## Help Me! Those Free and/or Open Source Machine Translation Tools!

- An Small Exploratory Experiment with EN<>FR, EN<>ES and EN<>ZH translation

Presented by: Serene Su

at the AMTA 2020 | 1st Workshop on Post-Editing in Modern-Day Translation On October 6, 2020

## Disclaimer

### An exploratory experiment

- Background
- Limitations
- Caveats

#### An exploratory experiment

- 5 popular free and/or open source machine translation tools
- Two contexts: legal and medical; public info
- English<>French, English<>Spanish & English<>Chinese
- review their performances in terms of BLEU scores with comparison to human translation

#### Translation Task One (Legal): The Grand Jury ~ 316 words

source: https://www.nycourts.gov/litigants/crimjusticesyshandbk.shtml#anchor751950

Grand jury proceedings are secret and are not open to the public. The grand jury is made up of sixteen to twenty-three people who listen to the evidence and decide whether there is enough evidence to put you on trial for a felony. If the grand jurors decide that there is enough evidence, they vote an indictment.

You have the right to testify before the grand jury. Although your lawyer may go with you to the proceeding, he or she must remain silent during your testimony. Your lawyer may not address the grand jury or object to the prosecutor's questions. If you want to speak with your lawyer before testifying, you may do so outside the grand jury room. Any conversation you have with your lawyer inside the grand jury room must be whispered and must not be heard by the grand jurors.

If you decide to testify before the grand jury, you will probably be cross-examined by the prosecutor. Any questions the grand jurors may have for you will be asked by the prosecutor.

You may also ask that the grand jury hear witnesses willing to testify for you, although you are not allowed to be present in the grand jury room while they testify.

If the grand jury does not vote an indictment, you will be released from jail. If the grand jury votes an indictment, your case will be transferred from Criminal Court to Supreme Court for another arraignment within a few weeks. This arraignment is similar to the arraignment in Criminal Court. You will be formally charged with the crime(s) voted by the grand jury and contained in the indictment, and you will plead either guilty or not guilty. The conditions of your bail may also be reviewed and plea bargaining may take place. If you do not plead guilty, your case will be adjourned to a calendar part.

#### Translation Task Two (Medical): Anaphylaxis~ 272 words

source: https://healthtranslations.vic.gov.au/bhcv2/bhcht.nsf/PresentDetail?Open&s=Anaphylaxis

Anaphylaxis is a potentially life threatening, severe allergic reaction and should always be treated as a medical emergency. Anaphylaxis occurs after exposure to an allergen (usually to foods, insects or medicines), to which a person is allergic. Not all people with allergies are at risk of anaphylaxis.

It is important to know the signs and symptoms of anaphylaxis. Symptoms of anaphylaxis are potentially life threatening and include any one of the following:

- Difficult/noisy breathing.
- Swelling of the tongue.
- Swelling/tightness in the throat.
- Difficulty talking and/or hoarse voice.
- Wheeze or persistent cough.
- Persistent dizziness and/or collapse.
- Pale and floppy (in young children).

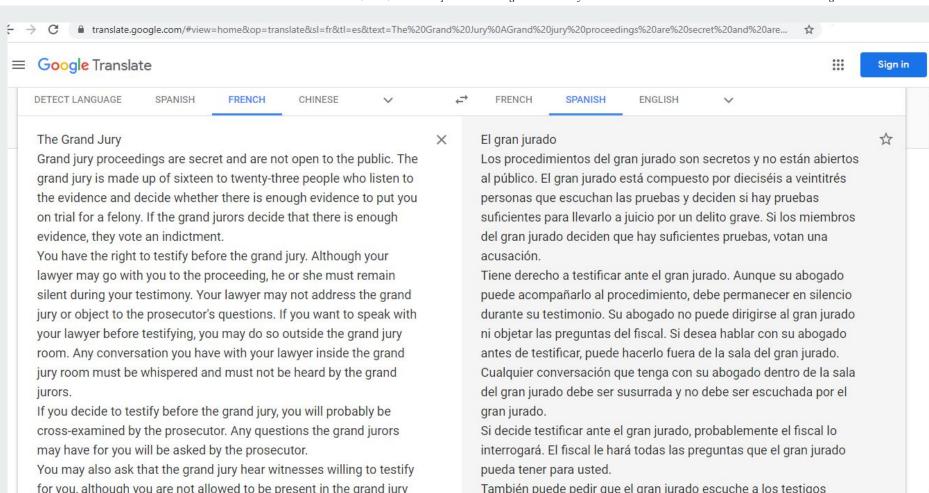
In some cases, anaphylaxis is preceded by less dangerous allergic symptoms such as:

