

NLP at TrustYou

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The Power To Listen

Start listening,
start winning!

www.trustyou.com

The Power of Numbers

The world's largest guest feedback database

800,000,000+	Reviews
23,000,000+	Surveys
725,000+	Hotels
95,000+	Active Users
43,000+	Hotel Clients
200+	Sources
20+	Analyzed Languages



A Global Team of
180+
Feedback Experts



Offices:

Munich - Madrid - Cluj - San Diego - Singapore - Tokyo

TrustYou - Guest Feedback Provider

We power reviews for these industry giants

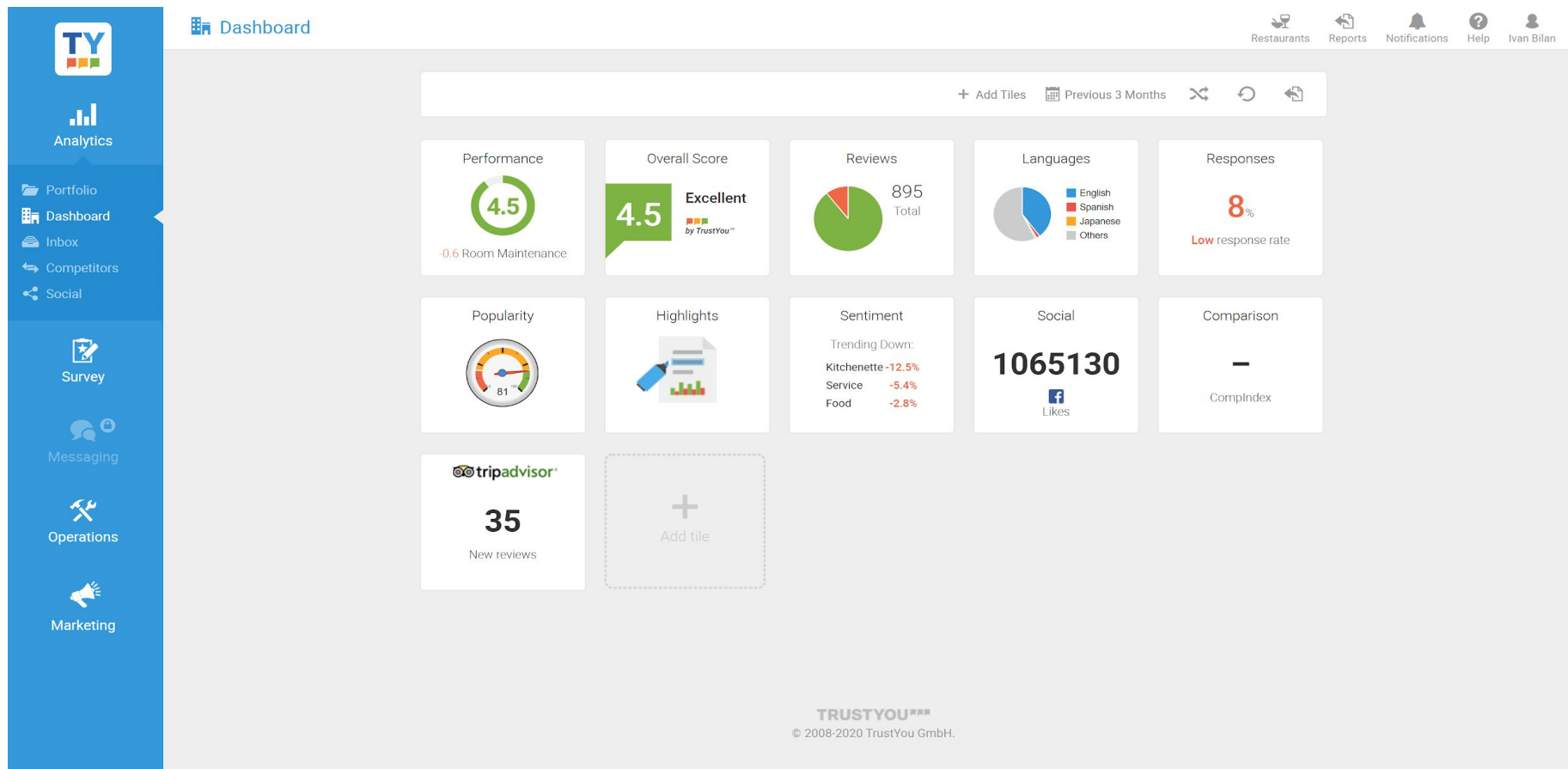
DATA:



