

Multi-way MT

Firat et al. 2016 (two papers)

	Size	Single	Single+DF	Multi
En→Fi	100k	5.06/3.96	4.98/3.99	6.2/ 5.17
	200k	7.1/6.16	7.21/6.17	8.84/ 7.53
	400k	9.11/7.85	9.31/8.18	11.09/ 9.98
	800k	11.08/9.96	11.59/10.15	12.73/ 11.28
De→En	210k	14.27/13.2	14.65/13.88	16.96/ 16.26
	420k	18.32/17.32	18.51/17.62	19.81/ 19.63
	840k	21/19.93	21.69/20.75	22.17/ 21.93
	1.68m	23.38/23.01	23.33/22.86	23.86/ 23.52
En→De	210k	11.44/11.57	11.71/11.16	12.63/ 12.68
	420k	14.28/14.25	14.88/15.05	15.01/ 15.67
	840k	17.09/17.44	17.21/17.88	17.33/ 18.14
	1.68m	19.09/19.6	19.36/20.13	19.23/ 20.59

Low-resource **simulation**
(using high-resource
European languages)

Table 2: BLEU scores where the target pair's parallel corpus is constrained to be 5%, 10%, 20% and 40% of the original size. We report the BLEU scores on the development and test sets (separated by /) by the single-pair model (Single), the single-pair model with monolingual corpus (Single+DF) and the proposed multi-way, multilingual model (Multi).