MSA)

MSA

EGY

خليك في حالك وابعد عننا

بواسطة: bebooo

1

بتاريخ: الخميس، 16 يونيو 2011 - 09:39

EGY

خليك في حالك انت وابعدوا عننا وانت اخر ناس تتكلم عن التقارب والعروبة

الجزائر إخوه أعزاء لنا وأهلاً ومرحباً بتفوقة العلاقات معهم

MSA

بواسطة: سامي شاهين

2

بتاريخ: الخميس، 16 يونيو 2011 - 09:55

التقارب بين مصر والجزائر يعتبر حاجة ملحة تستدعيه الظروف الراهنة التي يمر بها الوطن العربي ، أهلاً ومرحباً يأي تقارب عربي بين الأشقاء في الوطن والمصیر ، يسقط الاستعمار الجديد المتمثل في أمريكا والناتو ومن وراءه آل صهيون

هزلت

بواسطة: مواطن مصرى بسيط

3

بتاريخ: الخميس، 16 يونيو 2011 - 09:55

EGY

هزلت وعيت سفينة نوح على اليابس - الدنيا جري فيها ايه علشان نسمع دروس من امثالكم

تبليه

بواسطة: علي

4

بتاريخ: الخميس، 16 يونيو 2011 - 09:57

MSA

انا الشعب الجزائري يعمل جاهدا من اجل السعي للتوجيد العالم العربي وكذاك السعي ورا طموحات اكبر وهي ، ان تكون كلمت العرب كلها واحدة امام الغرب

أنت.....

بواسطة: الفيلسوف

5

بتاريخ: الخميس، 16 يونيو 2011 - 10:14

EGY

أنت بتكلم مين يا بلخادم كل الأنظمة فاسدة وتابعة لأمريكا وإسرائيل، إن أردتم فعلا حل مشاكل العرب في البيت العربي فما على الحكم إلا تكوين جمعية وذهب لمتحجع الحكم المخلوعين بالمملكة السعودية وسيروا الشعوب تبحث في قيام الولايات العربية المتحدة وعاصمتها القدس إنشاء الله (معلش حبيبي هو حلم يقطن يمكن يتحقق في يوم من الأيام من هنا يعلم الغيب؟)