BRANDS:



Review analytics platform for hotels



Dashboard overview of the analysis






















Category ▼	Sentiment Score	Trend	Mentions	Positive	Neutral	Negative
✓ ▶ Amenities	↓ 4	-2.4%	 129	103	3	23
✓ ▶ Bar	↑ 3.9	+69.6%	 27	21	2	4
✓ ▶ Cleanliness	↑ 3.1	+10.7%	 75	47	2	26
✓ ▶ Comfort	↑ 4	+11.1%	 62	49	2	11
✓ ▶ Food	↓ 3.5	-2.8%	 79	55	4	20
✓ ▶ Hotel	4.2	0%	 279	234	4	41
✓ ▶ Location	↓ 4.4	-2.2%	 87	76	1	10
✓ ▶ Pool	↑ 4.4	+12.8%	 42	37	2	3
✓ ▶ Price	↑ 2.3	+9.5%	 43	20	4	19
✓ ▶ Room	↑ 3.2	+10.3%	 283	182	9	92
✓ ▶ Service	↓ 3.5	-5.4%	 172	121	3	48
✓ ▶ Sporting Activities	↓ 3.8	-15.6%	 4	3	0	1
✓ ▶ Vibe	↓ 3.8	-2.6%	 85	65	5	15
✓ Wellness Area	↑ 5	+56.2%	 1	1	0	0
✓ WiFi	↑ 5	+194.1%	 1	1	0	0

Great pool
 Great room
 Awesome vibe Very comfortable
 Great amenities Good internet service Clean
 Delicious food Great location
 Fantastic service Bar is awesome

Average Hotel Decent vibe Comfortable Room is all right
 Reasonably priced Quite clean Ordinary amenities
 Location is ok Food is all right Standard bar Ordinary pool
 Service is adequate


Bar could improve Room needs to be improved
 More comfort would be nice
 Service could be improved Amenities are not the best
 Bad hotel Food could be better Expensive
 Pool should be renewed Could use a good cleaning
 Vibe is not too good Location is inconvenient

We classify results into ~170 aspects

<input checked="" type="checkbox"/>	▸ Cleanliness	↑ 3.1	+10.7%		75	47	2	26
<input checked="" type="checkbox"/>	▸ Comfort	↑ 4	+11.1%		62	49	2	11
<input checked="" type="checkbox"/>	▾ Food	↓ 3.5	-2.8%		79	55	4	20
<input type="checkbox"/>	Beef Dishes/Steak	↑ 5	+13.6%		6	6	0	0
<input type="checkbox"/>	Breakfast	↑ 4.2	+2.4%		6	5	0	1
<input type="checkbox"/>	Breakfast Buffet	0	0%		1	0	0	1
<input type="checkbox"/>	Breakfast Prices	↓ 3.3	-34%		3	2	0	1
<input type="checkbox"/>	Desserts & Fruits	↓ 3	-31.8%		5	3	2	0
<input type="checkbox"/>	Dining Area Cleanliness	0	0%		1	0	0	1
<input type="checkbox"/>	Dining Experience	↑ 2.5	+13.6%		4	2	0	2
<input type="checkbox"/>	Dinner	↑ 5	+28.2%		2	2	0	0
<input type="checkbox"/>	Fish/Seafood	↑ 5	+38.9%		1	1	0	0
<input type="checkbox"/>	Food Prices	1.3	0%		4	1	1	2
<input type="checkbox"/>	Menu	↓ 2	-39.4%		10	4	2	4
<input type="checkbox"/>	Pasta	↑ 5	+31.6%		1	1	0	0
<input type="checkbox"/>	Side Dishes	0	0%		3	0	0	3
<input type="checkbox"/>	Snacks	↑ 5	+61.3%		1	1	0	0
<input type="checkbox"/>	Vegetarian & Vegan	↑ 5	+100%		2	2	0	0
<input checked="" type="checkbox"/>	▸ Hotel	4.2	0%		279	234	4	41
<input checked="" type="checkbox"/>	▸ Location	↓ 4.4	-2.2%		87	76	1	10
<input checked="" type="checkbox"/>	▸ Pool	↑ 4.4	+12.8%		42	37	2	3

Everything can be inspected

Reviews with Breakfast matches




TripAdvisor


2020-06-20

I Made The Trip, And I'm Glad I Did!

... e. A few of the restaurants were closed but I did discover Sadelle's Cafe which was superb and I had **the best breakfast** I've ever had in Vegas. Many of the resorts were still closed but their were a number of people play ...

