

Appendices

A Example of Learner Guesses vs. Model Predictions

To give a sense of the problem difficulty, we have hand-picked and presented two training samples (see Figure 7) with our basic model’s predictions. In Figure 7a a large portion of the sentence has been revealed to the user in English (blue text) only 2 words are in German. The text in bold font is the user’s guess. Our model expected both words to be guessed; the predictions are listed below the German words *Verschiedene* and *Regierungen*. The reference translation for the 2 words are *Various* and *governments*. In figure 7b we see a much harder context where only one word is shown in English, furthermore the revealed word is not particularly helpful as a contextual anchor.

User's guess:	BLANK	countries
Macaronic : Sentence	Verschiedene groups are fighting against the Regierungen of Afghanistan and Pakistan .	
Predictions:	different -3.2990 together -3.591 decided -6.0850 considered -6.2010 parliament -6.3400	countries -3.9482 border -4.2853 regions -6.2433 legitimate -6.3764 region -6.4340

(a)

User's guess:	party	BLANK	BLANK	night	and	day .
Macaronic : Sentence	Therefore paare durften nur noch ein Kind .					
Predictions:	farther -3.9933 are -4.6289 far -4.9615 car -5.1015 bar -5.1958	giving -4.6720 often -5.0708 driven -5.7605 european -5.8506 garden -6.0132	news -2.2157 nor -4.5056 near -4.5816 tour -4.6186 sure -4.9564	not -4.4239 touch -4.4329 such -4.4793 much -4.5182 watch -4.6984 ... night -5.6919	ein -2.8807 in -4.6859 line -4.9601 fine -5.0726 on -5.0852	kind -3.1842 find -3.6891 mind -3.7672 wind -3.9125 bind -4.4913

(b)

Figure 7: Two examples of the system’s predictions of what the user will guess on a single submission, contrasted with the user’s actual guess. (The user’s previous submissions on the same task instance are not shown.) In 7a, the model correctly expects that the substantial context will inform the user’s guess. In 7b, the model predicts that the user will fall back on string similarity. The numbers shown are log-probabilities. Both examples show the sentences in a macaronic state (after some reordering or translation has occurred). For example, the original text of the German sentence in 7b reads “Deshalb durften die Paare nur noch ein Kind bekommen.” The macaronic version has undergone some reordering, and has also erroneously dropped the verb due to an incorrect alignment.