MSA

EGY

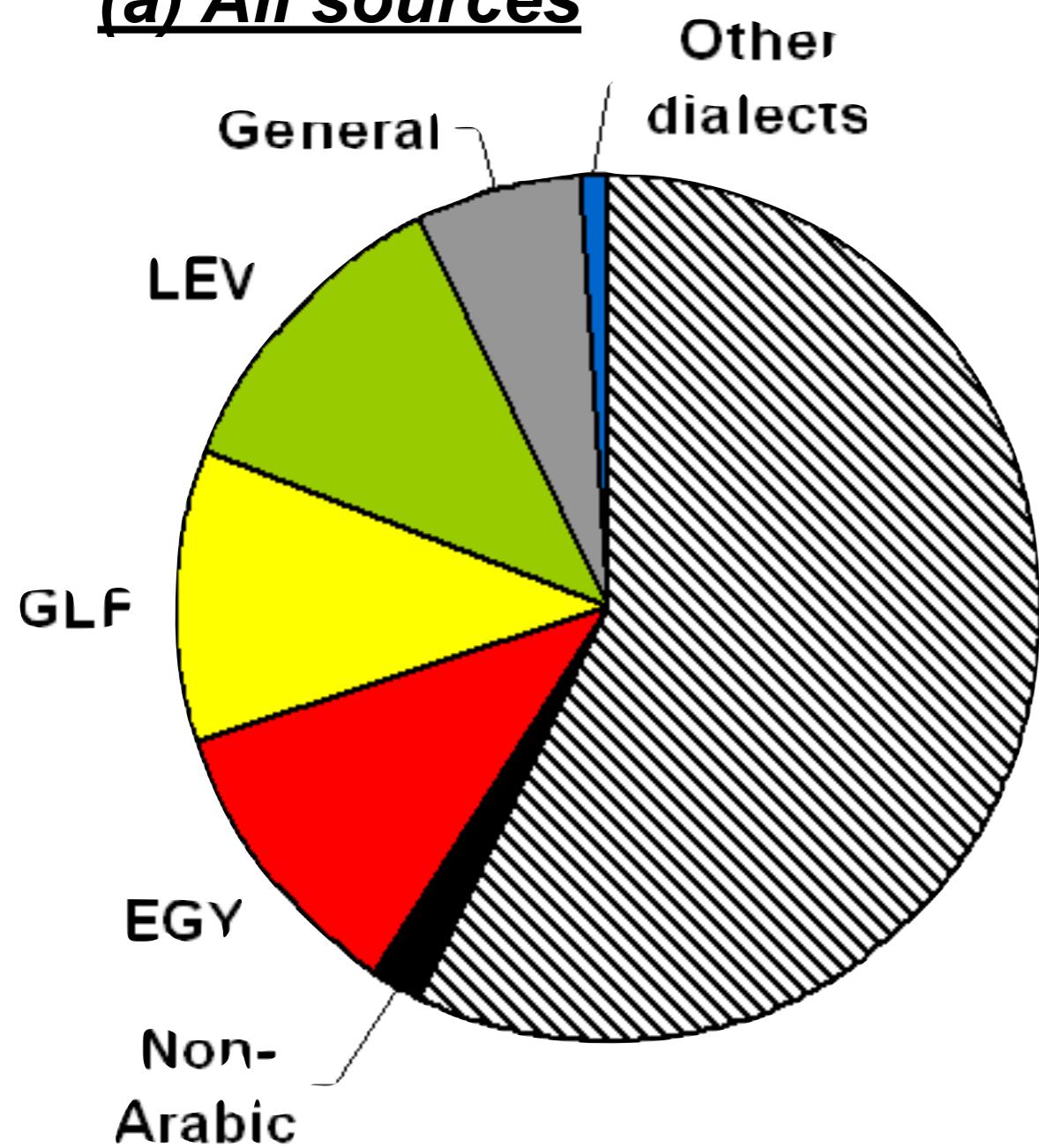
Crowdsourcing Dialect ID

Full details in Zaidan and Callison-Burch (ACL 2011b)

