

Machine Translation Systems

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CS224N / Ling 284

[Based on slides by Kevin Knight, Dan Klein,
Dan Jurafsky]

MT Evaluation

BLEU Evaluation Metric

(Papineni et al, ACL-2002)

Reference (human) translation:

The U.S. island of Guam is maintaining a high state of alert after the Guam airport and its offices both received an e-mail from someone calling himself the Saudi Arabian Osama bin Laden and threatening a biological/chemical attack against public places such as the airport .

Machine translation:

The American [?] international airport and its the office: all receives one calls self the sand Arab rich business [?] and so on electronic mail , which sends out ; The threat will be able after public place and: so on the airport to start the biochemistry attack , [?] highly alerts after the maintenance.

- N-gram precision (score is between 0 & 1)
 - What percentage of machine n-grams can be found in the reference translation?
 - An n-gram is an sequence of n words
 - Not allowed to match same portion of reference translation twice at a certain n-gram level (two MT words *airport* are only correct if two reference words *airport*; can't cheat by typing out "the the the the the")
 - Do count unigrams also in a bigram for unigram precision, etc.
- Brevity Penalty
 - Can't just type out single word "the" (precision 1.0!)
- It was thought quite hard to "game" the system (i.e., to find a way to change machine output so that BLEU goes up, but quality doesn't)

BLEU Evaluation Metric

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- BLEU is a weighted geometric mean, with a brevity penalty factor added.
 - Note that it's precision-oriented
- BLEU4 formula
(counts n-grams up to length 4)

$$\exp (1.0 * \log p1 + 0.5 * \log p2 + 0.25 * \log p3 + 0.125 * \log p4 - \max(\text{words-in-reference} / \text{words-in-machine} - 1, 0))$$

p1 = 1-gram precision
P2 = 2-gram precision
P3 = 3-gram precision
P4 = 4-gram precision

Note: only works at corpus level (zeroes kill it); there's a smoothed variant for sentence-level

BLEU in Action

枪手被警方击毙。

(Foreign Original)

the gunman was shot to death by the police .

(Reference Translation)

the gunman was police kill . #1

wounded police jaya of #2

the gunman was shot dead by the police . #3

the gunman arrested by police kill . #4

the gunmen were killed . #5

the gunman was shot to death by the police . #6

gunmen were killed by police ?SUB>0 ?SUB>0 #7

al by the police . #8

the ringer is killed by the police . #9

police killed the gunman . #10

green = 4-gram match (good!)

red = word not matched (bad!)

Multiple Reference Translations

Reference translation 1:

The U.S. island of Guam is maintaining a high state of alert after the Guam airport and its offices both received an e-mail from someone calling himself the Saudi Arabian Osama bin Laden and threatening a biological/chemical attack against public places such as the airport.

Reference translation 2:

Guam International Airport and its offices are maintaining a high state of alert after receiving an e-mail that was from a person claiming to be the wealthy Saudi Arabian businessman Bin Laden and that threatened to launch a biological and chemical attack on the airport and other public places.

Machine translation:

The American [?] international airport and its office all receives one calls self the sand Arab rich business [?] and so on electronic mail, which sends out; The threat will be able after public place and so on the airport to start the biochemistry attack, [?] highly alerts after the maintenance.

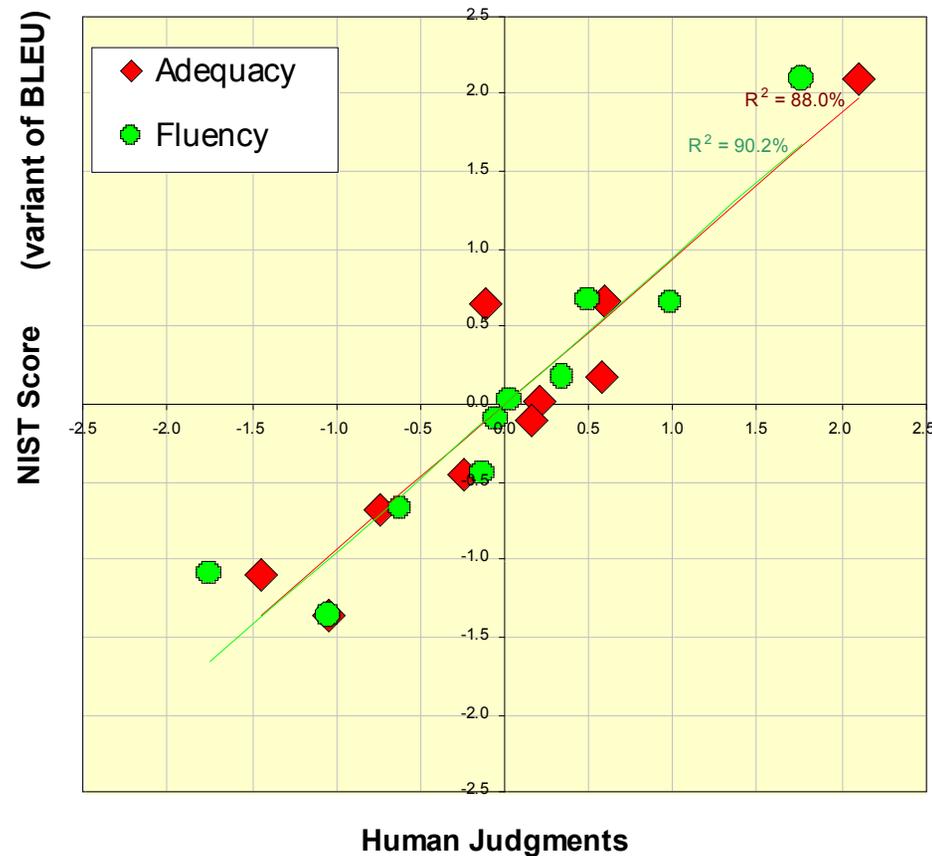
Reference translation 3:

The US International Airport of Guam and its office has received an email from a self-claimed Arabian millionaire named Laden, which threatens to launch a biochemical attack on such public places as airport. Guam authority has been on alert.

Reference translation 4:

US Guam International Airport and its office received an email from Mr. Bin Laden and other rich businessman from Saudi Arabia. They said there would be biochemistry air raid to Guam Airport and other public places. Guam needs to be in high precaution about this matter.

Initial results showed that BLEU predicts human judgments well



slide from G. Doddington (NIST)

Quiz question!

MT Hypothesis: *the gunman was shot dead by police .*

- Ref 1: The gunman was shot to death by the police .
- Ref 2: The cops shot the gunman dead .

- What is the:
 - Unigram precision?
 - Trigram precision?

Note: punctuation tokens *are* counted in calculation but not sentence boundary tokens

Automatic evaluation of MT

- People started optimizing their systems to maximize BLEU score
 - BLEU scores improved rapidly
 - The correlation between BLEU and human judgments of quality went way, way down
 - StatMT BLEU scores now approach those of human translations but their true quality remains far below human translations
- Coming up with automatic MT evaluations has become its own research field
 - There are many proposals: TER, METEOR, MaxSim, SEPIA, our own RTE-MT
 - TERpA is a representative good one that handles some word choice variation.
- MT research really requires *some* automatic metric to allow a rapid development and evaluation cycle.

A complete translation system

Decoding for IBM Models

- Of all conceivable English word strings, find the one maximizing $P(e) \times P(f | e)$
- Decoding is NP hard
 - (Knight, 1999)
- Several search strategies are available
 - Usually a beam search where we keep multiple stacks for candidates covering the same number of source words
- Each potential English output is called a *hypothesis*.

Search for Best Translation

voulez – vous vous taire !

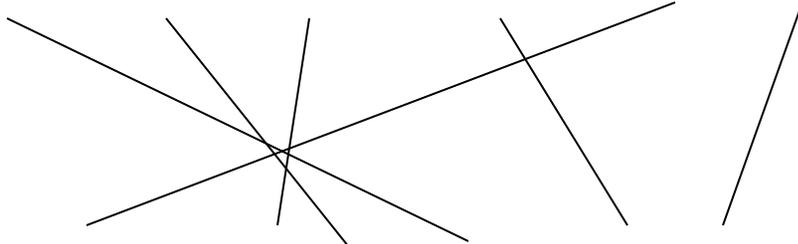
Search for Best Translation

voulez – vous vous taire !

you – you you quiet !

Search for Best Translation

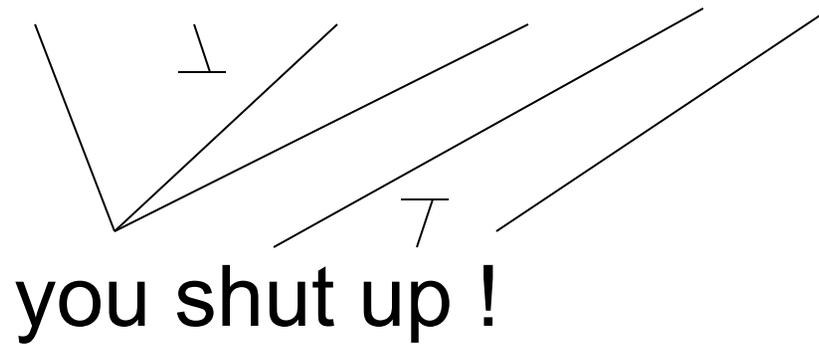
voulez – vous vous taire !



quiet you – you you !

