MateCat: an Open Source CAT Tool for MT post-editing

Marcello Federico, Nicola Bertoldi
FBK Trento, Italy

Marco Trombetti , Alessandro Cattelan
Translated srl, Rome, Italy

Tutorial outline

- The research project (MF, 20’)
- MT technology advances (MF, 20’)
- The MateCat tool and how it works (AC, 30’)
- Use cases (MT 20’)
- Break (30’)
- Installing the tool (NB, 30’)
- Interactive session (All, 40’)
- Conclusions and future plans (MT+MF, 20’)

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The Research Project

OVERVIEW

- Motivation
- CAT scenario
- Project goals
- Roadmap
- Field tests

Motivation

- **Human translation (HT)**

  worldwide demand for translation services has accelerated, due to globalization and growth of the Information Society

- **Gap between MT and HT**

  MT has improved significantly but independently from HT

  MT research has not directly addressed how to improve HT

  Most professional translators barely use MT

- **The unavoidable adoption of MT**

  Post-editing experiments have shown great promise

  The challenge is how to smoothly integrate MT and HT!

Scenario


Customer


All our translators got a CAT tool!
Language Service Provider

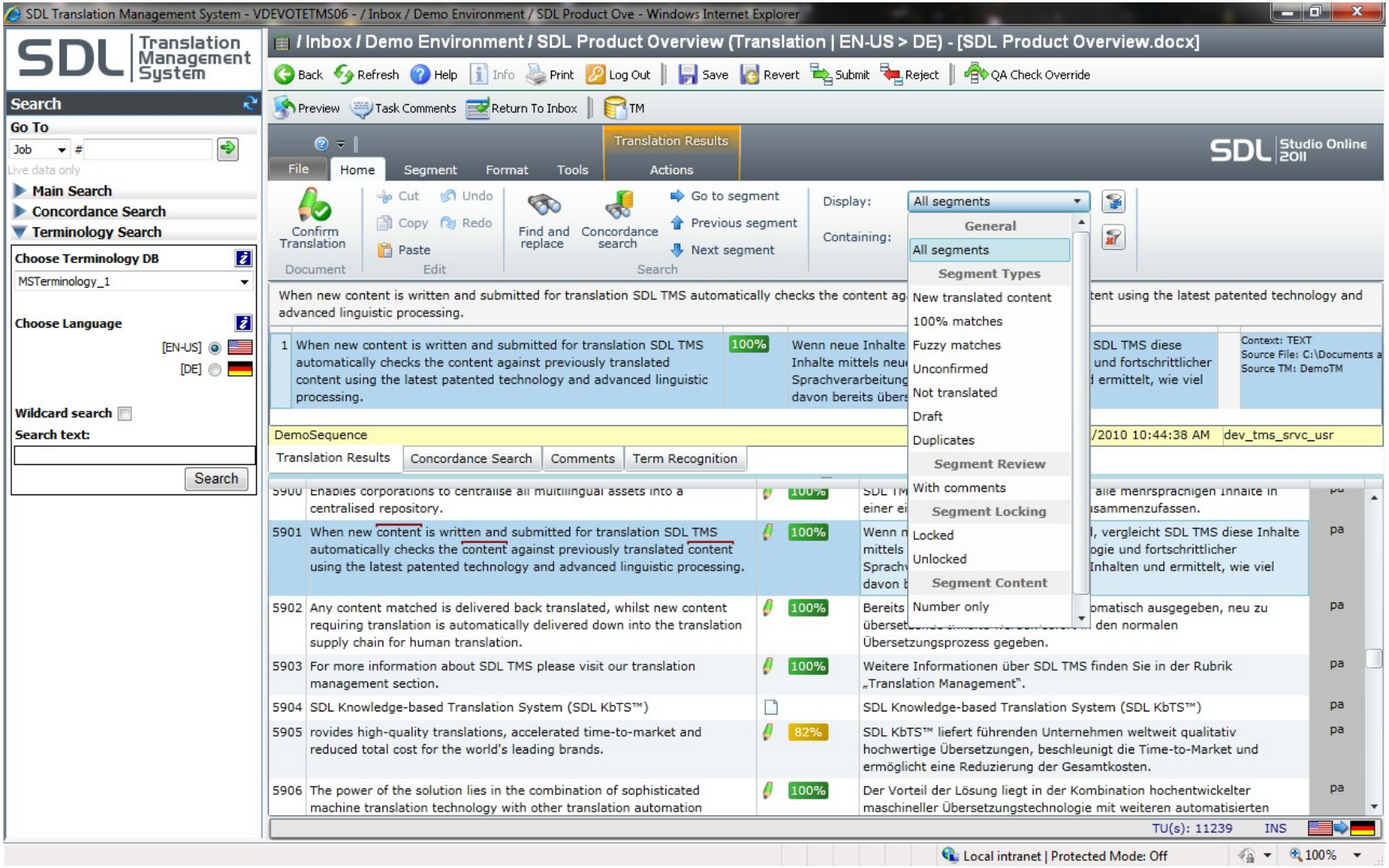
Translation Project

Scenario

- **Computer assisted translation (CAT)**
  - dominant technology: **CAT tools**
  - supporting many file formats
  - spell checking, terminology, dictionaries, …
  - *translation memory (TM), machine translation* (MT).

- **CAT Tool: text editor for translators**
  - text is split into *segments*
  - translation suggestions of segments and/or words

Commercial CAT Tool



Translation Memory

- Incrementally **stores** translated segments
- **Retrieves** perfect or **fuzzy matches** of segments
- **Shared** among translators working on the same project
- A TM models the style and terminology of the customer

Translation Memory

When does it help?

- on repetitive texts, such as technical manuals
- when more translators work on the same project

How does it help?

- accelerates translation process
- ensures consistency across different translators

Limitations

- number of useful matches is generally small (5-10%)

Machine Translation

Translation decomposed into a sequence of rule applications

Statistical MT:

- searches **optimal** sequence of translation rules
- translation rules learned from **parallel texts**
- **statistical model** defined over rules and fitted to data
- rule sequences generate **linear or hierarchical** structures

Machine Translation

When does it help?

- language pairs supported by large parallel data
- translation directions between close languages
- training data represent well task data

How does it help?

- provides good draft to post-edit
- avoids translating easy/repetitive fragments

Limitations

- translations may lack of global coherence
- may produce bad output that causes waste of time

MateCat Project

Project Acronym	**MateCat**
Project Title	Machine Translation Enhanced Computer Assisted Translation
Funding scheme	STREP FP7-ICT-2011-7 Grant # 287688
Duration	36 months,1 Nov 2011- 30 Oct 2014
Consortium	Fondazione Bruno Kessler - Italy Universite Le Mans - France The University of Edinburgh – United Kingdom Translated srl - Italy
Effort	349 person-month (= 9.7 full-time-equivalent/year)
Budget	3,368K €
Funding	2,650K €

MateCat Project

Strategic

- Seamless integration of machine and human translation
- Enhance productivity and user experience with CAT

Research

- New MT functionality

  self-tuning, **user-adaptive, informative**

Technology

- Web-based CAT tool integrating new MT features
- Full open source solution (Moses, IRSTLM, …)

Why another CAT tool?

Existing tools

- Deploy generic and *static* MT engines
- Difficult to integrate/evaluate new MT functionality

MateCat Tool

- Enterprise level CAT tool for real use
- *Interoperability* across MT and TM engines
- Supporting new MT functionalities
- Supporting document formats, tags
- Automatic collection of usage statistics

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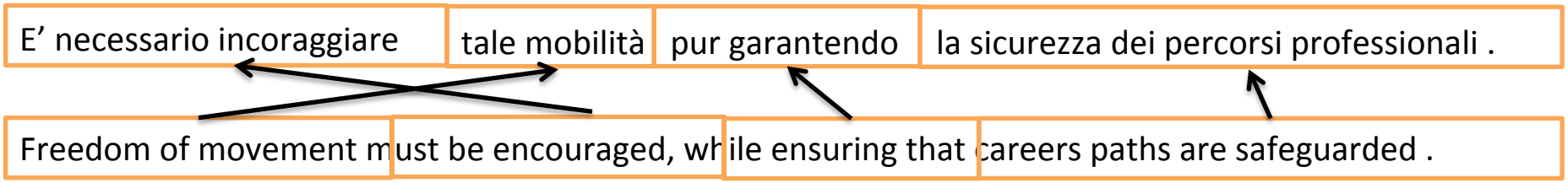
MT Technology Advances

OVERVIEW

- Self-tuning MT
- User-adaptive MT
- Informative MT

Statistical MT

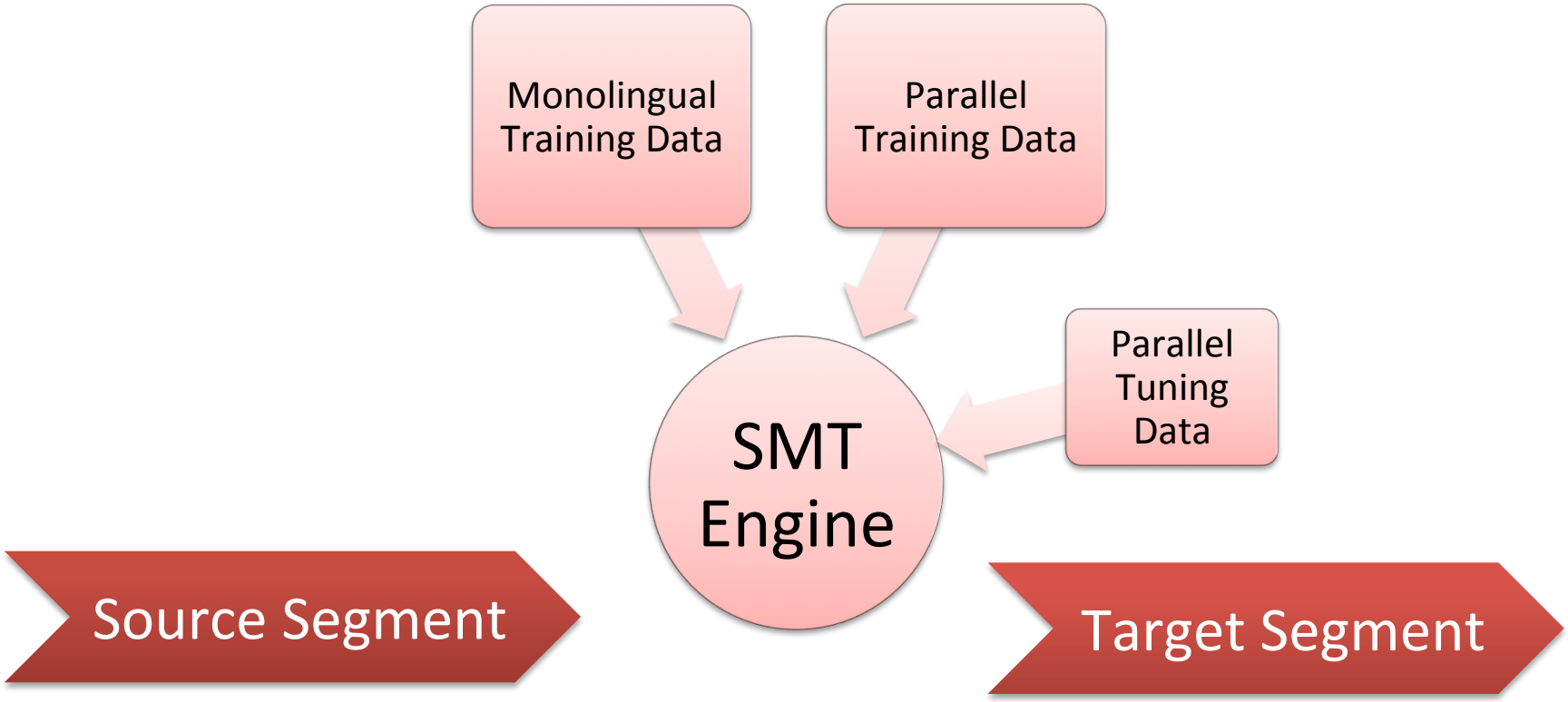
Search for the optimal (=best scoring) translation using phrase-pairs