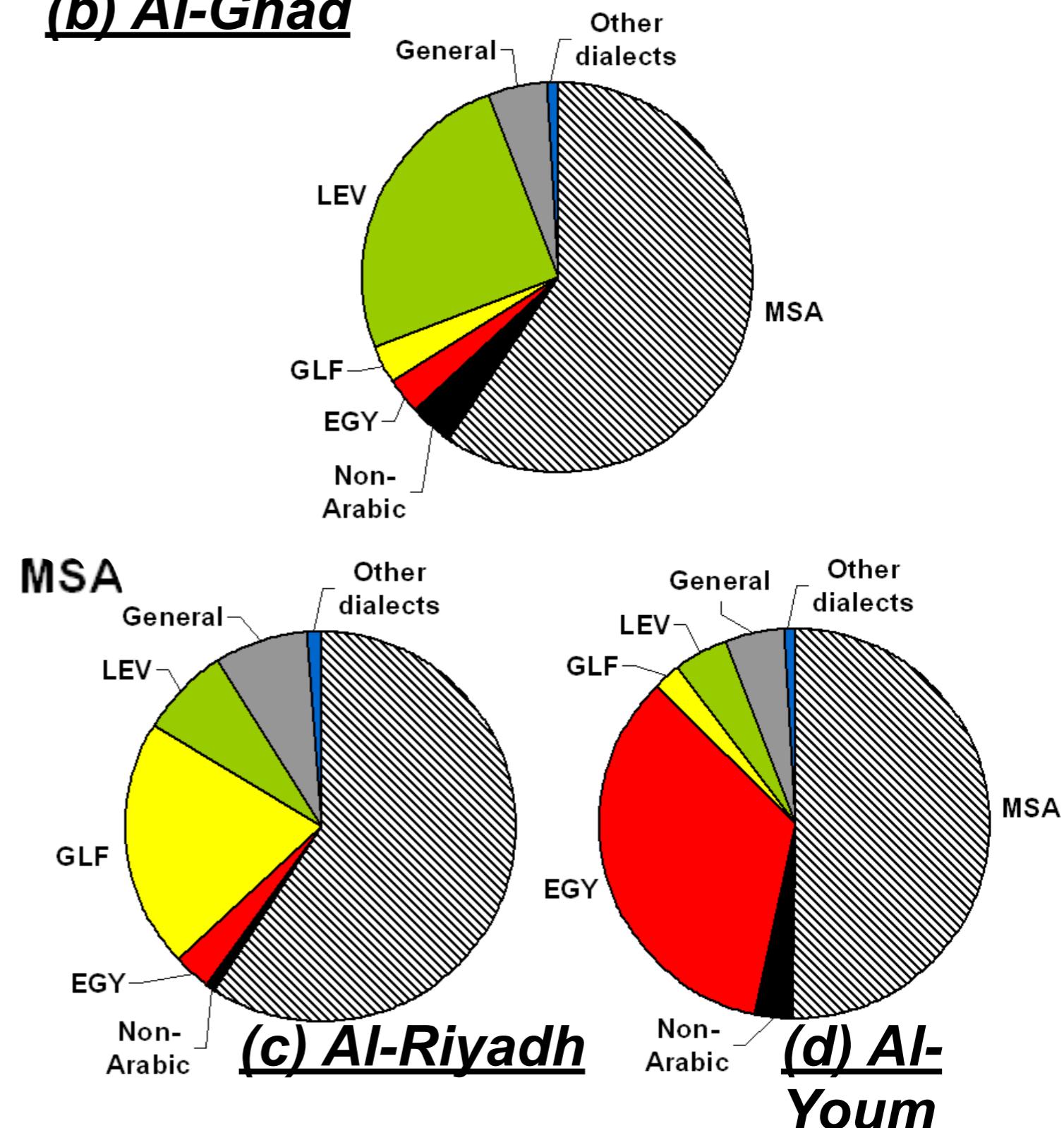
- Labeled 142k comments gathered from three online newspapers:
 - Al-Ghad (الغد), a Jordanian newspaper LEV MSA
 - Al-Riyadh (الرياض), a Saudi newspaper GLF MSA
 - Al-Youm Al-Sabe' (اليوم السابع), an Egyptian newspaper EGY MSA
- 59% MSA, 41% dialect
- Trained classifiers with 80-90% accuracy

