Results of the WMT16 Tuning Shared Task

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Overview

- **Summary of Tuning Task**
- **Updates in 2016 edition**
- **Results**

Tuning Task

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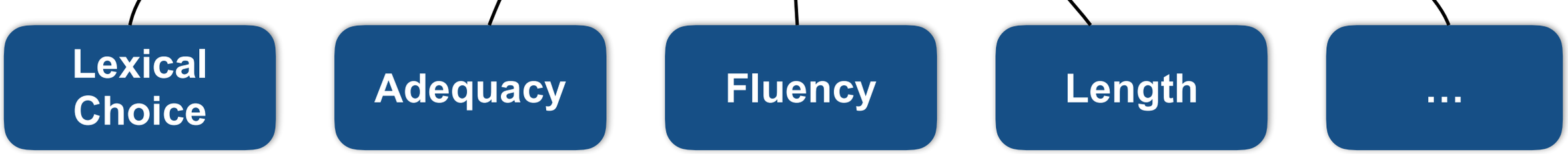

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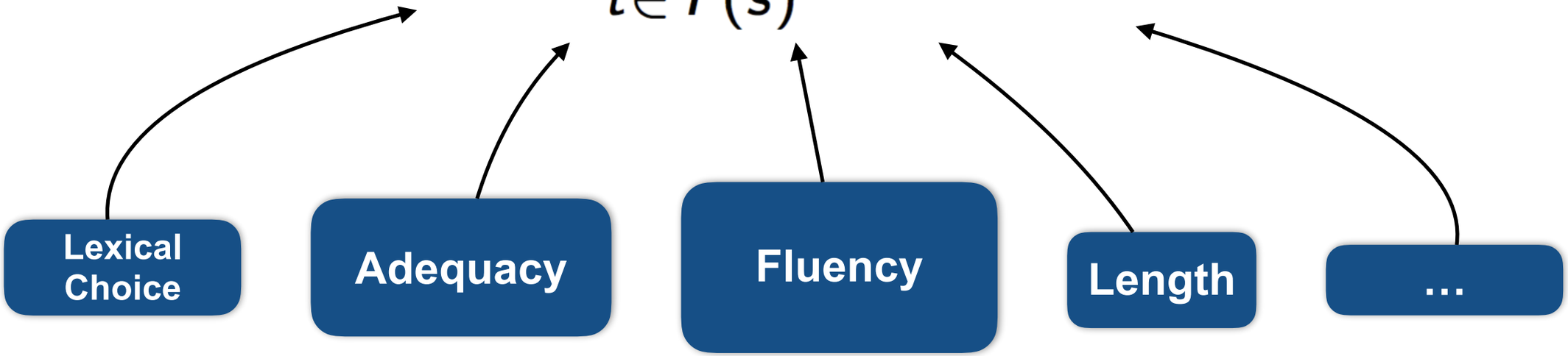

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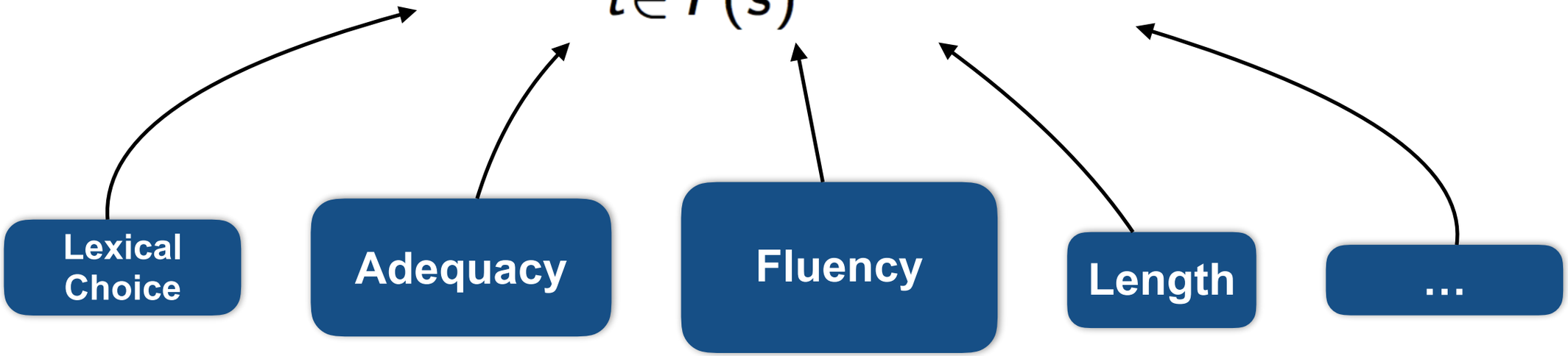

