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# Improving Consistency of Human and Machine Translations

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The eBay logo is displayed in a light green color, centered in the bottom right quadrant of the slide. The background of the slide is a dark blue gradient on the left and a light blue gradient on the right, with a vertical line separating the two sections.

# Topics

- Intro
- Method
- Sense of quality
- Results
- MT and glossary creation
- Measuring MT Consistency

# Intro

## Objective

- Increase consistency in the postediting of large volumes of data

## How



*Hey, data, can show me where you are wrong?*

- Find inconsistency candidates and correct the errors
  - Idea: Terms can be translated or untranslated
  - If they are both, this could indicate inconsistency

# Method

- Get Frequent terms
- Find out if terms were Translated or left Untranslated
- Count how much a term was Translated and Untranslated
- Calculate the consistency of each term
- Sort by Consistency, less consistent first
- Analyze the report and improve inconsistencies

➔ Deliver better quality!

Get Frequent Terms

Translated or  
Untranslated?

Count Translated and  
Untranslated

Calculate Consistency

Sort by Low  
Consistency

Analyze Report and  
Improve Consistency



# Method

- Get Frequent terms

A short Python script extracts the most frequent 1000 source terms, sorted in order of frequency.



# Method

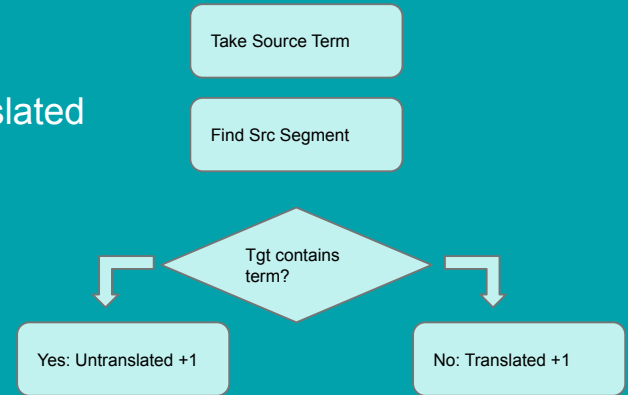
- Find out if terms were Translated or left Untranslated
- Count how much a term was Translated and Untranslated

The Python script:

- takes each source term
- finds a segment that contains it in the source
- checks if the target segment contains that term:
  - if yes, it counts as untranslated for that term
  - if no, it counts as translated for that term

The result looks like this:

Word	Untranslated	Translated
fuchs	11	11
one	15	16
jersey	10	9
shopper	28	22
italy	11	15
sport	15	21



# Method

- Calculate the consistency of each term

The Python script:

- calculates the consistency score
  - If a term is translated 12 times and untranslated 8 times:
  - the 8 times (lower number) are “inconsistent” with the majority of 12
  - the total instances is 20 (12 + 8)
  - the Consistency score is 8 out of 20
    - this is 40% inconsistent - **so it is 60% consistent**

The result looks like this:

Word	Untranslated	Translated	Consistency score
fuchs	11	11	50.0
one	15	16	51.6
jersey	10	9	52.6
shopper	28	22	56.0
italy	11	15	57.7
sport	15	21	58.3

# Method

- Sort by Consistency, less consistent first
  - We assume that the majority is correct, and the minority is inconsistent
  - The maximum lower number is when it is the same as the higher number
    - That is the 50/50 situation
  - Therefore, the worst Consistency score is 50%

The result is sorted from the worst consistency (50%) up to 100% consistent:

Word	Untranslated	Translated	Consistency score
fuchs	11	11	50.0
one	15	16	51.6
jersey	10	9	52.6
shopper	28	22	56.0
italy	11	15	57.7
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# Method

- Analyze the report and improve inconsistencies

Word	Untranslated	Translated	Consistency score
fuchs	11	11	50.0
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shopper	28	22	56.0

The Python script:

- creates a list of segments containing the term
- marks the segments as translated or untranslated

This facilitates the analysis.