How phrase-based SMT works:

- **Search steps**: select source segment, translate, attach to target
- **Decoder**: explores the search space and scores translations hypotheses
- **Scores**: linear combination of feature functions
- **Features**: phrase-pairs, target n-grams, relative phrase-movement
- Features and linear-combination weights are machine learned

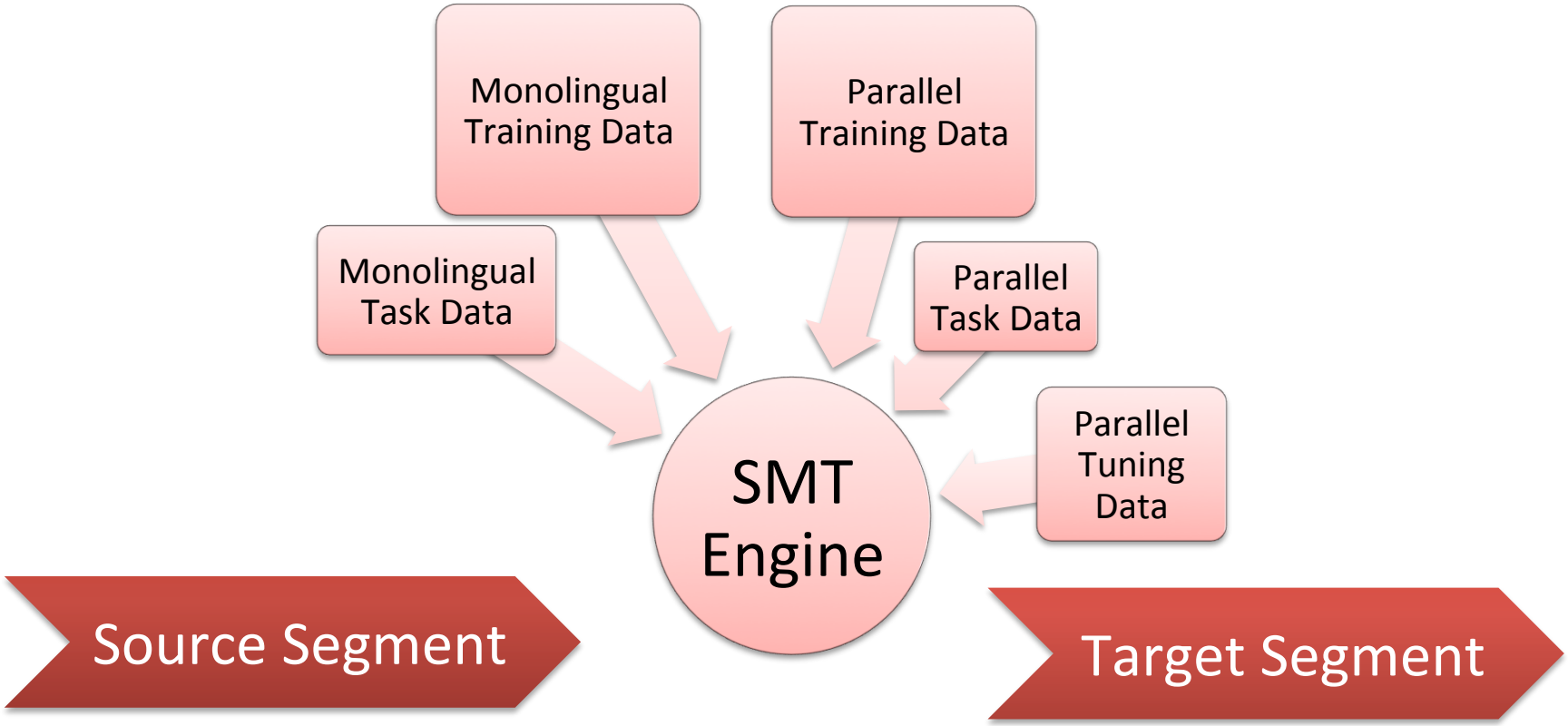
Statistical MT



MT quality depends on

- *distance* of source and target languages,
- *amount* of training data,
- *... and closeness* between training and task data

Domain Adaptation in SMT



Domain adaptation provides means to effectively integrate small amounts of task data in the training process!

MateCat Use Case

Domain Adaptation

… before translation project starts (baseline system)

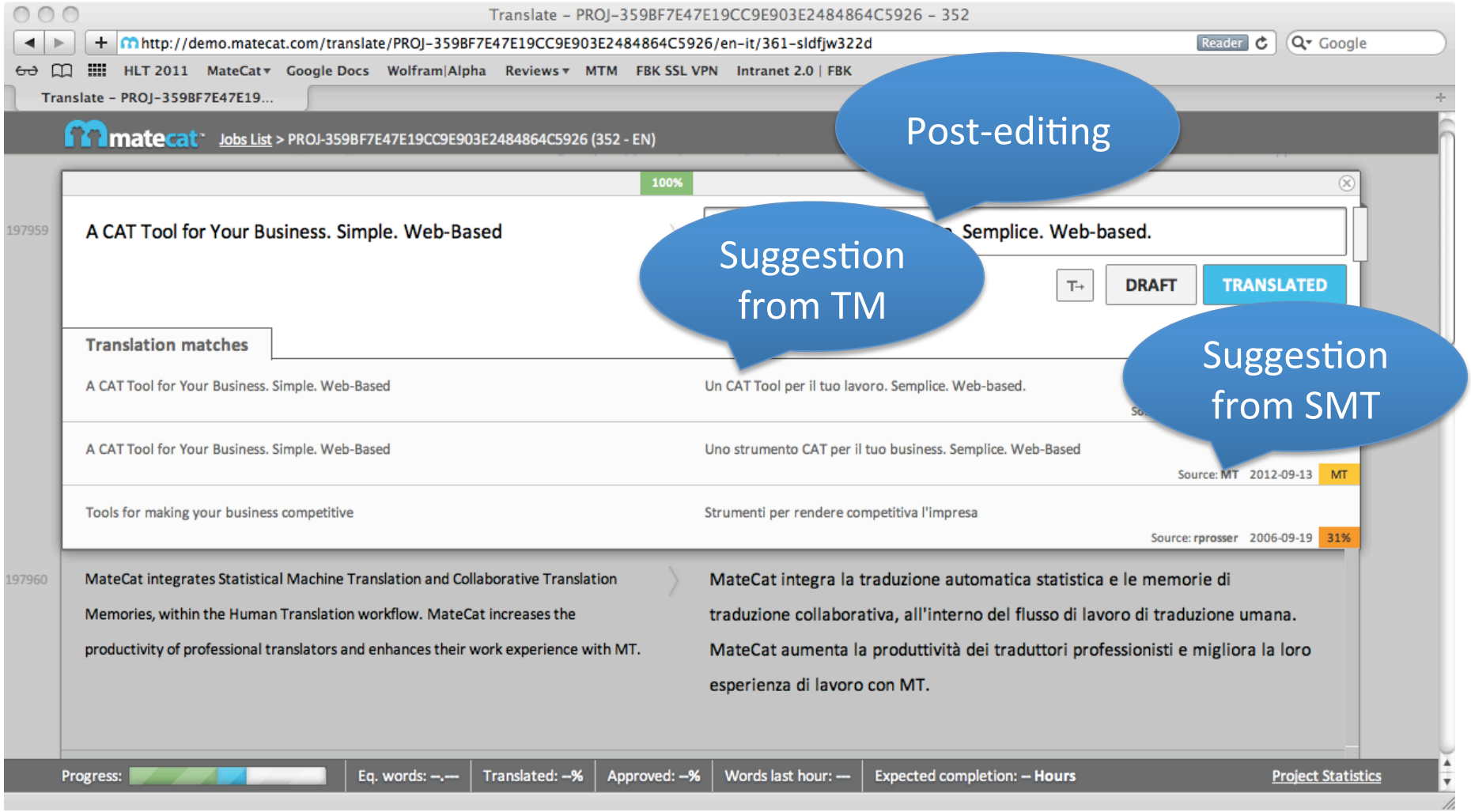
Self-tuning MT [Project adaptation]

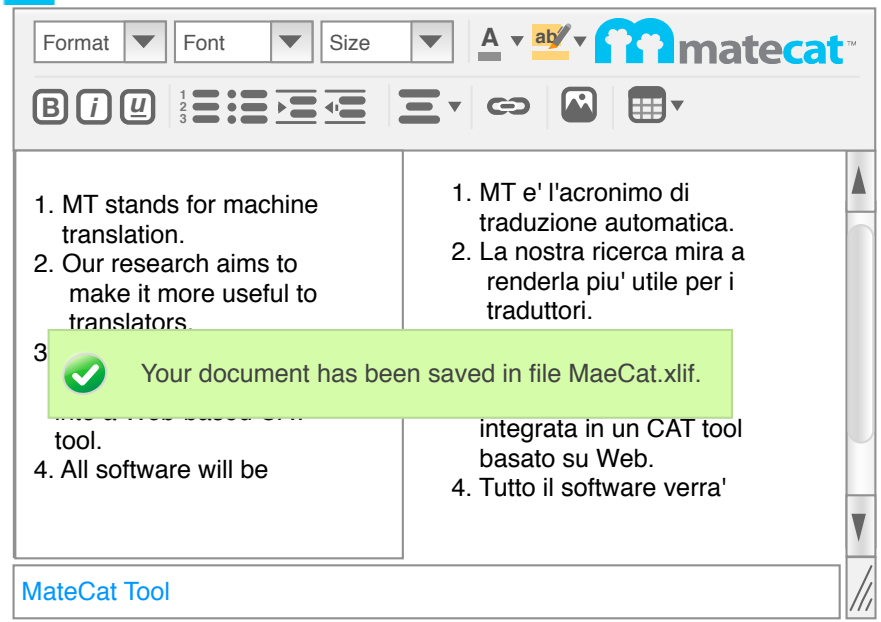
…. incrementally during the lifetime of a translation project

User-adaptive MT [Online adaptation]

… instantly after each sentence is post-edited.