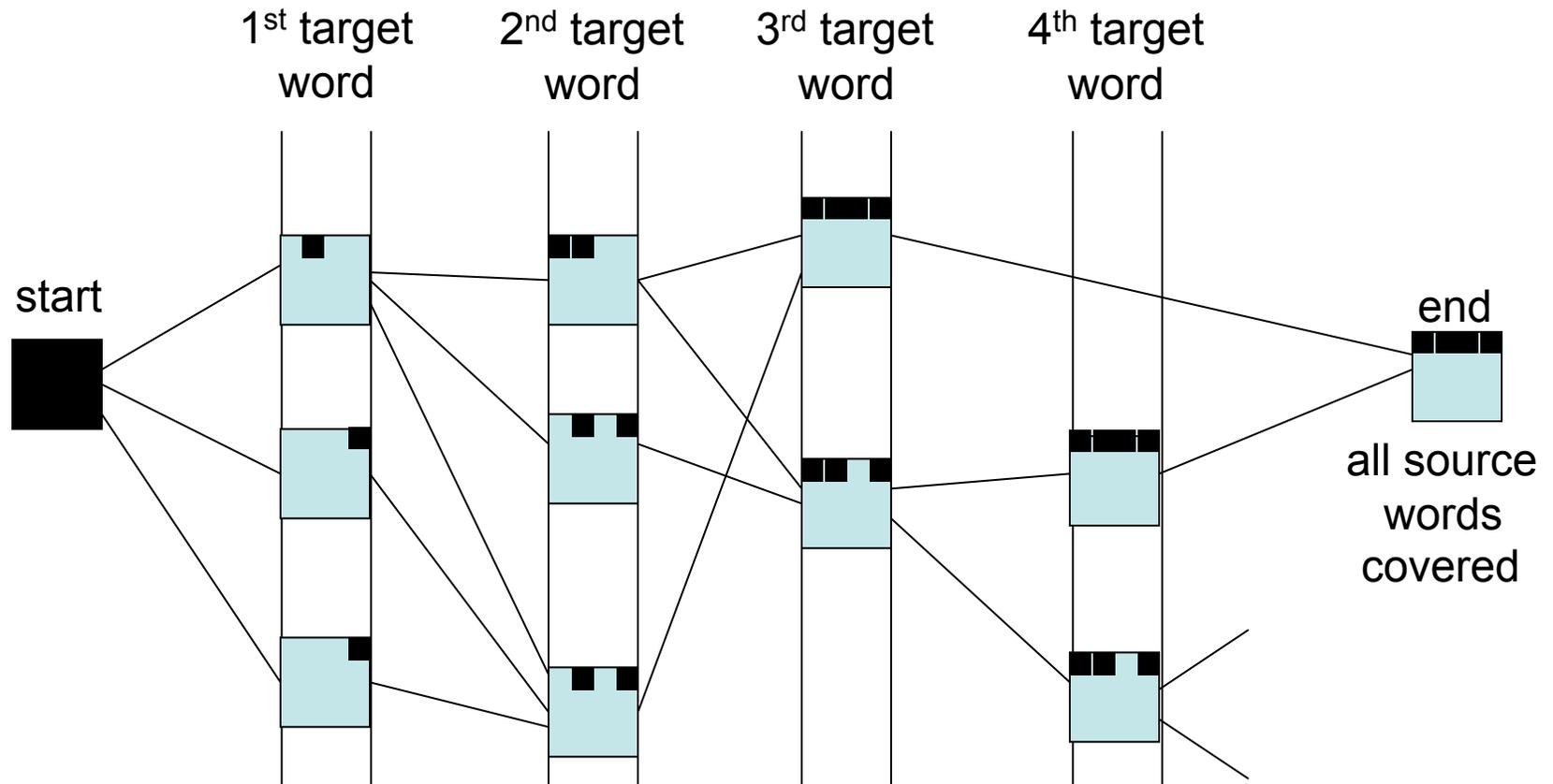
Search for Best Translation

voulez – vous vous taire !



you shut up !

Dynamic Programming Beam Search

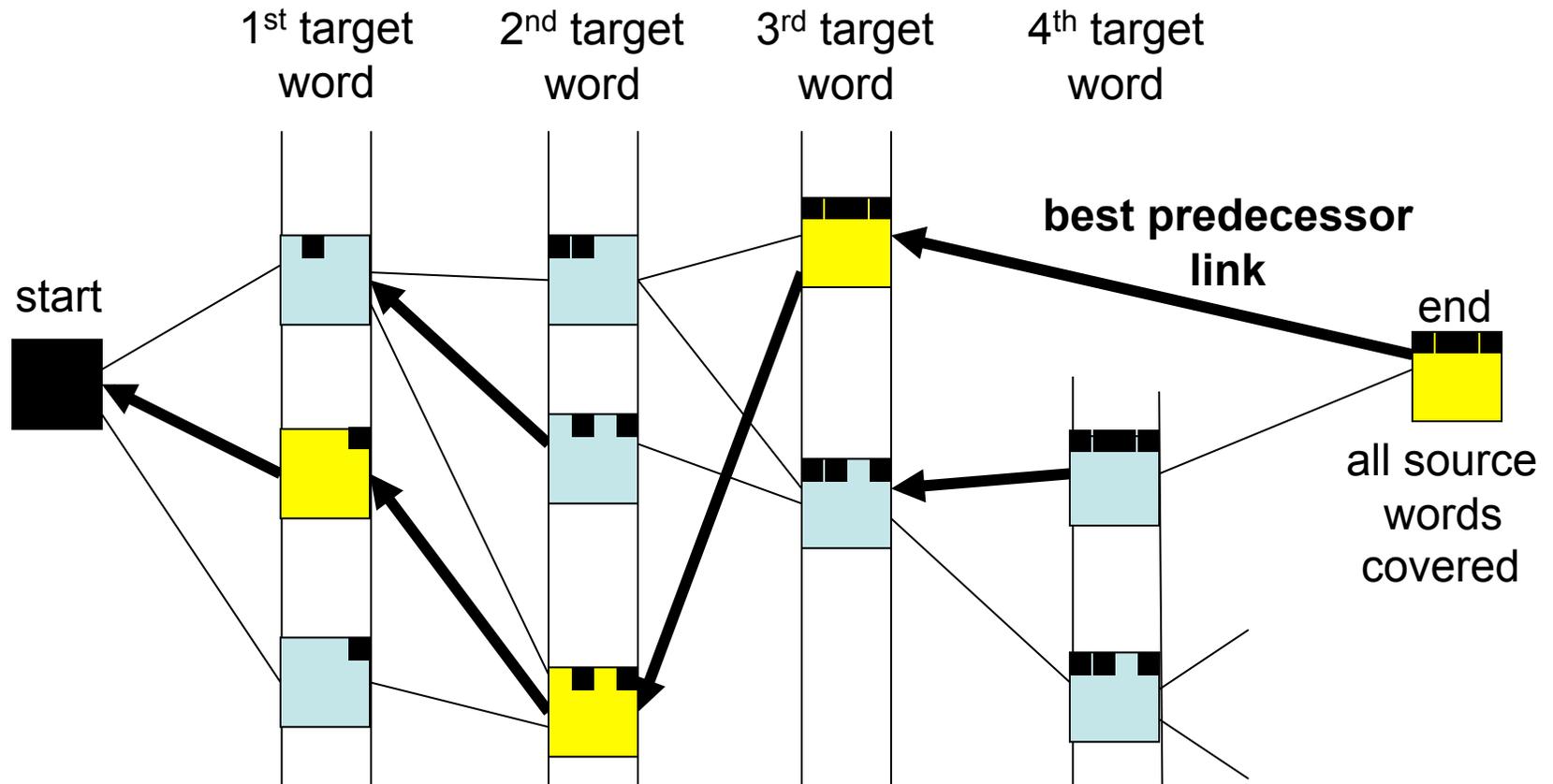


Each partial translation hypothesis contains:

- Last English word chosen + source words covered by it
- Next-to-last English word chosen
- Entire coverage vector (so far) of source sentence ■■ ■
- Language model and translation model scores (so far)

[Jelinek, 1969;
Brown et al, 1996 US Patent;
(Och, Ueffing, and Ney, 2001)]

Dynamic Programming Beam Search



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[Jelinek, 1969;
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The “Fundamental Equation of Machine Translation” (Brown et al. 1993)

$$\hat{e} = \operatorname{argmax}_e P(e | f)$$

$$= \operatorname{argmax}_e P(e) \times P(f | e) / P(f)$$

$$= \operatorname{argmax}_e P(e) \times P(f | e)$$

What StatMT people do in the privacy of their own homes

$$\operatorname{argmax}_e P(e | f) =$$

$$\operatorname{argmax}_e P(e) \times P(f | e) / P(f) =$$

$$\operatorname{argmax}_e P(e)^{1.9} \times P(f | e) \quad \dots \text{ works better!}$$

Which model are you now paying more attention to?

