

# Multilingual Verbalisation of Knowledge Graphs

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## Abstract

Most work on Knowledge Graph (KG) verbalisation is monolingual leaving open the question of how to scale KG-to-Text generation to languages with varying amounts of resources. In this work, we explore KG-to-Text generation on nine languages including five high-resource languages (*HRL*; *English, Chinese, French, Spanish, Russian*) and four low-resource languages (*LRL*; *Breton, Irish, Maltese, Welsh*). We first construct silver multilingual training data for all nine languages and new gold out-of-domain test data for the five HR languages. Using this data and already available in-domain test sets for 7 of our 9 languages, we then compare three strategies: (1) NLG+MT—a state-of-the-art KG-to-English model followed by Machine Translation (MT) into the target language; (2) FTMT—multilingual MT models fine-tuned end-to-end on the silver data; and (3) FEWSHOT—few-shot LLM prompting comparing 4 LLMs. We explore different prompting strategies and show that our best prompting strategy performs the best on all 9 languages, discussing the relative performance of the three approaches on Low vs High Resource languages and on in- vs out-of-domain data. The models, the test set, and the silver training data are available at <https://github.com/MeloS7/Multi-Lang-KG-Verbalization>.

## 1 Introduction

Knowledge Graphs (KG) encode knowledge about the world by recording facts i.e., triples of the form  $(e1, p, e2)$  with  $e1, e2$  some entities or values (dates, quantities etc.) and  $p$  a binary relation also often referred to as a property. KG-to-Text generation is the task of converting Knowledge Graphs into text. Figure 1 shows an example KG graph and its verbalisation.

Previous work on KG-to-Text generation has mainly focused on monolingual approaches, most of them targeting English (Schmitt et al., 2021,

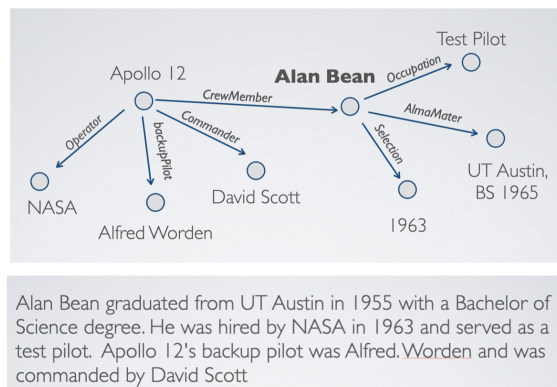


Figure 1: Example KG/Text pair with a Knowledge Graph from the DBpedia Knowledge Base and an English text illustrating a possible verbalisation of the KG.

2020; Yuan and Faerber, 2023; Yin and Wan, 2022; Schmitt et al., 2021, 2020; Koncel-Kedziorski et al., 2019; Li et al., 2021; Duma and Klein, 2013). Two key reasons for this are (i) the lack of naturally occurring parallel KG/Text data for testing and training and (ii) the fact that KG-to-Text generation models are usually trained or fine-tuned on such data.

In this work, we address both these issues. On the one hand, we create multilingual silver training data and gather or create gold test data for KG-to-Text generation into 9 languages: English (en), Spanish (es), French (fr), Chinese (zh), Russian (ru), Breton (br), Irish (ga), Maltese (mt), and Welsh (cy). On the other hand, we explore three alternative models for KG-to-Text generation: a hybrid model which does not require multilingual training data as it combines KG-to-English generation with machine translation (MT) from English into the target languages; direct generation where selected MT models are fine-tuned on silver multilingual training data to generate from an input graph; and few-shot LLM prompting, which does not require training data but uses a retrieval base for few shot extraction.

Our contributions can be summarised as follows.

**(i) Data.** We create  $\sim 35\text{K}$  multilingual KG/Text pairs for 9 target languages by aligning graphs with machine-translated verbalizations. This silver dataset is used both as a retrieval base for few-shot selection and as training data for fine-tuning machine translation models on the KG-to-Text task. In addition, we introduce a new out-of-domain test set for 5 High-Resource (HR) languages and gather existing in-domain test sets for 3 HR and 4 Low-Resource (LR) languages, supporting a broad evaluation setting.

**(ii) Models and Benchmark.** We conduct the first systematic comparison of three major paradigms for multilingual KG-to-Text generation: a hybrid pipeline combining KG-to-English generation with machine translation (NLG+MT); direct generation with fine-tuned MT models (FTMT); and few-shot LLM prompting (FEWSHOT). For the few-shot setting, we explore LLMs from different families (Llama vs. Qwen) and different sizes (7/8B vs. 70/72B), and we introduce a heuristic-based dynamic prompting strategy that retrieves target-language examples from silver data, going beyond English-only prompts.

**(iii) Results.** Our experiments show that the LLM prompting approach works best overall and that performance markedly decreases on Low-Resource languages.

## 2 Related Work

KG-to-Text Generation has been extensively studied in the context of the WebNLG shared tasks (Gardent et al., 2017; Castro Ferreira et al., 2020; Cripwell et al., 2023) which provides training and/or test data for English, Russian, and Low-Resource Languages (Breton, Welsh, Maltese, Irish).

For English and Russian, the best models are either trained or fine-tuned on WebNLG data (Gardent et al., 2017; Castro Ferreira et al., 2020). More recent work has also started investigating LLMs. Yuan and Faerber (2023) found that ChatGPT and GPT3 perform poorly on the English WebNLG 2017 test set when compared with the best performing models from WebNLG 2017. Axelsson and Skantze (2023) shows that zero-shot generation with ChatGPT achieves near state-of-the-art performance on some measures of the WebNLG 2020 challenge, but falls behind on others. Additionally, they compare factual, counter-factual and fictional

statements showing that there is a significant connection between seen data (data that is available on the web) and the quality of the output text.

For the LR languages, since no gold training data is available, approaches are either grammar-based (Mille et al., 2023), hybrid KG-to-English generation+Machine Translation (Kumar et al., 2023) or LLM-Based approaches (Lorandi and Belz, 2024, 2023). The grammar-based approach obtains good results but is limited to Irish. Lorandi and Belz (2023, 2024) show that combining GPT-3.5 with Google Translate outperforms all other systems on all metrics in the three languages it was tested on (Irish, Welsh, Maltese).

None of these approaches shows convincing results for LLM prompting on languages other than English.

We extend on previous work by comparing a hybrid NLG+MT approach, direct generation with fine-tuned MT models and a direct few-shot LLM-based approach on 9 languages (5 HR + 4 LR). Our results show that, in contrast to previous results which indicated an advantage for the hybrid NLG+MT approach, a direct few-shot LLM-based approach performs best.

We first explain how we created the datasets used for fine-tuning, testing and few-shot retrieval. We then describe the three KG-to-Text generation models we investigated and discuss the results on both in- and out-of-domain data.

## 3 Data

### 3.1 Test Data

**EN-GOLD-1K.** This is a test set of 1,000 KG/English text pairs which we use, together with multilingual text similarity metrics, to select for each of our target languages the best MT model among 6 high performing MT models. We create this dataset by sampling 1K instances from two existing KG/English Text parallel datasets: (i) the English WebNLG testset (Gardent et al., 2017) and (ii) a dataset derived from KELM (Agarwal et al., 2021) which was manually edited to ensure that the texts match the graphs (Nikiforovskaya and Gardent, 2024). When sampling from these two datasets, we ensure a balanced distribution of graph sizes (1 to 5 facts) and property diversity with exactly 200 instances for each graph size. This stratified sampling preserves 89.4% of the properties present in the original source datasets, thus capturing a broad range of relational structures.

**WebNLG.** We collect all WebNLG test sets that are currently available. This includes the test sets from the WebNLG 2020 shared task (English, Russian); from the 2023 WebNLG shared task (Breton, Welsh, Irish and Maltese) and a recently published test set for Spanish (Ramón-Ferrer et al., 2025)<sup>1</sup>. These test sets share the same 1,779 KGs (1,102 for Russian). The texts are human-written by crowdworkers, researchers working on the topic (Spanish) or by professional translators. The WebNLG test sets are available on the web and thus likely to be part of the LLMs training data. We use this dataset for an *in-domain* evaluation of KG-to-Text generation.

**5L-GOLD-OOD.** To assess our three approaches on out-of-domain, unseen data (i.e., data not present on the internet), we create a new test set of 472 KG/Text pairs where each graph was extracted from WikiData and aligned with its verbalisation into 5 of the 9 target languages we could get native speakers for namely, English, French, Spanish, Russian and Chinese. To create a test set whose graphs describe entities and properties different from those present in WebNLG and KELM, we identified 7 Wikidata categories based on properties unused or rarely used in those datasets, and extracted 462 graphs with sizes from 1 to 7 for each category (i.e. 66 graphs for each category, 10 for graph sizes 3-5 and 9 for the rest). The categories are Airlines, Chemicals, Conferences, Statistics, Dancers, Diseases, and Tournaments. We also combined some of the graphs from Statistics and Airlines categories to get a Mixed category containing only graphs of size 10. There are 10 graphs in the Mixed category, making a total of 472 graphs in the test set. Table 1 provides the statistics of our test set. We use the 5L-GOLD-OOD dataset for an *out-of-domain* evaluation of KG-to-Text generation.

| Category     | Graph Length |    |    |    |    |    |    |    | Total |
|--------------|--------------|----|----|----|----|----|----|----|-------|
|              | 1            | 2  | 3  | 4  | 5  | 6  | 7  | 10 |       |
| Airlines     | 9            | 9  | 10 | 10 | 10 | 9  | 9  | 0  | 66    |
| Chemicals    | 9            | 9  | 10 | 10 | 10 | 9  | 9  | 0  | 66    |
| Conferences  | 9            | 9  | 10 | 10 | 10 | 9  | 9  | 0  | 66    |
| Dancers      | 9            | 9  | 10 | 10 | 10 | 9  | 9  | 0  | 66    |
| Diseases     | 9            | 9  | 10 | 10 | 10 | 9  | 9  | 0  | 66    |
| Statistics   | 9            | 9  | 10 | 10 | 10 | 9  | 9  | 0  | 66    |
| Tournaments  | 9            | 9  | 10 | 10 | 10 | 9  | 9  | 0  | 66    |
| Mixed        | 0            | 0  | 0  | 0  | 0  | 0  | 0  | 10 | 10    |
| <b>Total</b> | 63           | 63 | 70 | 70 | 70 | 63 | 63 | 10 | 472   |

Table 1: Distribution of graph lengths across different categories in the newly created 5L-GOLD-OOD dataset.