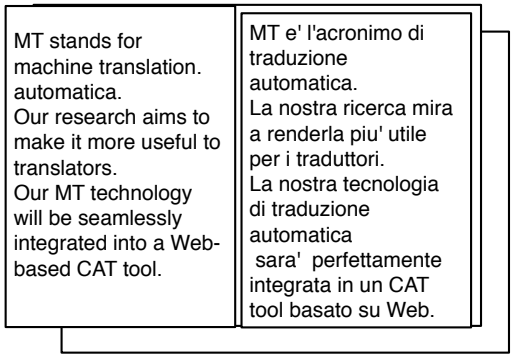
Application scenario





Self-tuning MT

Translated documents

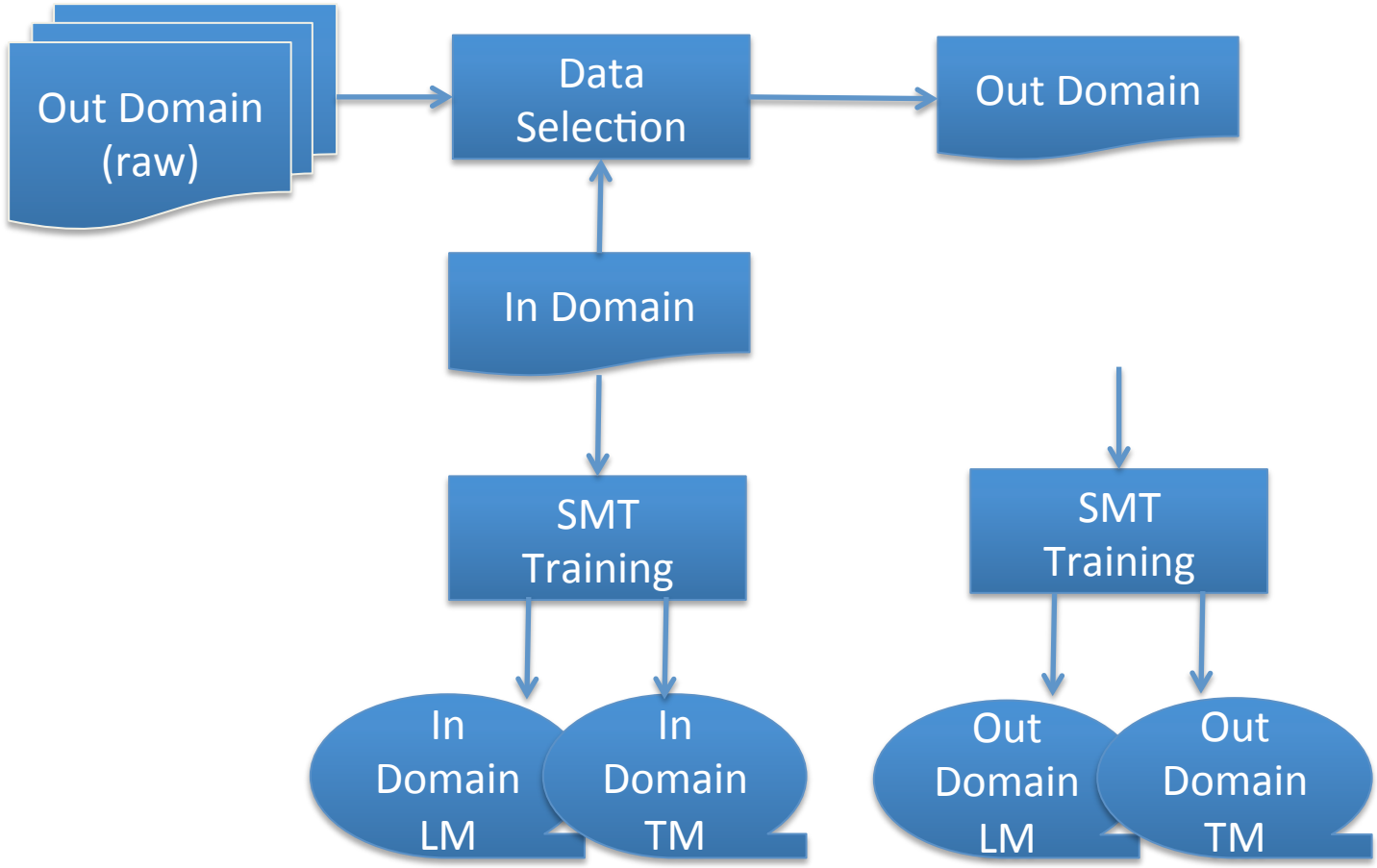


MT Server

Domain Adaptation

Models

Project adaptation



Different modalities for combining or merging models

Project Adaptation

Data selection

- Cross-entropy difference (Axelrod et. al, 2012)

  After project has started (**source + post-edits**)

TM Adaptation

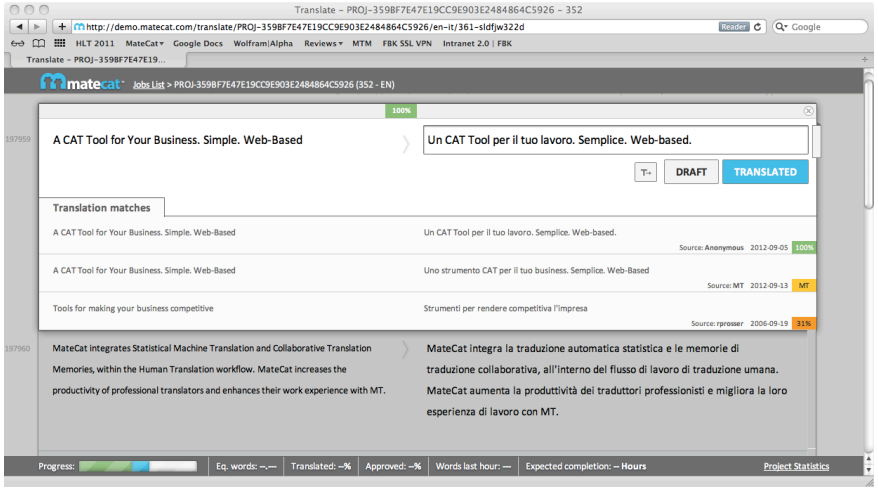
- Fill-up & back-off (Bisazza et al., 2011, Niehues and Waibel, 2011)

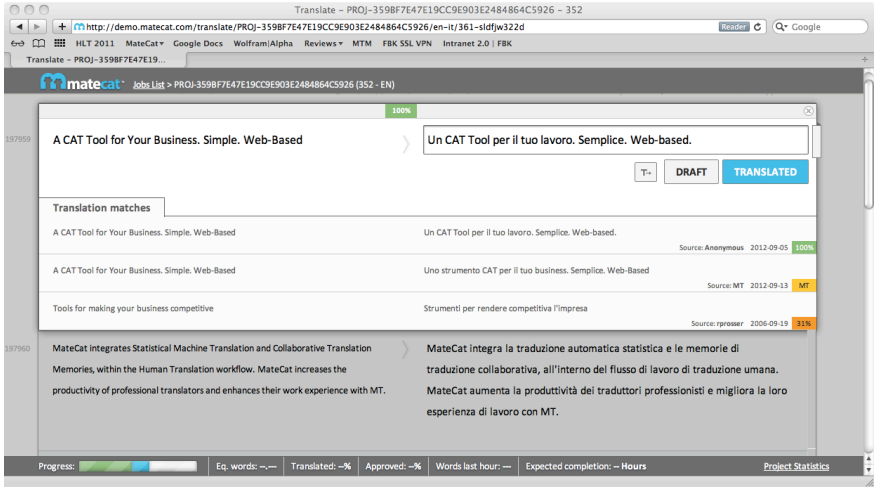
LM Adaptation

- Linear interpolation

M. Cettolo, N. Bertoldi, M. Federico, C. Servan, H. Schwenk, "Translation Project Adaptation for MT-Enhanced CAT", *MT Journal*, 2014.