Label Distribution

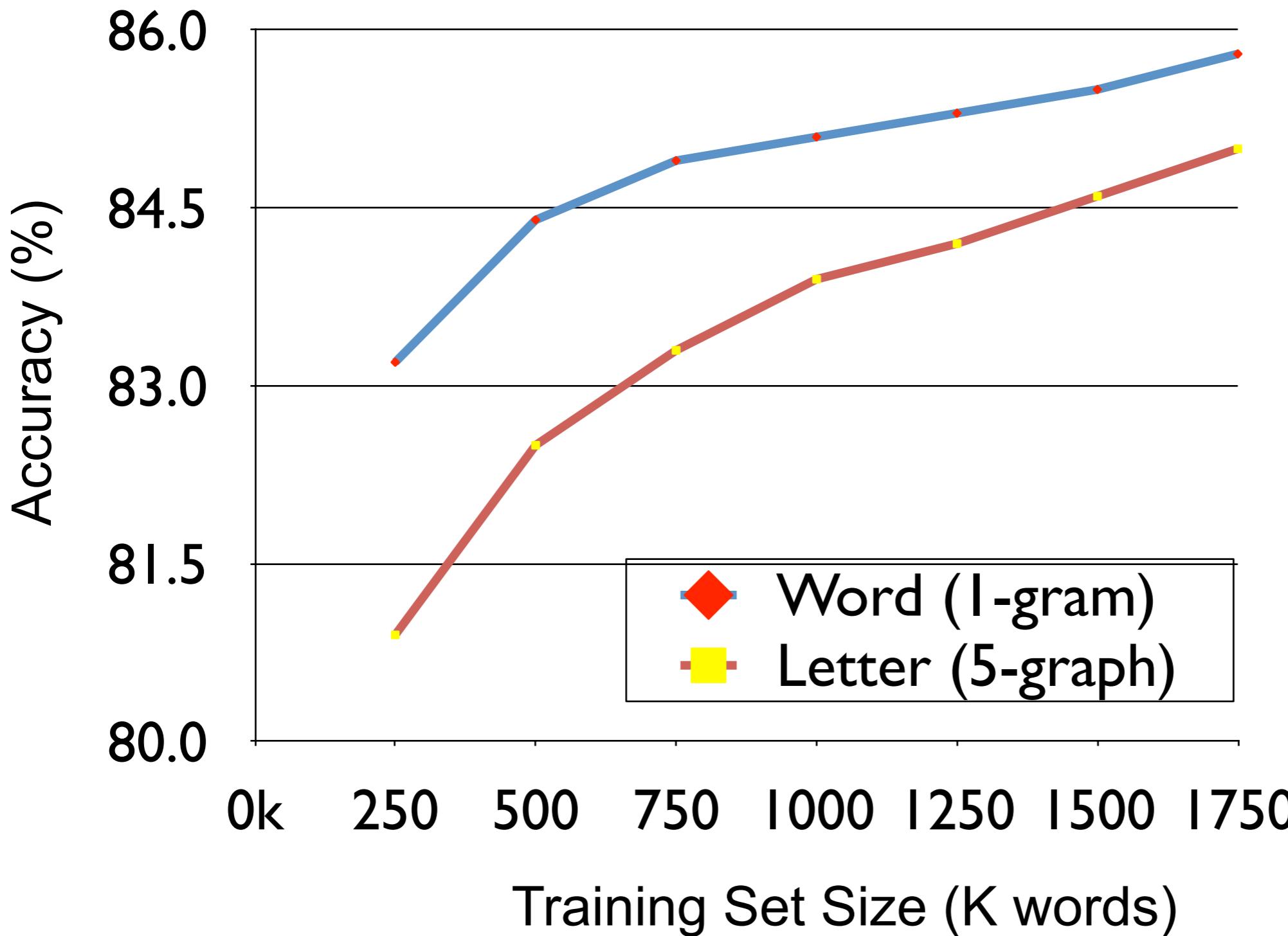
(a) All sources



(b) Al-Ghad



Automatic dialect ID



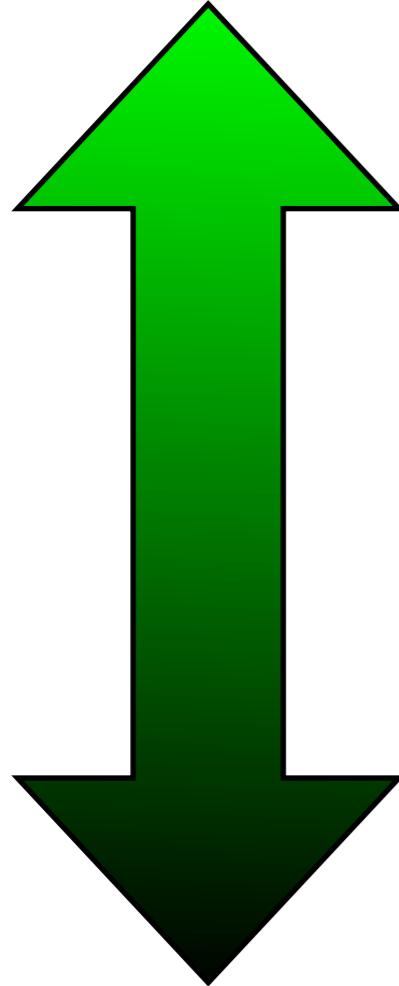
Baselines
Majority
class: **59%**

OOV wrt
Arabic
GigaWord:
66%

1 letter model
trained on our
data: **68%**

“Dialectness” quantified

Extremely dialectal
Levantine words



Extremely MSA words
(i.e. very unlikely in
dialectal context)