[Read all](#)






TripAdvisor


2020-06-14

Amazing! Even with COVID-19 changes.

... ugh American Express Fine Hotels & Resorts if possible. (\$100 F&B credit, room upgrades if **available, and complimentary breakfast.**) 5. Approach everything with an open mind. Expect changes, but embrace them. (Temperature ...

[Read all](#)







Google

2020-05-27

Отдыхали семьёй зимой катались на лыжах или сноуборде. Очень понравилось, удобно расположен, **отличные завтраки**, сервис. Прямо на территории гостиничного комплекса всё для отдыха на любой вкус. Понравился ресторан, деля ...

[Read all](#)






Google

2020-05-05

Restaurants FIX and Noodle were perfect. **Buffet breakfast was way overpriced.** And worse were bad surprises. One of the three vats of scrambled eggs was frosty COLD, not just room temperature, and watery fluid was in wit ...

[Read all](#)



Every review is analyzed

↩ Respond ↩️ Respond with template ➡ Forward

More... ▾



●●●●● • 5 / 5 •

2019-11-24 • [TripAdvisor](#) • Published on 2019-11-25

Didn't want to leave!!!

This hotel was **our favorite of the five hotels we stayed at** during our China trip. **Excellent location** very close to the Bund. **Great views** of the Shanghai skyline from the **jacuzzi and one of the restaurants**. The decor of the entire hotel - lobby, restaurants, rooms, spa, and pool/jacuzzi - just exude luxury and opulence. Our room was quite possibly one of **the nicest and well designed standard rooms** we have stayed in. Excellent dimmable lighting in both the bedroom and bathroom. **Sleek night lighting**. **Many room functions controllable by iPad provided**. Motion-sensing toilet/bidet with automatic lid. Mirror/TV over the tub. **Large rain shower head** that functions simultaneous with the hand-held shower head (both with **great water pressure**). **Large closet/dressing area** and separate vanity. **Breakfast was excellent** (though the food set-up felt a bit cramped at places). **Excellent spa and pool facilities** (my husband and I both got massages). Be sure to bring a swim cap for the pool! Only complaint was that the **outlet at the vanity in the room didn't work** and the bar was closed when we arrived around midnight, so we **never received our welcome drink** (would have been nice to receive a voucher for a drink at another time). Overall though, we **absolutely loved this hotel!**

Good Hotel (4) • Good Wellness & Leisure (3) • Big Room (2) • Good Pool (2) • Good Room (2) • Good Shower (2) • Stylish Hotel (2) • Good Breakfast (1) • Good F&B (1)
• Good Furniture (1) • Good Hotel Buildings (1) • Good Location (1) • Good Restaurants & Bars (1) • Great View (1) • Great Wellness Area (1) • Modern Hotel (1) • New Facilities (1)
Bad Reception (1) • Poor Front Office (1) • Poor Maintenance (1) • Poorly-maintained Room (1)

Review analysis supports 23 languages

← Respond ← Respond with template → Forward

More... ▾



●●●●● • 4 / 5 •

2020-01-06 • [TripAdvisor](#) • Published on 2020-01-07


ちょとリッチなホテル

新婚旅行で滞在しました。チェックイン時にフロントで部屋のランクが下がると言われました。ポイントで返すと結われました。年始年始だったのか予定より1時間早くチェックインしたのが理由か？プラチナエリートなのに部屋のグレードが下がってました。バスタブの部屋にしたはずがシャワーだけで、部屋に無料のフルーツや水もおいてなかった。部屋から年越しの花火が見れると期待していたのに残念でした。立地は最高です。ホテルの従業員も素晴らしいです。過去に近くのいくつかのホテルに泊まりましたが値段は同じ位なのに他のホテルはサービス従業員の質は悪かった。ニューヨークはホテル代が高いので逆に安いと思いました。セントラルパークが目目の前なのでランナーにはオススメです。走り終わったら入口でミネラルウォーターが用意してありました。近くに美味しいレストランもいくつかあり、コロンバスサークルが近いのでホールフーズも近くにありました。年越しの花火は歩いて1分で見られます。また泊まりたいです。

Good F&B (3) • Good Recreation Staff (3) • Good Food (2) • Good Hotel (2) • Good Entrance Area (1) • Good Front Office (1) • Good Hotel Buildings (1) • Good Location (1)
• Good Non-alcoholic Drinks (1) • Good Price (1) • Good Reception (1) • Good Service (1) • Good Shower (1) • Good Sightseeing (1)
Poor F&B (2) • Bad Desserts & Fruits (1) • Bad Hotel (1) • Bad Non-alcoholic Drinks (1) • Bad Service (1) • Expensive (1)

4.3 **Very Good** 
★★★★☆

Summary of 7,439 verified reviews 


 All languages
100%

 All
100%

 Couples
53%

 Families
21%

 Solo
15%

 Business
11%

Rated **4.3/5** based on reviews from **all travelers**.