Project Adaptation: test protocol





Warm-up session (WU)
First 20% of doc
Post-edit domain adapted MT

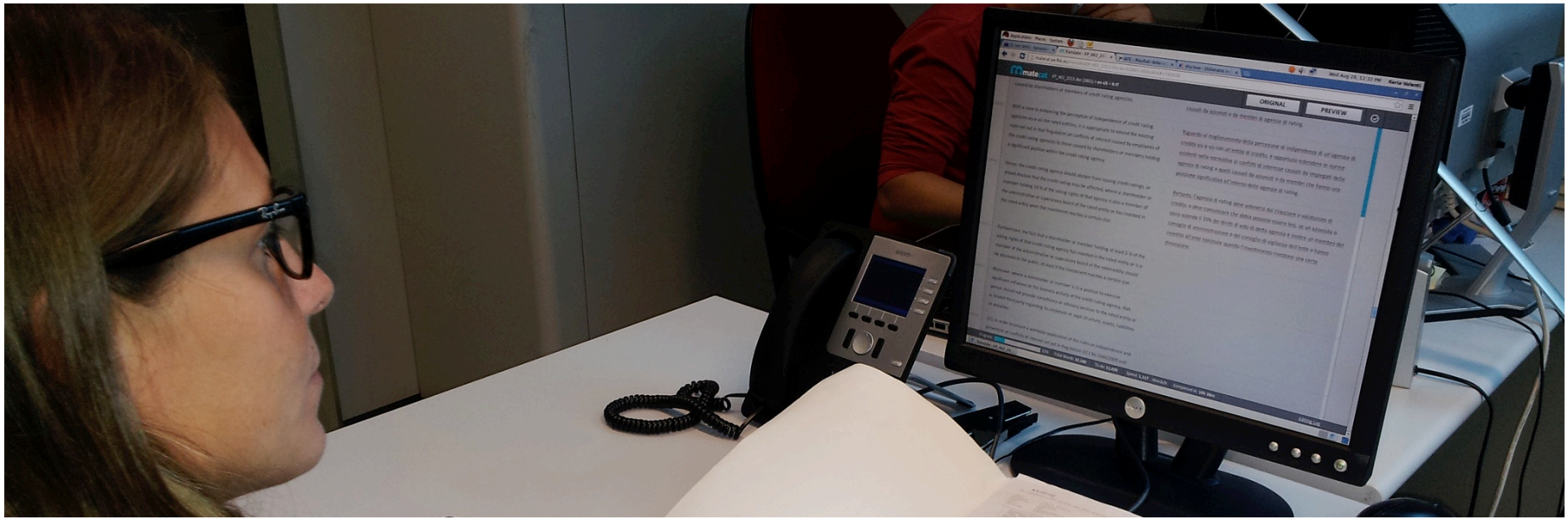
Field-test session (FT)
Remaining 80% of doc
Test: domain-adapted MT vs. project-adapted MT

Project Adaptation: lab tests

Simulate post-edits with reference translations

pair	MT engine	IT domain			Legal domain		
		BLEU	TER	GTM	BLEU	TER	GTM
en→it	DA	55.3	29.2	77.8	31.0	53.1	61.8
	PA	57.5	26.3	78.6	35.0	49.1	64.6
en→fr	DA	41.3	38.3	69.5	33.9	52.2	63.0
	PA	41.4	37.9	69.9	36.4	49.1	65.1
en→es	DA	–	–	–	35.5	50.7	65.7
	PA	–	–	–	36.4	50.2	65.6
en→de	DA	–	–	–	19.3	65.0	52.6
	PA	–	–	–	20.1	64.7	52.8

Project Adaptation: field tests



Key performance indicators:

- TTE - Time to edit (words/hour)
- PEE - Post-editing effort (human TER)

Project Adaptation: field tests

matecat

< Back to Translation | Export All Data in CSV

Job 984 - Editing Log

Slowest 5.000 segments by time-to-edit

Summary

Words	Avg Secs per Word	% of MT	% of TM	Total Time-to-edit	Avg PE Effort %	% of words in too SLOW edits	% of words in too FAST edits
2641	5s	96%	4%	03h:38m:59s	33%	1%	0%

Editing Details

Secs/Word	Job ID	Segment ID	Words	Suggestion source	Match percentage	Time-to-edit	Post-editing effort
163.8	984	580414	26	Machine Translation	86%	10m:58s	20%

Segment	You can move a volume to a new I/O group to balance the workload across the in the system without stopping host activity to the volumes.
Suggestion	È possibile spostare un volume di I / E in un nuovo gruppo di bilanciare il carico di lavoro tra i nel sistema host senza dover arrestare l'attività per i volumi.
Translation	È possibile spostare un volume in un nuovo gruppo I/O per bilanciare il carico di lavoro nel sistema senza arrestare l'attività dell'host sui volumi.
Diff View	È possibile spostare un volume ~~di I / E~~ in un nuovo gruppo ~~di~~ I/O per bilanciare il carico di lavoro ~~tra i~~ nel sistema ~~host~~ senza ~~dover~~ arrestare l'attività ~~per i~~ dell'host sui volumi.

Secs/Word	Job ID	Segment ID	Words	Suggestion source	Match percentage	Time-to-edit	Post-editing effort
28.8	984	580432	27	Machine Translation	86%	12m:57s	31%

Mirrored, compressed, and thin-provisioned volumes as well as volumes that are used in FlashCopy mappings can be moved to

```
ccentage;Time-to-edit;Post-editing effort;Segment;Suggestion;Tra
";"20%";"You can move a volume to a new I/O group to balance the
"31%";"Mirrored, compressed, and thin-provisioned volumes as we
"65%";"It is common to observe high compression ratios in datab
"47%";"Establish paths to I/O groups on hosts After the system
"46%";"Select the preferred node in that I/O group that the hos
"45%";"The wizard only changes the I/O group for the volume and
984;580424;"Machine Translation";50;"86%";"312327";"27%";"For volumes mapped to Fibre Channel hosts, the wizard al
984;580379;"Machine Translation";11;"86%";"252606";"66%";"Like thin-provisioned volumes, compressed volumes have v
984;580411;"Machine Translation";37;"86%";"240454";"41%";"Planning for compression in pre-existing installations T
984;580389;"Machine Translation";20;"86%";"235892";"15%";"You can also monitor information on compression usage to
984;580449;"Machine Translation";22;"86%";"229242";"47%";"If a recommended service action is active, these events
984;580419;"Machine Translation";28;"86%";"220055";"43%";"You can also use this wizard to move volumes to another
984;580399;"Machine Translation";32;"86%";"217623";"30%";"After compression is applied to stored data, the require
984;580461;"Machine Translation";29;"86%";"216299";"45%";"Email notifications The Call Home feature transmits oper
984;580390;"Machine Translation";15;"86%";"198145";"44%";"To monitor system-wide compression savings and capacity,
984;580465;"Machine Translation";12;"86%";"193919";"33%";"The system can send SNMP messages that notify personnel
```

Data collection and logging for in-depth analysis

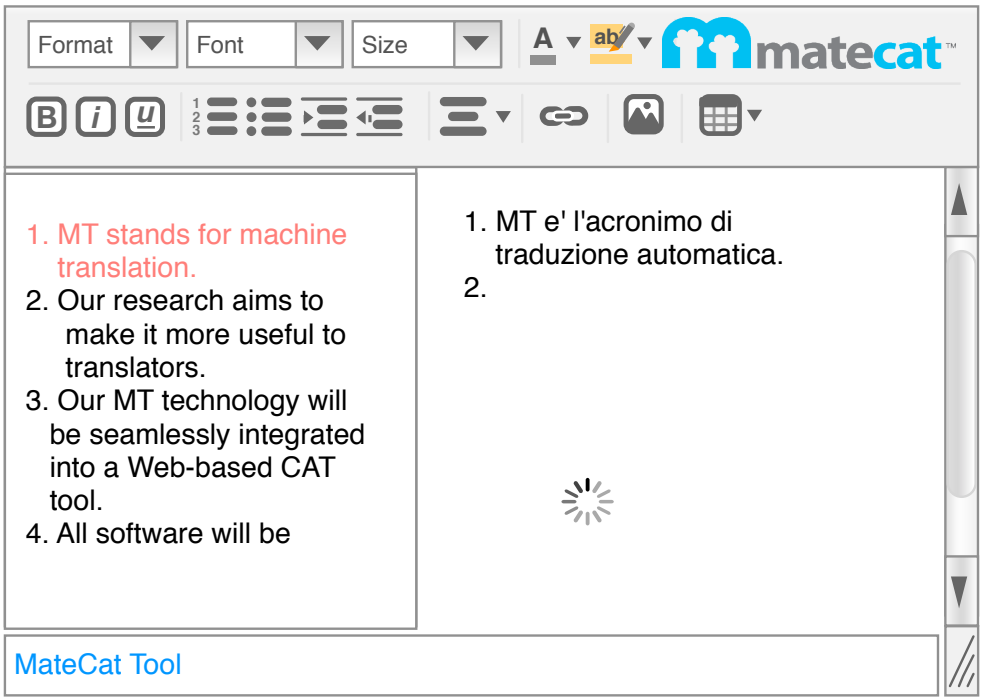
Project Adaptation: field tests

domain	user	TTE (sec/word)				PEE			
		warm-up	field-test	p-value	Δ	warm-up	field-test	p-value	Δ
IT	t1	4.70	3.36	0.001	28.51%	34.27	30.99	0.060	9.57%
	t2	2.26	2.47	0.220	-9.29%	38.50	39.52	0.330	-2.65%
	t3	3.17	3.11	0.450	1.89%	32.53	30.17	0.133	7.25%
	t4	4.77	3.64	0.006	23.69%	32.22	28.44	0.040	11.73%
Legal	t1	5.20	5.63	0.222	-8.27%	26.47	24.57	0.212	7.18%
	t2	5.42	3.92	0.002	27.68%	29.11	26.25	0.140	9.82%
	t3	5.86	4.32	0.000	26.28%	35.65	34.11	0.247	4.32%
	t4	6.60	3.73	0.000	43.48%	22.72	18.07	0.011	20.47%

English to Italian direction - 8 professional translators

Real working conditions - MateCat tool

Post-edits: 97-98% from MT, 2-3% from TM suggestions



User-adaptive MT

User Feedback

SRC	MT stands for machine tanslation.
MT	MT sta per traduzione automatica.
USR	MT e' l'acronimo di traduzione automatica.

MT Server

On-Line Learning

Models

Online model adaptation

Generative Cache Model

Extract and store phrases and n-grams
in cache models: features with decaying scores