- Swelling of face, lips and/or eyes.
- · Hives or welts.
- Abdominal pain and vomiting (these are signs of anaphylaxis for insect allergy).

Several factors can influence the severity of an allergic reaction. These include exercise, heat, alcohol, and in food allergic people; the amount of food eaten and how it is prepared.

Identifying the cause of anaphylaxis is important.

Your doctor will normally ask a series of questions that may help to narrow down the list of likely causes such as foods or medicines consumed that day, or exposure to insects. This approach will also help to exclude conditions that can sometimes be confused with anaphylaxis, such as fainting or an epileptic seizure. If allergy is suspected, this may be followed by allergy tests, usually a blood test for allergen specific IgE (formerly known as RAST tests) or skin prick testing, to help confirm or exclude potential triggers.





🗎 translate.systran.net/translationTools/text?source=en&target=es&input=The+Grand+Jury%0D%0AGrand+jury+proceedings+are+secret+and+are+not+open+to... 🕏

#### Translate into your business domain

in more than 140 language combinations

Try the PRO version!

English	=	Spanish	*
	C SUCCES		

#### The Grand Jury

Grand jury proceedings are secret and are not open to the public. The grand jury is made up of sixteen to twenty-three people who listen to the evidence and decide whether there is enough evidence to put you on trial for a felony. If the grand jurors decide that there is enough evidence, they vote an indictment. You have the right to testify before the grand jury. Although your lawyer may go with you to the proceeding, he or she must remain silent during your testimony. Your lawyer may not address the grand jury or object to the prosecutor's questions. If you want to speak with your lawyer before testifying, you may do so outside the grand jury room. Any conversation you have with your lawyer inside the grand jury room must be whispered and must not be heard by the grand jurors.

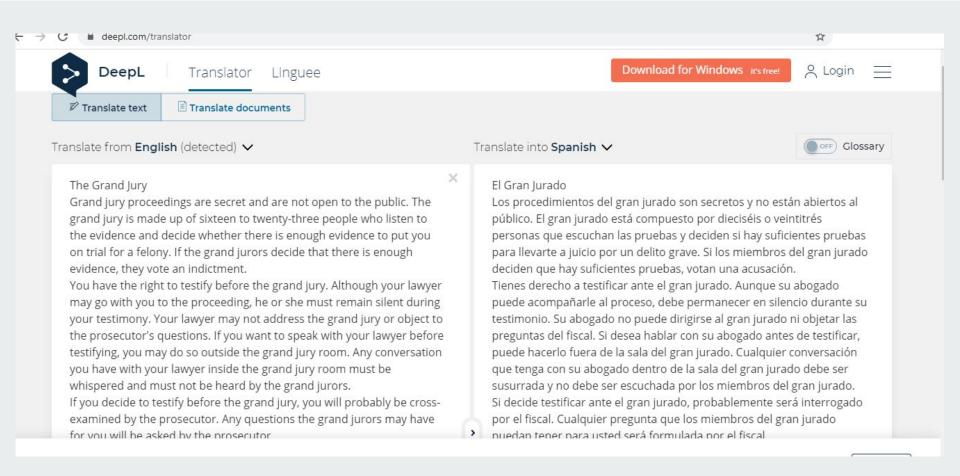
If you decide to testify before the grand jury, you will probably be crossexamined by the prosecutor. Any questions the grand jurors may have for you will be asked by the prosecutor.