"Very good boutique hotel. Close to parking areas and public transportation. Fantastic service. Awesome vibe. Beautiful beach."

Beach

 **5.0/5**

5 reviews

"Beautiful beach."

Vibe

 **4.6/5**

1096 reviews

"Awesome vibe. Stylish hotel. Friendly atmosphere. Modern Hotel."

Pleasant entrance area. Luxurious Hotel. Nice boutique hotel.
Great for a wellness holiday. Luxury hotel.

Location

 **4.6/5**

1129 reviews

"Great location. Good car access, but so-so parking."

Close to public transport and the train.
Reasonably central, close to shopping, restaurants, and bars.
Standard parking prices.

Amenities

 **4.0/5**

635 reviews

"Good handicap accessible facilities."

Updated facilities with a great terrace. Beautiful architecture.
Great hotel grounds with a beautiful entrance area. Elevator is ok.
Smoking area is not nice.



EXCELLENT Boutique Hotel

Top 2% in city



EXCELLENT Wellness Hotel

Top 3% in city



EXCELLENT Views

Top 8% in city



EXCELLENT Hotel Buildings

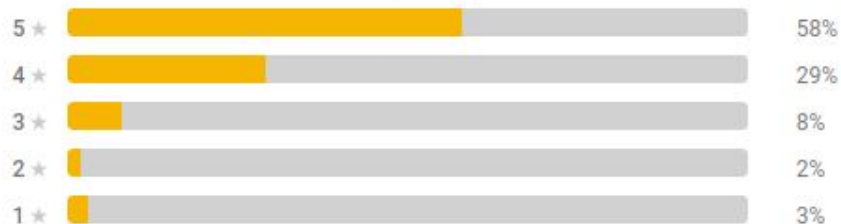
Top 6% in city

Good to know

- ✓ Beautiful architecture
- ✓ Stylish hotel
- ✓ Great view
- ✓ Nice building

Review summary ?

[+ Write a review](#)



4.3 Very good
 ★★★★★
 2,839 reviews

Rooms
3.5

Location
4.6

Service
3.7

Reviews on other travel sites

Hotels.com [↗](#)
 8.5/10 · 644 reviews

Expedia.com [↗](#)
 4.3/5 · 996 reviews

Agoda [↗](#)
 8.4/10 · 275 reviews

Wotif.co
 4.3/5 · 996 reviews

Ratings by traveler type



Couples
4.2/5



Families
4.1/5



Solo
4.2/5



Business
3.8/5

[Overview](#)[Rates](#)[Map](#)[Photos](#)[Reviews](#)

Guest reviews



All Reviews
100%



Couples
60%



Families
11%



Business
15%



Solo
14%

Overall Rating

8.7 Excellent

Based on 3397 reviews

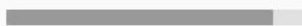
Amenities



9.0

"Excellent amenities."

Vibe



8.9

"Vibe was good."

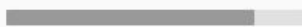
Location



8.8

"Location is great."

Service



8.3

"Great service."

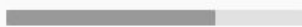
Wellness Area



8.1

"Very nice wellness & sports facilities."

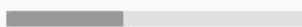
Breakfast



7.0

"Good breakfast."

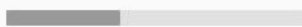
WiFi



3.9

"Internet is poor."