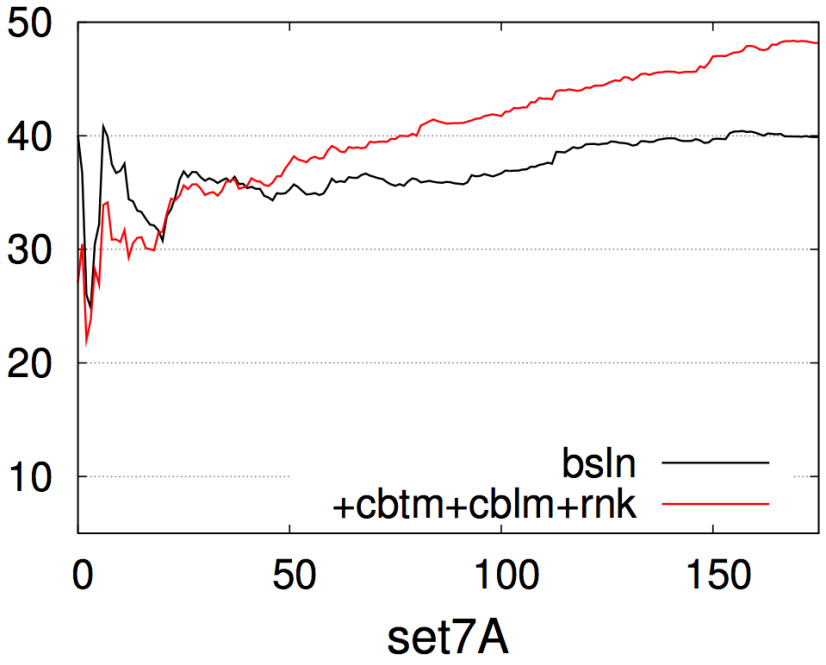
Discriminative re-ranking

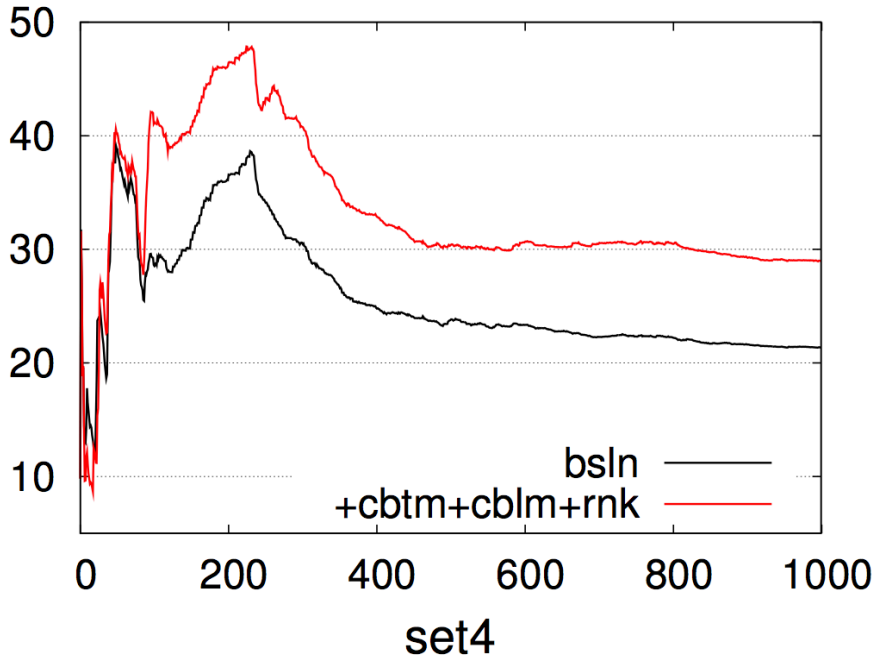
Learn phrases and n-grams found in the post-edits and
use them to re-rank MT n-best outputs

N. Bertoldi, P. Simianer, M. Cettolo, K. Wäschle, M. Federico, S.Riezler "Online Adaptation to Post-Edits for Phrase-Based Statistical Machine Translation", *MT Journal*, 2014.

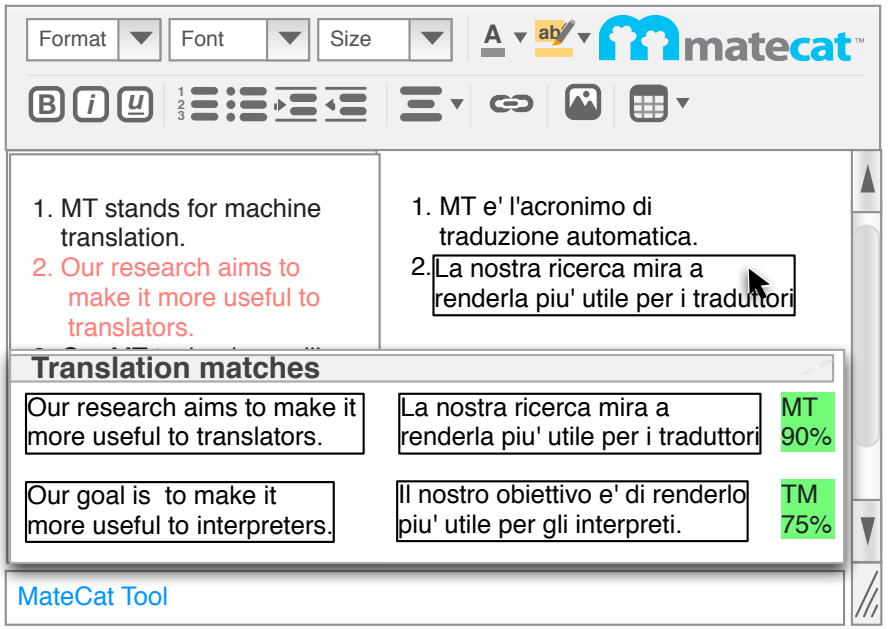
Online model adaptation

BLEU of baseline vs. user-adaptive system on increasing portions of two documents of English-Italian IT domain





Informative MT



Informative MT

MT and TM suggestions

Filtering and ranking

Source

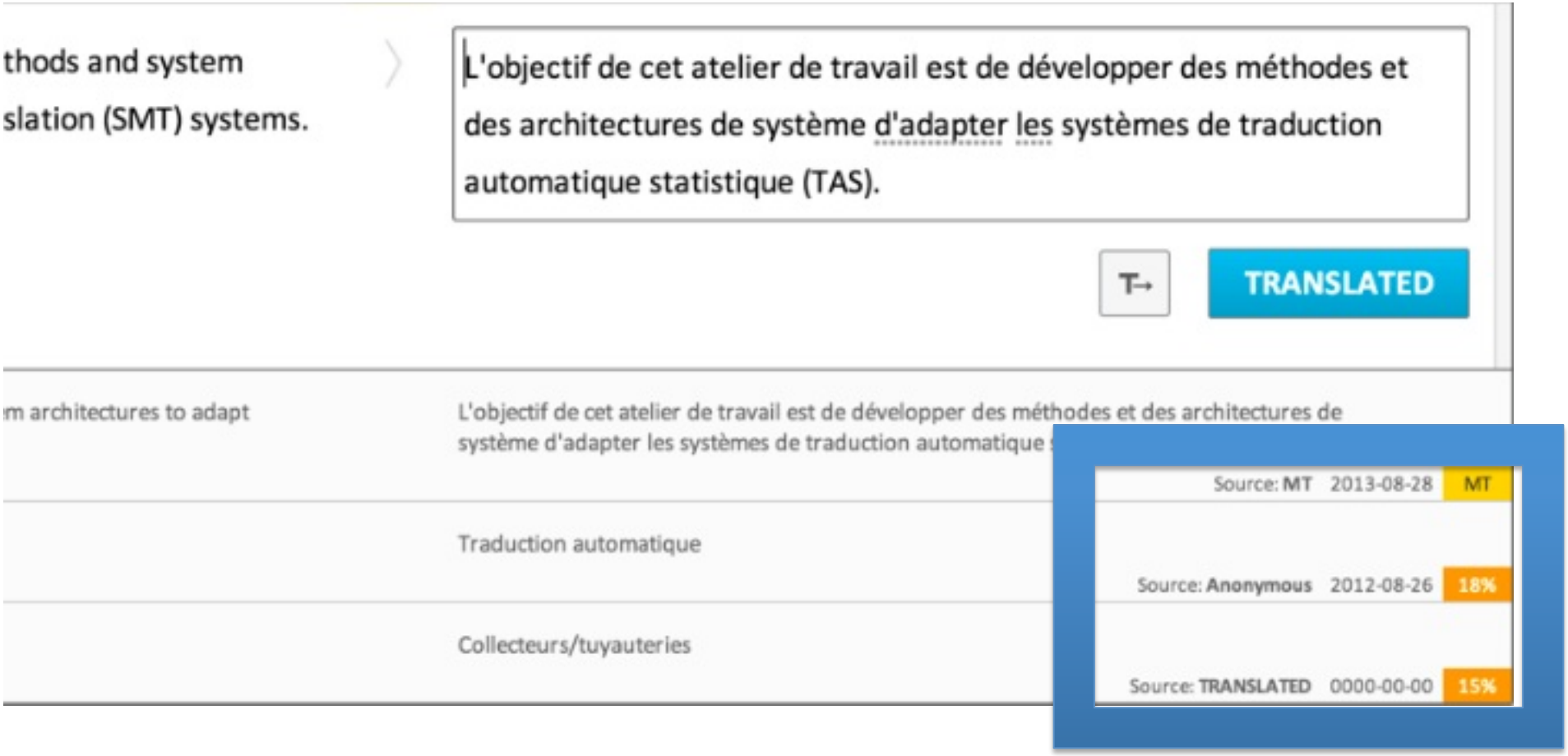
SRC | Our research aims to make it more useful to translators.

MT Server

MT decoder | QE engine

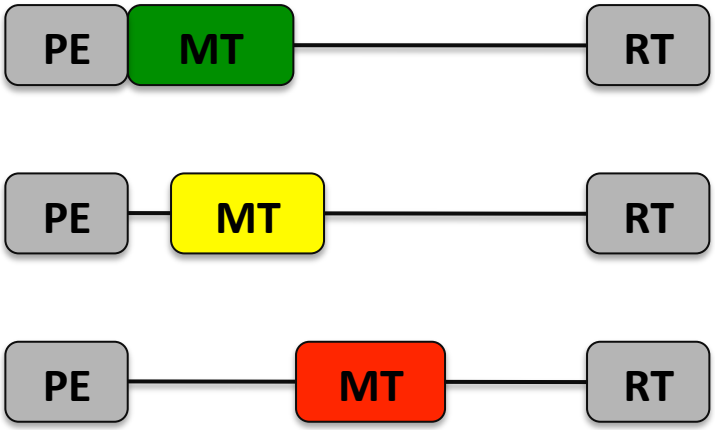
TM Server

Informative MT



What is a poor and what is a good MT suggestions?