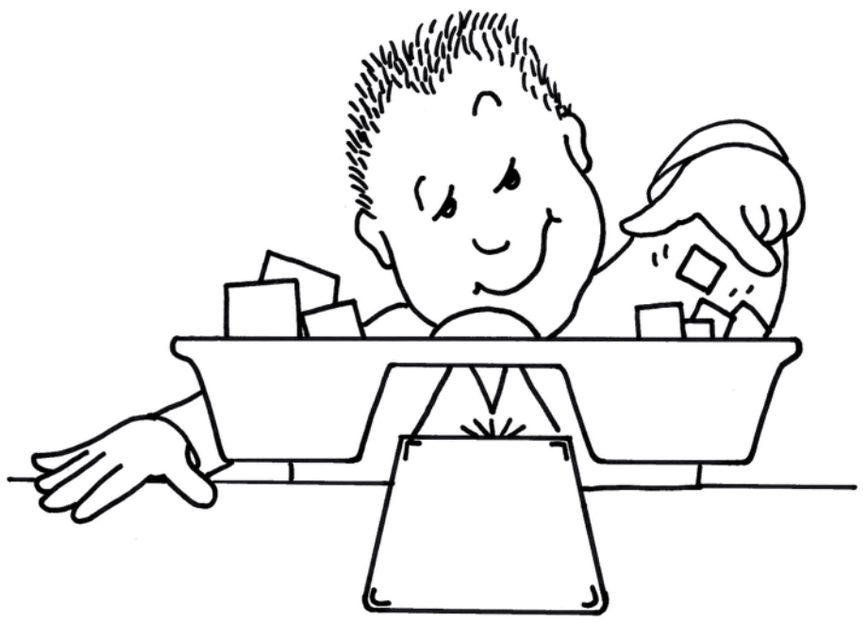

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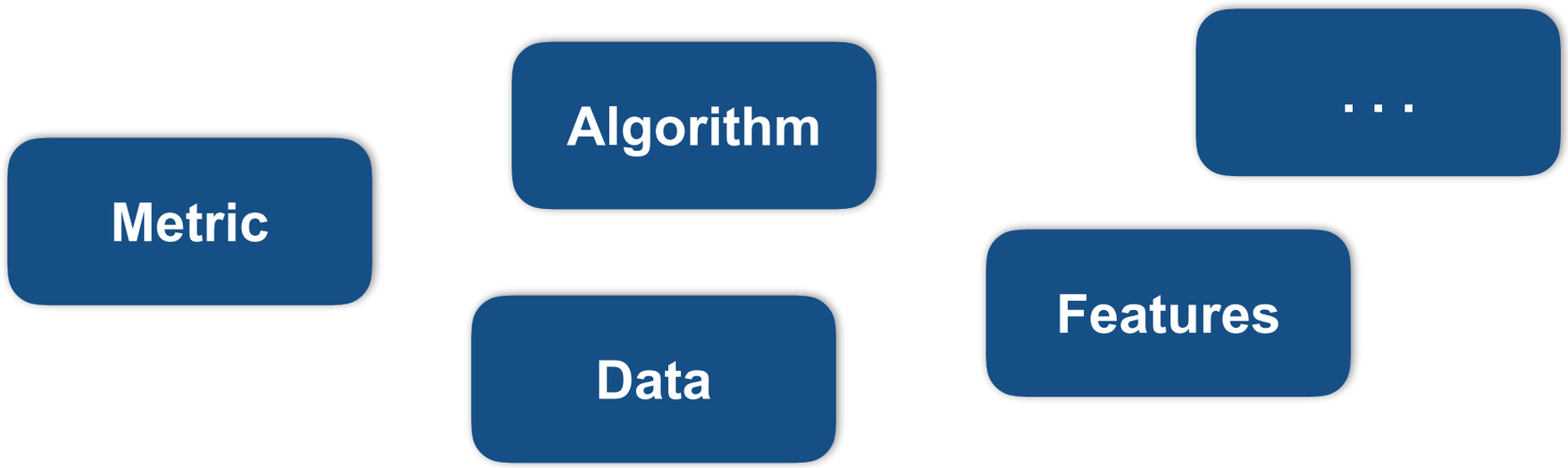

