

Direct Translation

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Agenda

- Direct MT
- English to Hindi Translation
- Examples

Direct MT

- System carries out word-by-word translation with a help of bilingual dictionary, followed by syntactic rearrangement.
- Rely mainly on a large bilingual dictionary.
- Designed for specific source and target language pair.
- Performance depends on:
 - The quality and quantity of source-target language dictionary
 - Morphological analysis
 - Text processing software
 - Word-by-word translation with minor grammatical adjustments on word order

Direct MT

- Direct translation is thus based on a large bilingual dictionary;
 - each entry in the dictionary can be viewed as a small program whose job is to translate one word.
- After the words are translated, simple reordering rules can apply.
 - for example for moving adjectives after nouns when translating from English to French.

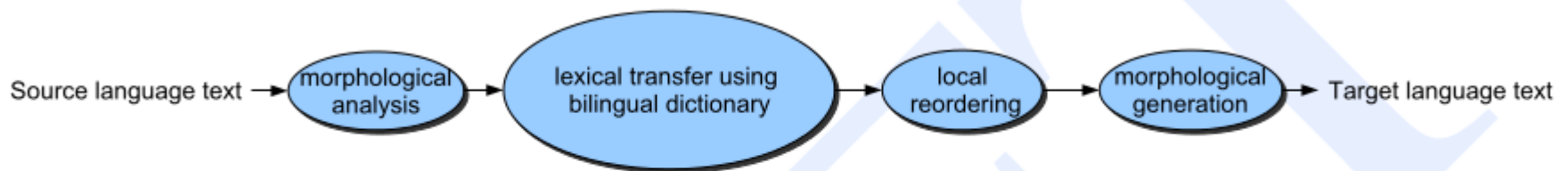


Figure 25.5 Direct machine translation. The major component, indicated by size here, is the bilingual dictionary.

Direct MT – Dictionary

function DIRECT_TRANSLATE_MUCH/MANY(word) **returns** Russian translation

if preceding word is *how* **return** *skol'ko*

else if preceding word is *as* **return** *stol'ko zhe*

else if word is *much*

if preceding word is *very* **return** *nil*

else if following word is a noun **return** *mnogo*

else /* word is many */

if preceding word is a preposition and following word is a noun **return** *mnogii*

else return *mnogo*

Figure 25.7 A procedure for translating *much* and *many* into Russian, adapted Hutchins' (1986, pg. 133) discussion of Panov 1960. Note the similarity to decisi

English → Spanish

- Step 2: spanish translation
- Step 3: switch the adjective-noun ordering

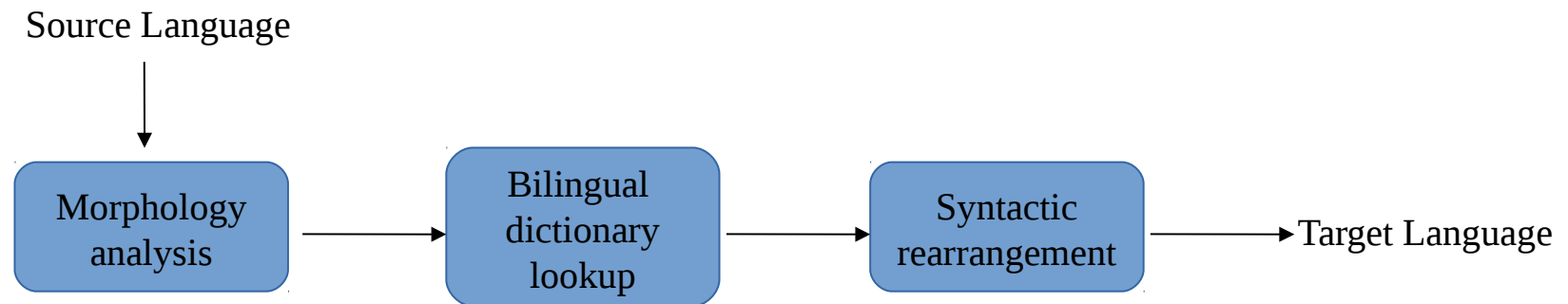
Input:	Mary didn't slap the green witch
After 1: Morphology	Mary DO-PAST not slap the green witch
After 2: Lexical Transfer	Maria PAST no dar una bofetada a la verde bruja
After 3: Local reordering	Maria no dar PAST una bofetada a la bruja verde
After 4: Morphology	Maria no dió una bofetada a la bruja verde

Figure 25.6 An example of processing in a direct system

English → Hindi Direct MT

- Remove morphological inflections to get the root form of the source language words.
- Look-up bilingual dictionary to get the target language words.
- Change the word order to that of target language.