Good translation: ***sim(TGT,PE) ≈ 1***



Wrong translation: ***sim(TGT,PE) ≈ sim(TGT,RT)***

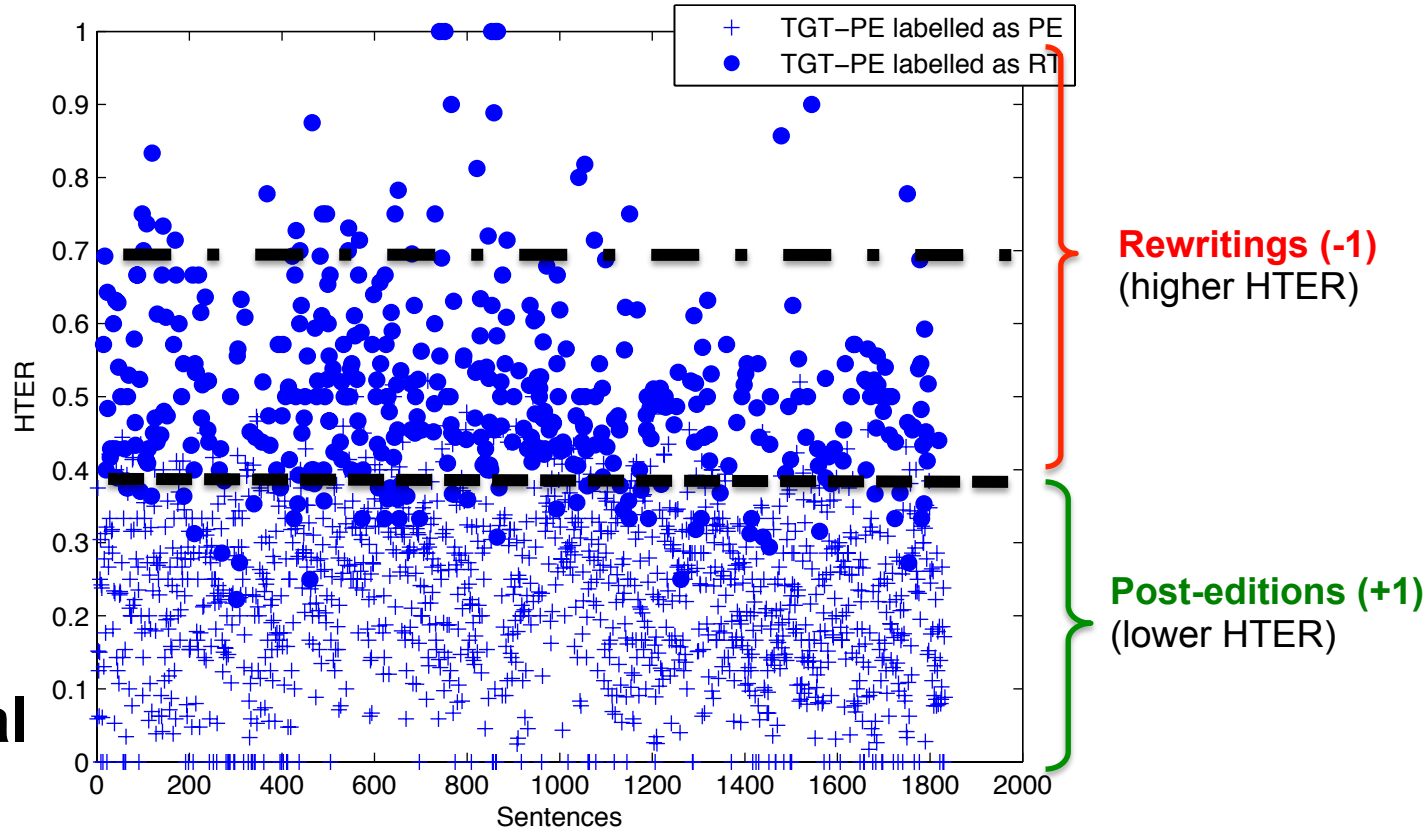
Then we can label training data[PE,MT,RF] with a classifier into good and poor MT examples!

Automatic data labeling

WMT-12 subjective threshold 0.7

~0.4

best empirical threshold



M.Turchi, M. Negri, M. Federico, "Data-driven Annotation of Binary MT Quality Estimation Corpora Based on Human Post-editions", MT Journal 2014.

Learning Algorithms

- Learning algorithms for:
  - regression: predict real values [HTER]
  - classification: predict labels [GOOD-BAD]
  - ranking: predict the rank of a set of items
- Not clear evidence that one works better than the others
- Conventional methods work in batch mode: training -> test
- Main problems to face:
  - achieving a “readable” model
  - over-fitting small samples of data with large feature sets

QE in practice

Large difference in performance between the ideal and real conditions!

	Document		Post-editor		SMT System		
	Training	**Test**	**Training**	**Test**	**Training**	**Test**	**MAE**
Real	**Doc A**	**Doc B**	**Alice**	**Bob**	**Sys1**	**Sys2**	0.2240
…	**Doc A**	**Doc B**	**Alice**	**Bob**	*Sys1*	*Sys1*	0.1542
…	**Doc A**	**Doc B**	*Alice*	*Alice*	*Sys1*	*Sys1*	0.1396
Ideal	*Doc A*	*Doc A*	*Alice*	*Alice*	*Sys1*	*Sys1*	0.1074

We need to adaptive QE!

No, we need to multi-task learning!

M. Turchi, A. Anastasopoulos, J.G. Camargo de Souza and M. Negri "**Adaptive Quality Estimation for Machine Translation**", Proc. ACL 2014.

J. G. Camargo de Souza, M. Turchi and M. Negri "**Predicting Machine Translation Quality Estimation Across Domains**",Proc. Coling 2014.

Summary

Integration of HT and MT introduces **new**:

- **operating conditions** for MT
  - incremental adaptation on batches of translations
  - online adaptation from user feedback
- **functional requirements** for MT
  - 5-7 seconds latency to pre-fetch next translation
  - **real-time** online adaptation and quality estimation
- **evaluation issues** for MT
  - simulated translation sessions (with references)
  - field tests comparing different translation conditions

Conclusions

- Seamless integration of human and machine translation is probably the most relevant and promising challenge for the field of machine translation
- Adaptive systems lower the operating cost of MT and improve utility and usability of technology.
- MateCat has delivered project and on-line adaptive MT
- MT software available under the Moses distribution!
- We are ready for an online demonstration now ….

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How to install the tool

Nicola Bertoldi - FBK

MateCAT is a STREP project funded by the EC (grant 287688) under the 7th Framework Programme (FP7-ICT-2011-7).

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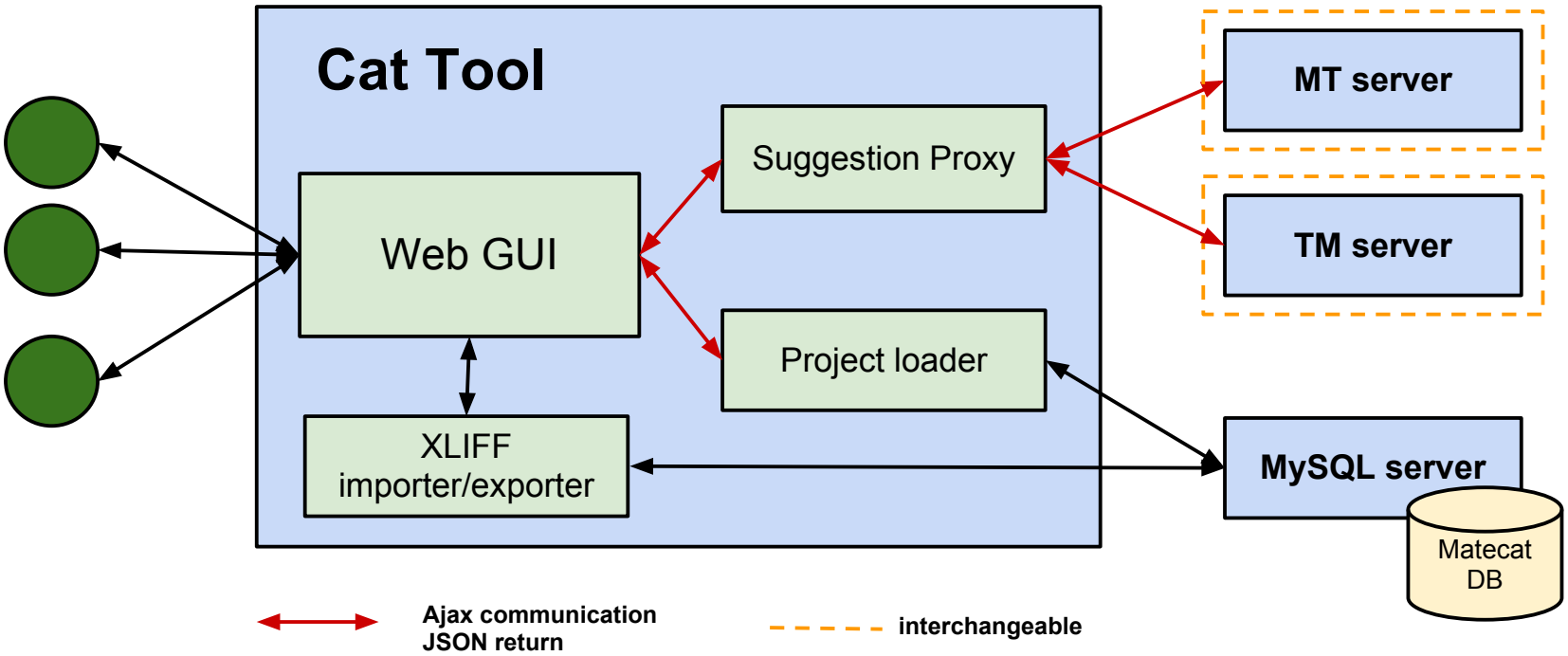
Outline

- Tool architecture
  - CAT tool
  - MySQL server
  - TM and MT server
- CAT tool
  - Installation and basic configuration
- MT server
  - Installation and basic configuration
- Advanced configuration

Tool architecture



MySQL DB server

- MySQL settings

URI	`mysql.server.url`
username	`matecat`
password	`matecat01`

TM server

- MyMemory-compliant REST APIs:

  http://mymemory.translated.net/doc/spec.php

```
http://api.mymemory.translated.net/get
```

```
http://api.mymemory.translated.net/set
```

TM server

```
http://api.mymemory.translated.net/get
```

Mandatory attributes:

q	text to translate
langpair	source and target languages (en|it, ISO 639-1)
user	name for identification
key	password for identification

TM server

```
http://api.mymemory.translated.net/set
```

Mandatory attributes:

seg	sentence to add in the source language
tra	sentence to add in the target language
langpair	source and target languages (en|it, ISO 639-1)
user	name for identification
key	password for identification

MT server

- Google-compliant REST API (version 2)

```
http://my.mtserver.url:8080/translate
```

- Additional API, mimicking MyMemory “set”

```
http://my.mtserver.url:8080/update
```

MT server

```
http://my.mtserver.url:8080/translate
```

Mandatory attributes:

q	text to translate
source	source language (ISO 639-1)
target	target language (ISO 639-1)
key	password for identification

MT server

```
http://my.mtserver.url:8080/update
```

Mandatory attributes:

segment sentence to add in the source language

translation sentence to add in the target language

source source language (ISO 639-1)

target target language (ISO 639-1)

key password for identification

CAT tool

CAT tool installation

- Guidelines and requirements:
  http://docs.matecat.com/installation-guide

  - Installation steps:
    1. Install git and clone the repository
    2. **Initialize the database**
    3. Create the virtual host
    4. Install the virtual host
    5. **Create and customize CAT tool configuration**
    6. Configure memory-cached location

