Static Embeddings as Efficient Knowledge Bases?

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Abstract

Recent research investigates factual knowledge stored in large pretrained language models (PLMs). Instead of structural knowledge base (KB) queries, masked sentences such as "Paris is the capital of [MASK]" are used as probes. The good performance on this analysis task has been interpreted as PLMs becoming potential repositories of factual knowledge. In experiments across ten linguistically diverse languages, we study knowledge contained in static embeddings. We show that, when restricting the output space to a candidate set, simple nearest neighbor matching using static embeddings performs better than PLMs. E.g., static embeddings perform 1.6% points better than BERT while just using 0.3% of energy for training. One important factor in their good comparative performance is that static embeddings are standardly learned for a large vocabulary. In contrast, BERT exploits its more sophisticated, but expensive ability to compose meaningful representations from a much smaller subword vocabulary.

1 Introduction

Pretrained language models (PLMs) (Peters et al., 2018; Howard and Ruder, 2018; Devlin et al., 2019) can be finetuned to a variety of natural language processing (NLP) tasks and then generally yield high performance. Increasingly, these models and their generative variants (e.g., GPT, Brown et al., 2020) are used to solve tasks by simple text generation, without any finetuning. This motivated research on how much knowledge is contained in PLMs: Petroni et al. (2019) used models pretrained with a masked language objective to answer cloze-style templates such as:

(Ex1) Paris is the capital of [MASK].

Using this methodology, Petroni et al. (2019) showed that PLMs capture some knowledge implicitly. This has been interpreted as suggesting

* Equal contribution - random order.

Model	Vocabulary Size	LAMA	p1 LAMA-UHN
Oracle		22.0	23.7
BERT	30k	39.6	30.7
mBERT	110k	36.3	27.4
	BERT-30k	26.9	16.8
	mBERT-110k	27.5	17.8
	30k	16.4	5.8
fastText	120k	34.3	25.0
	250k	37.7	29.0
	500k	39.9	31.8
	1000k	41.2	33.4

Table 1: Results for majority oracle, BERT, mBERT and fastText. Static fastText embeddings are competitive and outperform BERT for large vocabularies. BERT and mBERT use their subword vocabularies. For fastText, we use BERT/mBERT's vocabularies and newly trained wordpiece vocabularies on Wikipedia.

that PLMs are promising as repositories of factual knowledge. In this paper, we present evidence that simple static embeddings like fastText perform as well as PLMs in the context of answering knowledge base (KB) queries. Answering KB queries can be decomposed into two subproblems, typing and ranking. Typing refers to the problem of predicting the correct type of the answer entity; e.g., "country" is the correct type for [MASK] in (Ex1), a task that PLMs seem to be good at. Ranking consists of finding the entity of the correct type that is the best fit ("France" in (Ex1)). By restricting the output space to the correct type we disentangle the two subproblems and only evaluate ranking. We do this for three reasons. (i) Ranking is the knowledgeintensive step and thus the key research question. (ii) Typed querying reduces PLMs' dependency on the template. (iii) It allows a direct comparison between static word embeddings and PLMs. Prior work has adopted a similar approach (Xiong et al., 2020; Kassner et al., 2021).

For a PLM like BERT, ranking amounts to finding the entity whose embedding is most similar to the output embedding for [MASK]. For static embeddings, we rank entities (e.g., entities of type country) with respect to similarity to the query entity (e.g., "Paris" in (Ex1)). In experiments across ten linguistically diverse languages, we show that this simple nearest neighbor matching with fastText embeddings performs comparably to or even better than BERT. For example for English, fastText embeddings perform 1.6% points better than BERT (41.2% vs. 39.6%, see Table 1, column "LAMA"). This suggests that BERT's core mechanism for answering factual queries is not more effective than simple nearest neighbor matching using fastText embeddings.

We believe this means that claims that PLMs are KBs have to be treated with caution. Advantages of BERT are that it composes meaningful representations from a small subword vocabulary and handles typing implicitly (Petroni et al., 2019). In contrast, answering queries without restricting the answer space to a list of candidates is hard to achieve with static word embeddings. On the other hand, static embeddings are cheap to obtain, even for large vocabulary sizes. This has important implications for green NLP. PLMs require tremendous computational resources, whereas static embeddings have only 0.3% of the carbon footprint of BERT (see Table 4). This argues for proponents of resourcehungry deep learning models to try harder to find cheap "green" baselines or to combine the best of both worlds (cf. Poerner et al., 2020).

In summary, our contributions are:

- We propose an experimental setup that allows a direct comparison between PLMs and static word embeddings. We find that static word embeddings show performance similar to BERT on the modified LAMA analysis task across ten languages.
- We provide evidence that there is a trade-off between composing meaningful representations from subwords and increasing the vocabulary size. Storing information through composition in a network seems to be more expensive and challenging than simply increasing the number of atomic representations.
- iii) Our findings may point to a general problem: baselines that are simpler and "greener" are not given enough attention in deep learning.

Code and embeddings are available online.¹

Language	Code	Family	Script
Arabic	AR	Afro-Asiatic	Arabic
German	DE	Indo-European	Latin
English	EN	Indo-European	Latin
Spanish	ES	Indo-European	Latin
Finnish	FI	Uralic	Latin
Hebrew	HE	Afro-Asiatic	Hebrew
Japanese	JA	Japonic	Japanese
Korean	KO	Koreanic	Korean
Turkish	TR	Turkic	Latin
Thai	TH	Tai-Kadai	Thai

Table 2: Overview of the ten languages in our experiments, including language family and script.

2 Data

We follow the LAMA setup introduced by Petroni et al. (2019). More specifically, we use data from TREx (Elsahar et al., 2018). TREx consists of triples of the form (object, relation, subject). The underlying idea of LAMA is to query knowledge from PLMs using templates without any finetuning: the triple (Paris, capital-of, France) is queried with the template "Paris is the capital of [MASK]." TREx covers 41 relations. Templates for each relation were manually created by Petroni et al. (2019). LAMA has been found to contain many "easy-toguess" triples; e.g., it is easy to guess that a person with an Italian sounding name is Italian. LAMA-UHN is a subset of triples that are "hard-to-guess" created by Poerner et al. (2020).

Beyond English, we run experiments on nine additional languages using mLAMA, a multilingual version of TREx (Kassner et al., 2021). For an overview of languages and language families see Table 2. For training static embeddings, we use Wikipedia dumps from October 2020.

3 Methods

We describe our proposed setup, which allows to compare PLMs with static embeddings.

3.1 PLMs

We use the following two PLMs: (i) BERT for English (BERT-base-cased, Devlin et al. (2019)), (ii) mBERT for all ten languages (the multilingual version BERT-base-multilingual-cased).

Petroni et al. (2019) use templates like "Paris is the capital of [MASK]" and give $\arg \max_{w \in \mathcal{V}} p(w|t)$ as answer where \mathcal{V} is the vocabulary of the PLM and p(w|t) is the probability that word w gets predicted in the template t.

We follow the same setup as (Kassner et al.,

¹https://github.com/pdufter/staticlama

Model	Vocab. Size	AR	DE	ES	FI	p1 HE	JA	ко	TH	TR
Oracle		21.9	22.3	21.6	21.3	22.9	21.3	21.7	23.7	23.5
mBERT	110k	17.2	31.5	33.6	20.6	17.5	15.1	18.9	13.5	33.8
fastText	mB-110k 30k 120k 250k 500k 1000k	16.4 20.8 27.9 30.1 31.7 31.3	20.9 16.2 25.2 30.3 32.5 33.6	24.6 17.1 31.0 34.2 36.6 36.5	21.4 16.7 24.2 28.8 30.9 31.8	14.5 21.4 28.3 32.8 33.7 33.9	12.9 14.6 22.4 24.9 27.0 27.2	16.1 17.3 28.2 30.5 31.5 29.8	12.9 21.3 28.0 31.6 31.8 30.5	26.0 22.1 33.2 35.6 36.1 36.6

Table 3: p1 for mBERT and fastText on mLAMA. fast-Text clearly outperforms mBERT for large vocabularies. Numbers across languages are not comparable as the number of triples varies.

Model	Power (W)	h	kWh · PUE	CO ₂ e
BERT	12,041	79	1,507	1,438
fastText-en	618	5	5	5
ratio-en	0.05	0.06	0.003	0.003

Table 4: Power consumption (Power), hours of computation (h), energy consumption (kWh \cdot PUE) and carbon emissions (CO₂e) of BERT vs. fastText. Training embeddings for all languages takes around 4 times the resources as training English. BERT numbers from (Strubell et al., 2019). We use our server's peak power consumption. See appendix for details.

2021) and use typed querying: for each relation, we create a candidate set C and then predict arg $\max_{c \in C} p(c|t)$. For most templates, there is only one valid entity type, e.g., country for (Ex1). We choose as C the set of objects across all triples for a single relation. The candidate set could also be obtained from an entity typing system (e.g., Yaghoobzadeh et al., 2018), but this is beyond the scope of this paper. Variants of typed prediction have been used before (Xiong et al., 2020).

We accommodate multi-token objects, i.e., objects that are not contained in the vocabulary, by including multiple [MASK] tokens in the templates. We then compute an object's score as the average of the log probabilities for its individual tokens. Note that we do not perform any finetuning.

3.2 Vocabulary

The vocabulary \mathcal{V} of the wordpiece tokenizer is of central importance for static embeddings as well as PLMs. BERT models come with fixed vocabularies. It would be prohibitive to retrain the models with a new vocabulary. It would also be too expensive to increase the vocabulary by a large factor: the embedding matrix is responsible for the majority of the memory consumption of these models.

In contrast, increasing the vocabulary size is

cheap for static embeddings. We thus experiment with different vocabulary sizes for static embeddings. To this end, we train new vocabularies for each language on Wikipedia using the wordpiece tokenizer (Schuster and Nakajima, 2012).

3.3 Static Embeddings

Using either newly trained vocabularies or existing BERT vocabularies, we tokenize Wikipedia. We then train fastText embeddings (Bojanowski et al., 2017) with default parameters (http://fasttext.cc). We consider the same candidate set C as for PLMs. Let $c \in C$ be a candidate that gets split into tokens t_1, \ldots, t_k by the wordpiece tokenizer. We then assign to c the embedding vector

$$\bar{e}_c = \frac{1}{k} \sum_{i=1}^k e_{t_i}$$

where e_{t_i} is the fastText vector for token t_i . We compute the representations for a query q analogously. For a query q (the subject of a triple), we then compute the prediction as:

$$\arg\max_{c\in\mathcal{C}}\operatorname{cosine-sim}(\bar{e}_q,\bar{e}_c),$$

i.e., we perform simple nearest neighbor matching. Note that the static embedding method does not get any signal about the relation. The method's only input is the subject of a triple, and we leave incorporating a relation vector to future work.

