



## **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:  
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**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.google.com/#view=home&op=translate&sl=fr&tl=es&text=The%20Grand%20Jury%20AGrand%20jury%20proceedings%20are%20secret%20and%20are...

Google Translate

Sign in

DETECT LANGUAGE

SPANISH

FRENCH

CHINESE



FRENCH

SPANISH

ENGLISH

### 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



### El gran jurado

Los procedimientos del gran jurado son secretos y no están abiertos al público. El gran jurado está compuesto por dieciséis a veintitrés personas que escuchan las pruebas y deciden si hay pruebas suficientes para llevarlo a juicio por un delito grave. Si los miembros del gran jurado deciden que hay suficientes pruebas, votan una acusación.

Tiene derecho a testificar ante el gran jurado. Aunque su abogado puede acompañarlo al procedimiento, debe permanecer en silencio durante su testimonio. Su abogado no puede dirigirse al gran jurado ni objetar 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 tenga con su abogado dentro de la sala del gran jurado debe ser susurrada y no debe ser escuchada por el gran jurado.

Si decide testificar ante el gran jurado, probablemente el fiscal lo interrogará. El fiscal le hará todas las preguntas que el gran jurado pueda tener para usted.

También puede pedir que el gran jurado escuche a los testigos





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English  = Spanish

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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.

The screenshot shows the DeepL Translator website. The browser address bar displays "deepl.com/translator". The page header includes the DeepL logo, the word "Translator", and the word "Linguee". On the right side of the header, there is a red button that says "Download for Windows" with "it's free!" in smaller text, and a "Login" link with a user icon. Below the header, there are two buttons: "Translate text" and "Translate documents". The main interface shows "Translate from English (detected)" and "Translate into Spanish". A "Glossary" toggle is set to "OFF". The source text on the left is about the Grand Jury, and the translated text on the right is in Spanish.

Translate from **English** (detected) ▼ Translate into **Spanish** ▼ OFF Glossary

**The Grand Jury** ×

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Tienes derecho a testificar ante el gran jurado. Aunque su abogado puede acompañarle al proceso, debe permanecer en silencio durante su testimonio. Su abogado no puede dirigirse al gran jurado ni objetar 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 tenga con su abogado dentro de la sala del gran jurado debe ser susurrada y no debe ser escuchada por los miembros del gran jurado. Si decide testificar ante el gran jurado, probablemente será interrogado por el fiscal. Cualquier pregunta que los miembros del gran jurado puedan tener para usted será formulada por el fiscal

The screenshot shows the Microsoft Translator web interface. At the top, the browser address bar displays "bing.com/translator?ref=MsftMT". The Microsoft logo is on the left, and a search bar with the text "Search the web" is on the right. Below the logo, navigation links for "Text", "Conversation", "Apps", "For business", and "Help" are visible. The main content area is split into two columns. The left column is for the source language, "English", and contains the text: "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". The right column is for the target language, "Spanish", and contains the translation: "El Gran Jurado Los procedimientos del gran jurado son secretos y no están abiertos al público. El gran jurado está compuesto por dieciséis a veintitrés personas que escuchan las pruebas y deciden si hay pruebas suficientes para ponerlo en juicio por un delito grave. Si los grandes jurados deciden que hay suficiente evidencia, votan una acusación. Tiene derecho a testificar ante el gran jurado. Aunque su abogado puede ir con usted al procedimiento, él o ella 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 tenga con su abogado dentro". A double-headed arrow icon is positioned between the two columns, indicating the translation direction.

文本翻译

文档翻译

文档翻译插件

自动检测 西班牙语 法语 英语

英语 法语 西班牙语

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### 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
  - 70+: ?

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

## BLEU Scores Comparison

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
EN>ZH	3.72	3.42	1.81	1.94	3.68
ZH>EN	24.72	25.22	26.43	25.72	36.41

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

### BLEU Scores Comparison

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



# Findings

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

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# Time spent:

Human only: 1-2 hrs

Vs.

PEMT: 15-30 mins

# Translation Task Two (Medical): *Anaphylaxis*~ 272 wo.

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Time spent comparison?

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Experienced Human translator: 45 mins  
PEMT: 10 mins?

Experienced Human Translator: 1 hour  
PEMT: 30 mins?

## 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 Internet 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:  
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