- Translated shows nákupní often

Word	Transl/Untra	Source segment	Target Segment
shopper	translated:	mcm wende shopper tasche liz.med. org. rech.neu 625 €.ovp. neu.ungetr.ohne pouch	mcm wende <b>nákupní</b> taška liz. medium. nové 625 €.ovp. nové. bez sáčku
shopper	translated:	taschel campomaggi shopper cognac! so schön! groß! klassiker!	taška. campomaggi <b>nákupní</b> kořak barvat tak krásně! velké! klasika!
shopper	translated:	bree fantastic 4leder-shopper tasche hobo-bag leder red rot neu np.299€	bree fantastic 4 kožené bag hobo-bag taška kůže červená nové cena: 299 €
shopper	translated:	geniale xxl echt leder tasche/shopper braun stabil robust neuwertig np215,44 eur	důmyslná xxl pravá kožená taška / <b>nákupní</b> hnědá stabilní robustní jako nové cena 215,44 eur
shopper	translated:	ledertasche echtes fell, cognac, braun, shopper - italy tasche	kožená taška pravá kožešina, kořak, hnědá, <b>nákupní</b> taška - itálie taška
shopper	translated:	campomaggi shopper bag groß, grün und pflegeset für leder, neu	campomaggi <b>nákupní</b> taška,velká, zelená a kožená sada na péči, nové
shopper	translated:	massimo palomba tasche, edel, handgeflochtenes leder, großer shopper, wie neu	taška massimo palomba, úspěštilá, ručně tkaná kůže, velká <b>nákupní</b> taška, jako nové
shopper	translated:	neu handtasche leder handmade rehard unikat shopper elegant tasche neu	nové kožená kabelka rehard unikátní <b>nákupní</b> elegantní taška nové
shopper	translated:	tasche shopper gilt vip chanel	<b>nákupní</b> taška dárek vip chanel

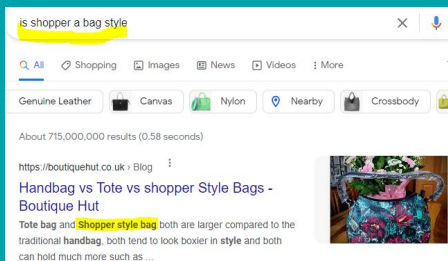
# Method

- Translated shows nákupní often

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shopper	translated:	taschel campomaggi! shopper! cognact so schön! groß! klassiker!♦♦	taška. campomaggi! <b>nákupní!</b> kořak barvat tak krásná! velká! klasika!♦♦
shopper	translated:	bree fantastic 4leder-shopper tasche hobo-bag leder red rot neu np.299€	bree fantastic 4 kožené bag hobo-bag taška kůže červená nové cena: 299 €
shopper	translated:	geniale xxl echt leder tasche/shopper braun stabil robust neuwertig np215,44 eur	důmyslná xxl pravá kožená taška / <b>nákupní</b> hnědá stabilní robustní jako nové cena 215,44 eur
shopper	translated:	ledertasche echtes fell. cognac. braun. shopper - italy tasche	kožená taška pravá kožešina. kořak hnědá. <b>nákupní</b> taška - itálie taška
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shopper	translated:	massimo palomba tasche. edel. handgeflochtenes leder. großer shopper. wie neu	taška massimo palomba, ušlechtlá, ručně tkaná kůže, velká <b>nákupní</b> taška. jako nové
shopper	translated:	neu handtasche leder handmade rehard unikat shopper elegant tasche neu	nové kožená kabelka rehard unikátní <b>nákupní</b> elegantní taška nové
shopper	translated:	tasche shopper gift vip chanel	<b>nákupní</b> taška dárek vip chanel