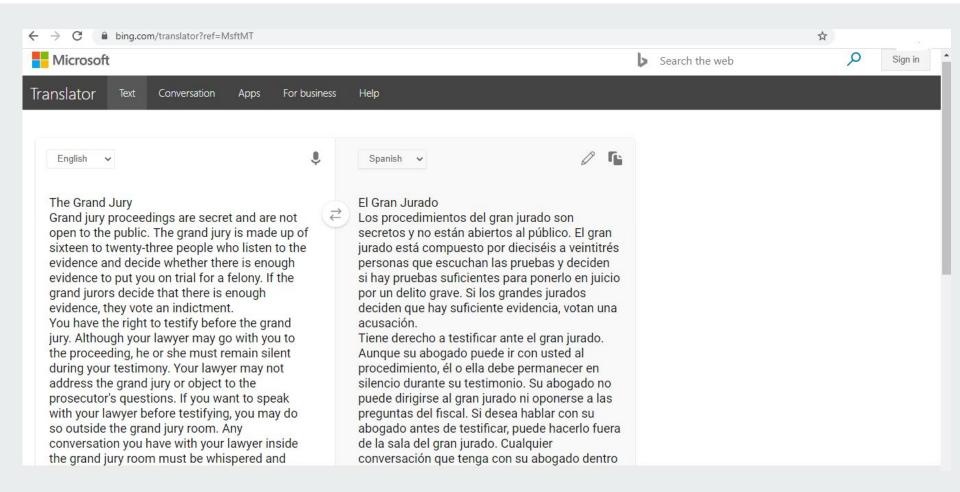
You may also ask that the grand jury hear witnesses willing to testify for you,

#### El Gran Jurado

Los procedimientos del Gran Jurado son secretos y no están abiertos al público. El gran jurado está compuesto por entre dieciséis y veintitrés personas que escuchan la evidencia y deciden si hay suficiente evidencia para llevarte a juicio por un delito grave. Si los grandes jurados deciden que hay suficiente evidencia, votan una acusación.

Usted tiene derecho a testificar ante el gran jurado. Aunque su abogado puede acompañarle en el procedimiento, debe permanecer en silencio durante su testimonio. Su abogado no puede dirigirse al gran jurado ni oponerse a las preguntas del fiscal. Si desea hablar con su abogado antes de testificar, puede hacerlo fuera de la sala del gran jurado. Cualquier conversación que tengas con tu abogado dentro de la sala del gran jurado debe ser susurrada y no debe ser escuchada por los grandes jurados. Si decide testificar ante el gran jurado, probablemente será contrainterrogado por el fiscal. Cualquier pregunta que los grandes jurados puedan tener por usted será hecha por el fiscal.



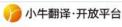












关于我们

登录



自动检测









X



#### The Grand Jury

Grand jury proceedings are secret and are not open to the public. The grand jury is made up of sixteen to twenty-three people who listen to the evidence and decide whether there is enough evidence to put you on trial for a felony. If the grand jurors decide that there is enough evidence, they vote an indictment.

You have the right to testify before the grand jury. Although your lawyer may go with you to the proceeding, he or she must remain silent during your testimony. Your lawyer may not address the grand jury or object to the prosecutor's questions. If you want to speak with your lawyer before testifying, you may do so outside the grand jury room. Any conversation you have with your lawyer inside the grand jury room must be whispered and must not be heard by the grand jurors.

If you decide to testify before the grand jury, you will probably be cross-examined by the prosecutor. Any questions the grand jurors may have for you will be asked by the prosecutor.

You may also ask that the grand jury hear witnesses willing to testify for you, although you are not allowed to be present in the grand jury room while they testify.

If the grand jury does not vote an indictment, you will be released from jail. If the grand jury votes an indictment, your case will be transforred from Criminal Court to Supreme Court for another

#### Gran jurado

Los procedimientos del gran jurado son secretos y no están abiertos al público. El gran jurado consta de 16 a 23 personas que escuchan la evidencia y deciden si hay pruebas suficientes para juzgarlo por un delito grave. Si el gran jurado cree que hay suficiente evidencia, votan para decidir la acusación.