Al-Ghad			
w		Gloss	DF(w)
\$w	شو	what	139.0
xly	خلي	let	132.8
xlS	خلص	enough	117.5
AlHky	الحكي	the-talk	115.8
Endw	عندو	he has	95.3
bdy	بدي	I will/want	93.6
AzA	ازا	if	93.6
mnyH	منيج	good	93.6
\$wy	شوي	little	92.8
<nw	إنو	that	90.2
hAy	هاي	this (f.)	80.0
bEdyn	بعدين	then	70.2
mw	مو	not	65.5
Ay\$	ايش	what	63.8
bdw	بدو	he will/wants	60.3
:	:		
Ebr	عبر	through	0.146
w>n	وأن	and-that	0.145
Al<slAm	الإسلام	Islam	0.138
tEA1Y	تعالي	almighty	0.138
SIY	صلى	blessed	0.127
AldymqrATyp	الديمقراطية	democratic	0.108
Allimp	النّيابة	the committee	0.095

$$DF(w) \stackrel{\text{def}}{=} \frac{f(w|D)}{f(w|MSA)}$$

“Dialectness” factor

What is this useful for?

- Characterizing communicants
 - What is this writer's native dialect?
 - Where are they from?
 - Informal relation with their interlocutor
- Harvesting written dialect from large web crawls
 - Useful for training dialect language models for ASR?
- Identifying dialect sentence to then translate
 - Training data for a statistical machine translation

Crowdsourcing Arabic Dialects

- Translated dialect-labeled segments  

Dialect Classification HIT	\$10,064
Sentence Segmentation HIT	\$1,940
Translation HIT	\$32,061
Total Cost	\$44,065
Num words translated	1,516,856
Cost per word	2.9 cents/word

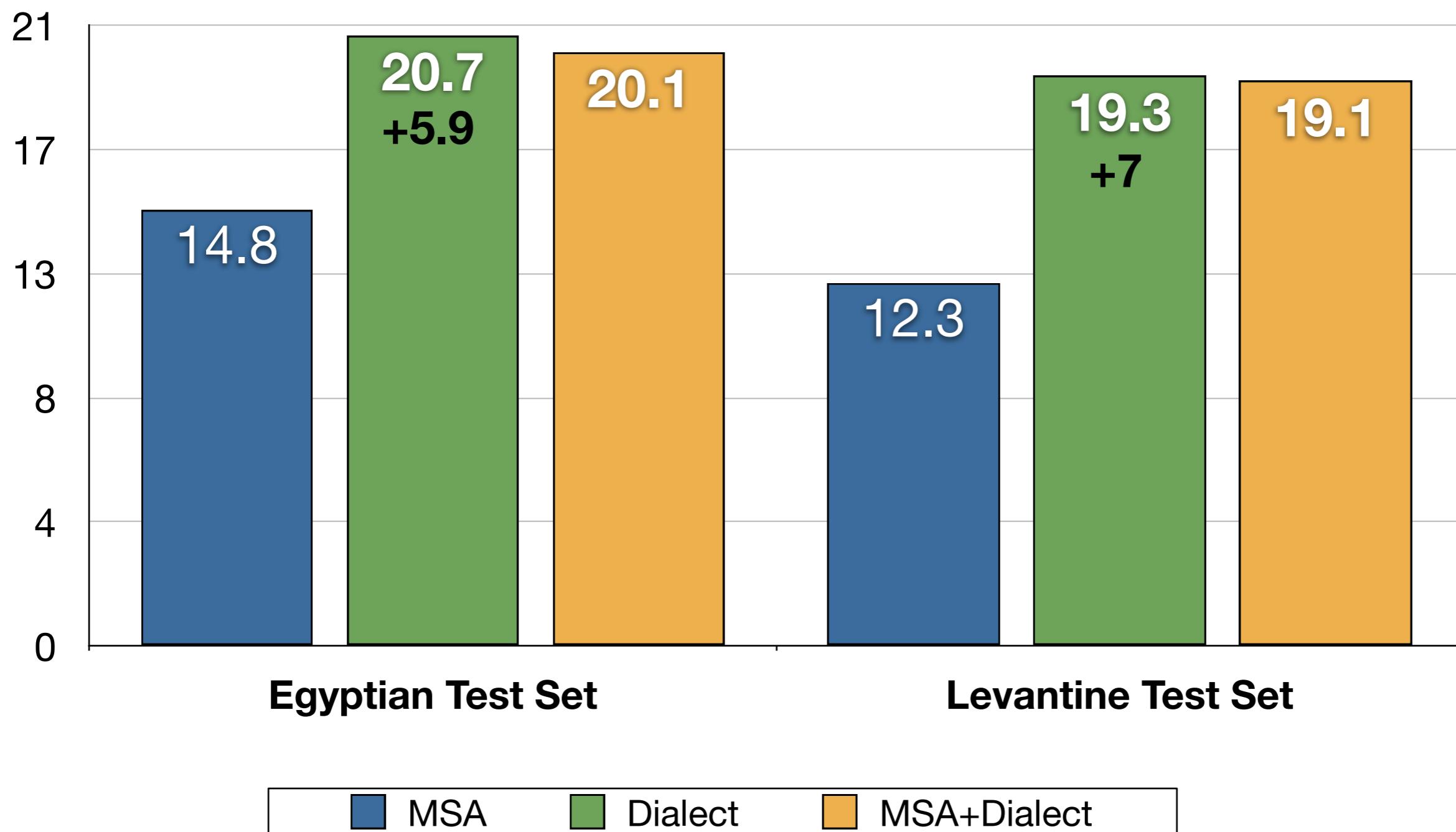
- 121 workers completed 20+ assignments
- 200,000 words translated per week
- Trained BBN's machine translation system ⁶¹