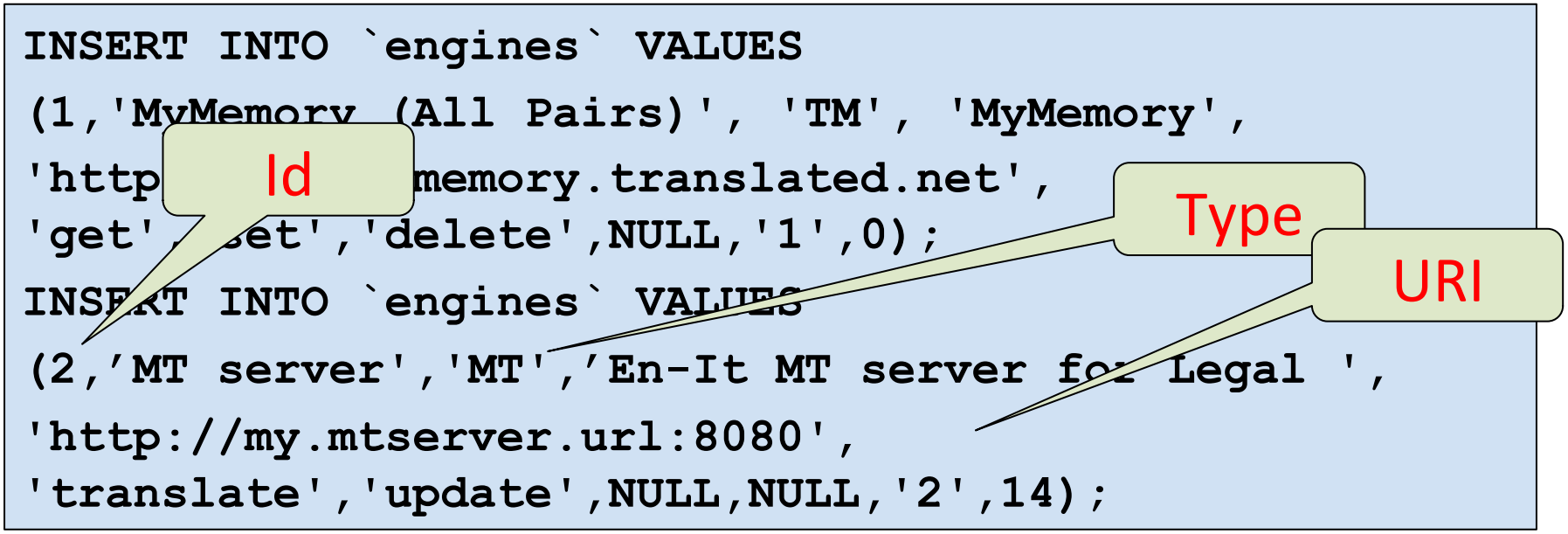
CAT tool installation

Initialize the database

```
$> cd /MATECAT/cattool/lib/model
```

```
$> gedit matecat.sql
```

```
INSERT INTO `engines` VALUES
(1,'MyMemory (All Pairs)', 'TM', 'MyMemory',
'http          memory.translated.net',
'get','set','delete',NULL,'1',0);
INSERT INTO `engines` VALUES
(2,'MT server','MT','En-It MT server for Legal ',
'http://my.mtserver.url:8080',
'translate','update',NULL,NULL,'2',14);
```



CAT tool installation

Create the Matecat DB

```
$> mysql -u root -p root_pw < matecat.sql
```

Handle carefully!
Use for the first installation only!

- The CAT tool is linked to one specific DB
- One TM and several MT server can be set

- Everything can be modified at any time (via mysql)

CAT tool installation

Test

```
$> mysql -u matecat -p matecat01
```

```
mysql> show databases;
```

mysql shell

```
+--------------------+
| Database           |
+--------------------+
| information_schema |
| matecat            |
| test               |
+--------------------+
```

CAT tool installation

Test

mysql shell

```
mysql> use matecat;
mysql> select * from engines;
```

```
+----+--- ... -----------------+---------+
| id | name       | type | description          |
base_url                              | ... | penalty|
+----+--- ... -----------------+---------+
|  1 | MyMemory   | TM   | MyMemory             ... |
http://mymemory.translated.net/api | ... |       0 |
|  2 | MT server | MT    | En-It MT server ... |
http://my.mtserver.url:8080    | ... |      14 |
+----+--- ... -----------------+---------+
```

CAT tool installation

Set Apache2 Web Server

```
$> cd /MATECAT/cattool/INSTALL
$> cp matecat-vhost-sample matecat-vhost
```

```
$> gedit matecat-vhost
```

URL
of CAT tool

```
ServerName my.matecat.tool
ServerAdmin admin@matecat.tool
```

```
@@@path@@@   /MATECAT/cattool
```

CAT tool configuration

```
$> cd /MATECAT/cattool/inc
$> cp config.inc.sample.php config.inc.php
```

```
$> gedit config.inc.php
```

```
self::$DB_SERVER = ”mysql.server.url"
self::$DB_DATABASE = ”matecat"
self::$DB_USER = ”matecat"
self::$DB_PASS = "matecat01"
```

