

# Translation

A New **?** Frontier

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## The European Union



## The European Union

The cost of translation, interpretation, publication, and legal services involved in making Irish an official EU language is estimated at just under €3.5 million a year.

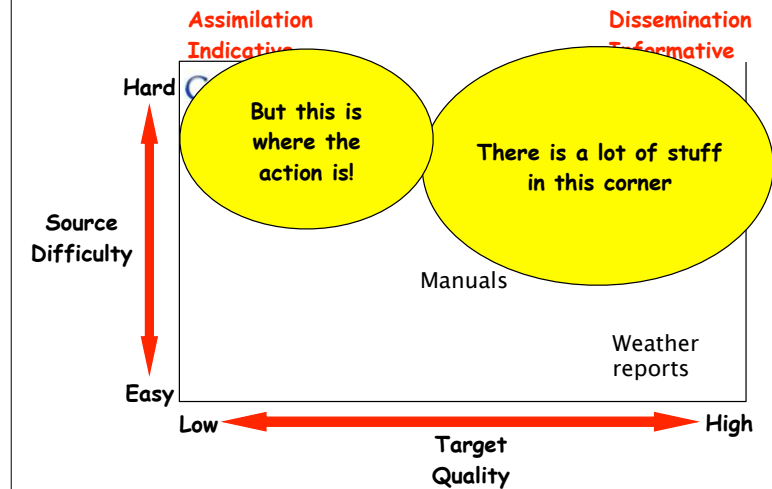
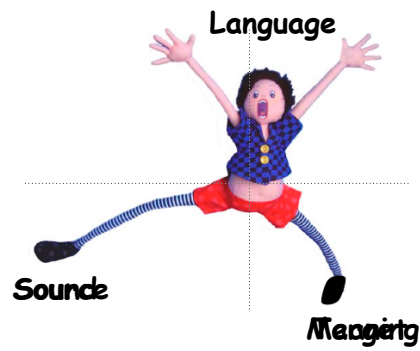
English  
Finnish  
French  
German  
Greek  
Italian  
Portuguese  
Spanish  
Swedish

23 languages  
2,500 (12.5%) of 20,000 staff  
1% of the annual budget  
40% of administration costs.

Irish  
Latvian  
Lithuanian  
Maltese  
Polish  
Romanian  
Slovene  
Slovak

$$\binom{23}{2} = 253$$

<b>CATERPILLAR</b>	Maintenance Manuals Operation and Troubleshooting Guides
300 authors and illustrators	Disassembly and Specifications Manuals
800 English pages per day	Assembly Manuals
Translation into 14 languages	Testing and Special Instructions
	Adjustment Guides
	Systems Operation Bulletins



## What is Translation?

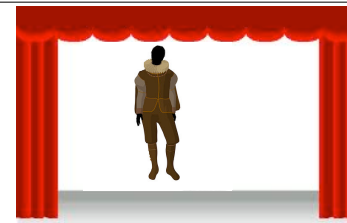
- A text that is based on a text in another language and which
  - has the same meaning
  - conveys the same information
  - has the same effect on its readers
  - gives the gist of the original
  - explains the original
- It depends what you want
- Generally a mixture of several of these

## Generally Speaking—

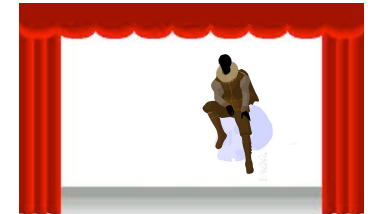
Foreign reader's experience should be as close as possible to that of a domestic reader. They should pass through parallel mental states.

*No mention of meaning!*

# Reference



He sat down



Situation 1

Language

Situation 2

Update semantics

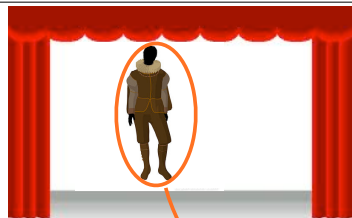


Dateline:  
Damascus  
Athens  
Moscow

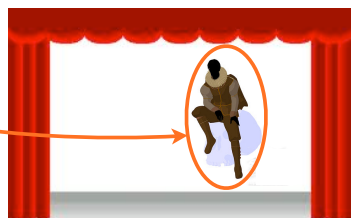


Situation Updater





**Problem 1:**  
Keep track of the **things**



## Reference



Blood from a Stone

13

## There are a lot of things

She took his wallet.