Value for money

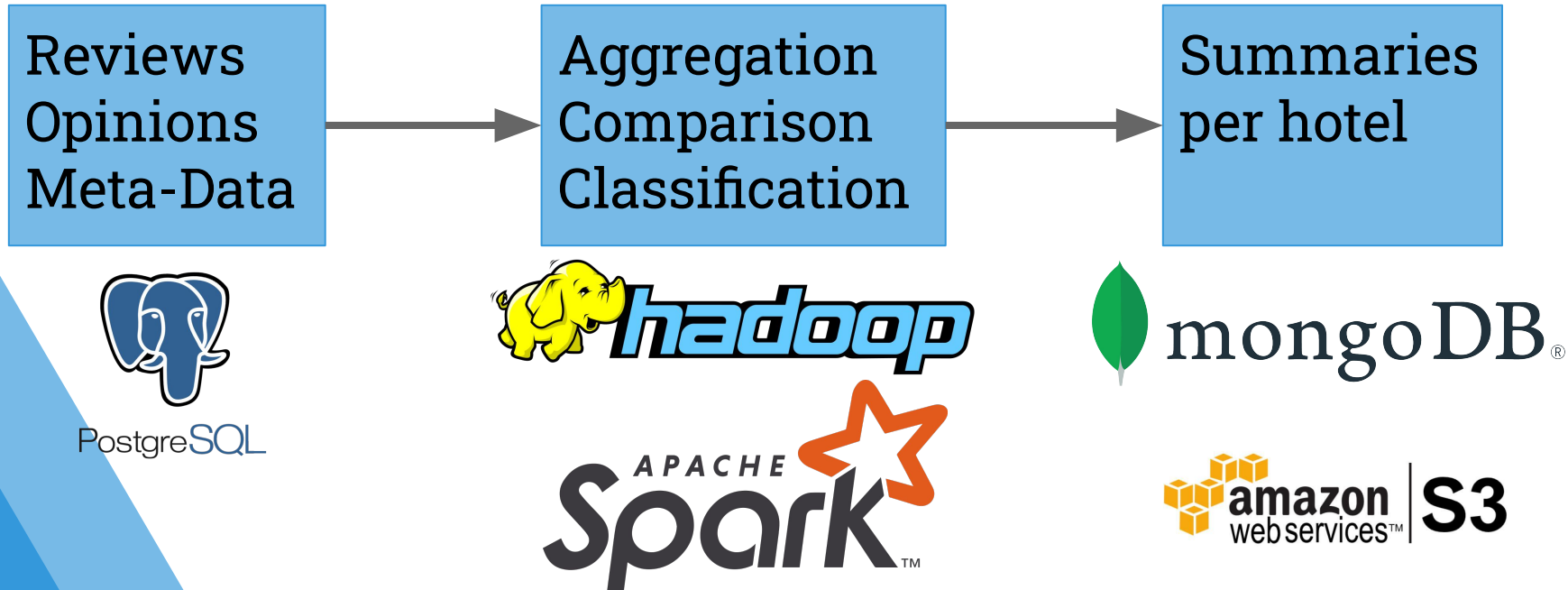


3.8

"Value below average."

data provided by
TRUSTYOU

Meta-Review pipeline



Semantic Analysis at TrustYou

- Aspect Based Sentiment Analysis
- Automated Summarization
- Chatbots



Aspect Based Sentiment Analysis

1. Recognize the sentiment span
2. Assign sentiment
3. Classify

Recognizing the sentiment span

“good tea and coffee not free”

good tea and coffee

tea and coffee not free

good tea and coffee not

good tea

coffee not free

Approaches to recognizing the sentiment span

1. Context-free grammars
2. Dependency tree rules
3. Neural: BERT, T5 etc

Context-free grammars are still widely used

“A very nice hotel!”

- Step 1: Language Detection
 - English
- Step 2: Tokenization
 - A | very | nice | hotel | !
- Step 3: Sentence segmentation
 - [A | very | nice | hotel | !]

Context-free grammars are still widely used

'Obj' -> "hotel" | "room"

'Attr' -> "nice" | "clean" | "good"

'Ampl' -> "very"