3.4 Evaluation Metric

We compute precision at one for each relation, i.e., $1/|T| \sum_{t \in T} \mathbb{1}\{\hat{t}_{object} = t_{object}\}$ where *T* is the set of all triples and \hat{t}_{object} the object predicted using contextualized/static embeddings. Note that *T* is different for each language. Our final measure (p1) is then the precision at one (macro-)averaged over relations. As a consistency check we provide an **Oracle** baseline: it always predicts the most frequent object across triples based on the gold candidate sets.

4 Results and Discussion

In this section, we compare the performance of BERT and fastText, analyze their resource consumption, and give evidence that BERT composes meaningful representations from subwords.

4.1 BERT vs. fastText

Results for English are in Table 1. The table shows that when increasing the vocabulary size, static embeddings and BERT exhibit similar performance on LAMA. The Oracle baseline is mostly outperformed. Only for small vocabulary sizes, fast-Text is worse. Performance of fastText increases with larger vocabulary sizes and with a vocabulary size of 1000k we observe a 1.6% absolute performance increase of fastText embeddings compared to BERT (41.2% vs. 39.6%). The performance gap between fastText and BERT increases to 2.7% points on LAMA-UHN, indicating that fastText is less vulnerable to misleading clues about the subject.

Only providing results on English can be prone to unexpected biases. Thus, we verify our results for nine additional languages. Results are shown in Table 3 and the conclusions are similar: for large enough vocabularies, static embeddings consistently have better performance. For languages outside the Indo-European family, the performance gap between mBERT and fastText is much larger (e.g., 31.7 vs. 17.2 for Arabic) and mBERT is sometimes worse than the Oracle.

Our fastText method is quite primitive: it is a type-restricted search for entities similar to what is most prominent in the context (whose central element is the query entity, e.g., "Paris" in (Ex1)). The fact that fastText outperforms BERT raises the question: Does BERT simply use associations between entities (like fastText) or has it captured factual knowledge beyond this?

4.2 BERT vs fastText: Diversity of Predictions

The entropy of the distribution of predicted objects is 6.5 for BERT vs. 7.3 for fastText. So BERT's predictions are less diverse. Of 151 possible objects on average, BERT predicts (on average) 85, fast-Text 119. For a given relation, BERT's prediction tend to be dominated by one object, which is often the most frequent correct object – possibly because these objects are frequent in Wikipedia/Wikidata. When filtering out triples whose correct answer is the most frequent object, BERT's performance drops to 35.7 whereas fastText's increases to 42.5. See Table 7 in the appendix for full results on diversity. We leave investigating why BERT has these narrower object preferences for future work.



Figure 1: p1 as a function of the tokenization length of the triples' subjects. BERT and fastText use the same vocabulary here, ensuring comparability. BERT based models exhibit a stable performance independent of the number of tokens a subject gets split into. In contrast, fastText's performance drops.

4.3 Contextualization in BERT

BERT's attention mechanism should be able to handle long subjects – in contrast to fastText, for which we use simple averaging. Figure 1 shows that fast-Text's performance indeed drops when the query gets tokenized into multiple tokens. In contrast, BERT's performance remains stable. We conclude that token averaging harms fastText's performance and that the attention mechanism in BERT composes meaningful representations from subwords.

We try to induce static embeddings from BERT by feeding object and subject surface forms to BERT without any context and then averaging the hidden representations for each layer. Figure 2 analyzes whether a nearest neighbor matching over this static embedding space extracted from BERT's representations is effective in extracting knowledge from it. We find that performance on LAMA is significantly lower across all hidden layers with the first two layers performing best. That simple averaging does not work as well as contextualization indicates that BERT is great at composing meaningful representations through attention. In future work, it would be interesting to extract better static representations from BERT, for example by extracting the representations of entities in real sentences.

4.4 Resource Consumption

Table 4 compares resource consumption of BERT vs. fastText following Strubell et al. (2019). fast-Text can be efficiently computed on CPUs with a drastically lower power consumption and computation time. Overall, fastText has only 0.3% of the



Figure 2: Contextualization in BERT. The dashed lines are p1 when querying with templates like "Paris is the capital of [MASK]." and a candidate set. The solid lines reflect performance of nearest neighbor matching with cosine similarity when inducing a static embedding space from the representations at these layers. This shows that extracting high quality static embeddings is not trivial, and BERT's contextualization is essential for getting good performance.

carbon emissions compared to BERT. In a recent study, Zhang et al. (2020) showed that capturing factual knowledge inside PLMs is an especially resource hungry task.

These big differences demonstrate that fastText, in addition to performing better than BERT, is the environmentally better model to "encode knowledge" of Wikipedia in an unsupervised fashion. This calls into question the use of large PLMs as knowledge bases, particularly in light of the recent surge of knowledge augmented LMs, e.g., (Lewis et al., 2020; Guu et al., 2020).

5 Related Work

Petroni et al. (2019) first asked: can PLMs function as KBs? Subsequent analysis focused on different aspects, such as negation (Kassner and Schütze, 2020; Ettinger, 2020), paraphrases (Elazar et al., 2021), easy to guess names (Poerner et al., 2020), finding alternatives to a cloze-style approach (Bouraoui et al., 2020; Heinzerling and Inui, 2020; Jiang et al., 2020) or analyzing different model sizes (Roberts et al., 2020).

There is a recent surge of work that tries to improve PLMs' ability to harvest factual knowledge: Zhang et al. (2019), Peters et al. (2019) and Wang et al. (2020) inject factual knowledge into PLMs. Guu et al. (2020), Lewis et al. (2020), Izacard and Grave (2020), Kassner and Schütze (2020) and Petroni et al. (2020) combine PLMs with information retrieval and Bosselut et al. (2019), Liu et al. (2020) and Yu et al. (2020) with knowledge bases.

In contrast, we provide evidence that BERT's ability to answer factual queries is not more effective than capturing "knowledge" with simple traditional static embeddings. This suggests that learning associations between entities and typerestricted similarity search over these associations may be at the core of BERT's ability to answer cloze-style KB queries, a new insight into BERT's working mechanism.

6 Conclusion

We have shown that, when restricting cloze-style questions to a candidate set, static word embeddings outperform BERT. To explain this puzzling superiority of a much simpler model, we put forward a new characterization of factual knowledge learned by BERT: BERT seems to be able to complete cloze-style queries based on similarity assessments on a type-restricted vocabulary much like a nearest neighbor search for static embeddings.

However, BERT may still be the better model for the task: we assume perfect typing (for BERT and fastText) and only evaluate ranking. Typing is much harder with static embeddings and BERT has been shown to perform well at guessing the expected entity type based on a template. BERT also works well with small vocabularies, storing most of its "knowledge" in the parameterization of subword composition. Our results suggest that increasing the vocabulary size and computing more atomic entity representations with fastText is a cheap and environmentally friendly method of storing knowledge. In contrast, learning high quality composition of smaller units requires many more resources.

fastText is a simple cheap baseline that outperforms BERT on LAMA, but was not considered in the original research. This may be an example of a general problem: "green" baselines are often ignored, but should be considered when evaluating resource-hungry deep learning models. A promising way forward would be to combine the best of both worlds, e.g., by building on work that incorporates large vocabularies into PLMs after pretraining.

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A Resource Consumption

We follow Strubell et al. (2019) for our computation. The measured peak energy consumption of our CPU-server was 618W. Considering the power usage effectiveness the required kWh are given by $p_t = 1.58 \cdot t \cdot 618/1000$. Training the English fast-Text on Wikipedia took around 5 hours. Training all languages took 20 hours. The estimated CO₂e can then be computed by CO₂e = $0.954 \cdot p_t$

B Reproducibility Information

For computation we use a CPU server with 96 CPU cores (Intel(R) Xeon(R) Platinum 8160) and 1024GB RAM. For BERT and mBERT inference we use a single GeForce GTX 1080Ti GPU.

Getting the object predictions for BERT and fast-Text is fast and takes a negligible amount of time. Training fastText embeddings takes between 1 to 5 hours depending on Wikipedia size.

BERT has around 110M parameters, mBERT around 178M. The fastText embeddings have O(nd) parameters where *n* is the vocabulary size and *d* is the embedding dimension. We use d =300. Thus, for most vocabulary sizes, fastText has significantly more parameters than the BERT models. But overall they are cheaper to train.

We did not perform any hyperparameter tuning. Table 6 gives an overview on third party software. Table 5 gives an overview on the number of triples in the dataset. Note that no training set is required, as all methods are completely unsupervised.

C Examples

Table 11 shows randomly sampled triples to perform an error analysis.

Language	#Triples	#Triples UHN
ar	17129	13699
de	29354	23493
en	33981	27060
es	28169	22683
fr	30643	24487
he	14769	12033
ja	22920	17832
ko	14217	11439
th	8327	7065
tr	13993	11274

Table 5: Overview on number of triples.

System	Parameter	Value
fastText BERT Tokenizers	Facebook Research Embedding Dimension Huggingface Transformer	Version 0.9.1 300 Version 2.8.0 Version 0.5.2

Table 6: Overview on third party software.

model vocubulary size pr pr mi chilopy "pro	Model	Vocabulary Siz	e p1 p1-mf	entropy #pre
---------------------------------------------	-------	----------------	------------	--------------

Oracle		22.0	0.0	3.68	1
BERT	30k	39.6	35.7	6.48	85
mBERT	110k	36.3	32.6	6.41	86
fastText	BERT-30k	26.9	27.7	7.04	107
	mBERT-110k	27.5	27.6	7.09	110
	30k	16.4	15.9	7.13	111
	120k	34.3	35.4	7.30	115
	250k	37.7	38.9	7.33	118
	500k	39.9	41.2	7.33	119
	1000k	41.2	42.5	7.32	119

Table 7: Analysis of the diversity of predictions. *p1-mf* is the p1 when excluding triples whose correct answer is the most frequent object. *entropy* is the entropy of the distribution of predicted objects. *#pred.* denotes the average number of distinct objects predicted by the model across relations. The average number of unique objects in the candidate set across relations is 151. fastText has more diverse predictions, as the entropy is higher and the set of predicted objects is on average much larger.