<sup>1</sup><https://zenodo.org/records/15064345>

To create the matching texts, we first generated an English lexicalization of these unseen graphs using our best few-shot prompting approach for English (see subsection 4.2). A native speaker manually verified and post-processed the generated English texts. The manually verified English texts were then machine translated using the best translation model we selected for each of our target languages (see Table 2). Finally, the translations were post-edited by native speakers.<sup>2</sup>

We use this dataset to evaluate our 3 approaches on out-of-domain data.

### 3.2 Training and Few-Shot Retrieval Data

WebNLG 2020 (Gardent et al., 2017; Castro Ferreira et al., 2020) is a widely used dataset for the KG-to-Text generation task, whose training split contains  $\sim 35K$  human-validated KG/English text pairs. We create multilingual, silver KG/Text data by machine translating the English texts of this dataset using selected MT models.

**MT model Selection.** To select the best MT model for each of our target languages we start by translating our EN-GOLD-1K dataset into the other 8 target languages using five MT models: Helsinki-NLP (Tiedemann and Thottingal, 2020), M2M100-418M (Fan et al., 2020), NLLB-200-600M (Costa-jussà et al., 2022), mBART-large-50 (Liu et al., 2020), M2M100-1.2B, and NLLB-200-3.3B.

We then evaluate the translated texts using the original English text as reference and six multilingual text similarity metrics: NMT\_Direct, NMT\_Pivot, NMT\_Cross (Vamvas and Senrich, 2022), SBERT (Reimers and Gurevych, 2019), BERTScore (Zhang et al., 2020), and Cometkiwi (Rei et al., 2023). To rank the models, we combine the six metric scores of each MT model for a given language into a single score by first normalising the scores and then averaging the normalised scores over all metrics.

Let  $\mathcal{M}$  be the set of metrics used and  $S$  the set of MT models (systems) being compared, then for each target language  $L$  and each MT system  $s \in S$ , each metric  $m \in \mathcal{M}$  produces the normalised score:

$$\tilde{sc}_s^m = \frac{sc_s^m - MIN_S^m}{MAX_S^m - MIN_S^m} \quad (1)$$

where  $sc_s^m$  is the average score of MT model  $s$  for metric  $m$  on the test set and  $MIN_S^m$  (resp.

<sup>2</sup>This dataset was not extended to the LR languages (Breton, Welsh, Maltese, Irish) as we did not have access to the native speakers necessary to edit the machine translated texts.

$MAX_S^m$ ) is the minimal (resp. maximum) value for metric  $m$  across all systems  $S$ . For each language, we then average the normalised scores of each model  $s$  over all metrics  $m$ :

$$\tilde{sc}_s = \frac{1}{|\mathcal{M}|} \sum_{m \in \mathcal{M}} \tilde{sc}_s^m \quad (2)$$

Table 9 and Table 13 in the Appendix present the results for each model, target language, and metric. They also include the average normalised scores per model and per language. Table 2 shows which model we use for each language as a result of this evaluation.

| Language | H | NLLB | mBART | M2M |
|----------|---|------|-------|-----|
| Chinese  |   |      |       | ✓   |
| French   | ✓ |      |       |     |
| Russian  |   |      |       | ✓   |
| Spanish  | ✓ |      |       |     |
| Breton   | ✓ |      |       |     |
| Irish    |   | ✓    |       |     |
| Maltese  | ✓ |      |       |     |
| Welsh    |   |      |       | ✓   |

Table 2: **Selected MT models per language.** Models are selected based on their results on the average normalised scores over 6 metrics (Cf. Appendix A). H: Helsinki-NLP, NLLB: NLLB-600M, mBART: mBART-50, M2M: M2M100-1.2B .

#### Creating Silver Multilingual KG/Text data.

For each target language, we apply the MT model with the highest normalised score (cf. Table 2) to the 35K human-edited English texts from WebNLG- 2020. The resulting dataset (**9L-SILVER-WebNLG**) consists of between 30K and 35K KGs aligned with their verbalisation into 9 languages, with the variation between languages caused by deduplication of the translations as well as Language Identification filtering.

We use **9L-SILVER-WebNLG** (i) to fine tune MT models on KG/Text data and (ii) as a retrieval basis for few shot prompting: for each target language, few shots are taken from the corresponding dataset in 9L-SILVER-WebNLG.

## 4 Models

We compare two supervised approaches with a few-shot LLM-based approach. The supervised methods (NLG+MT and FTMT) employ medium-sized models (hundreds of millions of parameters),

whereas the few-shot setting relies on large-scale LLMs with tens of billions of parameters. While this introduces a difference in model size, our comparison is designed to reflect realistic usage conditions: supervised methods typically depend on retraining with available backbones, whereas prompting-based approaches leverage off-the-shelf LLMs without additional training cost.

### 4.1 Supervised Approaches

**NLG-MT Hybrid Model (NLG+MT).** The hybrid model is a two steps pipeline where a KG-to-Text model is used to generate English text from the input graph and then an MT model is applied to generate text in the target languages.

For the first step (KG-to-English Generation), we use the ControlPrefixes model (CP) (Clive et al., 2022), a KG-to-Text model which uses dynamic prefix-tuning to allow for the inclusion of input-dependent information thereby combining the benefits of prompt tuning and controlled generation. This model was shown to achieve state-of-the-art results on several data-to-text datasets, including WebNLG<sup>3</sup>. We set the control token for the input graphs to English and train the model for 40 epochs on the WebNLG 2020 English training data.

To machine translate the English generated texts, we use the best MT model we identified for each of our target language (Cf. Table 2). Note that for English, the NLG+MT approach does not include MT, it is simply the output of the CP model.

#### Fine-Tuned Machine Translation (FTMT).

This is a direct end-to-end approach where we fine-tune the machine translation models selected in Table 2 on the multilingual 9L-SILVER-WebNLG dataset. For each language, we fine-tune the corresponding best MT model for 2 epochs on the corresponding monolingual data.

### 4.2 LLM-based Generation

For LLM-based generation, we experimented with a few-shot prompting strategy that varies across three dimensions: the input, the prompting strategy and how few shots are selected. Table 3 summarises the possible options for each dimension. Example prompts illustrating the various options for each dimension are given in Appendix C.

To decide on the best approach, we gradually tested and combined the three dimensions eventu-

<sup>3</sup><https://paperswithcode.com/sota/data-to-text-generation-on-webnlg>

| Dimensions         | Options          | Explanation                                                                                                                            |
|--------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Few-Shot Selection | Random           | random KG/Text pairs from WebNLG English training data (WebNLG-EN)                                                                     |
|                    | Size             | KG/Text pairs from WebNLG-EN whose graph size is the same as that of the input graph                                                   |
|                    | Overlap          | KG/Text pairs from WebNLG-EN whose graph maximise property overlap, size and semantic similarity with the input graph                  |
|                    | OverlapRU        | Examples from the Russian WebNLG training set whose graph maximise property overlap, size and semantic similarity with the input graph |
| Input              | Graph            | The input is the Knowledge Graph                                                                                                       |
|                    | Labels           | KG and Wikidata Entity Labels                                                                                                          |
|                    | Prop.            | KG and Wikidata Property Descriptions                                                                                                  |
|                    | All              | KG, Wikidata Property and Entity Descriptions                                                                                          |
| Prompting          | P+L              | KG, Wikidata Property Descriptions and Entity Labels                                                                                   |
|                    | Direct           | Generate a text verbalising this graph                                                                                                 |
|                    | Cumulative       | Generate a text for each fact in turn then combine the resulting texts into one (two consecutive prompts).                             |
|                    | Chain-of-Thought | Verbalise each fact and aggregate the resultings text into a coherent text (one prompt).                                               |