What StatMT people do in the privacy of their own homes

$$\operatorname{argmax}_e P(e | f) =$$

$$\operatorname{argmax}_e P(e) \times P(f | e) / P(f)$$

$$\operatorname{argmax}_e P(e)^{1.9} \times P(f | e) \times 1.1^{\text{length}(e)}$$

↑
Rewards longer hypotheses, since
these are 'unfairly' punished by $P(e)$

What StatMT people do in the privacy of their own homes

$$\operatorname{argmax}_e P(e)^{1.9} \times P(f | e) \times 1.1^{\operatorname{length}(e)} \times \text{KS}^{3.7} \dots$$


Lots of knowledge sources vote on any given hypothesis.

“Knowledge source” = “feature function” = “score component”.

Feature function simply scores a hypothesis with a real value.

(May be binary, as in “e has a verb”).

Problem: How to set the weights?

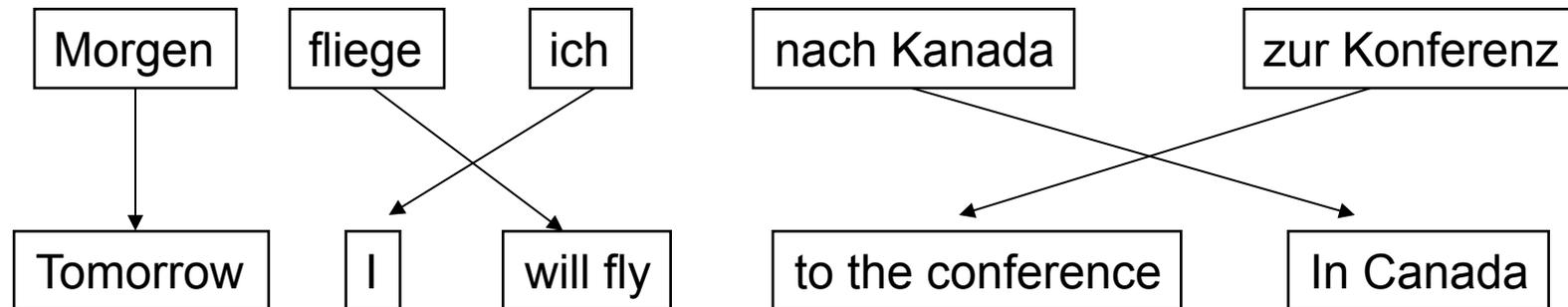
(We look at one way later: maxent models.)

Flaws of Word-Based MT

- Multiple English words for one French word
 - IBM models can do one-to-many (fertility) but not many-to-one
- Phrasal Translation
 - “real estate”, “note that”, “interested in”
- Syntactic Transformations
 - Verb at the beginning in Arabic
 - Translation model penalizes any proposed re-ordering
 - Language model not strong enough to force the verb to move to the right place

Phrase-Based Statistical MT

Phrase-Based Statistical MT



- Foreign input segmented into phrases
 - “phrase” is any sequence of words
- Each phrase is probabilistically translated into English
 - $P(\text{to the conference} \mid \text{zur Konferenz})$
 - $P(\text{into the meeting} \mid \text{zur Konferenz})$
- Phrases are probabilistically re-ordered

See J&M or Lopez 2008 for an intro.

This is still pretty much the state-of-the-art!

Advantages of Phrase-Based

- Many-to-many mappings can handle non-compositional phrases
- Local context is very useful for disambiguating
 - “interest rate” → ...
 - “interest in” → ...
- The more data, the longer the learned phrases
 - Sometimes whole sentences

How to Learn the Phrase Translation Table?

- Main method: “alignment templates” (Och et al, 1999)
- Start with word alignment, build phrases from that.

| | | | | | | | | | |
|-------|-------|----|-----|-----|----------|---|----|-------|-------|
| | Maria | no | dió | una | bofetada | a | la | bruja | verde |
| Mary | ■ | | | | | | | | |
| did | | ■ | | | | | | | |
| not | | ■ | | | | | | | |
| slap | | | ■ | ■ | ■ | | | | |
| the | | | | | | | ■ | | |
| green | | | | | | | | | ■ |
| witch | | | | | | | | ■ | |

This word-to-word alignment is a by-product of training a translation model like IBM-Model-3.

This is the best (or “Viterbi”) alignment.

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- One method: “alignment templates” (Och et al, 1999)
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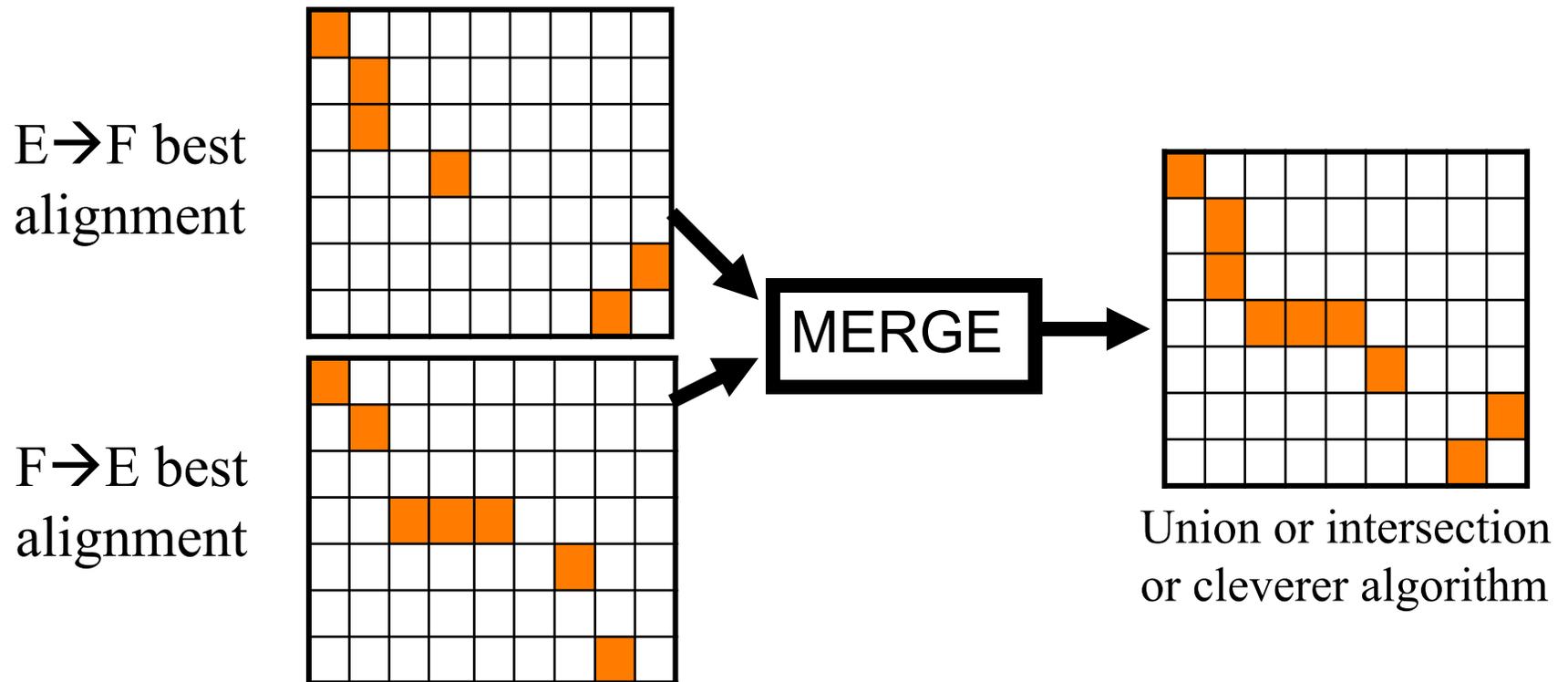
| | | | | | | | | | |
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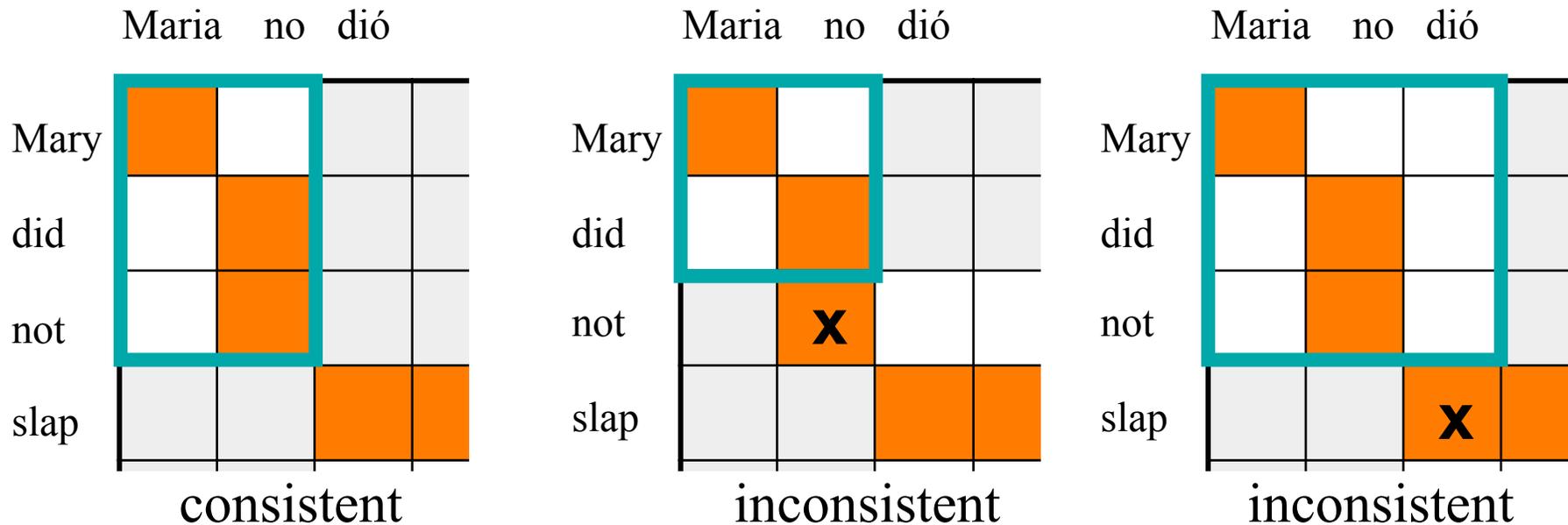
IBM Models are 1-to-Many