D Additional Results

In this section we show additional results. Table 8 shows the same as Table 1 but with precision at five. Analogously Table 9. Table 10 shows the same as Table 3 but for LAMA-UHN. The trends and key insights are unchanged. Table 7 analyses the diversity of predictions by the different models.

Model	Vocabulary Size		ր5
		LAMA	LAMA-UHN
Oracle		48.0	49.7
BERT	30k	64.1	57.9
mBERT	110k	59.7	53.5
	BERT-30k	48.7	41.9
	mBERT-110k	48.9	42.0
	30k	26.3	16.5
fastText	120k	58.3	52.7
	250k	62.7	58.1
	500k	65.4	61.3
	1000k	66.8	63.1

Table 8: Results for BERT, mBERT and fastText. Same as Table 1 but with p5.

Model	Vocab. Size	AR	DE	ES	FI	р5 НЕ	JA	ко	TH	TR
Oracle		48.8	48.4	48.6	49.6	50.1	49.0	49.2	51.9	50.3
mBERT	110k	33.8	51.3	53.9	46.2	38.2	36.5	43.0	37.0	55.5
fastText	mBERT-110k 30k 120k 250k 500k 1000k	26.0 38.5 51.6 55.0 57.0 56.4	40.5 28.8 48.9 56.0 59.1 60.7	42.9 29.8 55.2 59.1 61.5 62.2	43.8 33.9 49.7 55.4 58.0 59.1	27.7 38.9 54.1 58.1 59.2 58.9	24.0 26.4 44.1 49.2 50.9 51.7	31.9 34.1 54.8 59.2 59.7 57.5	33.9 45.8 56.0 59.5 61.0 57.2	50.3 42.7 60.9 63.9 64.6 63.7

Table 9: p5 for mBERT and fastText on mLAMA. Numbers across languages are not comparable as the number of triples varies.

	Vocab.					p1				
Model	Size	AR	DE	ES	FI	HE	JA	КО	TH	TR
Oracle		23.1	23.8	23.2	22.9	24.5	22.5	22.6	25.1	24.6
mBERT	110k	12.1	26.1	27.6	15.8	11.0	11.8	15.1	10.8	27.7
fastText	mBERT-110k 30k 120k 250k 500k 1000k	7.8 12.4 20.2 22.7 24.2 23.7	14.3 8.9 18.9 24.0 26.6 27.6	16.9 9.0 23.8 27.3 30.1 30.1	15.0 9.4 18.1 22.6 24.3 25.6	6.6 13.8 22.1 26.3 27.4 27.5	6.4 7.4 15.4 18.0 20.0 20.4	8.0 9.4 21.0 23.8 25.0 23.2	7.4 14.8 23.8 28.3 27.6 27.2	19.4 14.5 26.1 28.7 29.4 29.8

Table 10: p1 for mBERT and fastText on mLAMA-UHN. Numbers across languages are not comparable as the number of triples varies.