- Untranslated

Word	Transl/Untra	Source segment	Target Segment
shopper	untr:	hogan by tod's ▼ handtasche ▼▼ shopper ▼ tasche ▼ bordeaux ▼▼	hogan by tod's ▼ kabelka ▼▼ <b>shopper</b> ▼ taška ▼ bordeaux ▼▼
shopper	untr:	♥ mcm liz shopper handtasche visetos schwarz large original black	♥ mcm liz <b>shopper</b> kabelka visetos černá velká originální černá
shopper	untr:	campomaggi canvas shopper. shabby. gebrauchsspuren	campomaggi plátno shopper. shabby. stopy použití
shopper	untr:	klasse große ▼ fossil ▼▼ shopper bag / messenger. schultasche schwarz top!	skvělá velká ▼▼ fossil ▼▼ nákupní taška <b>shopper bag</b> / messenger. školní taška černá top!
shopper	untr:	damentaschen dior set shopper/beachbag & handtasche mini book oblique blau	dámské kabelky sada dior set <b>shopper</b> /beachbag & kabelka mini book oblique modrá
shopper	untr:	guess "shopper" tasche schwarz -florales muster- inkl. staubbeutel!	guess "shopper" taška černá -květinový vzor- vě. sáčku proti prachu!
shopper	untr:	♦♦ campomaggi zauberhafter shopper torre dell'oro rosa mit zubehör neu ♦♦	♦♦ campomaggi okouzující shopper torre dell'oro růžová s doplňky nové ♦♦♦♦
shopper	untr:	celine horizontal cabas tote bag tasche shopper shopping handtasche rare used	celine horizontal cabas tote taška bag shopper shopping kabelka rarita použité
shopper	untr:	tasche. shopper, desigual, handtasche.beutel, bunt, top!	taška, shopper, desigual, kabelka, pouzdro, barevné, top!



Shopper is a style (not a brand or product name) and is a common word, therefore, translatable.

I think we just found 28 errors!  
All the untranslated.

Word	Untranslated
fuchs	11
one	15
jersey	10
shopper	28

# Sense of quality

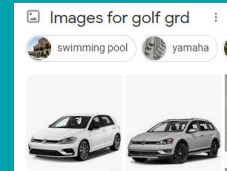
- A non-speaker can get a sense of quality
  - You just did!
- You can also see how some terms could need to be inconsistent
  - If you think of “golf”, can you think of two meanings for it?

## The sport (translatable)

Word	Transl/Untra	Source segment	Target Segment
golf	translated:	golf polo shirts	koszulki <b>golfowe</b> polo
golf	translated:	golf left-handed clubs	kije <b>golfowe</b> leworęczne
golf	translated:	taylor made burner golf clubs	kije <b>golfowe</b> taylormade burner
golf	translated:	golf tees	nóżki pod piłki <b>golfowe</b>

## The VW car (untranslatable)

Word	Transl/Untra	Source segment	Target Segment
golf	untr:	mk4 golf 312mm brakes	hamulce mk4 golf 312mm
golf	untr:	henry cotton golf	henry bawełniany golf
golf	untr:	mazel golf	mazel golf
golf	untr:	golf grd	golf grd
golf	untr:	vw citi golf	vw citi golf
golf	untr:	long drive golf	długi golf
golf	untr:	j lindenberg golf	j lindenberg golf
golf	untr:	vessell golf	golf vessell
golf	untr:	jb4 golf r	jb4 golf r
golf	untr:	mk1 golf -plus	mk1 golf -plus



“Golf” is supposed to have some inconsistency. If you are looking at the list of candidates, you could consider skipping golf because the term can be both translated and untranslated. And move on to more obvious errors.

# Method

- It is nice that someone could get some sense of quality
- But the **primary goal of this report is to help the posteditor improve the quality**
  - Once we facilitated finding 28 errors, they will fix them.

# Results

These results are net improvements from the use of this method:

Project	Same:	Changed:	Total:	Impact %
82-3-6	20870	26	20896	0.1%
74-2-4	35400	69	35469	0.2%
90-1-3	38103	69	38172	0.2%
68-3-1	35277	196	35473	<b>0.6%</b>

- The content had already been improved by postediting. These are improvements to the postediting.
- This method seems to be a good contribution to existing QA checks
- This method was appreciated as helpful by posteditors and reviewers in actual projects

# Glossary candidates from MT

Another application of this method would be to harvest candidates for terminology

- Use the initial MT (which could be very inconsistent)
- Generate the consistency report
- Consider which terms could be candidates for a glossary
  