- I saw it in her hand
- I saw her do it
- I could not believe it



Translation

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## but only a few things —

- are on stage
- are in the spotlight
- preserve the momentum of what is being said.



Translation

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## She took his wallet.

- I saw it in her hand  
the thing
- I saw her do it  
that  
the deed
- I could not believe it  
what she did

Martin Kay

Machine Translation

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## She took his wallet.

- I saw it
  - It was in her hand
  - She was holding it
- I saw her do it
  - I saw her take it
  - She took it as I watched
  - She did it before my very eyes
- I could not believe it
  - I did not believe she could do such a thing

## She took his wallet.

These do not mean the same thing out of context  
They do mean the same thing in context

- I could not believe she could do it
- It was unbelievable (to me)

The sense of a word tells you what properties a thing must have for that word to refer to it.

Things can be referred to by words with different senses.

Maybe choose the one that gives the most fluent result

Types have senses  
Tokens have referents

## Syntactic Processing

- Find words with similar senses
- Put them in a fluent order
- Translation in Language teaching
- Popular perception of translation
- Machine translation

## Syntactic Processing

- Find words with similar senses
- Put them in a fluent order
- St. Jerome: Vulgate (4th Century)
- 20<sup>th</sup> Century
- Translator is anonymous

- Words often have several senses.
- You often cannot find words with similar senses.
- Even when you can, they often cannot be ordered fluently.

## Trouble is

Different grammatical structures give different meanings.

The dog saw the cat  
The cat saw the dog

Der Hund sah die Katze  
Den Hund sah die Katze



Versichern Sie Sich daß Sie nichts in dem Zug vergeßen haben



Assurez-vous que vous n'avez rien oublié dans le train



Versichern Sie Sich daß Sie nichts in dem Zug vergeßen haben



Assurez-vous que vous n'avez rien oublié dans le train



Versichern Sie Sich daß Sie nichts in dem Zug vergeßen haben



Assurez-vous que vous n'avez rien oublié dans le train



Versichern Sie Sich daß Sie nichts in dem Zug vergeßen haben



Assurez-vous que vous n'avez rien oublié dans le train



Versichern Sie Sich daß **Sie** nichts in dem Zug vergeßen haben



Assurez-vous que **vous** n'avez rien oublié dans le train



Versichern Sie Sich daß Sie **nichts** in dem Zug vergeßen haben



Assurez-vous que vous **n'**avez **rien** oublié dans le train



Versichern Sie Sich daß Sie nichts **in** dem Zug vergeßen haben



Assurez-vous que vous n'avez rien oublié **dans** le train



Versichern Sie Sich daß Sie nichts in **dem** Zug vergeßen haben



Assurez-vous que vous n'avez rien oublié dans **le** train





Versichern Sie Sich daß Sie nichts in dem **Zug** vergeßen haben



Assurez-vous que vous n'avez rien oublié dans le **train**



Versichern Sie Sich daß Sie nichts in dem Zug **vergeßen** haben



Assurez-vous que vous n'avez rien **oublié** dans le train



Versichern Sie Sich daß Sie nichts in dem Zug vergeßen **haben**



Assurez-vous que vous n'**avez** rien oublié dans le train



Versichern Sie Sich daß Sie nichts in dem Zug vergeßen haben



Assurez-vous que vous n'avez rien oublié dans le train



**Make sure that you have forgotten nothing on the train**

**Make sure that you have left nothing on the train**



Versichern Sie Sich daß Sie nichts in dem Zug vergeßen haben



Assurez-vous que vous n'avez rien oublié dans le train



Make sure that you take all your belongings with you

## Semantic Processing

Replace words and phrases by words and phrases that mean the same

Reorder

## Pragmatic Processing

Replace words and phrases by words and phrases that will effect the same changes in the scene

Pragmatic translation often involves addition or removal of substantive information from what is explicitly expressed.

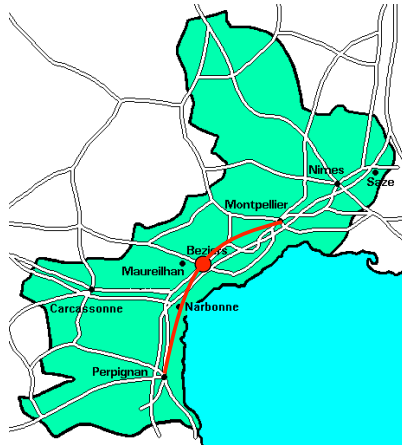


Does this train go to  
Perpignan?