PH412 William James IX used to communicate in [Y]. English English Italian PH412 Brocker Mannton Xi used to communicate in [Y]. English English Italian PH412 Rocker Mannton Xi used to communicate in [Y]. English English Hish PH412 Rocker Mannton Xi used to communicate in [Y]. Apple Inc. Clinication Apple Inc. PH412 Rocker Mannton Xi used to communicate in [Y]. Hish Hish Mannton Apple Inc. Clinication Apple Inc. Apple Inc. Clinication Apple Inc. Apple Inc. <th>Relation</th> <th>Subject</th> <th>Template</th> <th>Object</th> <th>BERT</th> <th>fastText</th>	Relation	Subject	Template	Object	BERT	fastText
PH12 Bernardino Ochimo [X] uned to communicate in [Y]. Indian Spanish Indian PH12 Mick Laby X] uned to communicate in [Y]. End to the first problem of the physical stress o	P1412	William James	[X] used to communicate in [Y].	English	English	Irish
P1412 Mach Laby Xi uned to communicate in [Y]. Irain English English English English Webh P1412 Rocker Mannton Xi uned to communicate in [Y]. Apple Inc. Apple Inc. Mach Mark Webh P148 Gray Musch Xi works for [Y]. BM BM Apple Inc. Appl	P1412	Bernardino Ochino	[X] used to communicate in [Y].	Italian	Spanish	Italian
PI412 Robert Namion [X] work for [Y]. English brain English brain English brain English brain Web line. P168 Store Josef North and Store Josef Apple Inc. Apple Inc. Apple Inc. P168 P161 Do Estringe XI works for [Y]. Hild Hild Apple Inc. P178 PastScript XI works for [Y]. Apple Inc. Intel Apple Inc. P178 PastScript XI is developed by [Y]. Apple Inc. Microsoft Apple Inc. P174 PastScript XI is is developed by [Y]. Witzsort Advect Directory and IN is is [Y]. Witzsort Advect Directory and IN is is [Y]. Witzsort Pasts Store and IN is a [Y]. Witzsort Witzsort Witzsort Pasts Store and IN is [Y]. Store and IN is [Y]. <td>P1412</td> <td>Mick Lally</td> <td>[X] used to communicate in [Y].</td> <td>Irish</td> <td>English</td> <td>Irish</td>	P1412	Mick Lally	[X] used to communicate in [Y].	Irish	English	Irish
PI08 Stere Jobs Number for [Y]. Apple Inc. Merrorof Apple Inc. Merrorof Apple Inc. PI08 Perify Number for [Y]. Apple Inc. Hild Apple Inc. PI08 Starin [X] is developed by [Y]. HBM HBM Apple Inc. PI08 Starin [X] is developed by [Y]. Microsoft Microsoft Apple Inc. PI08 Internet Explorer [X] is developed by [Y]. Microsoft Microsoft Apple Inc. PI01 Internet Explorer [X] is developed by [Y]. Microsoft Microsoft Apple Inc. PI01 Internet Explorer [X] is is [Y]. Williamed Williamed Pi01 PI01 Internet Explorer [X] is is [Y]. Automation Cockaction The capital of [X] is [Y]. Automation Cockaction The capital of [X] is [Y]. Automation Cockaction Starter port PI07 Tex (Automation [X] is waiter in [Y]. Starter port Starter port Starter port PI07 Tex (Automation [X] is	P1412	Robert Naunton	[X] used to communicate in [Y].	English	English	Welsh
P108 Stere Waznak [X] works for [Y]. Apple Inc. CRS Apple Inc. P108 Guid Boath [X] works for [Y]. HM BM BM P178 P178 Stafra [X] works for [Y]. Apple Inc. Iard Apple Inc. P178 Stafra [X] is developed by [Y]. Microsoft Apple Inc. P178 Internet Explorer [X] is developed by [Y]. Microsoft Apple Inc. P131 Internet Explorer [X] is developed by [Y]. Microsoft Apple Inc. P313 Internet Explorer [X] is developed by [Y]. Microsoft Apple Inc. P313 Internet Explorer [X] is a [Y]. maged Willage Willage P313 Internet Explorer [X] is a [Y]. Staffa Staffa New Notes P314 Internet Explorer [X] is a [Y]. Staffa Staffa New Notes P314 Internet Explorer [X] is a [Y]. Staffa Staffa New Notes P314 Internet Explorer [X] is wo	P108	Steve Jobs	[X] works for [Y].	Apple Inc.	Microsoft	Apple Inc.
PI08 Grady Booch [X] words for [V]. BM BM Apple Inc. P108 PU18 Extra production of the product of	P108	Steve Wozniak	[X] works for [Y].	Apple Inc.	CBS	Apple Inc.
PI08 Philip Don Enricipace [X] works for [Y]. BM IBM Apple Inc. P178 Safe or [X] is developed by [Y]. Active Directory [X] is developed by [Y]. Microsoft Microsoft Microsoft P178 Internet Explorer [X] is developed by [Y]. microsoft Microsoft Microsoft Microsoft P178 Internet Explorer [X] is developed by [Y]. microsoft Microsoft Microsoft Microsoft P11 Israfil [X] is a [Y]. microsoft microsoft Microsoft Microsoft P16 Cox County The capital of [X] is [Y]. Strasborg Paris Strasborg P16 Cadab Parish The capital of [X] is [Y]. Streseport Georgetown Streseport P107 Fullika The capital of [X] is [Y]. Stresshort Georgetown Stresshort P107 Fullika Mitrosoft Mitrosoft Mitrosoft Mitrosoft P107 Fullika Mitrosoft Mitrosoft Mitrosoft Mitrosoft	P108	Grady Booch	[X] works for [Y].	IBM	IBM	Apple Inc.
P1/18 Apple Inc. Int of the second probability of the	P108	Philip Don Estridge	[X] works for [Y].	IBM	IBM	Apple Inc.
P178 Heatschipt [A] is developed by [V]. Authous in Machine Machine P178 Lang Preston [X] is developed by [V]. Wilscooff Google P31 Lang Preston [X] is developed by [V]. wilscooff Google P31 Lang Preston [X] is a [V]. willage willage angel P31 Grafondown [X] is a [V]. medication protein medication P36 Caropa Coanty The capital of [X] is [V]. Stareborg Auhan Gonewrille P36 Cando Fash The capital of [X] is [V]. Stareborg Caropa Coanty The capital of [X] is [V]. Stareborg Paris Stareborg P47 Leant n Xi was writen in [V]. English English Genish General P447 Leant n Xi was writen in [V]. Nickeledoon Nickeledoon Nickeledoon Nickeledoon Nickeledoon Nickeledoon P447 Leant n Xi was originally aired on [V]. Nickeledoon Nickeledoon Nickeledoon Nickeledoon Nickeledoon Nickeledoon Nickeledoon Nickeledoon Nickel	P1/8	Safari	[X] is developed by [Y].	Apple Inc.	Intel	Apple Inc.
P114 Auther Directory [1] is index objects [P1] []. Michasola Michasola P131 Lang Presion [X] is a [Y]. anged village ppb file P33 affictosin [X] is a [Y]. anged village medication P34 Concordoubsum [X] is a [Y]. village village willage P36 Concordoubsum [X] is [Y]. Chickogo Chicago Willamon P36 Concordoubsum [X] is [Y]. Authen Authen Authen P36 Concordoubsum [X] is [Y]. Authen Authen Authen P36 Concordoubsum [X] is [Y]. Authen Authen Authen P36 Concordoubsum [X] is written in [Y]. English English English P407 Emprire [X] was written in [Y]. English English Persian P407 English English English English English P419 Solute Your Shorts [X] was originally aired on [Y]. Nickelodeon Nickelodeon P449 Solute Your Shorts [X] was originally aired on [Y]. Nickelodeon Nickelodeon P449 Solute Your Shorts [X] was originally aired on [Y	P178	PostScript	[X] is developed by [Y].	Adobe	Microsoft	Adobe
P11 Instance Payment (1) is is (1) with agend with agend<	P1/8 D179	Active Directory	[X] is developed by [Y].	Microsoft	Microsoft	Apple Inc.
1713 Jung 1 Jung 2	P1/6 D21	L and Dreater	[X] is a eveloped by [1].	willess	willess	Google
131 Cardonsian [X] is a [Y]. medication rotage medication 131 Cardordshorn [X] is a [Y]. Chicago Chicago wheth 136 Cardordshorn [X] is a [Y]. Chicago Chicago Chicago Chicago 136 Cardordshorn [X] is [Y]. Auburn Chicago Chicago Chicago Chicago 136 Cardordshorn [X] is [Y]. Strasbourg Paris Strasbourg 137 Cardordshorn [X] was written in [Y]. English English Fersian 1470 Lentaru [X] was written in [Y]. Nickelodcon Fox Acena 1449 Volume [X] was written in [Y]. Nickelodcon Nickelodcon Lifetine 1449 Volume [X] was originally aired on [Y]. Nickelodcon Elfetine Nickelodcon Fox Acena 1449 Hey Amold! [X] was originally aired on [Y]. Nickelodcon Elfetine Nickelodcon Fox Acena 1427 Kbox [X] is owned by [Y]. Microsoft Nickelodcon Fox Acena 1428 Hey Amold! [X] was originally aired on [Y]. Nickelodcon Fox Acena 1429 Lentine For Acena Nis ow	P31	Icrafi	[A] 15 d [1] . [Y] is a [V]	angel	village	angel
191 Convfordshorn [X] is a [Y]. village village village village village 195 Cock County The capital of [X] is [Y]. Aukurn Aukurn Aukurn 195 Grand Ed The capital of [X] is [Y]. Strasbourg Strasbourg 1976 Grand Ed The capital of [X] is [Y]. Strasbourg Georgeow 1970 The Vinnyree [X] was written in [Y]. Straveport Georgeow 1971 The Vinnyree [X] was written in [Y]. Straveport Georgeow 1977 The Vinnyree [X] was written in [Y]. Strave port Strave port 1970 Lexita n [X] was written in [Y]. Strave port Strave port 1971 Lexita Voar Shorts [X] was originally aired on [Y]. Nickelodeon Nickelodeon 1972 Lexita Software [X] is owned by [Y]. Mic Vinnot Microaoft 1972 Lexita Software [X] is owned by [Y]. Hot Mic Port 1974 Bick Nacissas The original language of [X] is [Y]. English English English 1974 Lexita Software [X] is owned by [Y]. Toyota Chrysler Toyota 1974 Bick Nacissas The origina	P31	alfuzosin	[X] is a [Y]	medication	protein	medication
P36 Cock Comp The capital of [X] is [Y]. Chicago Chicago Williamon P36 Coyag County The capital of [X] is [Y]. Strasbourg Paris Generolle P36 Cakdo Purish The capital of [X] is [Y]. Strasbourg Recenville P36 Cakdo Purish The capital of [X] is [Y]. Strasbourg Recenville P407 Engrish English English English English P417 Engrish Regish English English Strasbourg P449 Doka & Josh XI was written in [Y]. Statue Your Shorts XI was originally aired on [Y]. Nickelodeon Fick Arena P449 No Momma XI was originally aired on [Y]. Nickelodeon CBS Nickelodeon P127 Kbox XI was original parated on [Y]. Nickelodeon CBS Nickelodeon P127 Edife Tower [X] is owned by [Y]. Microsoft Nickelodeon Fick Arena P124 Hey Anold! [X] was original paraged [X] is [Y]. English English <td>P31</td> <td>Crawfordsburn</td> <td>[X] is a $[Y]$</td> <td>village</td> <td>village</td> <td>suburb</td>	P31	Crawfordsburn	[X] is a $[Y]$	village	village	suburb
P26 Coyung County The capital of [X] is [Y]. Aubarn Aubarn Aubarn Generality P26 Gand Est The capital of [X] is [Y]. Strasbourg Strasbourg P26 Caldo Parish The capital of [X] is [Y]. Strasbourg Strasbourg P47 Foldos KI was written in [Y]. English	P36	Cook County	The capital of [X] is [Y].	Chicago	Chicago	Williamson
P36 Grand Est Strasbourg Paris Strasbourg Paris Strasbourg Paris Strasbourg Paris Strasbourg Strasbourg P407 The Vampyre [X] was written in [Y]. English	P36	Cayuga County	The capital of [X] is [Y].	Auburn	Auburn	Greenville
P36 Caddo Parish The capital of [X] is [Y]. Shreeyon [*] Genome Shreeyon [*] P407 Fe branne KJ was written in [Y]. English English English Persian P407 Politika KJ was written in [Y]. English English English Persian P407 Lentaru KJ was written in [Y]. Ressian Genome Ressian P449 Dask & Josh Nickelobolen Nickelobolen Nickelobolen Nickelobolen Nickelobolen P449 Hy Arnold! Nick was originally aired on [Y]. Microsoft Nickelobolen CBS Nickelobolen P127 Kos XJ is owned by [Y]. Bind Bind Microsoft Nickelobolen P127 Lotts Software XJ is owned by [Y]. Bind Bind Microsoft Nickelobe P124 Hock Narcisus The original language of [X] is [Y]. English English Holeson P124 Hock Dablasin The original language of [X] is [Y]. English Holeson <td< td=""><td>P36</td><td>Grand Est</td><td>The capital of [X] is [Y].</td><td>Strasbourg</td><td>Paris</td><td>Strasbourg</td></td<>	P36	Grand Est	The capital of [X] is [Y].	Strasbourg	Paris	Strasbourg