- shopper = nákupní
- ddr = German Democratic Republic in German (translatable)
  - MT and posteditor left it as ddr many times
  - Adding DDR = NDR to the glossary early would have helped
- “triumph” is mostly about the motorcycles or the car brands (untranslatable)
  - Adding Triumph = Triumph to the glossary would be beneficial
    - A brand list is a form of glossary

Word	Transl/Untra	Source segment	Target Segment
triumph	untr:	triumph street triple	triumph street triple
triumph	untr:	triumph t10 scooter	skuter triumph t10
triumph	translated:	motorcycle part triumph	motocykl triumf części
triumph	translated:	triumph sah	triumf sah
triumph	untr:	triumph t509 speed triple	triumph t509 speed triple
triumph	untr:	spitfire triumph	triumph spitfire

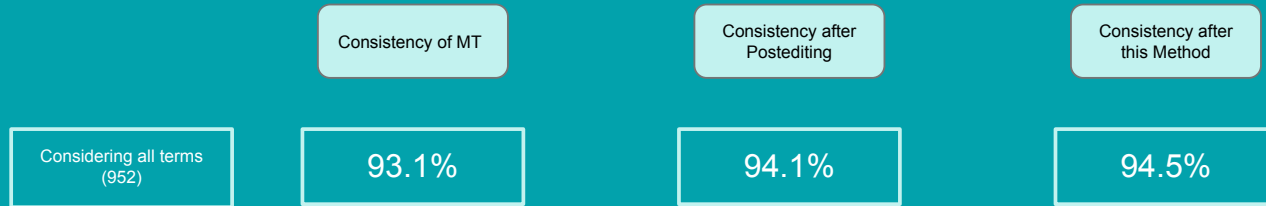


Word	Transl/Untra	Source segment	Target Segment
ddr:	untr:	ddr briefmarken	známky ddr
Gdr	untr:	ddr-ostalgie produkte	ddr-ostalgie produkty
ddr	translated:	ddr geldscheine original	originální bankovky ndr
ddr	untr:	ddr gst abzeichen	odznak ddr gst
ddr	untr:	masseindianer ddr	masseindianer ddr
ddr	untr:	ddr spielzeug -indianer -c	ddr hračky -indian -kovboj -zvířata -panenka
ddr	untr:	ddr fuller heiko	ddr fuller heiko
ddr	untr:	ddr visum	ddr vizum
ddr	translated:	blumenkinder aus ddr-zei květinové děti z dob ndr	
ddr	untr:	ddr plattenfehler postfrisc: chyba na disku ddr neorazitkovaná	
ddr	untr:	ddr elektronik basterbeut ddr elektronika hobby taška	
ddr	untr:	bogen -mlp -krüger -pzb - bogen -mlp -krüger -pzb -ef -ddr	
ddr	untr:	ddr zeltplatz	ddr místo na stanování
ddr	untr:	ddr sammlung -postfrisch ddr kolekce -postfrisch -beleg -aus	
ddr	untr:	schild* ddr	štit* ddr
ddr	untr:	ddr memorabilia sport pro ddr: memorabilia sportovní program	
ddr	untr:	ddr rennrad diamant	ddr slniční kolo diamant
ddr	untr:	ddr gläser superfest	ddr brýle superfest
ddr	translated:	ddr rolltafel	válečková deska gdr

# Measuring MT Consistency

Is there an MT consistency?

- The initial consistency from MT is expected to be improved with postediting
- This method takes the postediting improvement a bit further



Many frequent terms are already 100% consistent. If we exclude them:



The MT consistency could be:

- part of a metrics picture that should show **increased consistency as we work** on the content.
- an early indication of MT quality
- used to compare different MTs

# Takeaways

- It helps posteditors improve quality by facilitating finding errors
- It was appreciated by posteditors in real projects
- It is an efficient QA check that finds many errors quickly
- A non-speaker (such as a project manager) can get quality insights
- It can be used as a tool to propose glossary terms
- MT consistency could be part of metrics
- *Everything* done here for Post-editing can be done for Human Translations

Thank you!