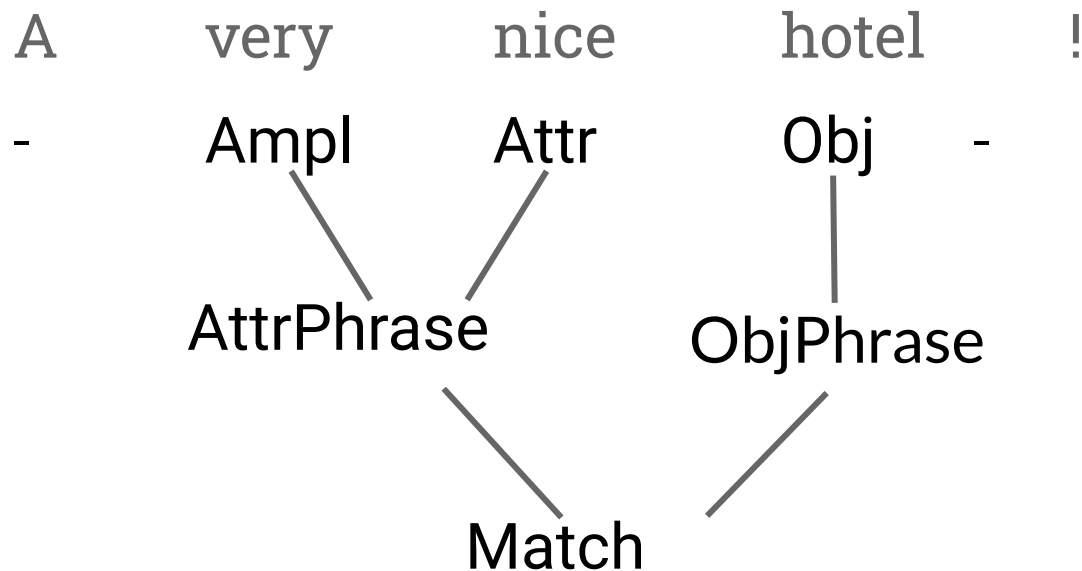
Match -> AttrPhrase ObjPhrase

ObjPhrase -> 'Obj'

AttrPhrase -> 'Attr' | 'Ampl' 'Attr'

