

| hyperparameter                          | system |      |      |     |     |        |     |
|---|--------|------|------|-----|-----|--------|-----|
|   | 2      | 3    | 5    | 6   | 7   | 8      | 9   |
| hidden layer size                       | 1024   |      |      |     |     |        |     |
| embedding size                          | 512    |      |      |     |     |        |     |
| encoder depth                           | 1      | 2    |      |     |     | 1      |     |
| encoder recurrence transition depth     | 1      | 2    |      |     |     |        |     |
| decoder depth                           | 1      | 2    |      |     |     | 1      |     |
| dec. recurrence transition depth (base) | 2      | 4    |      |     |     | 2      |     |
| dec. recurrence transition depth (high) | -      | 2    |      |     |     | -      |     |
| tie decoder embeddings                  | -      | yes  |      |     |     |        |     |
| layer normalization                     | -      | yes  |      |     |     |        |     |
| lexical model                           | -      |      |      | yes | -   |        | yes |
| hidden dropout                          | -      | 0.2  |      |     | 0.5 |        |     |
| embedding dropout                       | -      | 0.2  |      |     | 0.5 |        |     |
| source word dropout                     | -      | 0.1  |      |     | 0.3 |        |     |
| target word dropout                     | -      |      |      |     | 0.3 |        |     |
| label smoothing                         | -      | 0.1  |      |     |     | 0.2    |     |
| maximum sentence length                 | 200    |      |      |     |     |        |     |
| minibatch size (# tokens)               | 4000   |      | 1000 |     |     |        |     |
| learning rate                           | 0.0001 |      |      |     |     | 0.0005 |     |
| optimizer                               | adam   |      |      |     |     |        |     |
| early stopping patience                 | 10     |      |      |     |     |        |     |
| validation interval:                    |        |      |      |     |     |        |     |
| IWSLT 100k / 200k / 400k                | 50     | 100  | 400  |     |     |        |     |
| IWSLT $\geq$ 800k / KO-EN 2.3M          | 1000   | 2000 | 8000 |     |     |        |     |
| beam size                               | 5      |      |      |     |     |        |     |

Table 5: Configurations of NMT systems reported in Table 2. Empty fields indicate that hyperparameter was unchanged compared to previous systems.