P407The Vampyne[X] was written in [Y].EnglishEnglishEnglishGothicP407Politika[X] was written in [Y].SerbianLatinSerbianSerbianP449Drake & Joh[X] was written in [Y].NickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenP449Satuk Your Short[X] was originally aired on [Y].NickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelo	P36	Caddo Parish	The capital of [X] is [Y].	Shreveport	Georgetown	Shreveport
P407Empire[X] was written in [Y].EnglishErsianLatinFersianP407Lottar.u[X] was written in [Y].RussianGermanRussianP449Drake & Josh[X] was originally aired on [Y].NickelodeenNickelodeenLitetimeP449Salute Your Shorts[X] was originally aired on [Y].NickelodeenNickelodeenLitetimeP449Yo Momma[X] was originally aired on [Y].NickelodeenNickelodeenLitetimeP449Yo Momma[X] was originally aired on [Y].NickelodeenMicrosoftMicrosoftP177Leus Solware[X] is owned by [Y].HMHMHMHMP177Leus Solware[X] is owned by [Y].ToyotaChryslerHicrosoftP364The Gol DelusionThe original language of [X] is [Y].EnglishEnglishHicrosoftP364The Gol DelusionThe original language of [X] is [Y].EnglishMariniSpanishP364Jac Gordonioft[X] is a [Y] by profession.modelmodelorganistP106Halle Berry[X] is a [Y] by profession.modelmodelorganistP106Halle Berry[X] is a [Y] by profession.physicistlawyerphysicistP176Daith Boom[X] is produced by [Y].IntelIntelApple Inc.P176Kaft Taylor Compton[X] is a [Y] by profession.physicistlawyerphysicistP176Both Boom[X] is produced by [Y].Inte	P407	The Vampyre	[X] was written in [Y].	English	English	Gothic
P407Politika[X] was written in [Y].SerbianLaimSerbianP449Drake & Josh[X] was originally aired on [Y].NickeldocenNickeldocenNickeldocenNickeldocenP449Sultar Your Short[X] was originally aired on [Y].MTVCBSMTVP449Hold Your Short[X] was originally aired on [Y].MTVCBSMTVP449Holy Arnold![X] was originally aired on [Y].MTVCBSMTVP127Elfel Tower[X] is owned by [Y].ParisBoeing of this is boeing of this is owned by [Y].ParisBoeing of this is boeing of this is owned by [Y].P127Lotus Software[X] is owned by [Y].IBMBMMicrosoftP344Facu marcissus[X] is owned by [Y].Iby original ingrage of [X] is [Y].EnglishEnglishEnglishP344Facu marcissusThe original langrage of [X] is [Y].IndonesianMartinIndonesianP344Jauji JoniThe original langrage of [X] is [Y].IndonesianMartinIndonesianP346Jauji JoniThe original langrage of [X] is [Y].IndonesianMartinIndonesianP106Gregory Chamildef[X] is a [Y] by profession.asveraastronautIavyerastronautP106Gregory Chamildef[X] is a [Y] by profession.IavyerIavyerplaywightP176Duinabus Boon[X] is produced by [Y].ToryatHondeHoryotaP176Duinabus Boon[X] is produced by [Y]. <td>P407</td> <td>Empire</td> <td>[X] was written in [Y].</td> <td>English</td> <td>English</td> <td>Persian</td>	P407	Empire	[X] was written in [Y].	English	English	Persian
P449Lenta.ru[X] was writen in [Y].RussianGermaRussianP449Yoke & Josh[X] was originally aired on [Y].NickelodeonNickelodeonLifetimeP449YokomRussian[X] was originally aired on [Y].NickelodeonLifetimeP449Hey Arnold![X] was originally aired on [Y].NickelodeonCBSNickelodeonP127Kloxo[X] is ownelb y [Y].ParisBoeingParisP127Lots Software[X] is ownelb y [Y].ParisBoeingParisP127Lots Software[X] is ownelb y [Y].ToyotaChrysterToyotaP127Lots Software[X] is ownelb y [Y].ToyotaChrysterToyotaP344Bteck NarcissusThe original language of [X] is [Y].ToyotaChrysterParisP344The Cod DelusionThe original language of [X] is [Y].IndonesianMaratiliaIndonesianP346VecinosThe original language of [X] is [Y].IndonesianMaratiliaIndonesianP106Gerger ChamitonXI is a [Y] by profession.paysicstLawyerphysicstP106Kard Taylor ComptonXI is a [Y] by profession.astronautLawyerphyswightP176Databasi BoonXI is produced by [Y].ToyotaHondaApple fac.P176Britis Rail Class 360XI is produced by [Y].Ki is a nember of [Y].Nick OctACAFFerrarP377Howard FloreyXI is a cell to Y].Nick OctACAF <t< td=""><td>P407</td><td>Politika</td><td>[X] was written in [Y].</td><td>Serbian</td><td>Latin</td><td>Serbian</td></t<>	P407	Politika	[X] was written in [Y].	Serbian	Latin	Serbian
P449Drake & Josh[X] was originally aired on [Y].NickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeenNickelodeen <td>P407</td> <td>Lenta.ru</td> <td>[X] was written in [Y].</td> <td>Russian</td> <td>German</td> <td>Russian</td>	P407	Lenta.ru	[X] was written in [Y].	Russian	German	Russian
P449Solute Your Shorts[X] was originally aired on [Y].NickelodeonLickelodeonLickelodeonP449Hey Arnold![X] was originally aired on [Y].MiCrosoftMicrosoftNickelodeonP127Xbox[X] is owned by [Y].MicrosoftMicrosoftNickelodeonP127Lotus Software[X] is owned by [Y].ParisBoeingParisP127Lotus Software[X] is owned by [Y].EnglishEnglishEnglishHerdishP127Lotus Software[X] is owned by [Y].EnglishEnglishHerdishHereveP364Biack NarcissusThe original language of [X] is [Y].EnglishEnglishHereveP364VectionsThe original language of [X] is [Y].SpatishLatinSpatishP364JectionsThe original language of [X] is [Y].IndonesianMarahtIndonesianP364JectionsThe original language of [X] is [Y].IndonesianMarahtIndonesianP366Latin Location[X] is a [Y] by profession.modelmodelmodelP376Diabet Boron[X] is a [Y] by profession.modelmodelmodelP376Barits Barits Barit	P449	Drake & Josh	[X] was originally aired on [Y] .	Nickelodeon	Nickelodeon	Fox Arena
P449Yo Momma[X] was originally aired on [Y].MTVCBSMTVP449Hely Arnold![X] was originally aired on [Y].NickelodomCBSNickelodomP127Elffel Tower[X] is owned by [Y].ParisBoeingParisP127Lotus Software[X] is owned by [Y].BMBMMicrosoftP127Lotus Software[X] is owned by [Y].EnglishEnglishEnglishHishP364The God DelusionThe original language of [X] is [Y].EnglishEnglishHebrewP364VecinosThe original language of [X] is [Y].SpanishLatinSpanishP364Hale Berry[X] is a [Y] by profession.modelorganistP106Halle Berry[X] is a [Y] by profession.modelorganistP106Hale Berry[X] is a [Y] by profession.lawyerlawyerplaywright fac.P106Heref Romuko Concor[X] is a [Y] by profession.lawyerlawyerplaywright fac.P176Dalatas facon[X] is produced by [Y].ToyotaHondaToyotaP176Britis kall Class 360[X] is produced by [Y].EnglishEnglishMoto CarsP177Naward Florey[X] used to work in [Y].EnglishMoto CarsP178Daward Florey[X] used to work in [Y].EnglishSemensVelo CarsP178Daward Florey[X] used to work in [Y].EnglishMoto CarsP179Daward Florey[X] used to work in [Y]	P449	Salute Your Shorts	[X] was originally aired on [Y] .	Nickelodeon	Nickelodeon	Lifetime
P449Hey Arnold![X] was originally aired on [Y].NickelodeonCBSNickelodeonP127Edifd Tower[X] is owned by [Y].MicrosoftMicrosoftNintendoP127Lcuts Software[X] is owned by [Y].BMBMMicrosoftP127Lcuts Software[X] is owned by [Y].ToyotaChryslerToyotaP364Black NarcisusThe original language of [X] is [Y].EnglishEnglishHerkerwP364VaciosThe original language of [X] is [Y].SpanishLatinSpanishP364VaciosThe original language of [X] is [Y].SpanishLatinSpanishP364VaciosThe original language of [X] is [Y].SpanishLatinIndonesianP364VaciosThe original language of [X] is [Y].SpanishLatinIndonesianP364VaciosThe original language of [X] is [Y].SpanishLatinIndonesianP106Gregory Chamiolf[X] is a [Y] by profession.astronautlawyerphysicsitP176British Rail Class 360[X] is produced by [Y].IntelIntelIntelApple Inc.P176Dinio[X] is groduced by [Y].SimenesSimenesVolvo CarsP176Dinio[X] is groduced by [Y].LondonLondonRodaP377Alberts Kviesis[X] used to work in [Y].NATONATONATOP378Alberts Alberts Mall Class 360[X] is member of [Y].NATONATOPHFA <td>P449</td> <td>Yo Momma</td> <td>[X] was originally aired on [Y].</td> <td>MTV</td> <td>CBS</td> <td>MTV</td>	P449	Yo Momma	[X] was originally aired on [Y].	MTV	CBS	MTV
P127Xbox[X] is owned by [Y].MicrosoftMicrosoftNitendoP127Lotus Software[X] is owned by [Y].BMBMMicrosoftP127Lotus Software[X] is owned by [Y].BMBMMicrosoftP364The God DelusionThe original language of [X] is [Y].EnglishEnglishEnglishHabrP364The God DelusionThe original language of [X] is [Y].EnglishEnglishHabrP364Mice God DelusionThe original language of [X] is [Y].EnglishEnglishIndonesianP364Jani JoniThe original language of [X] is [Y].IndonesianMarathiIndonesianP106Halle Berry[X] is a [Y] by profession.modelorganistP106Hardro Compton[X] is a [Y] by profession.lawyerlawyerplaywright fillP176Dalatasa boon[X] is produced by [Y].ToyotaHandaApple Inc.P176Dalatasa boon[X] is produced by [Y].StemensStemensVolv CasP377Ramsy MacDomal[X] used to work in [Y].KingarKotokholmKingarP377Aberts Kreixis[X] used to work in [Y].KingarKotokholmKingarP373Jaun March[X] used to work in [Y].KingarKotokholmKingarP374Aberts Kreixis[X] is a member of [Y].NATONATOPHSP463Mcxico ational forbul team[X] is a member of [Y].NATONATOPHSP463	P449	Hey Arnold!	[X] was originally aired on [Y].	Nickelodeon	CBS	Nickelodeon
P127 Eiffel Tower [X] is owned by [Y]. Paris Boeing Paris P127 Lexus [X] is owned by [Y]. English English <td>P127</td> <td>Xbox</td> <td>[X] is owned by [Y].</td> <td>Microsoft</td> <td>Microsoft</td> <td>Nintendo</td>	P127	Xbox	[X] is owned by [Y].	Microsoft	Microsoft	Nintendo
P127Lotus Software[X] is owned by [Y].IBMIBMMicrosoftP364He God DeltsonThe original language of [X] is [Y].EnglishEnglishEnglishHebrewP364He God DeltsonThe original language of [X] is [Y].EnglishEnglishHebrewP364VecinosThe original language of [X] is [Y].SpanishMartiniIndonesianP364Janj JoniThe original language of [X] is [Y].IndonesianMarathiIndonesianP106Halle Berry[X] is a [Y] by profession.anodelorganistP106Karl Taylor Compton[X] is a [Y] by profession.lawyerplaywrightP176System Controller Hub[X] is produced by [Y].TorotaHondaToyotaP176British Rail Class 360[X] is produced by [Y].FerrariSongorePrarariP377Howard Horey[X] used to work in [Y].LondonLondonMongomeyP373Howard Horey[X] used to work in [Y].LondonLondonRiganP373Alberts Kvissis[X] used to work in [Y].NATONATOPIFAP433United States of America[X] is a nember of [Y].NATONATOPIFAP434Germany[X] is a member of [Y].NATONATOPIFAP433Germany[X] is a member of [Y].NATONATOPIFAP434Germany[X] is a member of [Y].NATONATOPIFAP433Germany[X] is a member o	P127	Eiffel Tower	[X] is owned by [Y].	Paris	Boeing	Paris