- Run IBM-style aligner both directions, then merge:



How to Learn the Phrase Translation Table?

- Collect all phrase pairs *that are consistent with the word alignment*



- Phrase alignment must contain all alignment points for all the words in both phrases!
- These phrase alignments are sometimes called *beads*

Phrase Pair Probabilities

- A certain phrase pair (f-f-f, e-e-e) may appear many times across the bilingual corpus.
- No EM training
- Just relative frequency:

$$P(\text{f-f-f} \mid \text{e-e-e}) = \frac{\text{count}(\text{f-f-f}, \text{e-e-e})}{\text{count}(\text{e-e-e})}$$

Phrase-Based Translation

| | | | | | | | | | | |
|-------|-----------------------|--------------------------------|-------------------|--------------------|-----------------|---------------|-----------------------------|--------------------|---------|-------|
| 这 | 7人 | 中包括 | 来自 | 法国 | 和 | 俄罗斯 | 的 | 宇航 | 员 | . |
| the | 7 people | including | by some | and | the russian | the | the astronauts | | | , |
| it | 7 people included | | by france | and the | the russian | | international astronautical | of rapporteur | | . |
| this | 7 out | including the | from | the french | and the russian | the fifth | | | | . |
| these | 7 among | including from | | the french and | of the russian | of | space | members | | . |
| that | 7 persons | including from the | | of france | and to | russian | of the | aerospace | members | . |
| | 7 include | | from the | of france and | russian | | astronauts | | | . the |
| | 7 numbers include | | from france | | and russian | | of astronauts who | | | ." |
| | 7 populations include | | those from france | | and russian | | astronauts | | | . |
| | 7 deportees included | | come from | france | and russia | in | astronautical | personnel | | ; |
| | 7 philtrum | including those from | | france and | russia | a space | | member | | |
| | | including representatives from | | france and the | russia | | astronaut | | | |
| | | include | came from | france and russia | | by cosmonauts | | | | |
| | | include representatives from | | french | and russia | | cosmonauts | | | |
| | | include | came from france | | and russia 's | | cosmonauts | | | . |
| | | includes | coming from | french and | russia 's | | cosmonaut | | | |
| | | | | french and russian | | 's | astronautical | member | | . |
| | | | | french | and russia | astronauts | | | | |
| | | | | | and russia 's | | | special rapporteur | | |
| | | | | | , and russia | | | rapporteur | | |
| | | | | | , and russia | | | rapporteur | | . |
| | | | | | , and russia | | | | | |
| | | | | | or | russia 's | | | | |

Table 1: #11# the seven - member crew includes astronauts from france and russia .

Scoring: Try to use phrase pairs that have been frequently observed.
 Try to output a sentence with frequent English word sequences.

Phrase-Based Translation

| | | | | | | | | | | |
|-------|-----------------------|--------------------------------|------------------|--------------------|-----------------|-----------------------------|--------------------|-----------|---|---|
| 这 | 7人 | 中包括 | 来自 | 法国 | 和 | 俄罗斯 | 的 | 宇航 | 员 | . |
| the | 7 people | including | by some | and | the russian | the | the astronauts | , | | |
| it | 7 people | included | by france | and the | the russian | international astronautical | of rapporteur . | | | |
| this | 7 out | including the | from | the french | and the russian | the fifth | . | | | |
| these | 7 among | including from | the french and | of the russian | of | space | members | . | | |
| that | 7 persons | including from the | of france | and to | russian | of the | aerospace | members . | | |
| | 7 include | from the | of france and | russian | astronauts | . | the | | | |
| | 7 numbers include | from france | and russian | of astronauts who | . | | | | | |
| | 7 populations include | those from france | and russian | astronauts . | | | | | | |
| | 7 deportees included | come from | france | and russia | in | astronautical | personnel | ; | | |
| | 7 philtrum | including those from | france and | russia | a space | member | | | | |
| | | including representatives from | france and the | russia | astronaut | | | | | |
| | | include | came from | france and russia | by cosmonauts | | | | | |
| | | include representatives from | french | and russia | cosmonauts | | | | | |
| | | include | came from france | and russia 's | cosmonauts . | | | | | |
| | | includes | coming from | french and | russia 's | cosmonaut | | | | |
| | | | | french and russian | 's | astronavigation | member . | | | |
| | | | | french | and russia | astronauts | | | | |
| | | | | and russia 's | | | special rapporteur | | | |
| | | | | , and | russia | | rapporteur | | | |
| | | | | , and russia | | | rapporteur . | | | |
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Table 1: #11# the seven - member crew includes astronauts from france and russia .

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| | | include | came from | france and russia | by cosmonauts | | | | | |
| | | include representatives from | french | and russia | cosmonauts | | | | | |
| | | include | came from france | and russia 's | cosmonauts | . | | | | |
| | | includes | coming from | french and | russia 's | cosmonaut | | | | |
| | | | | french and russian | 's | astronavigation | member | . | | |
| | | | | french | and russia | astronauts | | | | |
| | | | | and russia 's | | | special rapporteur | | | |
| | | | | , and | russia | | rapporteur | | | |
| | | | | , and russia | | | rapporteur | . | | |
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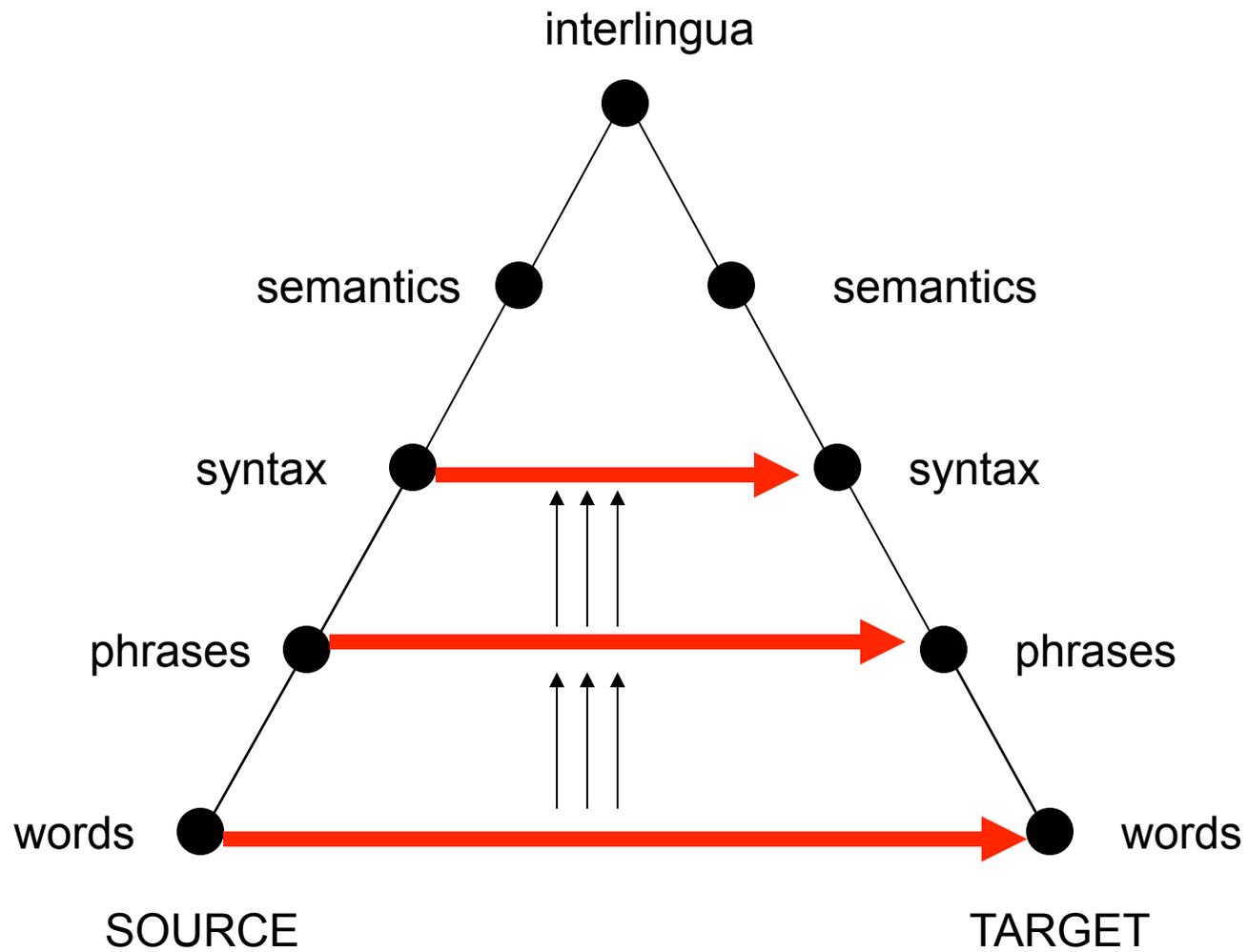
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| | | include | came from | france and russia | | by cosmonauts | | | | |
| | | include representatives from | french | and russia | | cosmonauts | | | | |
| | | include | came from france | and russia 's | | cosmonauts . | | | | |
| | | includes | coming from | french and | russia 's | cosmonaut | | | | |
| | | | | french and russian | | 's | astronavigation | member . | | |
| | | | | french | and russia | astronauts | | | | |
| | | | | and russia 's | | | | special rapporteur | | |
| | | | | , and | russia | | | rapporteur | | |
| | | | | , and russia | | | | rapporteur . | | |
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Syntax and Semantics in Statistical MT