Table 3: Prompting Approaches (example prompts are given in [Appendix C](#))

| Prompting Dimensions       |        |      | Metrics      |              |              |              |              |              |              |              |              |              |
|----------------------------|--------|------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| FS Sel.                    | Input  | Prtg | BLEU         | ChrF         | TER          | BERT         | BLRT         | NMT-D        | NMT-P        | NMT-C        | SBERT        | Comet        |
| <i>Baseline</i>            |        |      |              |              |              |              |              |              |              |              |              |              |
| Rand                       | Graph  | Dir  | 21.47        | 45.16        | 70.09        | 93.06        | 70.65        | 47.33        | 71.59        | 54.92        | 90.16        | 65.72        |
| <i>Few-shot variants</i>   |        |      |              |              |              |              |              |              |              |              |              |              |
| Ovlp                       | Graph  | Dir  | 22.10        | 45.74        | 68.06        | 93.10        | 69.99        | 47.96        | 72.67        | 56.17        | 90.43        | 65.90        |
| Size                       | Graph  | Dir  | 20.76        | 44.61        | 70.14        | 92.95        | 69.93        | 46.87        | 70.80        | 54.34        | 90.09        | 65.57        |
| <i>Input variants</i>      |        |      |              |              |              |              |              |              |              |              |              |              |
| Rand                       | Prop.  | Dir  | 21.51        | 44.89        | 70.32        | 93.08        | 70.95        | 47.05        | 71.21        | 54.48        | 90.21        | 65.13        |
| Rand                       | All    | Dir  | 19.02        | 43.78        | 75.52        | 92.64        | 69.34        | 45.90        | 72.43        | 49.94        | 88.65        | 63.68        |
| Rand                       | Labels | Dir  | 23.53        | 47.12        | 66.57        | 93.58        | 72.43        | 50.31        | <b>75.95</b> | 55.22        | 91.25        | 65.58        |
| <i>Generation variants</i> |        |      |              |              |              |              |              |              |              |              |              |              |
| Rand                       | Graph  | Cml  | 19.50        | 43.82        | 77.64        | 92.35        | 65.80        | 46.36        | 70.20        | 50.63        | 85.47        | 60.86        |
| Rand                       | Graph  | CoT  | 20.67        | 42.38        | 70.64        | 92.76        | 67.41        | 47.19        | 71.43        | 54.71        | 89.46        | 65.85        |
| <i>Combined</i>            |        |      |              |              |              |              |              |              |              |              |              |              |
| Ovlp                       | P+L    | CoT  | 24.18        | 47.58        | 64.41        | 93.56        | 71.64        | 49.98        | 73.15        | 56.97        | 91.76        | <b>66.72</b> |
| Ovlp                       | Labels | Dir  | 24.13        | 47.98        | 65.38        | 93.57        | 72.06        | 47.33        | 67.40        | 56.04        | 91.72        | 66.12        |
| Ovlp                       | P+L    | Dir  | 23.85        | 47.99        | 65.70        | 93.56        | 72.03        | 47.24        | 67.57        | 55.85        | 91.66        | 66.18        |
| OvlpRU                     | Labels | Dir  | <b>29.30</b> | <b>53.42</b> | <b>60.26</b> | <b>94.33</b> | <b>75.80</b> | <b>51.35</b> | 70.61        | <b>59.30</b> | <b>92.82</b> | 66.21        |

Table 4: **Llama 3.1-8B-Instruct performance on the Russian WebNLG Test dataset.** Abbreviations: FS Sel. = Few-shot Selection method, Prtg = Prompting strategy, Rand = Random, Ovlp/Size = Overlap/Size Few Shot Selection, Prop. = Property description, All = Property and Entity descriptions, P+L = Property Description + Labels, Dir = Direct generation, Cml = Cumulative generation, CoT = Chain of Thought generation, MET. = METEOR, BERT = BertScore, BLRT = BLEURT, NMT-D = NMT Direct, NMT-P = NMT Pivot, NMT-C = NMT Cross, SBERT = Sentence-BERT, Comet = Comet-Kiwi (See [Table 3](#) for an explanation of the various dimensions of the prompt).

ally exploring 9 configurations (cf. [Table 4](#)) and examining the performance of Llama-3.1-8B-Instruct on these various configurations on the WebNLG testset for Russian. We choose to evaluate on Russian because (i) WebNLG provides a gold KG/Text

dataset for that language and (ii) we conjecture that using a language other than English allows for a better estimation of how the different prompting options would perform for languages which are further away from the English-centric KGs, where

|        |                                                                                                                                                 |
|--------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Prompt | Generate a lexicalisation of the following graph in French. Include all the information from the triples regardless of their type or relevance. |
| Graph  | ("subject": "AmeriGas", "property": "country", "object": "United States")                                                                       |
| Labels | "country": "pays", "United States": "États-Unis"                                                                                                |
| Text   | "AmeriGas est situé aux États-Unis."                                                                                                            |
| Graph  | ("Western Goals Foundation", "property": "country", "object": "United States")                                                                  |
| Labels | "country": "pays", "United States": "États-Unis"                                                                                                |
| Text   |                                                                                                                                                 |

Table 5: Simplified example of One Shot Prompt (One fact graph, *AmeriGas is located in the United States*). Labels are extracted from Wikidata. The few shot is optimised to contain properties present in the input graph.

entities and properties are English based.

The results of that preliminary experiment indicated that the best option was the Direct, Overlap approach with KG and Wikidata labels as input and where the text of the 3 few shots are in the target language (as indicated in [section 3](#) we retrieve few shots from 9L-SILVER-WebNLG). We therefore use that approach, generalising it to the 9 target languages<sup>4</sup> and retrieving few-shots from the corresponding training data (gold for English, silver for the other languages). In essence, our prompting strategy consists in prompting the LLM for a verbalisation of the input graph augmented with Wikidata translations of the entities it contains and using few-shots whose text is in the target language and whose graph maximises property overlap with the input graph. A simplified example prompt for French is shown in [Table 5](#).

We also investigate how *model family* (Llama vs. Qwen) and *model size* (7/8B vs. 70/72B) interact with this prompting scheme by comparing four instruction-tuned LLMs: LLAMA-3.1-8B-INSTRUCT, LLAMA-3.1-70B-INSTRUCT, QWEN2.5-7B-INSTRUCT, and QWEN2.5-72B-INSTRUCT. Unless otherwise specified, results reported for the FewShot setting correspond to the best-performing model among these four. Detailed results for all test sets and all models are given in [Appendix B](#).

<sup>4</sup>For English, we do not retrieve labels since the KG graphs already contain the English labels of entities and properties.

## 5 Evaluation

### 5.1 Testsets and Automatic Metrics

We evaluate all models on both in- (WebNLG) and out-of-domain (5L-GOLD-OOD) data using 6 metrics which support our target languages. Two of these metrics are surface-based: BLEU ([Papineni et al., 2002](#)), ChrF ([Popović, 2015](#)). The others are semantic-based: BERTScore ([Zhang\\* et al., 2020](#)), SBERT ([Reimers and Gurevych, 2019](#)), BLEURT ([Sellam et al., 2020](#)), and NMTScore-direct ([Vamvas and Sennrich, 2022](#)). Since the results are consistent across metrics, we provide all scores in [Appendix B](#) and selected one metric (BLEU) for display and analysis in the following section.

### 5.2 Qualitative Analysis

In addition to automatic metrics, we conduct a qualitative analysis to better capture strengths and weaknesses not visible from corpus-level scores. For each method–language pair, we extract representative outputs with the highest and lowest BLEU and SBERT scores on the 5L-GOLD-OOD set, and present them in [Appendix E](#). This allows inspection of typical successes (e.g., accurate fact coverage) and failures (e.g., omission or hallucination). Native speakers were also consulted to verify that the metric scores align with human judgments.

### 5.3 Results

**Few-Shot Performance across LLMs.** [Table 7](#) shows which LLM performs best on which test-set. Detailed scores for all LLMs are given in [Appendix B](#). Three trends emerge from these scores. (i) *Model size matters*: within the same family the larger variant (70/72B) is always superior to its smaller (7/8B) counterpart, confirming that added capacity is still useful in the KG-to-Text scenario. (ii) *Family preference depends on language*: Qwen2.5 dominates on Chinese, French, and, to a lesser extent, Russian, whereas Llama-3.1 excels on English, Spanish, and all low-resource languages. The gap is most pronounced for Chinese, where Qwen’s Chinese-centric pre-training corpus gives it a clear advantage (+25.58 BLEU on 5L-GOLD-OOD) over Llama (cf. [Table 15](#)). (iii) *Potential data contamination*: for Russian ([Table 18](#)), Llama-3.1 beats Qwen on WEBNLG (27.3 vs 24.9) but is surpassed on the OOD set (26.6 vs 27.8)—see [Table 6](#). Given that the WebNLG testset for Russian is publicly available, Llama is likely to

| Model       | WebNLG      | 5L-GOLD-OOD |
|-------------|-------------|-------------|
| LLaMA3-8B   | <b>25.6</b> | 23.1        |
| Qwen2.5-7B  | 24.5        | <b>24.4</b> |
| LLaMA3-70B  | <b>27.3</b> | 26.6        |
| Qwen2.5-72B | 24.9        | <b>27.8</b> |

Table 6: **Few-shot BLEU on Russian.** LLaMA wins on the in-domain WebNLG, while Qwen is stronger on the out-of-domain 5L-GOLD-OOD. The trend holds at both parameter scales (8 B vs. 7 B and 70 B vs. 72 B), suggesting that LLaMA benefited from exposure to the WebNLG Russian data during pre-training.

have memorised part of them during pre-training, inflating its in-domain score, whereas Qwen generalises better to unseen domains.

| Language | 5L-GOLD-OOD | WebNLG     |
|----------|-------------|------------|
| EN       | Llama3-70B  | Llama3-70B |
| FR       | Qwen2.5-72B | –          |
| ZH       | Qwen2.5-72B | –          |
| ES       | Llama3-70B  | Llama3-70B |
| RU       | Qwen2.5-72B | Llama3-70B |
| BR       | –           | Llama3-70B |
| GA       | –           | Llama3-70B |
| MT       | –           | Llama3-70B |
| CY       | –           | Llama3-70B |

Table 7: Best-performing *Instruct* LLM for each target language in the few-shot setting. “–” indicates that the language is not present in that test set.