Examples of Dialect Translation

Dialect Input	MSA system	Dialect system	Reference
EGY انت بتعمل له اعلان ولا ايه ؟ !!	You are working for a declaration and not?	You are making the advertisement for him or what?	Are you promoting it or what?!!
EGY نفسي اطمئن عليه بعد ما شاف الصوره دي	Myself feel to see this image.	I wish to check on him after he saw this picture.	I want to be sure that he is fine after he saw the images.
LEV لهيك الجو كتير كوروول	God you the atmosphere.	This is why the weather is so cool	This is why the weather is so cool
LEV طول بالك عم نمزح	Do you think about a joke long.	Calm down we are kidding	Calm down, we are only kidding

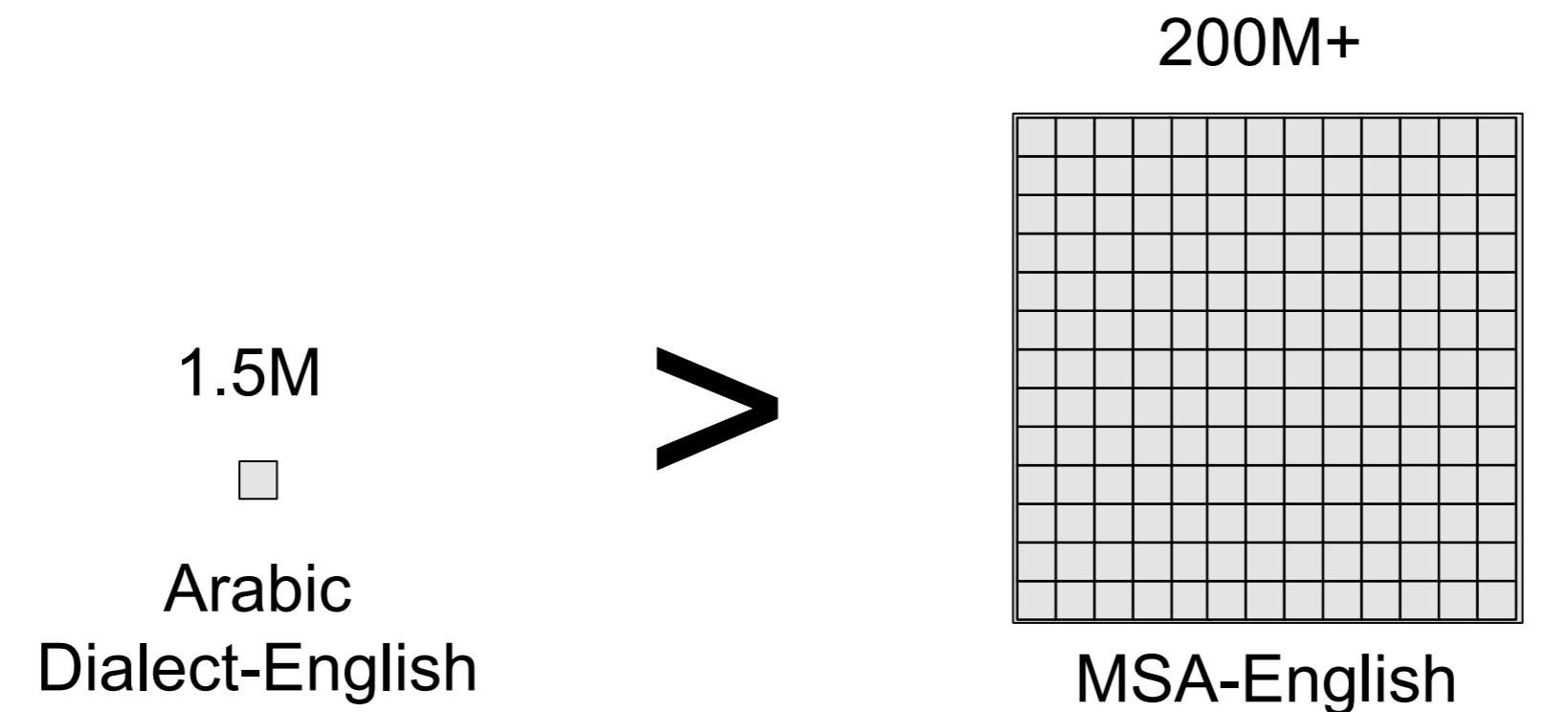
Dialect versus MSA

Full details in Zbib, Malchiodi, Devlin, Stallard, Matsoukas, Schwartz, Makhoul, Zaidan, & Callison-Burch (NAACL 2012)



Dialect v. MSA data for MT

For machine translation of Arabic dialects



2 months
\$44k
+6 Bleu

5 years
\$10s of millions
no added Bleu

Implications of low cost, high
quality translations for research

We want to respond to a “Surprise Language”



The Los Angeles Times reported that at about 5:20 P.M. on Tuesday March 4, 2003, a **bomb** concealed in a backpack **exploded** at the airport in Davao City, the second largest city **in the Philippines**. At least 23 people were reported dead, with more than 140 injured, and President Arroyo of the Philippines characterized the blast as a terrorist act.

With the 13 hour time difference, it was then at 4:20 A.M. on the same date in Washington, DC. **Twenty-four hours later**, at 4:13 A.M. on March 5, participants in the Translingual Information Detection, Extraction and Summarization (TIDES) program were notified that **Cebuano** had been chosen as the **language of interest** for a “surprise language” practice exercise that had been planned quite independently to begin on that date. The notification observed that Cebuano is spoken by 24% of the population of the Philippines and that it is the *lingua franca* in the south Philippines, where the event occurred.