MT Pyramid

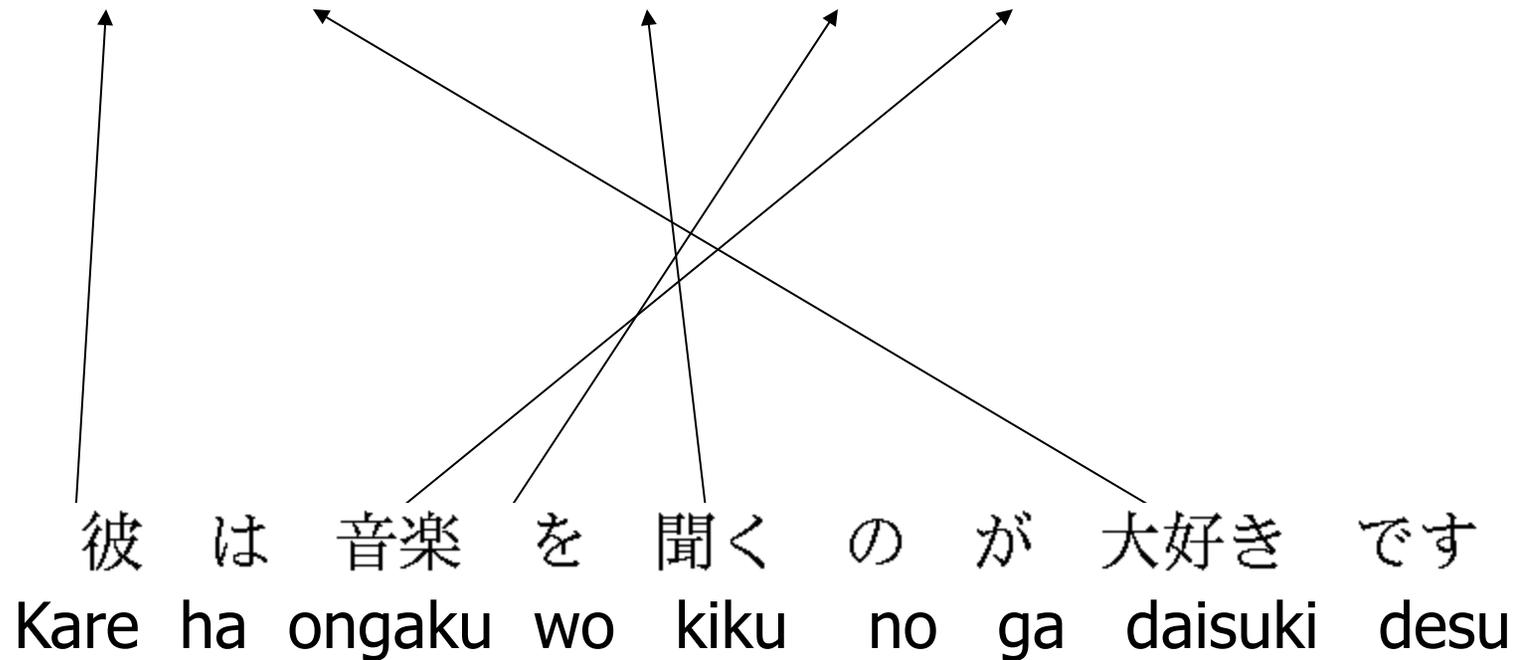


Why Syntax?

- Need much more grammatical output
- Need accurate control over re-ordering
- Need accurate insertion of function words
- Word translations need to depend on grammatically-related words

Yamada and Knight (2001): The need for phrasal syntax

- He adores listening to music.



Syntax-based Model

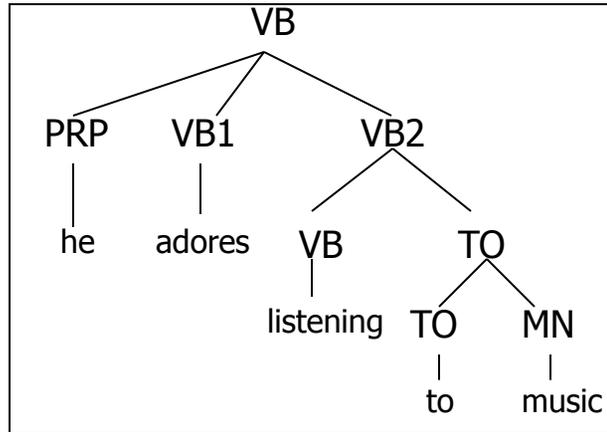
- E→J Translation (Channel) Model



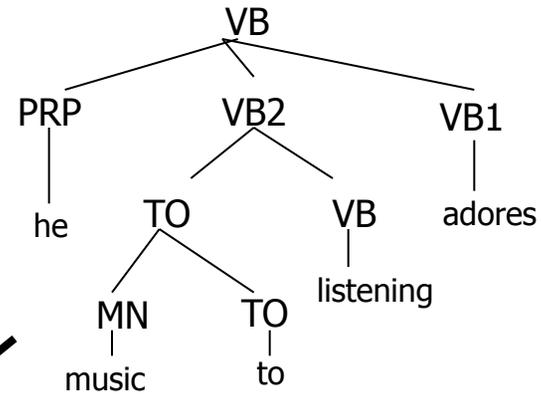
- Preprocess English by a parser
- Probabilistic Operations on a parse-tree
 1. Reorder child nodes
 2. Insert extra nodes
 3. Translate leaf words

Parse Tree(E) → Sentence (J)

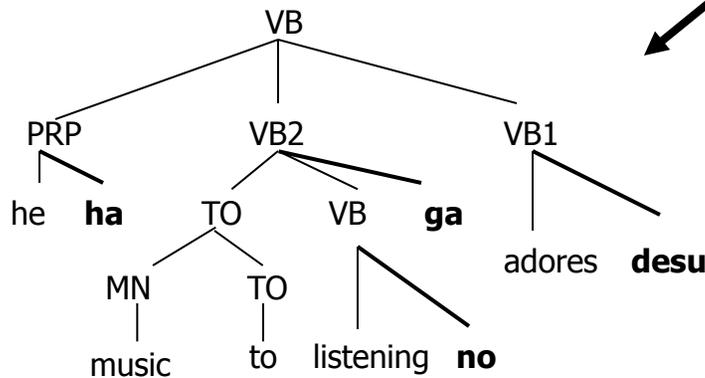
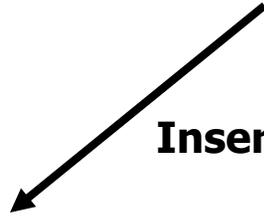
Parse Tree(E)