**Comparing Approaches on In-Domain.** In the in-domain WebNLG setting (Figure 2, right), the FewShot LLM approach outperforms both the hybrid NLG+MT and the direct generation fine-tuned MT method (FTMT) across all evaluated languages except English. English is the one case where the hybrid NLG+MT model slightly surpasses FewShot, which can be attributed to the availability of gold-standard English training data (enabling a directly trained English NLG model). This outcome underscores that, without high-quality parallel data in a target language, prompting a capable LLM with a few examples can still yield superior verbalizations compared to translation-based or weakly fine-tuned solutions. Notably, the FewShot method outperforms both the NLG+MT and the FTMT approach by a good margin on low-resource languages, indicating a strong benefit from cross-lingual prompting: the LLM leverages knowledge from its multilingual pre-training to generate adequate text even for languages with minimal or no training corpus.

### Comparing Approaches on Out-of-Domain.

On out-of-domain data (5L-GOLD-OOD, Figure 2, left) and HR languages, FewShot clearly outperforms the other two methods. Among the 5 HR languages we study, LLM-based generation gains a significant advantage in English and Chinese. This aligns with the language distribution of the LLMs’ pre-training corpora. Thus, the LLaMA-based model (used for English) is heavily English-centric<sup>5</sup> while Alibaba’s Qwen model (used for Chinese generation) is trained on large Chinese corpora. In other words, the FewShot LLM has a strong advantage on languages it was well-trained on (English, Chinese), whereas in languages less represented in the LLM’s training data, the gap between FewShot and the baselines is smaller.

**Domain Shift: Seen vs. Unseen Data.** The three languages that have both WebNLG (seen) and 5L-GOLD-OOD (unseen) test sets—English, Spanish, and Russian—make the effect of domain shift explicit. Both the NLG+MT pipeline and the FTMT model suffer substantial BLEU drops when moving from the WebNLG domain to the OOD domain, suggesting that these models struggle to verbalize the more complex or specialized triples present in the unseen OOD graphs. Whenever an input graph contains a technically specialised entity or a rare property, these translation-based systems often omit the corresponding triple in the output, trading factual coverage for fluency and thereby incurring substantial evaluation losses (see Table 18 for an example). The pattern is different for FEWSHOT. In Russian, its BLEU is virtually identical across the two domains, while in English, it is even slightly higher in OOD. The latter “gain” is spurious: As exemplified in Table 8, English centric OOD graphs contain many very long entity names, and reproducing them verbatim inflates all reference-based metrics for the English FewShot. FEWSHOT does encounter genuine difficulty on Spanish OOD, where the same entity-omission behaviour emerges and the BLEU drop mirrors that of the translation baselines.

Overall, however, FEWSHOT remains markedly more robust to domain shift than either translation-based approach, particularly on languages (EN, RU) that are well represented in the LLM’s pre-training corpus.

<sup>5</sup>The Llama report indicates that 52.9% of the fine tuning data is from English <https://arxiv.org/pdf/2407.21783>

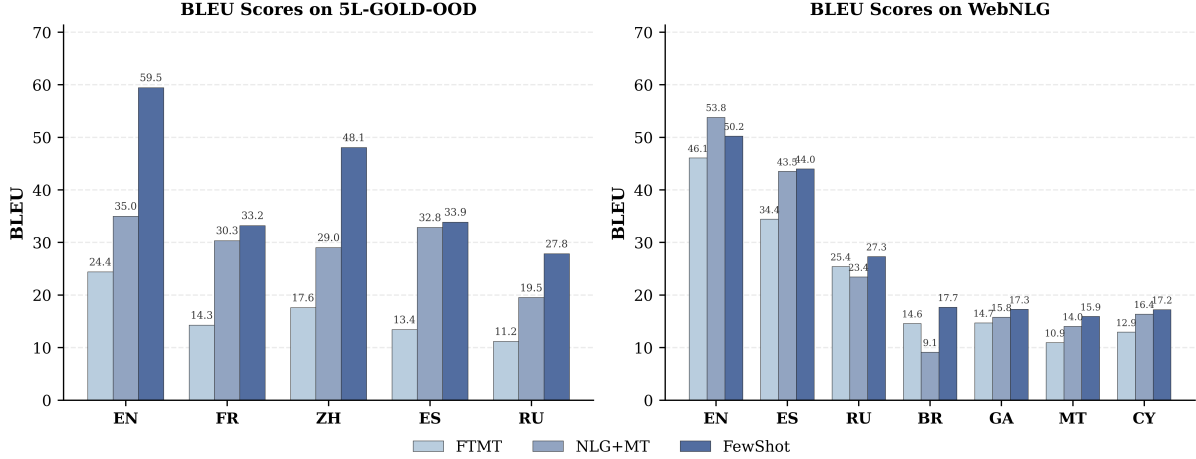


Figure 2: **BLEU scores for KG-to-Text Generation on in- (Right) and out-of-domain (Left) data.** Abbreviations: *English (EN), French (FR), Chinese (ZH), Spanish (ES), Russian (RU), Breton (BR), Irish (GA), Maltese (MT), and Welsh (CY)*. FewShot results correspond to the higher score between Llama-3.1-70B-Instruct and Qwen-2.5-72B-Instruct for each language.

**High- vs. Low-resource languages.** Examining the BLEU scores across different languages in Figure 2 (right) reveals a clear trend tied to language resource levels. *High-resource (HR) languages consistently obtain higher BLEU scores than low-resource (LR) languages under all methods.* This indicates that generation quality strongly correlates with the availability of training data and linguistic resources. Even among the HR languages, we see a hierarchy in BLEU performance for the FewShot, the NLG+MT and the FTMT models (English > Spanish > Russian), the degradation of the latter two models reflecting the relative data richness of the corresponding MT models (cf Table 9). Languages with scarce parallel data or support (the true LR languages) inevitably lag behind in BLEU. *However, the FEWSHOT approach narrows the gap between HR and LR languages.* We observe that FEWSHOT prompting yields important gains on lower-resource languages compared to the NLG+MT and FTMT baselines, thereby attenuating the performance disparity. In other words, leveraging a multilingual LLM through cross-lingual few-shot generation helps compensate for the lack of parallel data, elevating the BLEU scores of low-resource languages closer to their high-resource counterparts.

## 6 Conclusion

We explored three ways of extending KG-to-Text generation to multiple languages in the absence of training data: few-shot prompting, generate-and-

translate, and MT models fine-tuned on silver KG/Text data. For few-shot prompting, we compared 9 different ways of prompting and found that a prompting strategy which enriches the input with target language Wikidata labels and target language few-shots selected based on their property overlap with the input graph yields the best results. Automatic metrics show that this approach out-performs NLG+MT and FTMT across the board by a good margin. We also note that, on LR languages (Breton, Welsh, Maltese, Irish), performance markedly decreases for all models.

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## Limitations

Our work aims to extend KG-to-Text generation to both High- and Low-Resource languages but does

| <b>Input graph</b> | ['magnesium oxide   associated hazard   magnesium oxide exposure', 'magnesium oxide   ATC code   A02AA02', 'magnesium oxide   canonical SMILES   O=[Mg]', 'magnesium oxide   InChI   InChI=1S/Mg.O', 'magnesium oxide   chemical formula   MgO', 'magnesium oxide   has use   food additive']       |             |             |             |             |             |             |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|
| <b>Reference</b>   | Magnesium oxide is a compound that has the chemical formula MgO and the InChI InChI=1S/Mg.O. It is associated with the hazard of magnesium oxide exposure and is classified as A02AA02 in the ATC code. The canonical SMILES of magnesium oxide is O=[Mg]. It is primarily used as a food additive. |             |             |             |             |             |             |
| System             | Generated text                                                                                                                                                                                                                                                                                      | BLEU        | ChrF        | BS          | BLEURT      | NMT         | SBERT       |
| FTMT               | Magnesium oxide, which has the ATC code A02AA02, is a food additive. Magnesium oxide, which has the chemical formula MgO, canonical SMILES O=Mg and InChI 1S/Mg.O, is a hazard to the body.                                                                                                         | 21.3        | 41.4        | 92.2        | 61.2        | 26.0        | 90.3        |
| NLG+MT             | The ATC code of magnesium oxide is A02AA02 and it has the canonical SMILES O=[Mg]. It has the chemical formula MgO and is used as a food additive.                                                                                                                                                  | 23.2        | 45.4        | 93.1        | 70.1        | 31.0        | 88.5        |
| FewShot            | <b>Magnesium oxide, with the chemical formula MgO, has the associated hazard of magnesium oxide exposure. It has the ATC code A02AA02 and its molecular structure can be represented by the canonical SMILES O=[Mg] and InChI 1S/Mg.O. Magnesium oxide is used as a food additive.</b>              | <b>41.4</b> | <b>64.2</b> | <b>94.6</b> | <b>76.0</b> | <b>40.2</b> | <b>92.2</b> |

Table 8: **Example illustrating high scores for FewShot on English**. The top block shows the input Knowledge Graph and human reference. The bottom block compares three generation strategies across six automatic metrics. Only the FewShot model succeeds in correctly verbalising all highlighted facts, leading to the highest scores across all metrics. In contrast, both FTMT and NLG+MT either omit or distort key information from the input graph. The long property and entity names, highlighted in orange, correctly verbalised by the FewShot model, result in high scores. (BS refers to BERTScore.)

not handle problems related to Knowledge Bases other than Wikidata, which are also important for out-of-domain generalisation. We obtain few-shot data for the prompting approach and training data for the KG-to-Text NLG+MT approach using machine translation, which adds some noise to the generation process. Finally, even though our proposed in- and out-of-domain test sets cover a large spectrum of Wikidata entities and properties, they still do not cover all possible combinations.