CAT tool

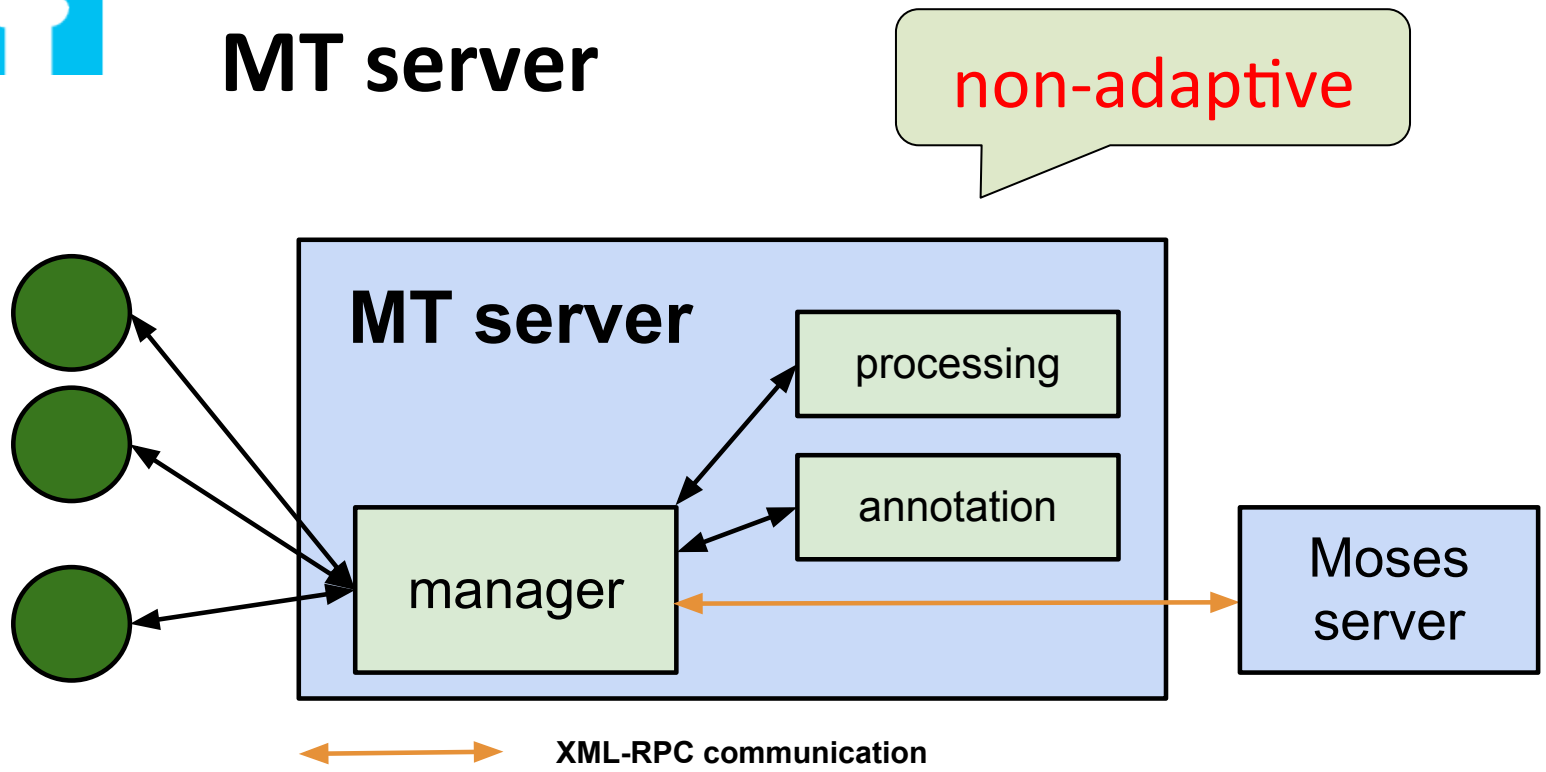
Open in Chrome

http://my.matecat.tool

Without MT support

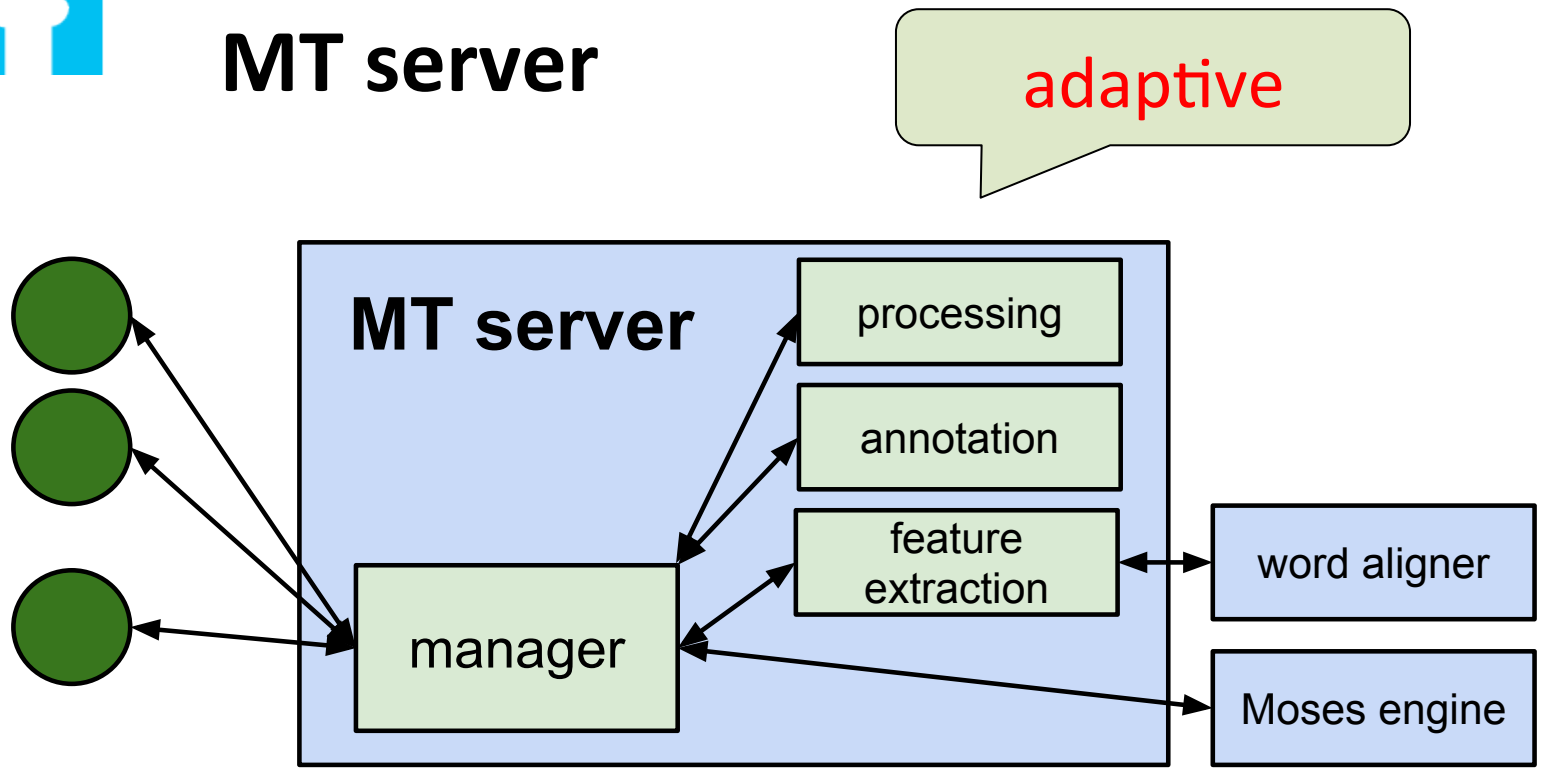
MT server

MT server



- asynchronous translation requests
- text processing and translation annotation
- Moses server can run remotely

MT server



- Moses engine runs locally
- Word aligner runs locally:
  - pivot-based, onlineMgiza++

Non-adaptive MT server

Moses configuration

non-adaptive

Download example models

```
$> cd /MATECAT
$> wget
   www.matecat.com/download/sample_models.zip
```

Install example models

```
$> unzip sample_models.zip
$> cd models
$> cp template_moses.ini moses.ini
```

Moses configuration

non-adaptive

Configure Moses

```
$> gedit moses.ini
```

Change all occurrences of @@@PATH@@@
to the current location of the models

Change parameters
according to your preferences

Moses configuration

non-adaptive

Test Moses

```
$> ${MOSES_ROOT}/bin/moses -f models/moses.ini
```

```
European Parliament
```

Enter a source text according to models

```
Parlamento europeo
```

Expected output

MT server installation

Operating systems

- Linux (Ubuntu, RedHat)
- Mac OSx (10.6 or higher)

Third–party software:

- Moses, featuring XMLRPC, Boost
- Python 2.7 (or higher)
- Perl 5.10 (or higher)
- Bash 3.2 (or higher)
- word-aligner (onlineMGIZA++), for adaptive version only

MT server installation

non-adaptive

Download:

```
$> cd /MATECAT
$> wget
   www.matecat.com/download/mtserver.zip
$> tar xzf mtserver.zip
```

Main directory of MT server

MT server installation

non-adaptive

Configure Moses server

```
$> cd /MATECAT/mtserver
$> cp template_server.config server.config
```

MT server installation

non-adaptive

```
$> edit server.config
```

```
MOSES_ROOT=/MOSES
MOSES_MODELS=/MATECAT/models
MOSES_URL=my.mosesserver.url
MOSES_PORT=7777
MOSES_LOG=/MATECAT/mtserver/log
```

Full path

Moses server remote URL

Port

```
XMLRPC_ROOT=/XMLRPC
```

If not static-linked

```
$> source server.config
```

MT server installation

non-adaptive

Start Moses server

```
$> python_server/start-mosesserver.sh
```

```
Defined parameters (per moses.ini or switch)
...
...
Listening on port 7777
```

Waiting for input from client

Expected output

MT server installation

non-adaptive

Test Moses server

```
$> gedit python_server/testing/moses_client.py
```

```
text = u"European Parliament"
```

Source text according to models

From another shell

```
$> source server.config
$> python_server/testing/moses_client.py
```

```
Parlamento europeo
```

Expected output

MT server installation

non-adaptive

Configure MT server

```
$> edit server.config
```

```
MTSERVER_ROOT=/MATECAT/mtserver
MTSERVER_URL=0.0.0.0
MTSERVER_PORT=8080
MTSERVER_SRCLNG=en
MTSERVER_TGTLNG=it
```

Full path

accepts queries from

Port

```
$> source server.config
```

MT server installation

non-adaptive

Start MT server

```
$> python_server/start-mtserver.sh
```

```
loading external source processors ...
loading external target processors ...
...
[date:time] ENGINE Serving on
my.mtserver.url:8080
...
```

Waiting for input from client

Expected output

MT server installation

non-adaptive

Source text according to models

Test MT server

```
$> curl  --data q='European Parliament.'
   --data source='en' -data target='it'
   --data key='DUMMY'
   http://my.matecat.tool:8080/translate
```

Expected output in JSON format

```
{ "data":
 { "translations":
  [ { "sourceText": "European Parliament.",
      "translatedText": "Parlamento europeo.",
      "tokenization": {"src": [[0,7],[9,18],[19,19]],
                       "tgt": [[0,9],[11,17],[18,18]]}}]
...
```

Adaptive MT server

Moses configuration

adaptive

Configure Moses

```
$> cd models
$> cp template_moses-adaptive.ini moses-adaptive.ini
$> gedit moses-adaptive.ini
```

Change all occurrences of @@@PATH@@@
to the current location of the models

Change parameters
according to your preferences

Moses configuration

adaptive

Test Moses

```
$> ${MOSES_ROOT}/bin/moses -f models/moses.ini
```

```
European Parliament
```

Enter a source text according to models

```
Parlamento europeo
```

Expected output

Moses configuration

adaptive

Test Moses

```
$> ${MOSES_ROOT}/bin/moses -f models/moses-adaptive.ini
```

```
<dlt type="cbtm" id="MYCBTM0" cbtm="Parliament|||parlamento">
<dlt type="cblm" id="MYCBLM0" cblm="|||parlamento">
European Parliament
```

```
parlamento europeo
```

Feature extraction configuration

adaptive

Download models for feature extraction (based on MGIZA++)

```
$> cd /MATECAT
$> wget
   www.matecat.com/download/sample_updater.zip
```

Install models

```
$> unzip sample_updater.zip
$> cd updater
$> cp template_updater.ini updater.ini
```

Feature extraction configuration

adaptive

Configure feature extraction

```
$> gedit updater.ini
```

```
mgiza_path = /MGIZA
extractor_path = /MOSES/bin/extract
```

Change all occurrences of
@@@SRC2TRG@@@, @@@TRG2SRC@@@, @@@PATH@@@
according to the languages and the models

Change parameters
according to your preferences

Feature extraction configuration

adaptive

```
$> gedit SRC2TRG_gizacfg.online
$> gedit TRG2SRC_gizacfg.online
```

Change all occurrences of @@@PATH@@@ according to the models

MT server installation

adaptive

Download:

```
$> cd /MATECAT
$> wget
   www.matecat.com/download/mtserver-adaptive.zip
$> tar xzf mtserver-adaptive.zip
```

Main directory of MT server

MT server installation

adaptive

Configure MT server

```
$> cd /MATECAT/mtserver-adaptive
$> cp template_server-adaptive.config
server-adaptive.config
```

MT server installation

adaptive

Configure Moses

```
$> edit server-adaptive.config
```

```
MOSES_ROOT=/MOSES
MOSES_MODELS=/MATECAT/models
MOSES_THREADS=2
MOSES_CONFIG=/MATECAT/models/moses-
adaptive.ini
MOSES_LOG=/MATECAT/mtserver-adaptive/log
```

```
$> source server-adaptive.config
```

MT server installation

adaptive

Configure feature extraction

```
$> edit server-adaptive.config
```

```
UPDATER_MODELS=/MATECAT/updater
UPDATER_CONFIG=/MATECAT/updater/
updater.ini
```

```
$> source server-adaptive.config
```

MT server installation

adaptive

Configure MT server

```
$> edit server-adaptive.config
```

```
MTSERVER_ROOT=/MATECAT/mtserver
MTSERVER_URL=0.0.0.0
MTSERVER_PORT=8080
MTSERVER_SRCLNG=en
MTSERVER_TGTLNG=it
```

```
$> source server-adaptive.config
```

MT server installation

adaptive

Start MT server

```
$> SERVER/start-mtserver-adaptive.sh
```

```
...
[date:time] ENGINE Serving on 0.0.0.0:8080
[date:time] ENGINE Bus STARTED
...
```

Waiting for input from client

Expected output

MT server installation

adaptive

Source text according to models

Test MT server (translate)

```
$> curl  --data q='European Parliament.'
   --data source='en' -data target='it'
   --data key='DUMMY'
   http://my.matecat.tool:8080/translate
```

Expected output in JSON format

```
{ "data":
 { "translations":
  [ { "segmentID": "0000",
      "translatedText": "parlamento europeo.",
      "systemName": "system_adaptive",
      "phraseAlignment": [[[0-1], [0, 1]], …
```

MT server installation

adaptive

Test MT server (update)

Source text and post-edit

```
$> curl
   --data segment='European Parliament.'
   --data translation='Parlamento Europeo.'
   --data source='en' -data target='it'
   --data key='DUMMY'
   http://my.matecat.tool:8080/update
```

Expected output in JSON format

```
{"data":
 {"code": "0",
  "systemName": "system_adaptive",
  "string": "OK", ...}}
```

Open in Chrome

http://my.matecat.tool

Enjoy!