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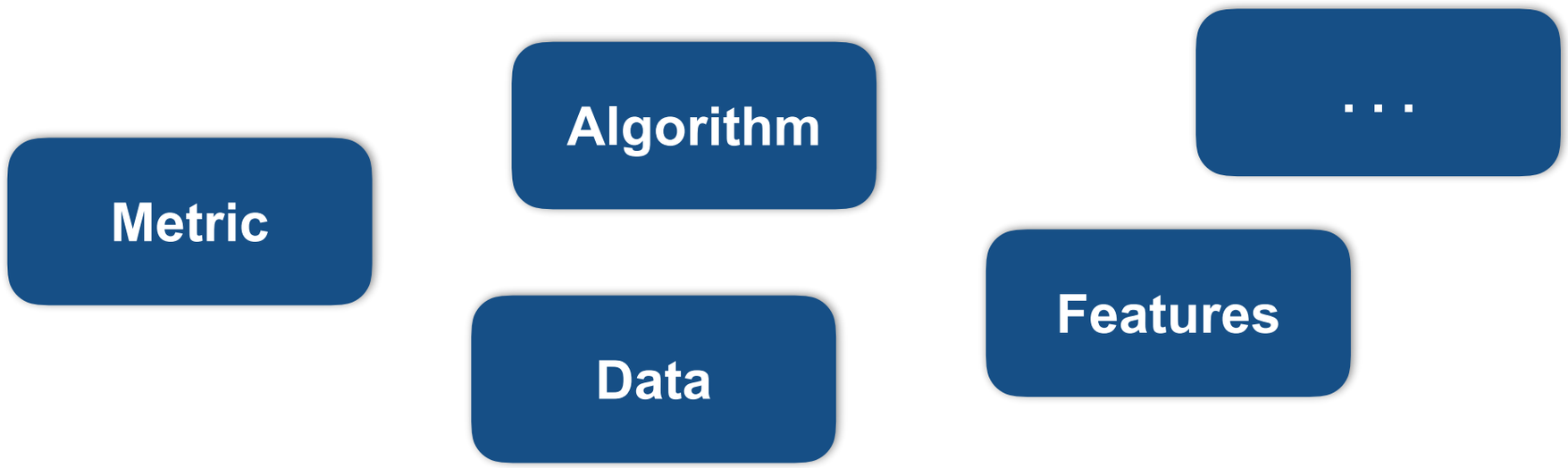

This task is organized to explore the tuning options in a controlled settings

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- **In constrained version 2.5K sentence pairs were available for tuning.**
- **Constrained version allowed only dense features.**
- **Any tuning algorithm or metric tuning was allowed (even manually setting weights)**

Data used for training

	Source	Sentences		Tokens		Types	
		cs	en	cs	en	cs	en
LM Corpora	Europarl v7, News Commentary v11, News Crawl (2007-15), News Discussion v1	54M	206M	900M	4409M	2.1M	3.2M
TM Corpora	CzEng 1.6 pre for WMT16	44M		501M	20.8M	1.8M	1.2M
Dev Set	newstest2015	2656		51K	60K	19K	13K
Test Set	newstest2016	2999		56.9K	65.3K	15.1K	8.8K

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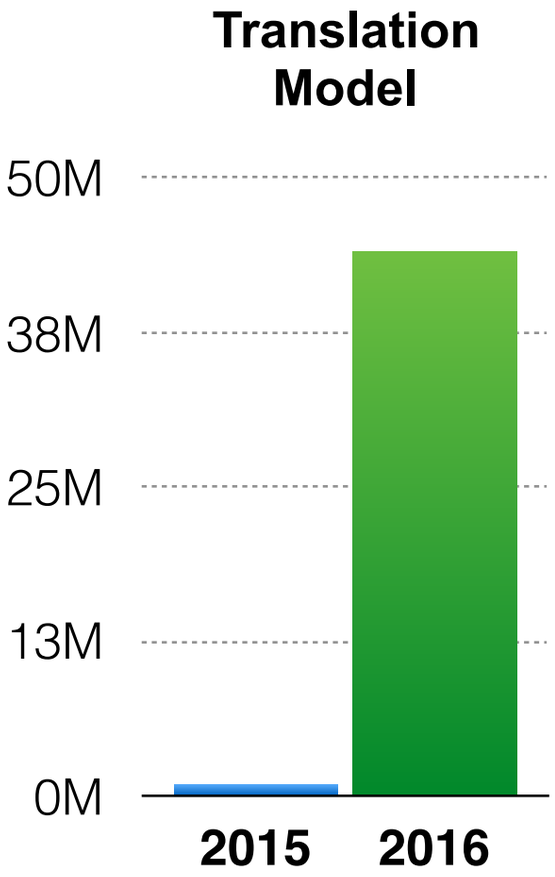