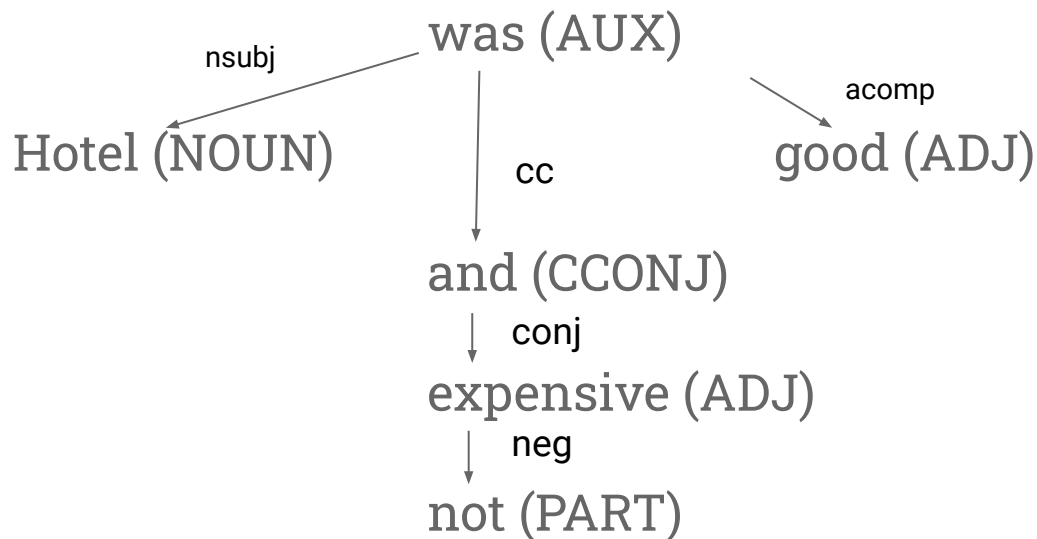


Context-free grammars are still widely used

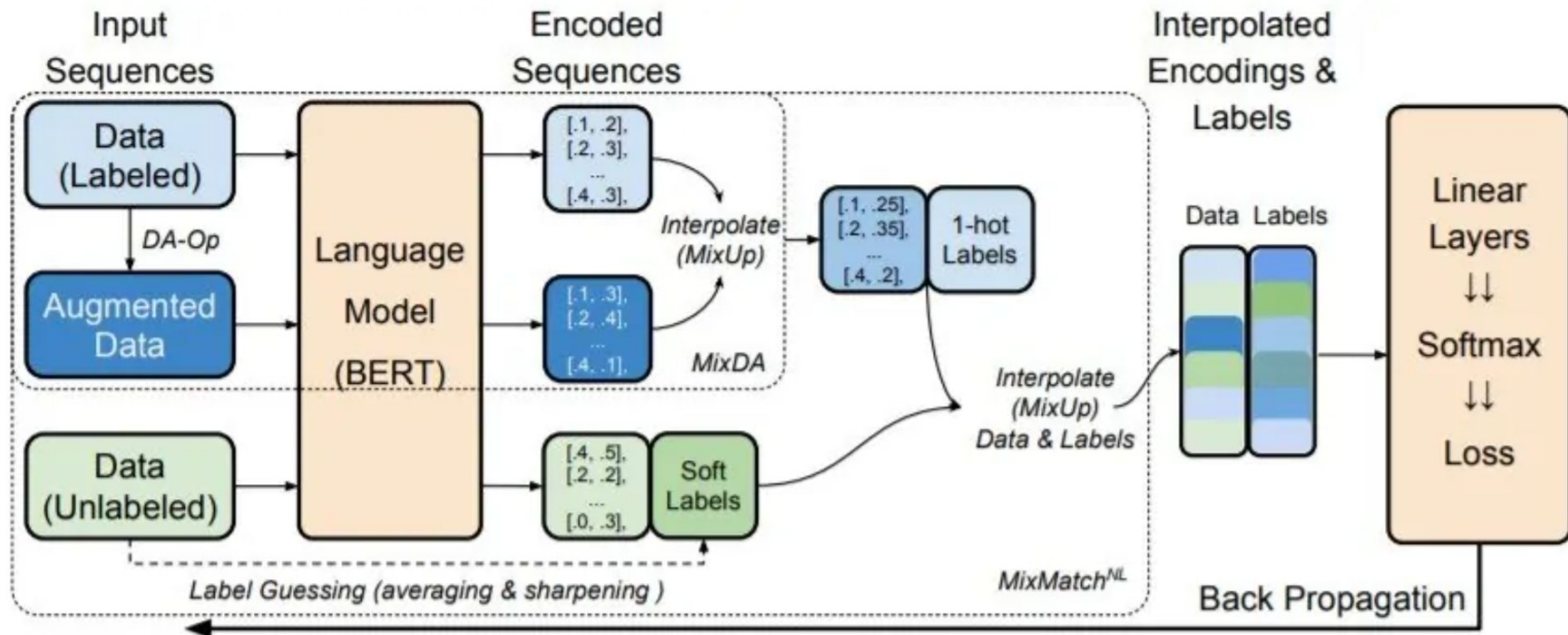


Dependency Parsing require less taxonomy work

“Hotel was good and not expensive”



Neural span extraction with Snippettext



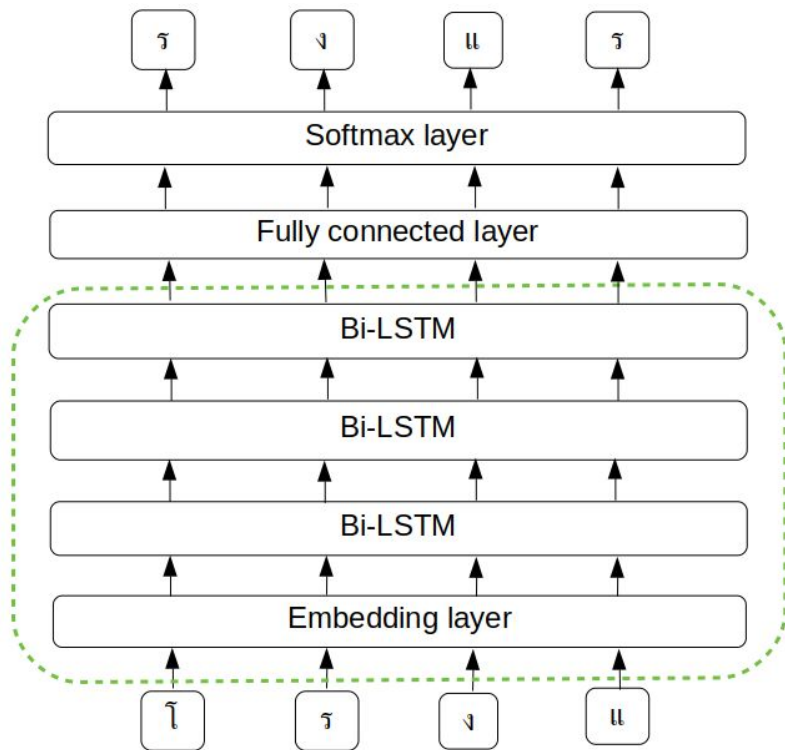
Various NLP challenges

- Problems with low-resource languages
- Spelling correction
- Complex grammar
- Irony
- Word Sense Disambiguation
- Coreference Resolution