Eg: S-V-O to S-O-V structure



Bilingual dictionary

this is Hindi translation from English text. —————> यह अंग्रेजी से हिंदी अनुवाद पाठ है ।

English-French

Voir également :

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[mush](#)
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[mushroom](#)
[mushroom cloud](#)
[mushroom-shaped](#)
[mushrooming](#)
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music

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WordReference English-French Dictionary © 2017:

Principales traductions

Anglais	Français
music <i>n</i> (rhythmical, melodic sounds) Can you hear the music? Isn't it lovely? Tu entends la musique ? N'est-ce pas merveilleux ?	(<i>son</i>) musique <i>nf</i>
music <i>n</i> (art form: melody, harmony, etc.) My father likes classical music, but I prefer more modern composers. Mon père aime la musique classique, mais j'aime davantage les compositeurs modernes.	musique <i>nf</i>

English → Hindi

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English Dictionary

Over 30 languages available including English, French, Spanish, German, Italian, Chinese, Hindi and many others.

English Hindi Translate

this is English to Hindi translation

यह हिन्दी अनुवाद करने के लिए हिंदी है

36 characters / 6000

Translated by Microsoft

यह
You use it before certain nouns, adjectives, and verbs to introduce your feelings or point of view about a situation.

अनुवाद
A translation is a piece of writing or speech that has been translated from a different language.

है
Has is the third person singular of the present tense of have .

Microsoft Translator for iPhone Microsoft Translator for Android

English → Hindi

- Source language:

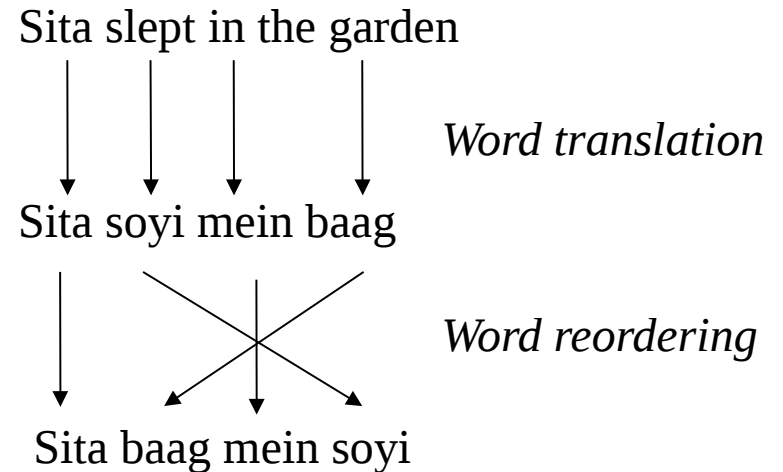
Sita slept in the garden.

- Word translation:

Sita soyi mein baag

- Syntactic rearrangement:

Sita baag mein soyi



English → Hindi

- Source language:

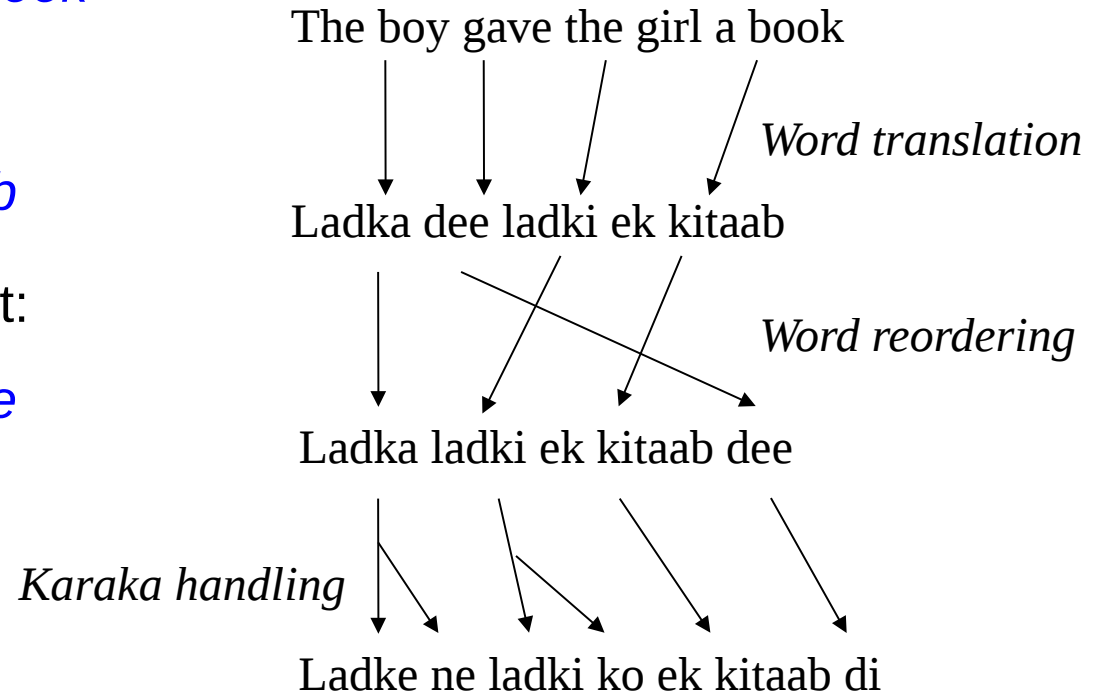
the boy gave the girl a book

- Word translation:

ladka dee ladki ek kitaab

- Syntactic rearrangement:

ladka ladki ek kitaab dee



English → Tamil

- Source language:

sita slept in the garden

- Word translation:

sita thoongivittal poongavil

- Syntactic rearrangement:

sita poongavil thoongivittal

Sita slept in the garden

Word translation

Sita thoongivittal poongavil

Word reordering

Sita poongavil thoongivittal

English → Tamil

- Source language:

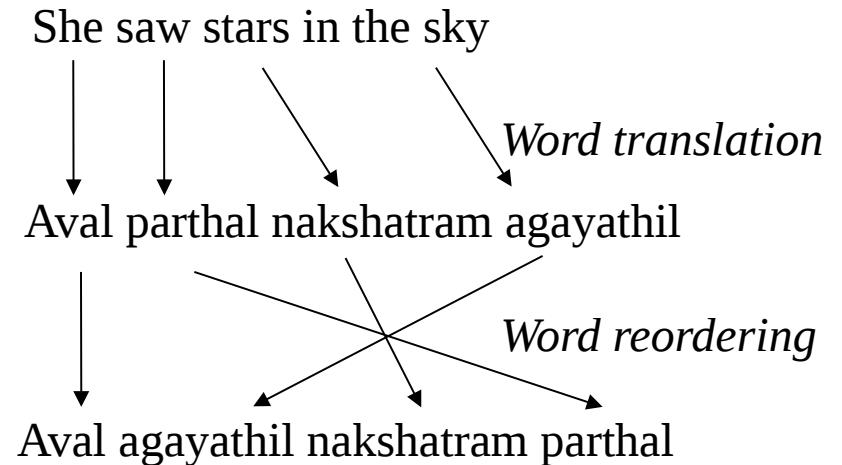
She saw stars in the sky

- Word translation:

Aval parthal nakshatram agayathil

- Syntactic rearrangement:

aval agayathil nakshatram parthal



English → Tamil

- Source language:

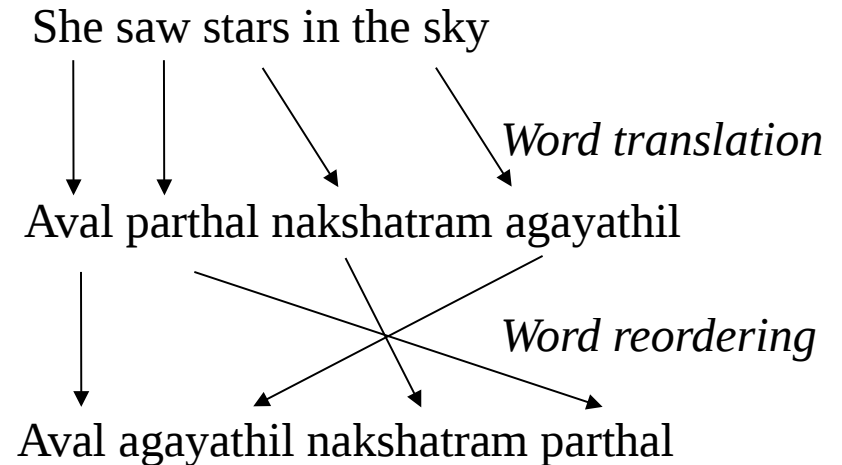
She saw stars in the sky

- Word translation:

Aval parthal nakshatram agayathil

- Syntactic rearrangement:

aval agayathil nakshatram parthal



References

- *Natural Language Processing and Information Retrieval*, Tanveer Siddiqui, Tiwari, Oxford
- *Speech and Language Processing*, Daniel Jurafsky, Martin, Pearson, 2006.