Usted tiene el derecho de testificar ante el gran jurado. Aunque su abogado puede unirse a usted en una demanda, debe permanecer en silencio mientras testifica. Su abogado no puede hablar con el gran jurado, ni puede oponerse a la pregunta del fiscal. Si desea hablar con su abogado antes de testificar, puede hacerlo afuera del gran jurado. Cualquier conversación entre usted y su abogado en la sala del gran jurado debe ser susurrada y no puede ser escuchada por el gran jurado.

Si decide testificar ante el gran jurado, es probable que el fiscal lo interroge. Cualquier pregunta que el gran jurado le haga será hecha por el fiscal. También puede pedirle al gran jurado que escuche el testimonio de los testigos que están dispuestos a testificar por usted, aunque no se le permite aparecer en la sala del gran jurado cuando testifican.

Si el gran jurado no vota, serás liberado de la prisión. Si el gran jurado vota a través de la acusación, su caso será transferido del tribunal penal al Tribunal Supremo en unas pocas semanas para su nuevo juicio. Esta comunicación es similar a la comunicación de un tribunal penal. Serás acusado formalmente de un crimen que será votado por un gran jurado y contenido en la acusación formal, y te declararás culpable o inocente. Sus condiciones de fianza también pueden ser censuradas, la negociación de culpabilidad también puede ocurrir. Si no se declara culpable, su caso se pospondrá en la sección del calendario





#### **Evaluation Methods and BLEU score:**

- Measures how many words overlap when comparing a raw MT output Vs. a human "golden" reference translation
- More overlap, higher the score
- Broadly speaking, scores of
  - 30 ~ 50: could be of some help
  - 50 ~ 59: good for use with some PE
  - 60~ 69: mostly accurate & fluent
  - o 70+: ?

1.94

25.72

3.68

36.41

### Translation Task One (Legal): The Grand Jury ~ 316 words

#### **BLEU Scores Comparison**

3.72

24.72

EN>ZH

ZH>EN

GrandJury	Google Translate	Systran	DeepL	Microsoft Bing	NiuTrans
EN>ES	35.69	8.51	35.38	35.49	10.43
ES>EN	42.44	9.02	38.11	30.51	13.47
EN>FR	12.83	11.16	11.06	12.35	8.21
FR>EN	21.1	17.85	21.38	21.88	16.34

3.42

25.22

1.81

26.43

#### Translation Task Two (Medical): Anaphylaxis~ 272 words

#### **BLEU Scores Comparison**

Anaphylax					
is	Google Translate	Systran	DeepL	Microsoft Bing	NiuTrans
EN>ES	42.49	37.44	40.08	43.94	25.58
ES>EN	47.65	53.88	48.49	43.41	26.33
EN>FR	23.88	17.26	18.18	27.98	18.02
FR>EN	23.17	24.59	24.45	24.17	15.56
EN>ZH	3.73	3.4	1.18	1.29	1.21
ZH>EN	24.7	23.78	35.81	24.81	12.07

## **Findings**

25.72

### Translation Task One (Legal): The Grand Jury ~ 316 words

#### **BLEU Scores Comparison**

ZH>EN

	<u>-</u>				
GrandJury	Google Translate	Systran	DeepL	Microsoft Bing	NiuTrans
EN>ES	<mark>35.69</mark>	8.51	<mark>35.38</mark>	<mark>35.49</mark>	10.43
ES>EN	42.44	9.02	38.11	<mark>30.51</mark>	13.47
EN>FR	12.83	11.16	11.06	12.35	8.21
FR>EN	21.1	17.85	21.38	21.88	16.34
EN>ZH	3.72	3.42	1.81	1.94	3.68