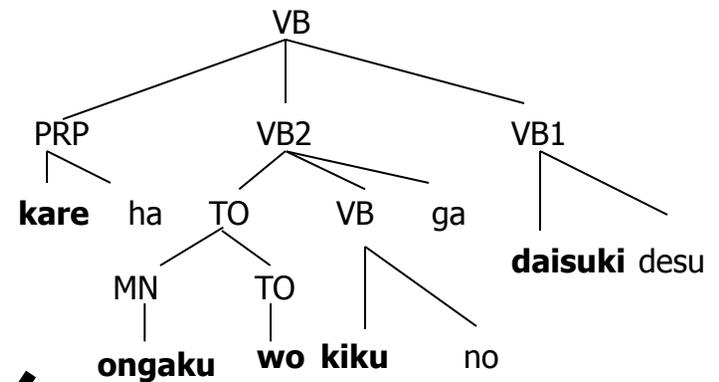
Reorder



Insert



Translate



Take Leaves



Sentence(J)

Kare ha ongaku wo kiku no ga daisuki desu

Experiment

- Training Corpus: J-E 2K sentence pairs
- J: Tokenized by Chasen [Matsumoto, et al., 1999]
- E: Parsed by Collins Parser [Collins, 1999]
 - Trained: 40K Treebank, Accuracy: ~90%
- E: Flatten parse tree
 - To Capture word-order difference (SVO->SOV)
- EM Training: 20 Iterations
 - 50 min/iter (Sparc 200Mhz 1-CPU) or
 - 30 sec/iter (Pentium3 700Mhz 30-CPU)

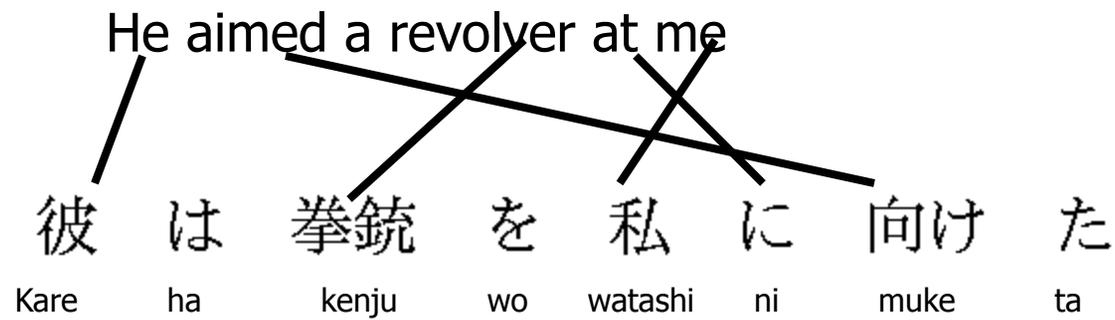
Result: Alignments

| | Ave. Score | # perf sent |
|-------------|------------|-------------|
| Y/K Model | 0.582 | 10 |
| IBM Model 5 | 0.431 | 0 |

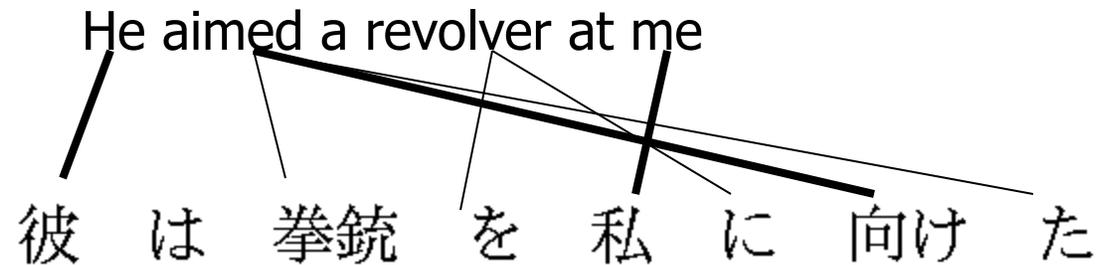
- Ave. by 3 humans for 50 sents
- okay(1.0), not sure(0.5), wrong(0.0)
- precision only

Result: Alignment 2

Syntax-based model



IBM Model 3



Result: Alignment 3

Syntax-based Model

He has unusual ability in English

彼 は 英語 に ずばぬけ た 才能 を 持っ て いる
Kare ha eigo ni zubanuke ta sainou wo mottu te iru

IBM Model 3

He has unusual ability in English

彼 は 英語 に ずばぬけ た 才能 を 持っ て いる

MT Applications

Christopher Manning

CS 224N

2009

MT: The early history (1950s)

- Earliest
- less
- Four
- lang
- First
- MT
- word
- Little
- sem
- Prob



MT Applications: 1. Traditional

- Traditional scenario:
 - Documents had to be translated for your company/ organization. Document production for organization
 - Generally, the quality/accuracy demands are high
 - High cost
 - Though most of it is now done as outsourced piecework
- MT tends to be ineffective: The cost of post-translation error correction is too high
- Main technology in the game: translation memory/ translation workbench/terminology management
 - E.g., TRADOS.
 - Very slowly, MT technology is starting to be incorporated, but most of the action is in terminology lexicon management

More translators and interpreters: [English to Japanese](#) - [Portuguese to Japanese](#) - [Japanese to Portuguese](#) **More language pairs**

The person shown here is a basic user of this site. He or she may be contacted directly for language-related services.

Working languages:
English to Japanese
Portuguese to Japanese
Japanese to Portuguese

More ▾

Local time

23:50 JST (GMT+9)



T. I. E. Japan Co., Ltd - T. I. E. Japan Co., Ltd

Contact:

Accuracy. Reliability. Reasonable price.

Minato-ku, Tokyo, Japan / Native in: Japanese

Profile | **Company profile** | **Contact**

| | | | | | | | | | | | |
|--|--|-----------------------------|--------------------------|------------------------------|------------|-----------------------------|----------------------|-------------------------|----------------------|---------------------|------------------------------|
| | Freelancer and outsourcer | | | | | | | | | | |
| Services | Translation, Website localization, Software localization, Desktop publishing | | | | | | | | | | |
| Expertise | <p>Specializes in:</p> <table border="0"> <tr> <td>Business/Commerce (general)</td> <td>Mathematics & Statistics</td> </tr> <tr> <td>Mechanics / Mech Engineering</td> <td>Journalism</td> </tr> <tr> <td>IT (Information Technology)</td> <td>Internet, e-Commerce</td> </tr> <tr> <td>Electronics / Elect Eng</td> <td>Telecom(munications)</td> </tr> <tr> <td>Computers (general)</td> <td>Computers: Systems, Networks</td> </tr> </table> | Business/Commerce (general) | Mathematics & Statistics | Mechanics / Mech Engineering | Journalism | IT (Information Technology) | Internet, e-Commerce | Electronics / Elect Eng | Telecom(munications) | Computers (general) | Computers: Systems, Networks |
| Business/Commerce (general) | Mathematics & Statistics | | | | | | | | | | |
| Mechanics / Mech Engineering | Journalism | | | | | | | | | | |
| IT (Information Technology) | Internet, e-Commerce | | | | | | | | | | |
| Electronics / Elect Eng | Telecom(munications) | | | | | | | | | | |
| Computers (general) | Computers: Systems, Networks | | | | | | | | | | |
| Rates | English to Japanese - Rates: 0.10 - 0.06 USD per word / 40 - 20 USD per hour Portuguese to Japanese - Rates: 0.13 - 0.08 USD per word / 45 - 25 USD per hour Japanese to Portuguese - Rates: 0.13 - 0.08 USD per word / 45 - 25 USD per hour Spanish to Japanese - Rates: 0.13 - 0.08 USD per word / 45 - 25 USD per hour | | | | | | | | | | |
| KudoZ activity | Questions answered: 2, Questions asked: 0 Easy / 0 PRO | | | | | | | | | | |
| Translation education | Univ. de Sao Paulo | | | | | | | | | | |
| Experience | Years of translation experience: 14. Registered at ProZ.com: Oct 2006. | | | | | | | | | | |
| ProZ.com Certified PRO certificate(s) | N/A | | | | | | | | | | |
| Credentials | N/A | | | | | | | | | | |
| Memberships | N/A | | | | | | | | | | |
| Software | Adobe Acrobat, Adobe Photoshop, Microsoft Excel, Microsoft Word, Pagemaker, Powerpoint | | | | | | | | | | |
| Website | http://www.logos-net.com | | | | | | | | | | |
| CV/Resume | CV/Resume | | | | | | | | | | |