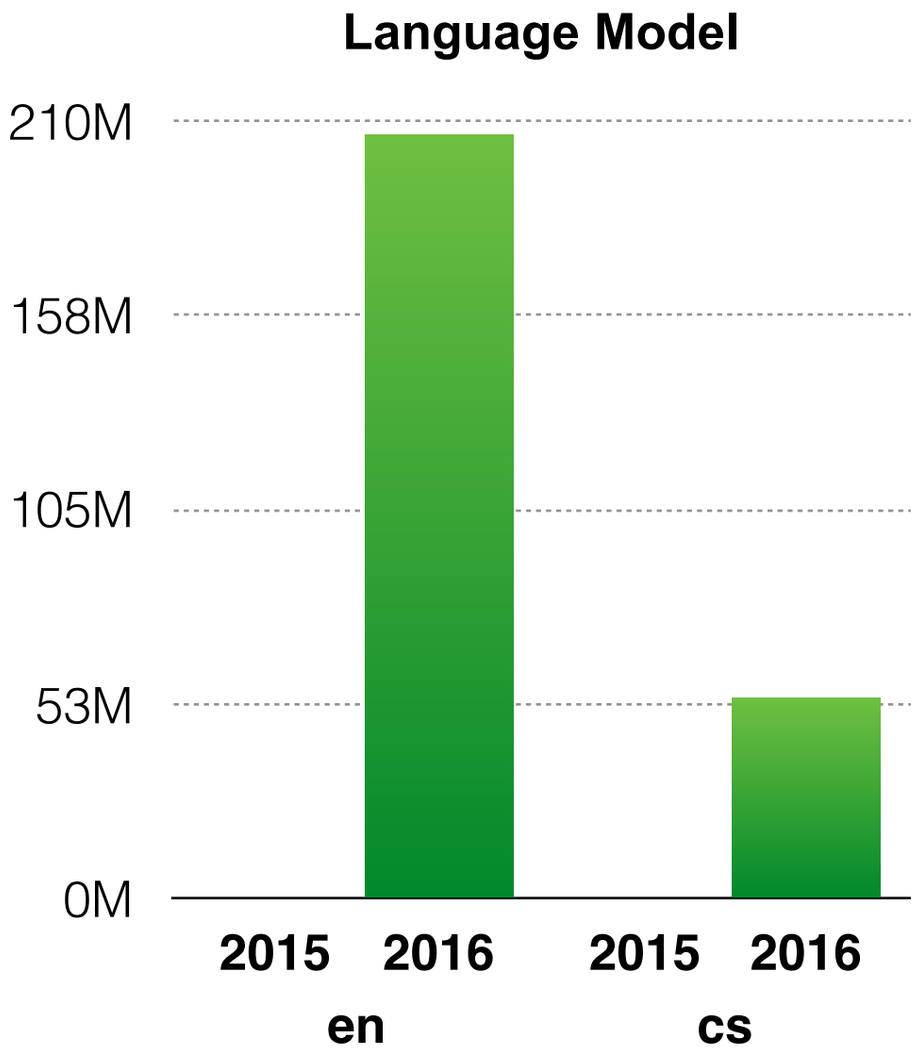

Comparison of data sizes (# of sentence pairs) 2015 vs 2016

Participants

- **From 6 research groups we received, 4 submissions for Czech-English, 8 submissions for English-Czech**

- **2 Baselines**

System	Participant
bleu-MIRA, bleu-MERT	Baselines
AFRL	United States Air Force Research Laboratory
DCU	Dublin City University
FJFI-PSO	Czech Technical University in Prague
ILLC-UvA-BEER	ILLC – University of Amsterdam
NRC-MEANT, NRC-NNBLEU	National Research Council Canada
USAAR	Saarland University