25.22

26.43

24.72

### Translation Task Two (Medical): Anaphylaxis~ 272 words

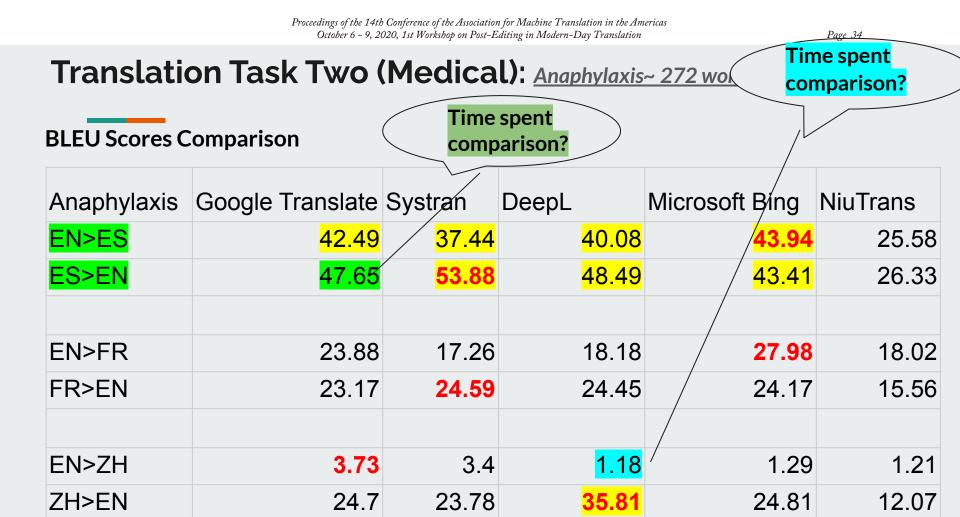
#### **BLEU Scores Comparison**

Anaphylaxis	Google Translate	Systran	DeepL	Microsoft Bing	NiuTrans
EN>ES	<mark>42.49</mark>	<mark>37.44</mark>	<mark>40.08</mark>	43.94	25.58
ES>EN	<mark>47.65</mark>	<b>53.88</b>	<mark>48.49</mark>	<mark>43.41</mark>	26.33
EN>FR	23.88	17.26	18.18	27.98	18.02
FR>EN	23.17	24.59	24.45	24.17	15.56
EN>ZH	3.73	3.4	1.18	1.29	1.21
ZH>EN	24.7	23.78	<mark>35.81</mark>	24.81	12.07

## Time spent:

Human only: 1-2 hrs Vs.

**PEMT: 15-30 mins** 



Translation Task Two (Medical): Anaphylaxis~ 272 wol

Experienced Human
Translator: 1 hour
PEMT: 30 mins?

#### **BLEU Scores Comparison**

Experienced Human translator: 45 mins PEMT: 10 mins?

Anaphylaxis	Google Translate	Systran	DeepL	Microsoft Bing	NiuTrans
EN>ES	<mark>42.49</mark>	<mark>37.44</mark>	<mark>40.08</mark>	43.94	25.58
ES>EN	47.65	<b>53.88</b>	<mark>48.49</mark>	<b>43.41</b>	26.33
EN>FR	23.88	17.26	18.18	27.98	18.02
FR>EN	23.17	24.59	24.45	24.17	15.56
EN>ZH	3.73	3.4	1.18	1.29	1.21
ZH>EN	24.7	23.78	<mark>35.81</mark>	24.81	12.07

### An exploratory experiment - Findings and Suggestions

- Language combinations:
  - EN<>ES generally better than EN<>FR
  - both EN<>ES and EN<>FR generally better than EN<>ZH based on this experiment, with a few exceptions
- Certain MT performs better in certain language combinations based on this experiment
- The availability of all the Interet info related to subject matters in multiple languages
- Get basic meaning in time-sensitive situations
- Race with machine...save time and gain productivity in certain scenarios
- Reference point and possibly to further experiment for working translators, interpreters, LSPs and machine translation developers
- Controversy...

# As always, feedback is welcome: serenesou666@gmail.com

With thanks (for examples, testing and discussions): Evelyn G; Jingyi W; Lucy L; Anna C; River L; Maria J; Lenny Y; Michael W and Matt G