About me

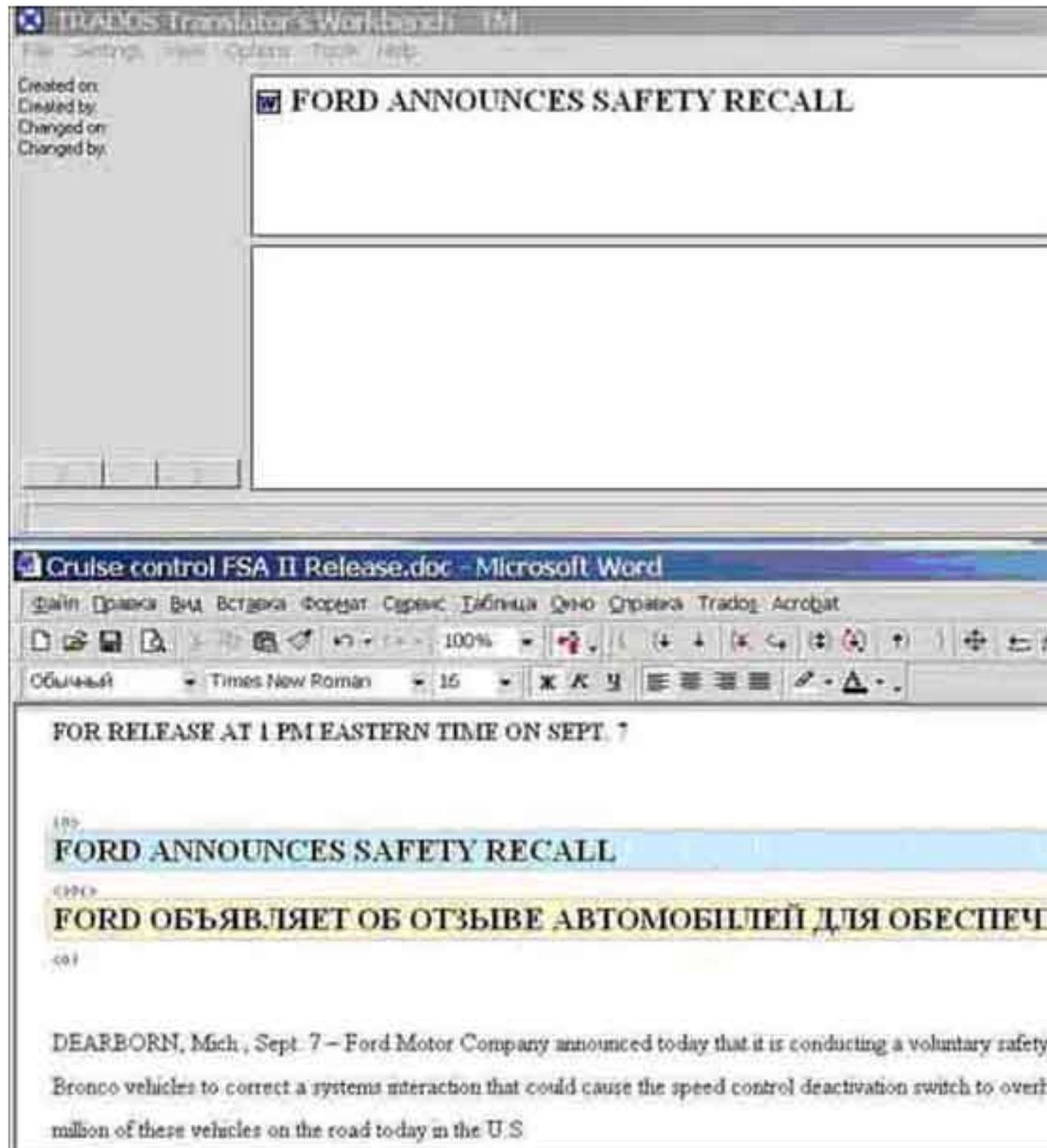
Languages - Japanese / Brazilian Portuguese / Spanish / English

English-Japanese
Brazilian Portuguese-Japanese, Japanese-Brazilian Portuguese
English-Brazilian Portuguese
Spanish-Japanese

Mother tongue: Japanese

Bad TRADOS Screenshot...

Trados is relatively pricey (high hundreds for PC versions, thousands for server version); seen as necessary productivity tool (Photoshop for translators)



MT Applications: 2. Web

- Web applications:
 - Dominant scenario: User-initiated translation
 - Crucial difference: The quality doesn't have to be great. The user is usually okay if they can understand the gist of what is going on
 - Second scenario
 - Somehow on the web people will accept medium quality results. Accessible information is better than no information
- MT is saved!!! “It's the web, stupid.”
 - (But is there money in it?)

AltaVista BabelFish

1997:

Free, automatic
translation for the
masses.

Revolutionary.

But, what was the
underlying technology?
SYSTRAN.

MacOS Dashboard?
SYSTRAN

Google until 2006?
SYSTRAN



DIGITAL ANNOUNCES FIRST INTERNET TRANSLATION CAPABILITY

*... AltaVista Search Services Delivers Free Web
Translation Service in Spanish, French, German,
Portuguese and Italian*

MAYNARD, Mass., December 9, 1997

Digital Equipment Corporation today announced it has broken the Internet language barrier, with the first European language translation service for Web content. For the first time, non-English speaking Web surfers can translate information on the predominantly English speaking Web in real time. The new free service, provided on Digital's AltaVista Search service, also gives English-only Web surfers the ability to understand information in five of the world's most popular languages.

"We are launching this technology as a global experiment and we invite our 12 million monthly users to test drive this breakthrough technology for the Web," said Louis Monier, director of technology for Digital's AltaVista Search service. "For the first time, users will be able to understand, in real-time, Web sites written in other languages. With 70 percent of the Web pages written in English, our technology provides access to a world of information to a greater population."

A test version of the technology that provides real-time language translation capabilities is now available on the AltaVista Search site (<http://altavista.digital.com>). The new technology allows users to easily search, retrieve and translate Web search results from:

- Spanish to English, English to Spanish
- French to English, English to French
- German to English, English to German
- Portuguese to English, English to Portuguese
- Italian to English, English to Italian

Instant Access to Business-Critical Information

Through a technology partnership with SYSTRAN Corporation, a pioneer of automatic language translation technology, AltaVista has access to SYSTRAN's tested multilingual dictionaries, containing more than 2.5 million terms and a wide range of vocabulary and professional specialties. The AltaVista Web Translation Service provides nearly complete translation results, equipping the end-user with a greater comprehension of foreign information. With the new technology, users from around the world will have access to:



WIKIPEDIA
The Free Encyclopedia

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- [Featured content](#)
- [Current events](#)
- [Random article](#)

search

interaction

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SYSTRAN

From Wikipedia, the free encyclopedia

SYSTRAN, founded by Dr. [Peter Toma](#) in 1968^[1], is one of the oldest [machine translation](#) companies. SYSTRAN has done extensive work for the [United States Department of Defense](#) and the [European Commission](#).

SYSTRAN provides the technology for [Yahoo!](#) and [AltaVista's \(Babel Fish\)](#) among others, but use of it was ended (circa 2007) for all of the language combinations offered by [Google's language tools](#)^[2].

SYSTRAN is used by the Dashboard Translation widget in [Mac OS X](#).

Commercial versions of SYSTRAN operate with operating systems [Microsoft Windows](#) (including [Windows Mobile](#)), [Linux](#) and [Solaris](#).

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- [2 Languages](#)
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History

[\[edit\]](#)

With its origin in the [Georgetown](#) machine translation effort, SYSTRAN was one of the few machine translation systems to survive the major decrease of funding after the [ALPAC Report](#) of the mid-1960s. The company was established in [La Jolla, California](#) to work on translation of Russian to English text for the [United States Air Force](#) during the [Cold War](#). Large numbers of Russian scientific and technical documents were translated using SYSTRAN under the auspices of the USAF Foreign Technology Division (later the National Air and Space Intelligence Center) at [Wright-Patterson Air Force Base](#), Ohio. The quality of the translations, although only approximate, was usually adequate for understanding content.

The company was sold in 1986 to the Gachot family, based in [Paris, France](#), and is now traded publicly by the French stock exchange. It has a main office at the [Grande Arche](#) in [La Defense](#) and maintains a secondary office in [La Jolla, San Diego, California](#).

During the dot com boom, [language industry](#) started a new era, and Systran entered into agreements with a number of translation integrators, the most successful of these being [WorldLingo](#), today many millions of people use Systran's Translation Engines through WorldLingo.



SYSTRAN

The leading supplier of language translation software

English

PRODUCTS

SOLUTIONS

SUPPORT

ABOUT SYSTRAN

CONTACT

PURCHASE



SYSTRAN Translation Software

SYSTRAN's wide range of translation software products and solutions will help you create multilingual documents and understand foreign language content in real-time.

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- [Web Translator](#)
- [Home Translator](#)
- [Office Translator](#)
- [Mobile Translator](#)
- [All products](#)

Small Business

- [Business Translator](#)
- [Premium Translator](#)
- [Enterprise Server 6](#)
- [SYSTRANLinks](#)

Enterprise Solutions

- [Premium Translator](#)
- [Business Translator](#)
- [Enterprise Server 6](#)
- [SYSTRANLinks](#)
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➤ New: [Financials 2008 \[en\]](#) (PDF - 55 Kb)
February 13, 2009

Download **The Gilbane Group** Report "Multilingual Communication as a Business Imperative"



An International Benchmark in Translation Software

SYSTRAN is the market-leading provider of language translation software products and solutions for desktop, enterprise and Internet that facilitate communication in 52 language combinations and in 20 vertical domains. With over four decades of expertise in [Machine Translation](#) dedicated to [multilingual translation](#), SYSTRAN's software is the choice of leading global corporations, Internet portals and public agencies including the US Intelligence Community and the European Commission.

What is automatic translation?