While this work is focused on presenting a methodology and analysis for multilingual KG-to-Text generation, the methods need to be trained on larger datasets to ensure the method’s generalisation capabilities to larger domains, other knowledge bases, and more languages. Deploying these methods without proper training and assessment through gold benchmarks could lead to introducing harmful biases in real-world situations.

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## A Evaluation of 6 MT models on the EN-GOLD-1K testset

### A.1 High-Resource Languages

Table 9 shows the scores of the 6 Machine Translation models for all 6 metrics and 6 high-resource languages when evaluated on the EN-GOLD-1K (graph, English text) test set using multilingual text similarity metrics.

| Lang  | Model          | NMT_Direct | NMT_Pivot | NMT_Cross | SBERT  | BERTScore | Cometkiwi | Norm_Row_Avg |
|-------|----------------|------------|-----------|-----------|--------|-----------|-----------|--------------|
| EN-ZH | Helsinki-NLP   | 0.634      | 0.754     | 0.590     | 0.8528 | 0.8984    | 0.618     | 0.420        |
|       | M2M100-418M    | 0.719      | 0.820     | 0.682     | 0.8896 | 0.9039    | 0.634     | 0.799        |
|       | NLLB-200-600M  | 0.583      | 0.712     | 0.493     | 0.7876 | 0.8886    | 0.591     | 0.000        |
|       | MBart-large-50 | 0.695      | 0.784     | 0.625     | 0.8705 | 0.8946    | 0.687     | 0.660        |
|       | M2M100-1.2B    | 0.749      | 0.844     | 0.695     | 0.8975 | 0.9067    | 0.679     | <b>0.986</b> |
|       | NLLB-200-3.3B  | 0.624      | 0.738     | 0.525     | 0.8023 | 0.8906    | 0.665     | 0.270        |
| EN-FR | Helsinki-NLP   | 0.885      | 0.963     | 0.891     | 0.9714 | 0.9370    | 0.715     | <b>0.996</b> |
|       | M2M100-418M    | 0.848      | 0.943     | 0.875     | 0.9653 | 0.9372    | 0.638     | 0.679        |
|       | NLLB-200-600M  | 0.805      | 0.887     | 0.822     | 0.9501 | 0.9291    | 0.612     | 0.055        |
|       | MBart-large-50 | 0.833      | 0.915     | 0.848     | 0.9654 | 0.9348    | 0.667     | 0.532        |
|       | M2M100-1.2B    | 0.860      | 0.951     | 0.884     | 0.9645 | 0.9363    | 0.661     | 0.756        |
|       | NLLB-200-3.3B  | 0.807      | 0.879     | 0.819     | 0.9473 | 0.9284    | 0.631     | 0.035        |
| EN-RU | Helsinki-NLP   | 0.618      | 0.748     | 0.649     | 0.8559 | 0.9074    | 0.582     | 0.000        |
|       | M2M100-418M    | 0.712      | 0.863     | 0.773     | 0.8978 | 0.9190    | 0.631     | 0.735        |
|       | NLLB-200-600M  | 0.670      | 0.798     | 0.696     | 0.8657 | 0.9094    | 0.601     | 0.259        |
|       | MBart-large-50 | 0.712      | 0.844     | 0.738     | 0.9087 | 0.9198    | 0.661     | 0.771        |
|       | M2M100-1.2B    | 0.756      | 0.892     | 0.802     | 0.9093 | 0.9216    | 0.677     | <b>1.000</b> |
|       | NLLB-200-3.3B  | 0.694      | 0.805     | 0.710     | 0.8712 | 0.9102    | 0.648     | 0.421        |
| EN-ES | Helsinki-NLP   | 0.884      | 1.016     | 0.906     | 0.9725 | 0.9434    | 0.767     | <b>1.000</b> |
|       | M2M100-418M    | 0.838      | 0.956     | 0.881     | 0.9659 | 0.9422    | 0.682     | 0.539        |
|       | NLLB-200-600M  | 0.815      | 0.925     | 0.851     | 0.9530 | 0.9362    | 0.662     | 0.094        |
|       | MBart-large-50 | 0.794      | 0.912     | 0.837     | 0.9548 | 0.9398    | 0.671     | 0.113        |
|       | M2M100-1.2B    | 0.853      | 0.972     | 0.894     | 0.9683 | 0.9422    | 0.707     | 0.684        |
|       | NLLB-200-3.3B  | 0.851      | 0.957     | 0.882     | 0.9625 | 0.9389    | 0.723     | 0.527        |

Table 9: Results on the 1K English test set for translation models across four target languages (Chinese, French, Russian, Spanish). ‘Norm\_Row\_Avg’ is the row-wise normalized average over the other metrics. We use multilingual evaluation metrics to compare the generated text to the English reference.

## A.2 Low-Resource Languages

For low-resource languages, we adopt the three-stage model-selection protocol outlined below.

1. **Model & metric inventory.** We enumerate all publicly available MT systems and similarity metrics that support the target language  $l$ .
2. **Code-switching filter.** To curb the tendency of some systems to produce English instead of  $l$ , we run language identification (LID) on their outputs for the EN-GOLD-1K set. Systems whose mean LID confidence for  $l$  is below 80% are discarded.
3. **Score normalisation.** For the remaining candidates we compute normalised similarity scores exactly as in the high-resource setting (Appendix A).

We then derive a synthetic selection score

$$S(T, l) = \text{LID}(T, l) \times \text{Sim}(\text{Text}_{\text{EN}}, T), \quad (3)$$

where  $T$  is the model output,  $\text{LID}(\cdot) \in [0, 1]$  is the confidence from Step 2, and  $\text{Sim}(\cdot)$  is the similarity metric chosen in Step 1. For each language we retain the model with the highest  $S(T, l)$ .

### A.2.1 Language-specific analysis.

- **Breton (br).** Among the candidates only M2M100 provides Breton output, yet its LID precision is less than 60% or even almost zero (Table 12), indicating severe code-switching. We therefore rely on HELSINKI-NLP, whose 89.52 % LID precision confirms that it produces Breton consistently.
- **Maltese (mt).** All surviving MT systems achieve excellent LID precision ( $\geq 99\%$ ), but SBERT is the sole evaluation metric available for Maltese (Table 10). Consequently, we rank MT systems solely by the SBERT similarity and select HELSINKI-NLP.
- **Irish (ga).** Both M2M100 variants score below the 80 % LID threshold (Table 12) and are discarded. For the remaining three systems (HELSINKI-NLP, NLLB-200-600M, NLLB-200-3.3B) we compute the synthetic score  $S$  (Equation 3) over six metrics. NLLB-200-600M attains the highest  $S$  (0.690; Table 13) and is therefore selected.

- **Welsh (cy).** Both M2M100 and HELSINKI-NLP pass the code-switching filter ( $\text{LID} \geq 80\%$ ). We rank the three viable models (HELSINKI-NLP, M2M100-418M, M2M100-1.2B) via the synthetic score; M2M100-1.2B is the clear winner with  $S = 1.000$  (Table 13).

The final model selections are summarised in Table 2.

| Metric              | Breton (br) | Irish (ga) | Maltese (mt) | Welsh (cy) |
|---------------------|-------------|------------|--------------|------------|
| NMTScore (small100) | ✓           | ✓          |              | ✓          |
| SBERT (LaBSE)       |             | ✓          | ✓            | ✓          |
| BERTScore (XLM-R)   | ✓           | ✓          |              | ✓          |
| COMET-Kiwi          | ✓           | ✓          |              | ✓          |

Table 10: Similarity metric support for selected low-resource languages.

| MT Model       | Breton (br) | Irish (ga) | Maltese (mt) | Welsh (cy) |
|----------------|-------------|------------|--------------|------------|
| nllb-200       |             | ✓          | ✓            | ✓          |
| mbart-large-50 |             |            |              |            |
| m2m100         | ✓           | ✓          |              | ✓          |

Table 11: Support of many-to-many (M2M) MT models for selected low-resource languages.

| MT Model      | Breton (br) | Irish (ga) | Maltese (mt) | Welsh (cy) |
|---------------|-------------|------------|--------------|------------|
| m2m100-1.2B   | 56.77       | 65.11      | –            | 98.41      |
| m2m100-418M   | 0.05        | 68.07      | –            | 96.27      |
| nllb-200-600M | –           | 98.24      | 99.62        | 0.00       |
| nllb-200-3.3B | –           | 98.03      | 99.89        | 0.00       |
| Helsinki-NLP  | 89.52       | 98.19      | 99.23        | 88.81      |

Table 12: Precision (%) of Language Identification (LID) for generated translations in low-resource languages.