P127 Lexus [X] is owned by [Y]. Toyota Chrysler Toyota P364 Black Narcisus The original language of [X] is [Y]. English English English P364 Vecinos The original language of [X] is [Y]. Spanish Latin Spanish P364 Janji Joni The original language of [X] is [Y]. English English Indonesian P106 Halle Berry [X] is a [Y] by profession. astronaut lawyer astronaut P106 Gregory Chamitoff [X] is a [Y] by profession. lawyer playwright P176 System Controller Hub [X] is produced by [Y]. Intel Intel Antel P176 Drinish Rail Class 300 [X] is produced by [Y]. Somens Sienens Sienens P176 Drinish Rail Class 300 [X] is produced by [Y]. London London Moritomes P176 Drinish Rail Class 300 [X] is ornobare of [Y]. Natoo Natoo Natoon P176 Drinis Arcine Class 300 [X] is anotherof [Y]. Natoon </td <td>P127</td> <td>Lotus Software</td> <td>[X] is owned by [Y].</td> <td>IBM</td> <td>IBM</td> <td>Microsoft</td>	P127	Lotus Software	[X] is owned by [Y].	IBM	IBM	Microsoft
P364Black NarcissusThe original language of [X] is [Y].EnglishEnglishEnglishHebrewP364VecinosThe original language of [X] is [Y].SpanishLatinSpanishHebrewP364Janji JoniThe original language of [X] is [Y].IndonesianMarathiIndonesianP106Halle Berry[X] is a [Y] by profession.antonautlawyerastronautP106Kard Taylor Compton[X] is a [Y] by profession.antyerlawyerplaysrightP106Kard Taylor Compton[X] is a [Y] by profession.lawyerplaysrightP176Daihatsu Boon[X] is produced by [Y].IntelIntelApple Inc.P176Daihatsu Boon[X] is produced by [Y].SiemensSiemensVolvo CarsP176Daihatsu Boon[X] is produced by [Y].LondonRigaStockholmRigaP176Daihatsu Boon[X] is produced by [Y].LondonLondonRigaStockholmP176Dainatsu Boon[X] used to work in [Y].LondonLondonRigaStockholmP373Aberts Kvissis[X] used to work in [Y].LondonLondonRigaStochholmP373Ramsay MacDonald[X] used to work in [Y].MadridParisMadridP463Coratia[X] is a member of [Y].NATONATOPIFAP463Geranay[X] is a member of [Y].NATONATOFIFAP463Gerational (X] is a member of [Y].Unix <td< td=""><td>P127</td><td>Lexus</td><td>[X] is owned by [Y].</td><td>Toyota</td><td>Chrysler</td><td>Toyota</td></td<>	P127	Lexus	[X] is owned by [Y].	Toyota	Chrysler	Toyota
P364The Cod DelusionThe original language of [X] is [Y].EnglishEnglishEnglishEnglishP364Janji JoniThe original language of [X] is [Y].IndonesianMarathiIndonesianP106Halle Berry[X] is a [Y] by profession.modelmodelorganistP106Gregory Chamitoff[X] is a [Y] by profession.physicistlawyerphysicistP106Kaft Taylor Compton[X] is a [Y] by profession.physicistlawyerphysicistP106Herbert Romulus O'Conor[X] is a [Y] by profession.lawyerphysicistphysicistP176Dinish Rail Class 360[X] is produced by [Y].IntelIntelApple Inc.P176Dinish Rail Class 360[X] is produced by [Y].SiemensSiemensVivo CarsP177Howard Florey[X] used to work in [Y].RigaStockholmRigaP373Howard Florey[X] used to work in [Y].NaTONATOPASP463United States of America[X] is a tember of [Y].NATONATOPASP463Croatia[X] is a anember of [Y].NATONATOPASP463Estonia[X] is a mand after [Y].NATONATOPIASP484Gruu[X] is anomed after [Y].NATOPIASNATOP483Gorta[X] is a mand after [Y].NATOPIANATOP484Gruu[X] is a mand after [Y].NATOPIANATOP483Gorta[X] is	P364	Black Narcissus	The original language of [X] is [Y].	English	English	Irish
P364Janj JoniThe original language of [X] is [Y].SpanishLatinSpanishP166Gregory Chamitoff[X] is a [Y] by profession.astronautlawyerastronautP106Karl Taylor Compton[X] is a [Y] by profession.physicistlawyerphysrightP106Herbert Romulus O'Conor[X] is a [Y] by profession.physicistlawyerphysrightP176Dathatsu Boon[X] is produced by [Y].IntelIntelApple Inc.P176Dathatsu Boon[X] is produced by [Y].ForyotaHondaToyotaP176Dathatsu Boon[X] is produced by [Y].SiemensSiemensVolvo CarsP176Dathatsu Boon[X] is produced by [Y].ErerariSonyFerrariP377Howard Florey[X] used to work in [Y].LondonLondonMadridP373Horts Kviesis[X] used to work in [Y].MadridParisMadridP463United States of America[X] is a member of [Y].NATONATOPBSP463Croatia[X] is a amember of [Y].NATONATOPBSP463Estonia[X] is a member of [Y].NATONATOPBSP463Estonia[X] is a member of [Y].NATONATOPBSP463Estonia[X] is a maned after [Y].SunCarocataEstoniaP463Estonia[X] is a maned after [Y].SunSuncarbonP464Estonia[X] is a maned after [Y].Sun <t< td=""><td>P364</td><td>The God Delusion</td><td>The original language of [X] is [Y].</td><td>English</td><td>English</td><td>Hebrew</td></t<>	P364	The God Delusion	The original language of [X] is [Y].	English	English	Hebrew
P364Janj JonThe original language of [X] is $[Y]$.IndonesianMarathuIndonesianP106Gregory Chamitoff[X] is a [Y] by profession .astronautlawyerastronautP106Kaf Taylor Compton[X] is a [Y] by profession .physicistlawyerphysicistP106Herbert Romulus O'Conor[X] is a [Y] by profession .lawyerlawyerphysicistP176System Controller HubX] is produced by [Y] .IntelIntelApple Inc.P176Dathatsu Boon[X] is produced by [Y] .ToyotaHondaToyotaP176Dinis Cass 360[X] is produced by [Y] .EoraniSomyFerrariP377Howard Florey[X] used to work in [Y] .LondonLondonMaringtomeryP373Jauan March[X] used to work in [Y] .KingaStockholmRigaP373Jauan March[X] is a well bw ork in [Y] .MadridParisMarindP463Croatia[X] is a member of [Y] .NATONATOPBSP463Mexico national fooball team[X] is a member of [Y] .NATONATOPIFAP438Germany[X] is named after [Y] .BavariaFranceBavariaP138Gorino F.C.[X] is named after [Y] .SunConCACAFFIFAP138Solar mase[X] is named after [Y] .BavariaFranceBavariaP138Solar mase[X] is named after [Y] .BavariaphysicsphysicsP138 <t< td=""><td>P364</td><td>Vecinos</td><td>The original language of [X] is [Y].</td><td>Spanish</td><td>Latin</td><td>Spanish</td></t<>	P364	Vecinos	The original language of [X] is [Y].	Spanish	Latin	Spanish
P106Hale Berty[X] is a [Y] by profession.modelmodelorganistP106Karl Taylor Compton[X] is a [Y] by profession.physicistlawyerphysrightP106Herbert Romulus O'Conor[X] is a [Y] by profession.lawyerlawyerphysrightP176Dathatsu Boon[X] is produced by [Y].IntelIntelApple Inc.P176Dathatsu Boon[X] is produced by [Y].StemensStemensStemensP176Dathatsu Boon[X] is produced by [Y].FerrariSonyFerrariP937Alberts Kviesis[X] used to work in [Y].LondonLondonMontgomeryP937Alberts Kviesis[X] used to work in [Y].LondonLondonScotlandP937Jaherts Kviesis[X] used to work in [Y].NATONATOPASP463Croatia[X] is a member of [Y].NATONATOPASP463Germany[X] is a member of [Y].NATONATOPATOP463Germany[X] is a member of [Y].NATOFIFANATOP188Gora[X] is a member of [Y].NATONATONATOP188Germany[X] is a member of [Y].NATOFiFANATOP188Gora[X] is a maned after [Y].SunSuncarbonP188Gora[X] is a maned after [Y].SunSuncarbonP188Gora[X] works in the field of [Y].TurinApple Inc.P188Gora[X]	P364	Janji Joni	The original language of [X] is [Y].	Indonesian	Marathi	Indonesian
P106Gregory Chamiloff[X] is a [Y] by profession.astronautlawyersavgerastronautP106Herbert Romulus O'Conor[X] is a [Y] by profession.lawyerlawyerplaysicistP176System Controller Hub[X] is produced by [Y].IntelIntelIntelApple Inc.P176Daihats Boon[X] is produced by [Y].ToyotaHondaToyotaP176Daihats Boon[X] is produced by [Y].FerrariSiemensSiemensNolvo CarsP176Dino[X] is produced by [Y].FerrariSonyFerrariP937Howard Florey[X] used to work in [Y].LondonNongomeryP937Alberts Kviesis[X] used to work in [Y].RigaStockholmRigaP937Juan March[X] used to work in [Y].MadridParisMadridP463United States of America[X] is a member of [Y].NATONATOPIFAP463Coratia[X] is a member of [Y].NATONATOPIFAP463Germany[X] is named after [Y].BavariaFraceBavariaP138Gold[X] is named after [Y].SunSuncarboncarbonP138Solar mass[X] is named after [Y].SunSuncarbonpyliosophyP138Goruany[X] is named after [Y].SunSuncarboncarbonP138Solar mass[X] is named after [Y].SunSuncarbonpyliosophyP139A	P106	Halle Berry	[X] is a [Y] by profession.	model	model	organist
P106Kall Laylor Compton[X] is a [Y] by profession.physicisphysic physicistsP106Herbert Romulus O'Conor[X] is a [Y] by profession.IntelInvertApple Inc.P176Dainatsu Boon[X] is produced by [Y].IntelIntelApple Inc.P176Dainatsu Boon[X] is produced by [Y].SiemensSiemensVolvo CarsP176Dainatsu Boon[X] is produced by [Y].FerrariSonyFerrariP377Howard Florey[X] used to work in [Y].LondonLondonMongomeryP373Juan March[X] used to work in [Y].KadraidRigaP373Juan March[X] used to work in [Y].MadridParisMadridP463Mcuico National football team[X] is a member of [Y].NATONATOFIFAP463Mcuico National football team[X] is a member of [Y].NATOFIFANATOP138Germany[X] is named after [Y].UnixAristolleUnixP138Gortian[X] is named after [Y].UnixAristolleUnixP138Gortin F.C.[X] is named after [Y].UnixAristolleUnixP138Gortin F.C.[X] works in the field of [Y].phyliosophyphilosophyP101Adama Gurnett Tylor[X] works in the field of [Y].philosophyphilosophyP138Gortin F.C.[X] works in the field of [Y].phyliosophyphilosophyP101Adama Gurnett Tylor[X] works in the field of [Y].	P106	Gregory Chamitoff	[X] is a [Y] by profession.	astronaut	lawyer	astronaut
P106Freibert Romulus O'Color[X] is produced by [Y].IntelIntelIntelJawyerpaybyerP176Dainatsa Boon[X] is produced by [Y].ToyotaHondaToyotaP176Dirish Rail Class 360[X] is produced by [Y].FerrariSiemensSiemensP176Dirish Rail Class 360[X] is produced by [Y].FerrariSonyFerrariP371Howard Florey[X] used to work in [Y].LondonLondonRigaP937Alberts Kviesis[X] used to work in [Y].RigaStockholmRigaP937Juan March[X] used to work in [Y].MadridParisMadridP463United States America[X] is a member of [Y].NATONATOFIFAP463March[X] used to work in [Y].NATONATOFIFAP463Mexico national football team[X] is a member of [Y].NATONATOFIFAP463Germany[X] is named after [Y].BavariaFranceBavariaP138GRU[X] is named after [Y].SunSuncarboncarbonP138solar mass[X] is named after [Y].SunSuncarboncarbonP138solar mass[X] is named after [Y].SunSuncarboncarbonP138solar mass[X] is named after [Y].SunanthropologymedicineanthropologyP101Adamazagoras[X] works in the field of [Y].philosophyphilosophyphilosophy	P106	Karl Taylor Compton	[X] is a [Y] by profession.	pnysicist	lawyer	physicist
P176Ostatiatus Boon[X] is produced by [Y].ToyotaHondaToyotaP176British Ruil Class 360[X] is produced by [Y].SiemensSiemensVolvo CarsP176Dino[X] is produced by [Y].FerrariSonyFerrariP937Howard Florey[X] used to work in [Y].LondonLondonMontgomeryP937Horard Florey[X] used to work in [Y].RigaStockholmRigaP937Jan March[X] used to work in [Y].MadridParisMadridP463United States of America[X] is a member of [Y].NATONATOPBSP463Croatia[X] is a member of [Y].NATONATOPIEAP463Germany[X] is a member of [Y].NATONATOPIEAP463Germany[X] is a member of [Y].NATONATOUnixP138Germany[X] is named after [Y].UnixAristotleUnixP138Gormany[X] is named after [Y].UnixAristotleUnixP138John Solar mass[X] works in the field of [Y].anthropologymedica anthropologymedica anthropologyP101Anax gorns[X] works in the field of [Y].anthropologymedica anthropologyP101Anas gorns[X] works in the field of [Y].physicsphysicle systemP101Anas Groula[X] works in the field of [Y].physicsphysicle systemP101Anas Groula[X] works in the field of [Y].pope <td< td=""><td>P100 D176</td><td>Sustem Controller Hub</td><td>[X] is a [Y] by profession.</td><td>lawyer</td><td>lawyer</td><td>playwright</td></td<>	P100 D176	Sustem Controller Hub	[X] is a [Y] by profession.	lawyer	lawyer	playwright