Czech-English Results

System Name	True Skill Score	BLEU
BLEU-MIRA	0.114	22.73
AFRL	0.095	22.90
NRC-NNBLEU	0.090	23.10
NRC-MEANT	0.073	22.60
ILLC-UvA-BEER	0.032	22.46
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- **Manual evaluation of tuning systems can draw only very few clear division lines.**
- **KBMIRA turns out to consistently be better than MERT.**

English-Czech Results

System Name	True Skill Score	BLEU
BLEU-MIRA	0.160	15.12
ILLC-UvA-BEER	0.152	14.69
BLEU-MERT	0.151	14.93
AFRL2	0.139	14.84
AFRL1	0.136	15.02
DCU	0.134	14.34
FJFI-PSO	0.127	14.68
USAAR-HMM-MERT	-0.433	7.95
USAAR-HMM-MIRA	-1.133	0.82
USAAR-HMM	-1.327	0.20

Comparison with main translation task

Czech–English

#	score	range	system
1	0.62	1	UEDIN-NMT
2	0.32	2	JHU-PBMT
3	0.21	3	ONLINE-B
4	0.11	4-6	TT-BLEU-MIRA
	0.10	4-7	TT-AFRL
	0.09	4-7	TT-NRC-NNBLEU
	0.07	5-8	TT-NRC-MEANT
	0.03	7-10	TT-BEER-PRO
	0.00	8-10	PJATK
	0.00	8-10	TT-BLEU-MERT
5	−0.07	11	ONLINE-A
6	−1.48	12	CU-MRGTREES

2016

Czech–English

#	score	range	system
1	0.619	1	ONLINE-B
2	0.574	2	UEDIN-JHU
3	0.532	3-4	UEDIN-SYNTAX
	0.518	3-4	MONTREAL
4	0.436	5	ONLINE-A
5	-0.125	6	CU-TECTO
6	-0.182	7-9	TT-BLEU-MIRA-D
	-0.189	7-10	TT-ILLC-UVA
	-0.196	7-11	TT-BLEU-MERT
	-0.210	8-11	TT-AFRL
	-0.220	9-11	TT-USAAR-TUNA
7	-0.263	12-13	TT-DCU
	-0.297	13-15	TT-METEOR-CMU
	-0.320	13-15	TT-BLEU-MIRA-SP
	-0.320	13-15	TT-HKUST-MEANT
	-0.358	15-16	ILLINOIS

2015

Comparison with main translation task

English–Czech

#	score	range	system
1	0.59	1	UEDIN-NMT
2	0.43	2	NYU-MONTREAL
3	0.34	3	JHU-PBMT
4	0.30	4-5	CU-CHIMERA
	0.30	4-5	CU-TAMCHYNA
5	0.22	6-7	UEDIN-CU-SYTX
	0.19	6-7	ONLINE-B
6	0.16	8-11	TT-BLEU-MIRA
	0.15	8-12	TT-BEER-PRO
	0.15	8-13	TT-BLEU-MERT
	0.14	9-14	TT-AFRL2
	0.14	9-14	TT-AFRL1
	0.13	9-14	TT-DCU
	0.13	11-14	TT-FJFI
7	0.08	15	ONLINE-A
8	−0.03	16	CU-TECTOMT
9	−0.43	17	TT-USAAR-HMM-MERT
10	−0.54	18	CU-MRGTREES
11	−1.13	19	TT-USAAR-HMM-MIRA
12	−1.33	20	TT-USAAR-HARM

2016

English–Czech

#	score	range	system
1	0.686	1	CU-CHIMERA
2	0.515	2-3	ONLINE-B
	0.503	2-3	UEDIN-JHU
3	0.467	4	MONTREAL
4	0.426	5	ONLINE-A
5	0.261	6	UEDIN-SYNTAX
6	0.209	7	CU-TECTO
7	0.114	8	COMMERCIAL1
8	-0.342	9-11	TT-DCU
	-0.342	9-11	TT-AFRL
	-0.346	9-11	TT-BLEU-MIRA-D
9	-0.373	12	TT-USAAR-TUNA
10	-0.406	13	TT-BLEU-MERT
11	-0.563	14	TT-METEOR-CMU
12	-0.808	15	TT-BLEU-MIRA-SP

2015

Conclusion

- **The task was much larger this year.**
- **Task attracted good participation like last year.**
- **The quality of most submitted systems is hard to distinguish manually.**
- **With large models, the few parameters are most likely not powerful enough (and sadly nobody tried discriminative features)**
- **The results confirm that KBMIRA with the standard features optimized towards BLEU should be preferred over MERT.**