| Lang  | Model          | NMT_Direct | NMT_Pivot | NMT_Cross | SBERT  | BERTScore | Cometkiwi | Norm_Syn_Score |
|-------|----------------|------------|-----------|-----------|--------|-----------|-----------|----------------|
| EN-GA | Helsinki-NLP   | 0.2118     | 0.5535    | 0.2796    | 0.9169 | 0.8861    | 0.5353    | 0.490          |
|       | M2M100-418M    | 0.5240     | 0.5493    | 0.3153    | 0.3001 | 0.8096    | -0.0174   | 0.157          |
|       | NLLB-200-600M  | 0.2403     | 0.6909    | 0.3265    | 0.8907 | 0.8868    | 0.5388    | <b>0.690</b>   |
|       | MBart-large-50 | -          | -         | -         | -      | -         | -         | -              |
|       | M2M100-1.2B    | 0.5989     | 0.6458    | 0.5394    | 0.4911 | 0.8357    | 0.1160    | 0.592          |
|       | NLLB-200-3.3B  | 0.2304     | 0.6502    | 0.3135    | 0.9018 | 0.8871    | 0.5804    | 0.644          |
| EN-CY | Helsinki-NLP   | 0.067      | 0.146     | 0.073     | 0.4652 | 0.7295    | 0.067     | 0.334          |
|       | M2M100-418M    | 0.398      | 0.483     | 0.385     | 0.7713 | 0.8234    | 0.250     | 0.756          |
|       | NLLB-200-600M  | 0.000      | 0.000     | 0.000     | 0.0001 | 0.0001    | 0.000     | 0.000          |
|       | MBart-large-50 | -          | -         | -         | -      | -         | -         | -              |
|       | M2M100-1.2B    | 0.541      | 0.673     | 0.564     | 0.8580 | 0.8643    | 0.454     | <b>1.000</b>   |
|       | NLLB-200-3.3B  | 0.000      | 0.000     | 0.000     | 0.0001 | 0.0003    | 0.000     | 0.000          |
| EN-MT | Helsinki-NLP   | -          | -         | -         | 0.9308 | -         | -         | -              |
|       | M2M100-418M    | -          | -         | -         | -      | -         | -         | -              |
|       | NLLB-200-600M  | -          | -         | -         | 0.9040 | -         | -         | -              |
|       | MBart-large-50 | -          | -         | -         | -      | -         | -         | -              |
|       | M2M100-1.2B    | -          | -         | -         | -      | -         | -         | -              |
|       | NLLB-200-3.3B  | -          | -         | -         | 0.9194 | -         | -         | -              |

Table 13: Synthetic Score Results on the EN-GOLD-1K English test set for translation models across three target languages (Irish (GA), Welsh (CY)), Maltese (MT). ‘Norm\_Syn\_Score’ is the row-wise normalized synthetic selection score over the other metrics. We use multilingual evaluation metrics to compare the generated text to the English reference.

## B Evaluation Results

### B.1 English Results

| Model   | LLM         | Dataset     | BLEU  | ChrF  | BS    | BLRT  | NMT   | SBERT |
|---------|-------------|-------------|-------|-------|-------|-------|-------|-------|
| FTMT    | –           | WebNLG      | 46.07 | 67.61 | 95.48 | 76.82 | 53.33 | 95.16 |
|         | –           | 5L-GOLD-OOD | 24.40 | 53.99 | 93.20 | 66.84 | 39.31 | 88.93 |
| NLG+MT  | –           | WebNLG      | 53.80 | 71.13 | 96.14 | 80.06 | 59.23 | 96.86 |
|         | –           | 5L-GOLD-OOD | 34.97 | 62.34 | 95.10 | 74.95 | 50.90 | 94.10 |
| FEWSHOT | LLaMA3-8B   | WebNLG      | 50.06 | 70.18 | 95.99 | 80.01 | 57.93 | 96.92 |
|         | LLaMA3-8B   | 5L-GOLD-OOD | 50.34 | 72.68 | 96.70 | 81.67 | 63.93 | 97.11 |
|         | LLaMA3-70B  | WebNLG      | 50.21 | 70.86 | 96.07 | 80.72 | 59.23 | 97.16 |
|         | LLaMA3-70B  | 5L-GOLD-OOD | 59.45 | 79.18 | 97.27 | 84.56 | 70.44 | 97.58 |
|         | Qwen2.5-7B  | WebNLG      | 49.27 | 70.86 | 95.90 | 79.34 | 56.52 | 96.49 |
|         | Qwen2.5-7B  | 5L-GOLD-OOD | 51.37 | 73.68 | 96.58 | 80.78 | 62.16 | 95.95 |
|         | Qwen2.5-72B | WebNLG      | 49.09 | 71.59 | 96.01 | 80.24 | 58.53 | 96.78 |
|         | Qwen2.5-72B | 5L-GOLD-OOD | 52.46 | 75.39 | 96.80 | 82.24 | 64.75 | 96.62 |

Table 14: Few-shot and baseline results on English WebNLG and 5L-GOLD-OOD. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions.

### B.2 Chinese Results

| Model   | LLM         | Dataset     | BLEU  | ChrF  | BS    | BLRT  | NMT   | SBERT |
|---------|-------------|-------------|-------|-------|-------|-------|-------|-------|
| FTMT    | –           | 5L-GOLD-OOD | 17.61 | 21.25 | 90.20 | 48.70 | 33.17 | 78.09 |
| NLG+MT  | –           | 5L-GOLD-OOD | 29.03 | 29.41 | 92.20 | 60.30 | 44.28 | 86.97 |
| FEWSHOT | LLaMA3-8B   | 5L-GOLD-OOD | 7.86  | 7.24  | 30.32 | 18.86 | 14.55 | 26.96 |
|         | LLaMA3-70B  | 5L-GOLD-OOD | 22.49 | 23.33 | 76.64 | 49.73 | 38.40 | 72.12 |
|         | Qwen2.5-7B  | 5L-GOLD-OOD | 38.12 | 34.02 | 93.53 | 69.30 | 51.88 | 89.77 |
|         | Qwen2.5-72B | 5L-GOLD-OOD | 48.07 | 41.32 | 95.07 | 74.25 | 61.65 | 93.48 |

Table 15: Few-shot and baseline results on 5L-GOLD-OOD. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions.

### B.3 Spanish Subsets Results

| Model   | LLM         | Dataset     | BLEU  | ChrF  | BS    | BLRT  | NMT   | SBERT |
|---------|-------------|-------------|-------|-------|-------|-------|-------|-------|
| FTMT    | –           | WebNLG      | 34.42 | 57.03 | 93.80 | 66.55 | 45.01 | 89.32 |
|         | –           | 5L-GOLD-OOD | 13.42 | 37.48 | 90.16 | 45.85 | 28.71 | 75.76 |
| NLG+MT  | –           | WebNLG      | 43.52 | 63.70 | 95.04 | 75.71 | 56.97 | 95.58 |
|         | –           | 5L-GOLD-OOD | 32.83 | 58.65 | 94.42 | 69.56 | 49.36 | 92.86 |
| FEWSHOT | LLaMA3-8B   | WebNLG      | 42.20 | 63.97 | 95.01 | 76.31 | 55.47 | 95.10 |
|         | LLaMA3-8B   | 5L-GOLD-OOD | 33.74 | 58.89 | 94.79 | 72.41 | 52.91 | 93.96 |
|         | LLaMA3-70B  | WebNLG      | 44.01 | 65.91 | 95.22 | 77.59 | 57.21 | 95.81 |
|         | LLaMA3-70B  | 5L-GOLD-OOD | 33.85 | 61.26 | 94.98 | 73.60 | 55.23 | 94.85 |
|         | Qwen2.5-7B  | WebNLG      | 40.40 | 63.44 | 94.92 | 76.47 | 55.00 | 95.15 |
|         | Qwen2.5-7B  | 5L-GOLD-OOD | 31.74 | 57.16 | 94.59 | 71.70 | 53.37 | 94.17 |
|         | Qwen2.5-72B | WebNLG      | 40.88 | 65.14 | 95.03 | 77.88 | 56.71 | 95.69 |
|         | Qwen2.5-72B | 5L-GOLD-OOD | 33.07 | 60.43 | 94.78 | 73.94 | 54.34 | 94.72 |

Table 16: Few-shot and baseline results on Spanish WebNLG and 5L-GOLD-OOD. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions.

### B.4 French Results

| Model   | LLM         | Dataset     | BLEU  | ChrF  | BS    | BLRT  | NMT   | SBERT |
|---------|-------------|-------------|-------|-------|-------|-------|-------|-------|
| FTMT    | –           | 5L-GOLD-OOD | 14.26 | 40.71 | 90.47 | 37.07 | 35.16 | 79.06 |
| NLG+MT  | –           | 5L-GOLD-OOD | 30.33 | 57.75 | 93.86 | 61.18 | 54.42 | 92.47 |
| FEWSHOT | LLaMA3-8B   | 5L-GOLD-OOD | 31.69 | 57.63 | 94.39 | 67.62 | 58.05 | 93.49 |
|         | LLaMA3-70B  | 5L-GOLD-OOD | 32.91 | 60.09 | 94.61 | 69.47 | 60.54 | 94.42 |
|         | Qwen2.5-7B  | 5L-GOLD-OOD | 29.89 | 56.00 | 94.21 | 66.36 | 58.09 | 93.62 |
|         | Qwen2.5-72B | 5L-GOLD-OOD | 33.19 | 60.81 | 94.66 | 70.83 | 61.22 | 94.48 |

Table 17: Few-shot and baseline results on 5L-GOLD-OOD. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions.