100 languages

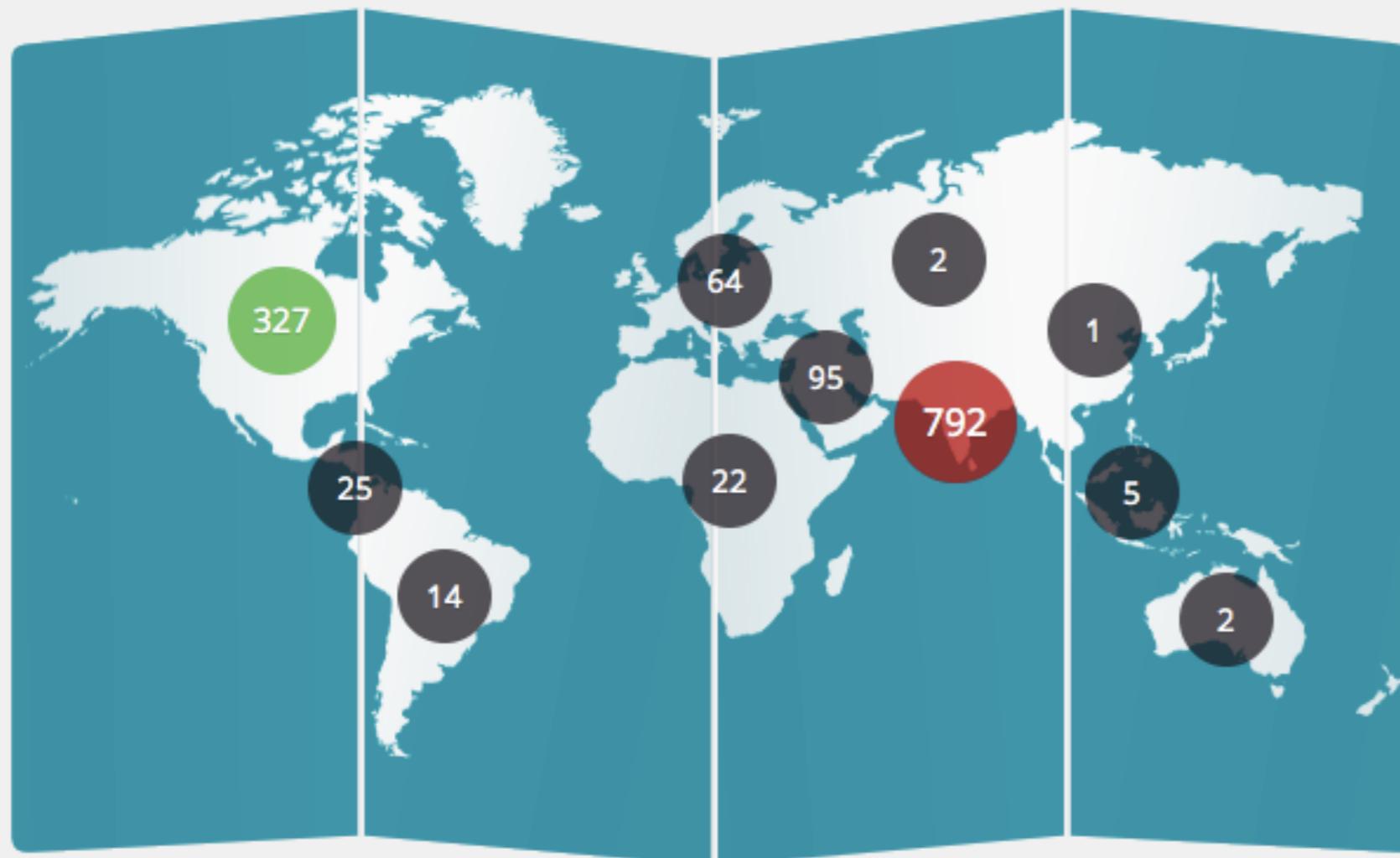
- Microsoft translator does 35 languages
- Google does 57 languages
- The DoD's Center for Applied MT does 64
- There is not enough data to reach acceptably high quality in new languages
- I want us to do 100 languages



Individual researchers now have their own data production companies

- ✓ Parallel corpora for six Indian languages
 - ✓ Arabic dialect ID dataset
- ✓ 1.5M word English-Arabic dialect corpus
- ✓ Bilingual dictionaries for ~100 languages
- ✓ English translation of 180 hrs of spoken Spanish
Corpus annotating and correcting ESL errors
- Speech collection and transcription for new lang.
- De-romanization / text normalization corpus

Translator activity



Recent public translations

ES La administración judicial temporal ...

The temporary judicial administrati...

EN

6 hours ago on [El pais test - May 23](#)

ES En un comunicado remitido a la Co...

In a communication sent to the Nat...

EN

6 hours ago on [El pais test - May 23](#)

ES El Tribunal de Palermo ha ordenad...

The Palermo Court has ordered the...

EN

6 hours ago on [El pais test - May 23](#)

go to public translations

High quality crowd translations
from around the world

Order Translation

or learn how it works

Thanks!

Chris Callison-Burch

ccb@cis.upenn.edu

More info in Omar Zaidan's PhD thesis
“Crowdsourcing Annotation for Machine Learning in
Natural Language Processing Tasks” and our
publications. Omar’s thesis defense video is online at
<http://vimeo.com/clsp/omar-zaidan-thesis-defense-talk>