1170Damaba Bohn[A] is produced by [1].DybaDybaDybaP176Dino[X] is produced by [Y].FerrariSonyFerrariP37Howard Florey[X] used to work in [Y].LondonMontgomeryP37Alberts Kvicsis[X] used to work in [Y].LondonLondonP37Ramsay MacDonald[X] used to work in [Y].LondonLondonP37Ramsay MacDonald[X] used to work in [Y].LondonLondonP463Croatia[X] is a member of [Y].NATONATOP463Croatia[X] is a member of [Y].NATONATOP463Germany[X] is a member of [Y].NATONATOP138Germany[X] is nameber of [Y].NATONATOP138GNU[X] is nameber of [Y].NATONATOP138GNU[X] is named after [Y].UnixAristotleP138Solar mass[X] is named after [Y].UnixAristotleP138Solar mass[X] is named after [Y].TurinAristotleP138Solar mass[X] is named after [Y].TurinAristotleP138Solar mass[X] works in the field of [Y].anthropologymedicineP101Adamacoras[X] works in the field of [Y].philosopherP101Adamacoras[X] works in the field of [Y].philosopherP39John XXI[X] has the position of [Y].pishopphilosopherP39John XXI[X] has the position of [Y]	P176	Deibeten Roop	[X] is produced by [Y]	Toyota	Hondo	Apple Inc.
1170Dino[X] is produced by [Y].DefinitionSomyFerrariP977Howard Florey[X] used to work in [Y].LondonLondonMontgomeryP937Alberts Kviesis[X] used to work in [Y].RigaStockholmRigaP937Jan March[X] used to work in [Y].MadridParisMadridP9463United States of America[X] is a member of [Y].NATONATOPBSP463Mexico national fooball team[X] is a member of [Y].NATONATOPBSP463Mexico national fooball team[X] is a member of [Y].NATOFIFANATOP138Germany[X] is named after [Y].BavariaFranceBavariaP138Germany[X] is named after [Y].SunSuncarbonP138Gortino F.C.[X] is named after [Y].SunSunacrbonP138Torino F.C.[X] works in the field of [Y].anthropologymedicineanthropologyP101Edward Burnett Tylor[X] works in the field of [Y].philosophyphilosophyphilosophyP101Adam Carolla[X] works in the field of [Y].physicsphysicsloystempysical systemP39John XXI[X] has the position of [Y].physicsphysicsloystempysicsloystemP39John XXI[X] has the position of [Y].bishopbishoppojeP39John XXI[X] has the position of [Y].bishopbishoppojeP39John XXI<	P176	Damasu Boon Pritish Pail Class 260	[X] is produced by [Y]	Siamana	Fiomono	Volvo Core
11.10Drino[Y]1.51.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.61.6 <t< td=""><td>P176</td><td>Dino</td><td>[X] is produced by [Y]</td><td>Formari</td><td>Sony</td><td>Forrari</td></t<>	P176	Dino	[X] is produced by [Y]	Formari	Sony	Forrari
P37Alberts Kviesis[X] used to work in [Y].RigaStockholmRigaP937Ramsay MacDonald[X] used to work in [Y].LondonLondonScotlandP937Juan March[X] used to work in [Y].MadridParisMadridP463United States of America[X] is a member of [Y].NATONATOPESP463Croatia[X] is a member of [Y].NATONATOFIFAP463Germany[X] is a member of [Y].NATONATOFIFAP463Germany[X] is a member of [Y].BavariaFranceBavariaP138Germany[X] is named after [Y].BavariaFranceBavariaP138Solar mass[X] is named after [Y].SunSuncarbonP138Torino F.C.[X] is named after [Y].SunSuncarbonP101Edward Burnett Tylor[X] works in the field of [Y].philosophyphilosophyP101Adaxagoras[X] works in the field of [Y].philosophyphilosophyP101Adaxagoras[X] works in the field of [Y].popepopeP39Augustine Kandathil[X] has the position of [Y].popebishoppopeP39Augustine Kandathil[X] has the position of [Y].popebishoppopeP39Photinus of Sirmium[X] has the position of [Y].bishopbishopGodP33Samo of Dol[X] has the position of [Y].bishopbishoppopeP33 <td>P937</td> <td>Howard Florey</td> <td>[X] used to work in [Y]</td> <td>London</td> <td>London</td> <td>Montgomery</td>	P937	Howard Florey	[X] used to work in [Y]	London	London	Montgomery
1237Anderis Refease(r) and to work in [r].(r) and to mode in [r].(r) and thropology(r) and thr	P037	Alberts Kyjesis	[X] used to work in [Y]	Pige	Stockholm	Piga
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P330Liechtenstein[X] maintains diplomatic relations with [Y].AustriaMailalP530Saudi Arabia[X] maintains diplomatic relations with [Y].AustriaAustriaP530Saudi Arabia[X] maintains diplomatic relations with [Y].KuwaitQatarAustriaP264Georg Solti[X] is represented by music label [Y].DeccaEMIDeccaP264The Temptations[X] is represented by music label [Y].MotownEMIMotownP264David Bowie[X] is represented by music label [Y].EMIEMIBarclayP264Maria Callas[X] is represented by music label [Y].EMIEMIDeccaP1376Florence[X] is the capital of [Y].AustraliaAustraliaQueenslandP1376Heraklion[X] is the capital of [Y].AustraliaAustraliaQueenslandP1376Islamabad[X] is the capital of [Y].PakistanPakistanKarachiP1001Jatiya Sangshad[X] is a legal term in [Y].BangladeshIndiaBangladeshP1001Manitoba Act, 1870[X] is a legal term in [Y].ItalyItalyPruneiP495soppresstat[X] was created in [Y].ItalyItalyPeruP495Fox Soccer News[X] was created in [Y].CanadaCanadaJordanP495Fox Soccer News[X] was created in [Y].CanadaCanadaJordan	P530	Malta	[X] maintains upromatic relations with [Y].	Italy	Italy	Malta
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P264Maria Callas[X] is represented by music label [Y].EMIEMIDeccaP1376Florence[X] is the capital of [Y].TuscanyItalyTuscanyP1376Canberra[X] is the capital of [Y].AustraliaAustraliaQueenslandP1376Heraklion[X] is the capital of [Y].AustraliaAustraliaQueenslandP1376Islamabad[X] is the capital of [Y].CreteGreeceCreteP1376Islamabad[X] is the capital of [Y].BangladeshIndiaBangladeshP1001Legislative Yuan[X] is a legal term in [Y].BangladeshIndiaBangladeshP1001Manitoba Act, 1870[X] is a legal term in [Y].TaiwanSingaporeTaiwanP1001Manitoba Act, 1870[X] is a legal term in [Y].MalaysiaBruneiP495soppressata[X] was created in [Y].ItalyPeruP495Kefalotyri[X] was created in [Y].GreeceCyprusP495Fox Soccer News[X] was created in [Y].CanadaCanadaJordanP495Fox Soccer News[X] was created in [Y].CanadaAustraliaCanada	P264	David Bowie	[X] is represented by music label [Y]	EMI	EMI	Barclav
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P1376 Canberra [X] is the capital of [Y]. Australia Australia Queensland P1376 Heraklion [X] is the capital of [Y]. Australia Australia Queensland P1376 Heraklion [X] is the capital of [Y]. Pakistan Pakistan Karachi P1376 Islamabad [X] is the capital of [Y]. Pakistan Pakistan Karachi P1001 Jatiya Sangshad [X] is a legal term in [Y]. Bangladesh India Bangladesh P1001 Legislative Yuan [X] is a legal term in [Y]. Canada Canada Ontario P1001 Manitoba Act, 1870 [X] is a legal term in [Y]. Malaysia Malaysia Brunei P495 soppressata [X] was created in [Y]. Italy Italy Peru P495 Kefalotyri [X] was created in [Y]. Graece Cyptus Greece P495 Fox Soccer News [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P1376	Florence	[X] is the capital of [Y].	Tuscanv	Italy	Tuscanv
P1376 Heraklion [X] is the capital of [Y]. Crete Greece Crete P1376 Islamabad [X] is the capital of [Y]. Pakistan Pakistan Karachi P1001 Jatiya Sangshad [X] is the capital of [Y]. Bangladesh India Bangladesh P1001 Legislative Yuan [X] is a legal term in [Y]. Bangladesh India Bangladesh P1001 Manitoba Act, 1870 [X] is a legal term in [Y]. Canada Canada Ontario P1001 Manitoba Act, 1870 [X] is a legal term in [Y]. Malaysia Malaysia Brunei P495 soppressata [X] was created in [Y]. Italy Italy Peru P495 Kefalotyri [X] was created in [Y]. Greece Cyprus Greece P495 Degrassi High [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Canada Canada	P1376	Canberra	[X] is the capital of [Y].	Australia	Australia	Queensland
P1376 Islamabad [X] is the capital of [Y]. Pakistan Pakistan Karachi P1001 Jatiya Sangshad [X] is a legal term in [Y]. Bangladesh India Bangladesh P1001 Legislative Yuan [X] is a legal term in [Y]. Taiwan Singapore Taiwan P1001 Manitoba Act, 1870 [X] is a legal term in [Y]. Canada Canada Ontario P1001 Yang di-Pertuan Agong [X] is a legal term in [Y]. Malaysia Malaysia Brunei P495 soppressata [X] was created in [Y]. Italy Italy Peru P495 Kefalotyri [X] was created in [Y]. Greece Cyprus Greece P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P1376	Heraklion	[X] is the capital of [Y].	Crete	Greece	Crete
P1001 Jatiya Sangshad X is a legal term in [Y]. Bangladesh India Bangladesh P1001 Legislative Yuan [X] is a legal term in [Y]. Taiwan Singapore Taiwan P1001 Manitoba Act, 1870 [X] is a legal term in [Y]. Canada Canada Ontario P1001 Manitoba Act, 1870 [X] is a legal term in [Y]. Canada Canada Ontario P1001 Yang di-Pertuan Agong [X] is a legal term in [Y]. Malaysia Baruei P495 soppressata [X] was created in [Y]. Italy Italy Peru P495 Kefalotyri [X] was created in [Y]. Greece Cyprus Greece P495 Degrassi High [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P1376	Islamabad	[X] is the capital of [Y].	Pakistan	Pakistan	Karachi
P1001 Legislative Yuan [X] is a legal term in [Y]. Taiwan Singapore Taiwan P1001 Manitoba Act, 1870 [X] is a legal term in [Y]. Canada Canada Ontario P1001 Yang di-Pertuan Agong [X] is a legal term in [Y]. Malaysia Malaysia Brunei P495 soppressata [X] was created in [Y]. Italy Italy Peru P495 Kefalotyri [X] was created in [Y]. Greece Cyprus Greece P495 Degrassi High [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P1001	Jatiya Sangshad	[X] is a legal term in [Y].	Bangladesh	India	Bangladesh
P1001 Manitoba Act, 1870 [X] is a legal term in [Y]. Canada Canada Ontario P1001 Yang di-Pertuan Agong [X] is a legal term in [Y]. Malaysia Malaysia Brunei P495 soppressata [X] was created in [Y]. Italy Italy Peru P495 Kefalotyri [X] was created in [Y]. Greece Cyprus Greece P495 Degrassi High [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P1001	Legislative Yuan	[X] is a legal term in [Y].	Taiwan	Singapore	Taiwan
P1001 Yang di-Pertuan Agong [X] is a legal term in [Y]. Malaysia Malaysia Brunei P495 soppressata [X] was created in [Y]. Italy Italy Peru P495 Kefalotyri [X] was created in [Y]. Greece Cyprus Greece P495 Degrassi High [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P1001	Manitoba Act, 1870	[X] is a legal term in [Y].	Canada	Canada	Ontario
P495 soppressata [X] was created in [Y]. Italy Italy Peru P495 Kefalotyri [X] was created in [Y]. Greece Cyprus Greece P495 Degrassi High [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P1001	Yang di-Pertuan Agong	[X] is a legal term in [Y].	Malaysia	Malaysia	Brunei
P495 Kefalotyri [X] was created in [Y]. Greece Cyprus Greece P495 Degrassi High [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P495	soppressata	[X] was created in [Y].	Italy	Italy	Peru
P495 Degrassi High [X] was created in [Y]. Canada Canada Jordan P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P495	Kefalotyri	[X] was created in [Y].	Greece	Cyprus	Greece
P495 Fox Soccer News [X] was created in [Y]. Canada Australia Canada	P495	Degrassi High	[X] was created in [Y].	Canada	Canada	Jordan
	P495	Fox Soccer News	[X] was created in [Y].	Canada	Australia	Canada