Automatic translation is a translation produced by state-of-the-art technology, without the intervention of human translators. Automatic translation is also often referred to as "Machine Translation".

➤ [Automatic translation](#)



**LANGUAGE
WEAVER™**

LW ENTERPRISE TRANSLATION SERVER

- Multiple input and output formats provide greater flexibility
- Fluent, accurate, and understandable translations provided by the translation software
- Fast, simple integration and deployment

SYSTEM REQUIREMENTS

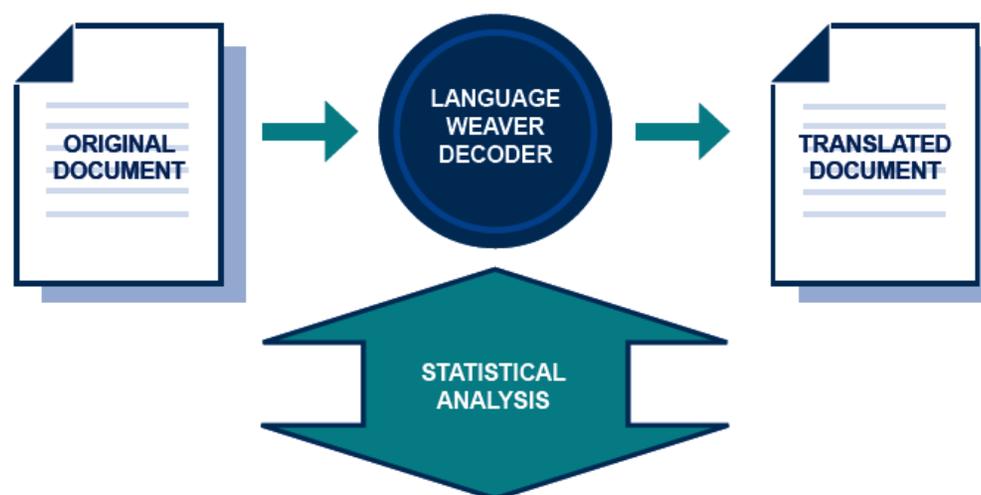
Client Server 32-Bit Platform

- **OS:** Windows 2003 Server, Windows 2000 Advanced Server (SP3+)
- **Processor:** 2.8 GHz Pentium 4
- **RAM:** 4 GB

Client Server 64-Bit Platform

- **OS:** Windows 2003 Server, Windows 2000 Advanced Server (SP3+) or Linux Fedora 8 or similar (contact us for details)
- **Processor:** 2.8 GHz Intel Xeon
- **RAM:** 8 GB

RUN TIME TRANSLATION PROCESS



| TRANSLATION PARAMETERS (Bilingual Data) □ | | |
|---|-------------|------|
| Las mejores compañías del mundo cuentan con traducciones de idioma para comunicarse con mercados mundiales. | | |
| Mejores | Best | 19% |
| | Appropriate | 7.3% |
| | Better | 2.3% |
| | Outperform | 2.2% |
| | Finest | 2% |
| Mundo | World | 4.7% |
| | Globe | 3.7% |
| | Globalizing | 3.1% |
| | Worlds | 2.5% |

| LANGUAGE MODEL (Monolingual Data) | |
|--------------------------------------|------|
| The best companies in the world | 27% |
| Best companies in the globe | 17% |
| World's best companies | 11% |
| Better companies in the world | 5.1% |
| The world companies are best | 4.8% |



Search across languages

Type a search phrase in your own language to easily find pages in another language. We'll translate the results for you to read.

Search for:

My language: Search pages written in:

Tip: Use [advanced search](#) to restrict your search by language and country without translating your search phrase.

Translate text

hola

»

Translate a w

»

- Albanian
- Arabic
- Bulgarian
- Catalan
- Chinese (Simplified)
- Chinese (Traditional)
- Croatian
- Czech
- Danish
- Dutch
- ✓ English
- Estonian
- Filipino
- Finnish
- French
- Galician

- **CORREGIR:** es que recibas un mensaje de error cuando intenta cerrar una aplicación basada en formularios de Windows cuando la aplicación se ejecuta en .NET Framework 2.0 
Corrige un problema que se puede producir cuando intenta cerrar una aplicación basada en formularios de Windows que utiliza la información sobre herramientas. Es posible que reciba un "System.NullReferenceException: objetos de referencia no se..."

[Más Descargas...](#)

Solución de problemas - .NET Framework 2.0

- El control de usuario de ActiveX no está visible en el diseñador de formularios cuando se vuelve a abrir un proyecto existente 
Explica que el control de usuario de ActiveX no es visible en el diseñador de Windows Forms cuando se vuelve a abrir un proyecto existente. Proporciona un método para solucionar este problema.
- No puede establecer el foco a los controles secundarios de un control de usuario mediante la tecla TAB 
Explica que no establece el foco a los controles secundarios de un control de usuario mediante la tecla TAB. Proporciona una solución para solucionar este problema.
- **ERROR:** " Puede de iniciar la depuración en el servidor Web" mensaje de error cuando ejecuta unas aplicaciones Web ASP.NET 
Describe un problema que se produce cuando utiliza localhost como el servidor Web para crear una aplicación ASP.NET y utiliza la dirección IP para la Identificación del sitio Web. Para resolver el problema, modifique el archivo de proyecto .webinfo y...

[Más Solución de problemas...](#)

Última revisión : miércoles, 05 de noviembre de 2008



¿Necesita más ayuda?

Contactar con un profesional de soporte técnico por correo electrónico, online o por teléfono

El control de usuario de ActiveX no está visible en el diseñador de formularios cuando se vuelve a abrir un proyecto existente

http://support.microsoft.com/kb/818220/es?spid=8291&sid=global

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Id. de artículo: 818220 - Última revisión: lunes, 03 de diciembre de 2007 - Versión: 3.11

El control de usuario de ActiveX no está visible en el diseñador de formularios cuando se vuelve a abrir un proyecto existente

Advertencia: Artículo de Traducción Automática, vea la exención de responsabilidad.

Solución

Para solucionar este problema, quitar las existentes las referencias de control de usuario de ActiveX y, a continuación, agregue las referencias actualizadas de nuevo. Para ello, siga uno de los métodos siguientes.

[↑ Volver al principio](#)

1 (Método)

1. En el Explorador de soluciones, bajo **referencias**, haga clic con el botón secundario del mouse en **AxProject1** y, a continuación, haga clic en **Quitar**.
2. En **referencias**, haga clic con el botón secundario del mouse en **Project1** y, a continuación, haga clic en **Quitar**.
3. En el cuadro de herramientas, haga doble clic en **Project1.TestControl** para agregar el control de usuario de ActiveX modificado en el formulario.



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Article ID: 818220 - Last Review: Monday, 03 December 2007 - Version: 3.11

The ActiveX user control is not visible in the form designer when you reopen an existing project

 Warning: Article on Machine Translation, see disclaimer.

[View products that this article applies](#)

 Solution

To solve this problem, remove the existing references to user control of ActiveX, and then add references updated again. To do this, follow one of the following methods.

[↑ Back to top](#)

1 (Method)

1. In Solution Explorer, under **References**, right-click the secondary mouse **AxProject1**, and then click **Remove**.
2. **References**, click with the secondary mouse button in **Project1**, and then click **Remove**.
3. In the toolbox, double-click **Project1.TestControl** to add the user control of ActiveX in the amended form.

Note that the ActiveX user control in the Windows Forms designer and reference to **Project1** and **AxProject1** listed under **references** to **UserControlDemo**.

4. In the **menu**, click **Build** Solution.



Get Help Now
Contact a Support Professional by Email, Online, Phone

Select Language

English (U.S.)

Article ID: 818220 - Last Review: December 3, 2007 - Revision: 3.11

The ActiveX user control is not visible in the Form Designer when you reopen an existing project

View products that this article applies to.

+ On This Page

Expand all | Collapse all

- WORKAROUND

To work around this problem, remove the existing references of the ActiveX user control, and then add the updated references again. To do this, follow one of the following methods.

[↑ Back to the top](#)

Method 1

1. In Solution Explorer, under **References**, right-click **AxProject1**, and then click **Remove**.
2. Under **References**, right-click **Project1**, and then click **Remove**.
3. In the toolbox, double-click **Project1.TestControl** to add the modified ActiveX user control to the form.

Notice that the ActiveX user control in the Windows Form Designer and the references to **AxProject1** and **Project1** appear under **References** for **UserControlDemo**.

4. On the **Build** menu, click **Build Solution**.

You do not receive any errors.

Machine Translation Summary

- Usable Technologies
 - “Translation memories” to aid translator
 - Low quality screening/web translators
- Technologies
 - Traditional: Systran (Altavista Babelfish, what you got till mid-2006 on Google) is now seen as a limited success
 - Statistical MT over huge training sets is successful (ISI/LanguageWeaver, Microsoft, Google)
- Key ideas of the present/future
 - Statistical phrase based models
 - Syntax based models
 - Better language models (e.g., bigger, using grammar)
 - Better decoding models (e.g., by restricting model?)