## B.5 Russian Results

| Model   | LLM         | Dataset     | BLEU  | ChrF  | BS    | BLRT  | NMT   | SBERT |
|---------|-------------|-------------|-------|-------|-------|-------|-------|-------|
| FTMT    | –           | WebNLG      | 25.43 | 48.89 | 93.64 | 69.38 | 48.76 | 89.86 |
|         | –           | 5L-GOLD-OOD | 11.18 | 31.61 | 90.63 | 51.46 | 29.31 | 81.05 |
| NLG+MT  | –           | WebNLG      | 23.45 | 46.74 | 93.17 | 67.25 | 45.94 | 89.21 |
|         | –           | 5L-GOLD-OOD | 19.51 | 41.83 | 92.61 | 63.55 | 39.97 | 90.30 |
| FEWSHOT | LLaMA3-8B   | WebNLG      | 25.64 | 51.03 | 93.82 | 72.41 | 48.62 | 91.34 |
|         | LLaMA3-8B   | 5L-GOLD-OOD | 23.11 | 45.07 | 93.55 | 71.87 | 46.88 | 92.06 |
|         | LLaMA3-70B  | WebNLG      | 27.30 | 52.88 | 94.00 | 73.76 | 51.14 | 92.05 |
|         | LLaMA3-70B  | 5L-GOLD-OOD | 26.64 | 50.74 | 94.18 | 74.77 | 51.30 | 93.36 |
|         | Qwen2.5-7B  | WebNLG      | 24.52 | 50.68 | 93.54 | 70.63 | 47.54 | 90.88 |
|         | Qwen2.5-7B  | 5L-GOLD-OOD | 24.37 | 47.53 | 93.51 | 70.38 | 47.74 | 92.07 |
|         | Qwen2.5-72B | WebNLG      | 24.88 | 52.69 | 93.68 | 91.29 | 49.21 | 91.29 |
|         | Qwen2.5-72B | 5L-GOLD-OOD | 27.84 | 52.34 | 94.21 | 75.05 | 51.99 | 93.61 |

Table 18: Few-shot and baseline results on Russian WebNLG and 5L-GOLD-OOD. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions.

## B.6 Breton Results (Br)

| Model   | LLM         | Dataset | BLEU  | ChrF  | BS    | BLRT  | NMT   | SBERT |
|---------|-------------|---------|-------|-------|-------|-------|-------|-------|
| FTMT    | –           | WebNLG  | 14.59 | 41.53 | 88.50 | 45.44 | 28.00 | 79.39 |
| NLG+MT  | –           | WebNLG  | 9.12  | 31.47 | 84.66 | 17.30 | 25.32 | 77.25 |
| FEWSHOT | LLaMA3-8B   | WebNLG  | 16.62 | 45.09 | 89.05 | 47.44 | 29.96 | 83.53 |
|         | LLaMA3-70B  | WebNLG  | 17.68 | 46.88 | 89.27 | 48.67 | 30.41 | 83.95 |
|         | Qwen2.5-7B  | WebNLG  | 12.62 | 40.87 | 87.64 | 44.77 | 26.19 | 81.45 |
|         | Qwen2.5-72B | WebNLG  | 14.18 | 43.87 | 88.50 | 47.30 | 28.58 | 83.10 |

Table 19: Few-shot and baseline results on Breton WebNLG. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions..

### B.7 Irish Results (Ga)

| Model   | LLM         | Dataset | BLEU  | ChrF  | BS    | BLRT  | NMT   | SBERT |
|---------|-------------|---------|-------|-------|-------|-------|-------|-------|
| FTMT    | –           | WebNLG  | 14.70 | 42.09 | 89.32 | 52.85 | 21.38 | 75.84 |
| NLG+MT  | –           | WebNLG  | 15.78 | 43.09 | 89.79 | 54.65 | 21.75 | 78.45 |
| FEWSHOT | LLaMA3-8B   | WebNLG  | 16.45 | 46.20 | 89.80 | 55.73 | 20.44 | 80.32 |
|         | LLaMA3-70B  | WebNLG  | 17.27 | 48.46 | 90.23 | 59.59 | 21.28 | 81.27 |
|         | Qwen2.5-7B  | WebNLG  | 13.66 | 43.38 | 89.07 | 49.47 | 17.46 | 78.76 |
|         | Qwen2.5-72B | WebNLG  | 16.14 | 47.93 | 89.90 | 57.09 | 20.01 | 81.27 |

Table 20: Few-shot and baseline results on Irish WebNLG. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions..

### B.8 Maltese Results (Mt)

| Model   | LLM         | Dataset | BLEU  | ChrF  | BS    | BLRT  | NMT | SBERT |
|---------|-------------|---------|-------|-------|-------|-------|-----|-------|
| FTMT    | –           | WebNLG  | 10.93 | 39.42 | 87.97 | 21.71 | -   | 76.50 |
| NLG+MT  | –           | WebNLG  | 14.03 | 46.70 | 89.26 | 33.39 | -   | 83.23 |
| FEWSHOT | LLaMA3-8B   | WebNLG  | 14.36 | 46.31 | 89.03 | 29.25 | -   | 84.93 |
|         | LLaMA3-70B  | WebNLG  | 15.92 | 50.07 | 89.72 | 34.41 | -   | 86.99 |
|         | Qwen2.5-7B  | WebNLG  | 12.42 | 43.35 | 88.20 | 24.42 | -   | 83.93 |
|         | Qwen2.5-72B | WebNLG  | 13.49 | 47.22 | 89.02 | 23.98 | -   | 85.69 |

Table 21: Few-shot and baseline results on Maltese WebNLG. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions..

### B.9 Welsh Results (Cy)

| Model   | LLM         | Dataset | BLEU  | ChrF  | BS    | BLRT  | NMT   | SBERT |
|---------|-------------|---------|-------|-------|-------|-------|-------|-------|
| FTMT    | –           | WebNLG  | 12.94 | 38.50 | 88.78 | 27.40 | 19.22 | 76.04 |
| NLG+MT  | –           | WebNLG  | 16.35 | 43.53 | 89.93 | 32.29 | 20.79 | 81.98 |
| FEWSHOT | LLaMA3-8B   | WebNLG  | 17.08 | 47.34 | 90.43 | 38.06 | 20.59 | 83.45 |
|         | LLaMA3-70B  | WebNLG  | 17.20 | 49.25 | 90.80 | 41.26 | 21.73 | 84.20 |
|         | Qwen2.5-7B  | WebNLG  | 12.13 | 42.43 | 88.97 | 25.39 | 16.81 | 80.36 |
|         | Qwen2.5-72B | WebNLG  | 13.73 | 46.24 | 89.89 | 32.68 | 18.76 | 83.12 |

Table 22: Few-shot and baseline results on Welsh WebNLG. Abbreviations: CP = Control Prefix (refers to NLG-MT), BS = BERTScore, BLRT = Bleurt, NMT = NMTScore-Direct. All values are multiplied by 100 for better readability, and all LLMs are instruction-tuned versions..

## C Prompting Options

This section illustrates the various components of the prompting strategies we tried. The three ways of selecting few shots (random, size based and overlap) are shown in [Listing 1](#), [Listing 2](#) and [Listing 3](#) using the Direct Generation approach. The Chain-of-Thought prompting is illustrated in [Listing 4](#), and Cumulative Generation in [Listing 5](#), [Listing 6](#) and [Listing 7](#) all with Overlap few-shots. Enriching the input with labels was shown in the main body of the paper ([Table 5](#)).

```
<|begin_of_text|><|start_header_id|>user <|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "Mermaid_(Train_song)",
      "property": "producer",
      "object": "Espionage_(production_team)"
    },
    {
      "id": 1,
      "subject": "Mermaid_(Train_song)",
      "property": "followedBy",
      "object": "Imagine_(John_Lennon_song)"
    },
    {
      "id": 2,
      "subject": "Imagine_(John_Lennon_song)",
      "property": "musicalArtist",
      "object": "John_Lennon"
    },
    {
      "id": 3,
      "subject": "Imagine_(John_Lennon_song)",
      "property": "certification",
      "object": "FIMI"
    }
  ]
}

Generate a lexicalisation of all the 4 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant <|end_header_id|>

{
  "full-text": "The Train song Mermaid, produced by the Espionage production team,
  was followed by John Lennon's song Imagine. Musician John Lennon wrote the song
  Imagine which is certified by FIMI."
}
<|eot_id|><|start_header_id|>user <|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "Western Goals Foundation",
      "property": "formationDate",
      "object": "01 January 1979"
    },
    {
      "id": 1,
      "subject": "Western Goals Foundation",
      "property": "country",
      "object": "United States"
    }
  ]
}

Generate a lexicalisation of all the 2 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant <|end_header_id|>
```

Listing 1: Example of Direct generation using Random One-Shot in English

```

<|begin_of_text|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "Buzz_Aldrin",
      "property": "birthDate",
      "object": "1930-01-20"
    },
    {
      "id": 1,
      "subject": "Buzz_Aldrin",
      "property": "mission",
      "object": "Apollo_11"
    }
  ]
}

Generate a lexicalisation of all the 2 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

{
  "full-text": "Buzz Aldrin (born on 1930-01-20) was in the Apollo 11 mission."
}
<|eot_id|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "Western Goals Foundation",
      "property": "formationDate",
      "object": "01 January 1979"
    },
    {
      "id": 1,
      "subject": "Western Goals Foundation",
      "property": "country",
      "object": "United States"
    }
  ]
}

Generate a lexicalisation of all the 2 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

```

Listing 2: Example of Direct generation using Size One-Shot in English

```

<|begin_of_text|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "AmeriGas",
      "property": "country",
      "object": "United States"
    },
    {
      "id": 1,
      "subject": "AmeriGas",
      "property": "foundingDate",
      "object": "1959-01-01"
    }
  ]
}

Generate a lexicalisation of all the 2 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

{
  "full-text": "AmeriGas was founded in the United States on 1959-01-01."
}
<|eot_id|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "Western Goals Foundation",
      "property": "formationDate",
      "object": "01 January 1979"
    },
    {
      "id": 1,
      "subject": "Western Goals Foundation",
      "property": "country",
      "object": "United States"
    }
  ]
}

Generate a lexicalisation of all the 2 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