No, it stops in Beziers.

Fährt dieser Zug nach  
Perpignan?

Nein, er { hält  
endet } in  
Béziers



Est-ce que c'est ta cousine?

Non, je n'ai pas de cousine.



female  
Is that your ~~male~~ cousin?

female  
No. I don't have a ~~male~~ cousin.

Is that woman your cousin?

Est-ce que c'est ta cousine?

Non, je n'ai pas de cousine.



Is that your cousin?

No. I don't have a cousin.

girl  
Is that ~~woman~~ your cousin?

Abstraction

# Structural Linguistics

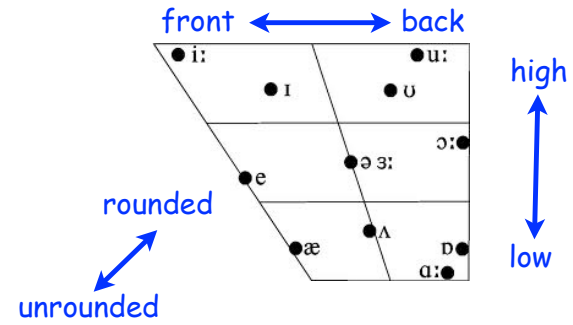
## Linguistic Chemistry

### Elements

- Phoneme
- Morpheme
- Sememe (?)
- Phrase
- (Distinctive) feature



### Dimensions



### Phonology

North American Flap

$$\left[ \begin{array}{l} + \text{ stop} \\ + \text{ consonant} \\ + \text{ alveolar} \end{array} \right] \rightarrow [r] / \left[ \begin{array}{l} + \text{ vowel} \\ + \text{ stressed} \end{array} \right] \text{ \_\_\_\_ } \left[ \begin{array}{l} + \text{ vowel} \\ - \text{ stressed} \end{array} \right]$$

lætər → lærər



### Generalization

One statement covers many instances.



# Morphographemics

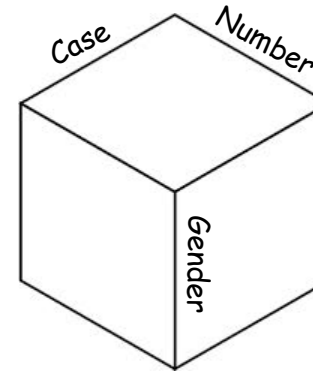
```

define sib [j | s | x | z | s h | c h];
define consonant [b | c | d | f | g | h | j | k | l | m | n | p |
                 q | r | s | t | v | w | x | y | z];
define vowel [a | e | i | o | u];
define boundary [.# | % +];
define optional [ %? (->) 0];
define YtoIE [y -> i e || consonant _ EM alpha];
define ItoY [i e -> y || vowel _ EM alpha];
define Edeletion1 [e -> 0 || vowel _ EM alpha];
define Edeletion2 [e EM e -> EM];
define Einsertion [ [..] -> e || EM ];
define gemination [b -> b b, c -> c k, d -> d d, f -> f f, g -> g g,
                  l -> l l, m -> m m, n -> n n, p -> p p, r -> r r,
                  s -> s s, t -> t t || vowel _ EM vowel];
define DiacriticDeletion [diacritic -> 0];
define BoundaryDeletion [ [BM | EM] -> 0];
    
```

103 States  
2368 Transitions



# Morphology



Declensions  
Conjugations



parl

e

```

[stem
 cat      verb
 conjugation 1
 lex      parler]
    
```

```

[suffix
 cat      verb
 conjugation 1
 tense    pres
 person   1 | 3
 number   sing]
    
```

```

[word
 cat      verb
 lex      ?Lex
 tense    ?Tense
 person   ?Person
 number   ?Number]
    
```



```

[stem
 cat      verb
 conjugation ?Conj
 lex      ?Lex]
    
```

```

[suffix
 cat      verb
 conjugation ?Conj
 tense    ?Tense
 person   ?Person
 number   ?Number]
    
```

parle

```

[word
 cat      verb
 lex      parler
 tense    pres
 person   1 | 3
 number   sing]
    
```

One rule for all  
finite verbs



# Syntax

Agreement

Head features

Subcategorization

Modification

Long-distance dependencies