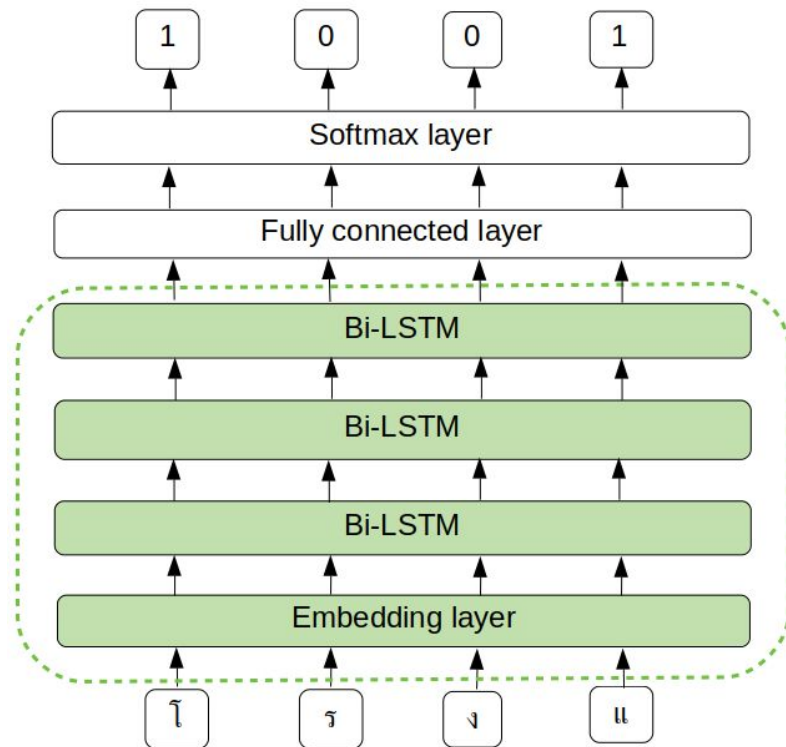
Challenges with the low-resource languages

- The hotel was very nice
- ホテルはとても素敵でした
- 这家酒店非常好
- โรงแรมเป็นสิ่งที่ดีมาก

Thesis by Suteera Seeha from CIS for Thai tokenization



Character Language Model



Word Segmentation Model

Achieved SOTA on Thai Tokenization

The room was very big. It was comfortable and safe. The Jacuzzi was big. When taking a bath, the floor got wet. The TV should be changed to a flat screen one.

Ground truth

ห้อง | ใหญ่ | มากกกก | ก | สดวก | สบายดี | ปลอด | ภัย | ห้อง | ทที่ | มี | อ่าง | จากูซี่ | ใหญ่ | ดี | อาบ | น้ำ | อลัว | พื้น | เปียก | โทรทัศน์ | ควร | เปลี่ยน | เบน | จอ | แบน

Newmm

ห้อง | ใหญ่ | มาก | กก | กก | กัดวก | สบายดี | ปลอด | ภัย | ห้องท | ที่ | มี | อ่าง | จา | ก | ซี่ | ใหญ่ | ดี | อานน้ำ | อลัว | พื้น | เปียก | โทรทัศน์ | ควร | เปลี่ยน | เบน | จอ | แบน

Sertis

ห้อง | ใหญ่ | มา | ก | กกกกก | สดวก | สบายดี | ปลอด | ภัย | ห้องท | ที่ | มี | อ่าง | จากูซี่ | ใหญ่ | ดี | อาบ | น้ำ | อลัว | พื้น | เปียก | โทรทัศน์ | ควร | เปลี่ยน | เบน | จอ | แบน

Attacut

ห้อง | ใหญ่ | มาก | กกกก | กัดวกสบายดี | ปลอดภัยห้องทที่มี | อ่างจากูซี่ | ใหญ่ | ดี | อาบ | น้ำอลัว | พื้น | เปียก | โทรทัศน์ | ควรเปลี่ยน | เบน | จอ | แบน

Deepcut

ห้อง | ใหญ่ | มาก | กกกกก | สด | วก | สบายดี | ปลอด | ภัย | ห้องท | ที่ | มี | อ่าง | จากูซี่ | ใหญ่ | ดี | อาบ | น้ำอลัว | พื้น | เปียก | โทรทัศน์ | ควร | เปลี่ยน | เบน | จอ | แบน

ThaiLMCut

ห้อง | ใหญ่ | มาก | กก | กกก | สดวก | สบายดี | ปลอด | ภัย | ห้อง | ท | ที่ | มี | อ่าง | จากูซี่ | ใหญ่ | ดี | อาบ | น้ำ | อลัว | พื้น | เปียก | โทรทัศน์ | ควร | เปลี่ยน | เบน | จอ | แบน

General NLP Tech Stack at TrustYou

spaCy

NLTK

APACHE
SparkTM

 PyTorch

Q&A with the team

Contact us if you have more questions or want to write a Thesis with us in the future:

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