Table 11: We sample two random triples where either BERT or fastText[1000k] is correct per relation. One can see for example that BERT mostly predicts "jazz" for relation P136.

Relation	Subject	Template	Object	BERT	fastText
P527	army	[X] consists of [Y].	infantry	infantry	cavalry
P527	Windward Islands	[X] consists of [Y].	Barbados	Bermuda	Barbados
P527	taxon	[X] consists of [Y].	organism	grass	organism
P527	humanities	[X] consists of [Y] .	art	art	linguistics
P1303	Kenny G	[X] plays [Y] .	saxophone	guitar	saxophone
P1303	Stuart Duncan	[X] plays [Y] .	fiddle	guitar	fiddle
P1303	Herbie Nichols	[X] plays [Y] .	piano	piano	harmonica
P1303	Nat King Cole	[X] plays [Y] .	piano	piano	saxophone
P190	Uzhhorod	[X] and [Y] are twin cities .	Moscow	Moscow	Lviv
P190	Vienna	[X] and [Y] are twin cities .	Budapest	Budapest	Vienna
P190	Cali	[X] and [Y] are twin cities .	Guadalajara	Santiago	Guadalajara
P190	Mindelo	[X] and [Y] are twin cities .	Porto	Santiago	Porto
P47	Monreale	[X] shares border with [Y].	Palermo	Italy	Palermo
P47	Afghanistan	[X] shares border with [Y].	Pakistan	Pakistan	Afghanistan
P47	Edagam	[A] shares border with [Y]	Aussia	Ethionio	Antruser
P4/	Edegeni MaDanald Haighta	[A] shares border with [1].	Antwerp	Africo	Antwerp
P30	Relbern Velley	[A] is located in [1].	Antarctica	Anteration	Africo
P30	Southern Notherlands	[X] is located in [Y]	Furana	Furana	Africa
P30	Pitcairn Islande	[X] is located in [Y]	Oceania	Antarctica	Oceania
P361	arithmetic	[X] is not of [V]	mathematics	mathematics	logic
P361	articultural science	[X] is part of [Y]	agriculture	agriculture	science
P361	zoology	[X] is part of [Y]	biology	science	biology
P361	neuroscience	[X] is part of [Y]	psychology	science	psychology
P103	Muppalaneni Shiya	The native language of [X] is [Y].	Telugu	Marathi	Telugu
P103	Joseph Reinach	The native language of [X] is [Y].	French	English	French
P103	Raymond Queneau	The native language of [X] is [Y]	French	French	Breton
P103	Lindsev Davis	The native language of [X] is [Y].	English	English	Welsh
P20	James Northcote	[X] died in [Y].	London	London	Morris
P20	George Frampton	[X] died in [Y].	London	London	Chapman
P20	Peter Strudel	[X] died in [Y].	Vienna	Paris	Vienna
P20	Gaetano Gandolfi	[X] died in [Y].	Bologna	Rome	Bologna
P27	August Gailit	[X] is [Y] citizen .	Estonia	Luxembourg	Estonia
P27	Ada Yonath	[X] is [Y] citizen.	Israel	India	Israel
P27	Enrique Llanes	[X] is [Y] citizen.	Mexico	Mexico	Spain
P27	Timothy Anglin	[X] is [Y] citizen.	Canada	Canada	England
P279	Ciliary neurotrophic factor	[X] is a subclass of [Y].	protein	protein	inflammation
P279	Decorin	[X] is a subclass of [Y].	protein	protein	perfume
P279	shinto shrine	[X] is a subclass of [Y].	sanctuary	Buddhism	sanctuary
P279	articled clerk	[X] is a subclass of [Y].	apprentice	jurist	apprentice
P19	Frans Floris I	[X] was born in [Y].	Antwerp	Amsterdam	Antwerp
P19	Sajjad Ali	[X] was born in [Y].	Lahore	Tehran	Lahore
P19	Henry Mayhew	[X] was born in [Y].	London	London	Fowler
P19 D150	Rob Lee Swadiah Ornhan Biawitmum	[A] was born in [Y]. The bacdementar of [Y] is in [Y]	London	London	Gary
P159 D150	Canadian Jawish Congress	The headquarter of [X] is in [Y].	Ottowo	Ottowo	Winning
P150	Eloride International University	The headquarter of [X] is in [Y].	Miami	Tompo	Miomi
P150	Edipresse	The headquarter of [X] is in [Y]	Laucanno	Chennai	Laucanne
P/13	Markus Haleti	[Y] plays in [V] position	midfielder	midfielder	goaltender
P413	Luca Danilo Fusi	[X] plays in [Y] position	midfielder	midfielder	goalkeeper
P413	Mike Teel	[X] plays in [Y] position	quarterback	forward	quarterback
P413	Doug Buffone	[X] plays in [Y] position	linebacker	forward	linebacker
P37	Sorengo	The official language of [X] is [Y].	Italian	Portuguese	Italian
P37	Padasioki	The official language of [X] is [Y].	Finnish	English	Finnish
P37	Wallonia	The official language of [X] is [Y]	French	French	Basque
P37	Biel/Bienne	The official language of [X] is [Y].	French	French	Czech
P140	Gautama Buddha	[X] is affiliated with the [Y] religion .	Buddhism	Hindu	Buddhism
P140	Christianization	[X] is affiliated with the [Y] religion .	Christianity	Christian	Christianity
P140	Albanians	[X] is affiliated with the [Y] religion .	Christian	Christian	Muslim
P740	SNCF	[X] was founded in [Y].	Paris	Paris	France
P740	Odex	[X] was founded in [Y].	Singapore	Germany	Singapore
P740	Comerica	[X] was founded in [Y].	Detroit	Prague	Detroit
P740	Pink Fairies	[X] was founded in [Y].	London	London	Gold
P276	Saint-Domingue expedition	[X] is located in [Y].	Haiti	France	Haiti
P276	2002 Australian Op[X] is located in [Y] .	Melbourne	Melbourne	Australia	
P276	2013 German federal election	[X] is located in [Y].	Germany	Berlin	Germany
P276	Cantabrian Wars	[X] is located in [Y].	Spain	Spain	Catalonia
P136	Giulio Caccini	[X] plays [Y] music .	opera	jazz	opera
P136	Nicolas Dalayrac	[X] plays [Y] music .	opera	jazz	opera
P136	Georgie Auld	[X] plays [Y] music .	jazz	jazz	ballad
P136	Chess Records	[X] plays [Y] music.	jazz	jazz	reggae
P17	Eibenstock	[X] is located in [Y].	Germany	Germany	Austria
r1/	vrienden van het Platteland	[A] is located in $[Y]$.	Netherlands	Belgium	Netherlands
r1/	Fawkner Webs Gold Deale	[A] is located in $[Y]$.	Australia	Lebanon	Australia
P1/ D121	wakefield Park	[A] is located in [Y].	Australia	Australia	The Bahamas
r131 D121	Squantz Pond State Park	$[\Lambda]$ is located in $[\Upsilon]$.	Connecticut	Somerset	Connecticut
r131 D121	Damytermot	$[\Lambda]$ is located in $[\Upsilon]$.	Alborto	Alborto	Dublin
	LINN CHOWNER AS I VIIIA OP L ALGARY	LAT IS IOCATED III I T 1.	Albena	Albena	10101110
D121	Edmonton City Contro Aircort	[V] is located in [V]	Alborto	Alborto	Toronto

Table 12: Table 11 continued.