```

Listing 3: Example of Direct generation using Overlap One-Shot English

```

<|begin_of_text|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "AmeriGas",
      "property": "country",
      "object": "United States"
    },
    {
      "id": 1,
      "subject": "AmeriGas",
      "property": "foundingDate",
      "object": "1959-01-01"
    }
  ]
}

Generate a lexicalisation of all the 2 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

{
  "individual-lexicalisations": [
    {
      "id": 0,
      "lex": "AmeriGas is in the United States."
    },
    {
      "id": 1,
      "lex": "AmeriGas was founded on 1959-01-01."
    }
  ],
  "full-text": "AmeriGas was founded in the United States on 1959-01-01."
}
<|eot_id|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "Western Goals Foundation",
      "property": "formationDate",
      "object": "01 January 1979"
    },
    {
      "id": 1,
      "subject": "Western Goals Foundation",
      "property": "country",
      "object": "United States"
    }
  ]
}

Generate a lexicalisation of all the 2 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

```

Listing 4: Example of CoT generation using Overlap One-Shot English

```

<|begin_of_text|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "AmeriGas",
      "property": "foundingDate",
      "object": "1959-01-01"
    }
  ]
}

Generate a lexicalisation of all the 1 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

{
  "full-text": "AmeriGas was founded on 1959-01-01."
}
<|eot_id|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "Western Goals Foundation",
      "property": "formationDate",
      "object": "01 January 1979"
    }
  ]
}

Generate a lexicalisation of all the 1 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

```

Listing 5: Example of Cumulative generation (Step 1a) using Overlap One-Shot English

```

<|begin_of_text|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "AmeriGas",
      "property": "country",
      "object": "United States"
    }
  ]
}

Generate a lexicalisation of all the 1 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

{
  "full-text": "AmeriGas is in the United States."
}
<|eot_id|><|start_header_id|>user<|end_header_id|>

{
  "data": [
    {
      "id": 0,
      "subject": "Western Goals Foundation",
      "property": "country",
      "object": "United States"
    }
  ]
}

Generate a lexicalisation of all the 1 triples in English.
When necessary, generate text from other languages in their original script.
Include all the information from the triples regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

```

Listing 6: Example of Cumulative generation (Step 1b) using Overlap One-Shot English

```

<|begin_of_text|><|start_header_id|>user<|end_header_id|>

{
  "sentences": [
    "AmeriGas was founded on 1959-01-01.",
    "AmeriGas is in the United States."
  ]
}

Generate a combined paragraph of all the 2 sentences in English.
Include all the information from the sentences regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

{
  "full-text": "AmeriGas was founded in the United States on 1959-01-01."
}
<|eot_id|><|start_header_id|>user<|end_header_id|>

{
  "sentences": [
    "Western Goals Foundation was formed on 01 January 1979.",
    "Western Goals Foundation is in the United States."
  ]
}

Generate a combined paragraph of all the 2 sentences in English.
Include all the information from the sentences regardless of their type or relevance.
<|eot_id|><|start_header_id|>assistant<|end_header_id|>

```

Listing 7: Example of Cumulative generation (Step 2) using Overlap One-Shot English

## D Hyper Parameters

Table 23 shows the hyperparameters of the different generation approaches.

| HyperParameter      | FTMT(Helsinki)     | FTMT (M2M)          | NLG+MT                              | Prompting (7/8B)    | Prompting (70/72B)    |
|---------------------|--------------------|---------------------|-------------------------------------|---------------------|-----------------------|
| <b>General</b>      |                    |                     |                                     |                     |                       |
| Hardware Parameters | 1 32GB V100<br>75M | 1 32GB V100<br>1.2B | 1 32GB V100<br>770M + (75M or 1.2B) | 1 32GB V100<br>7/8B | 1 80GB H100<br>70/72B |
| <b>Training</b>     |                    |                     |                                     |                     |                       |
| Instances           | ~ 35K              | ~ 35K               | ~ 35K                               | N/A                 | N/A                   |
| Epochs              | 4                  | 4                   | 40                                  | N/A                 | N/A                   |
| Time                | ~ 1h               | ~ 5h                | ~ 40h                               | N/A                 | N/A                   |
| Optimizer           | Adafactor          | Adafactor           | Adafactor                           | N/A                 | N/A                   |
| Learning Rate       | 2e-5               | 2e-5                | 7e-5                                | N/A                 | N/A                   |
| <b>Inference</b>    |                    |                     |                                     |                     |                       |
| Num. Beam           | 4                  | 5                   | 5                                   | N/A                 | N/A                   |
| Temperature         | N/A                | N/A                 | N/A                                 | 0.7                 | 0.7                   |
| Top P               | N/A                | N/A                 | N/A                                 | 0.7                 | 0.7                   |

Table 23: Hyper parameters of the different models.

## E Qualitative Case Studies: Best and Worst Generations by BLEU and SBERT

This appendix provides qualitative case studies for all three approaches. For each language and each generation approach (FTMT, NLG+MT, and FEWSHOT) we extract four representative outputs on the 5L-GOLD-OOD test set:

- the *highest-scoring* sentence according to **BLEU**;
- the *lowest-scoring* sentence according to **BLEU**;
- the *highest-scoring* sentence according to **SBERT**;
- the *lowest-scoring* sentence according to **SBERT**.

Each table lists the input RDF graph, the human reference, the system generation, and the corresponding metric value, allowing readers to inspect typical successes (accurate fact coverage) and failures (entity omission or hallucination) that are not visible from corpus-level scores alone.

### E.1 English Generations on 5L-GOLD-OOD by FTMT

| Model | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                      |
|-------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FTMT  | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                         |
|       | Graph                      | [[ 'Antigua and Barbuda   official language   English' ]]                                                                                                                                                                                                                                                                                                            |
|       | Reference                  | The official language of Antigua and Barbuda is English.                                                                                                                                                                                                                                                                                                             |
|       | Generation                 | The official language of Antigua and Barbuda is English.                                                                                                                                                                                                                                                                                                             |
|       | <i>Worst on BLEU</i>       | <b>0.0</b>                                                                                                                                                                                                                                                                                                                                                           |
|       | Graph                      | [ 'water   has use   hydroponics', 'water   canonical SMILES   O', 'water   InChI   InChI=1S/H2O/h1H2', 'water   chemical formula   H <sub>2</sub> O', 'water   has use   refrigerant', 'water   has use   potential energy', 'water   has use   nuclear reactor coolant' ]                                                                                          |
|       | Reference                  | Riboflavin is used as a medication, food additive, and food coloring. It has the ATC code S01XA26 and the chemical formula ...                                                                                                                                                                                                                                       |
|       | Generation                 | The COCOO OO OO OO OO OO OO ... (repeated)                                                                                                                                                                                                                                                                                                                           |
|       | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                         |
|       | Graph                      | [ '1997 British Open   tournament type   ranking tournament' ]                                                                                                                                                                                                                                                                                                       |
|       | Reference                  | The 1997 British Open was a ranking tournament.                                                                                                                                                                                                                                                                                                                      |
|       | Generation                 | The 1997 British Open was a ranking tournament.                                                                                                                                                                                                                                                                                                                      |
|       | <i>Worst on SBERT</i>      | <b>18.26</b>                                                                                                                                                                                                                                                                                                                                                         |
|       | Graph                      | Eiffel Tower   location   Paris; Eiffel Tower   height   300m                                                                                                                                                                                                                                                                                                        |
|       | Reference                  | Ecuador's Inequality-adjusted Human Development Index is 0.604. The country's Democracy Index is 5.71. Ecuador has a Happy Planet Index score of 58.8. The official name of Ecuador is Republik Ekuador. The official website is <a href="http://www.turismo.gob.ec/">http://www.turismo.gob.ec/</a> . Ecuador has Shuar and Northern Quichua as official languages. |
|       | Generation                 | The Republic of the Republic of the Republic of the Republic of the Republic of... (repeated)                                                                                                                                                                                                                                                                        |

Table 24: Best and worst English generations on 5L-GOLD-OOD by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.2 English Generations on 5L-GOLD-OOD by NLG+MT

| Model  | Example (metric / quality) | Score / Content                                                                                                                                                                                                                      |
|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NLG+MT | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                         |
|        | Graph                      | ['Iberia   country   Spain']                                                                                                                                                                                                         |
|        | Reference                  | Iberia is in Spain.                                                                                                                                                                                                                  |
|        | Generation                 | Iberia is in Spain.                                                                                                                                                                                                                  |
|        | <i>Worst on BLEU</i>       | <b>2.09</b>                                                                                                                                                                                                                          |
|        | Graph                      | ['gram-negative bacterial infection   health specialty   infectious diseases', 'gram-negative bacterial infection   drug or therapy used for treatment   cefoperazone', 'gram-negative bacterial infection   has cause   infection'] |
|        | Reference                  | Gram-negative bacterial infection is an infectious disease and can be treated with cefoperazone.                                                                                                                                     |
|        | Generation                 | Cefoperazone is a drug or therapy used for the treatment of gram-negative bacterial infections, which is a health specialty in infective diseases and causes an infection.                                                           |
|        | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                         |
|        | Graph                      | ['Iberia   country   Spain']                                                                                                                                                                                                         |
|        | Reference                  | Iberia is in Spain.                                                                                                                                                                                                                  |
|        | Generation                 | Iberia is in Spain.                                                                                                                                                                                                                  |
|        | <i>Worst on SBERT</i>      | <b>52.68</b>                                                                                                                                                                                                                         |
|        | Graph                      | ['Electronic Government and the Information Systems Perspective - Second International Conference, EGOVIS 2011, Toulouse, France, August 29 - September 2, 2011   country   France']                                                 |
|        | Reference                  | The Second International Conference, EGOVIS 2011 was held in France.                                                                                                                                                                 |
|        | Generation                 | The Electronic Government and the Information Systems Perspective - Second International Conference, EGOVIS 2011, Toulouse, France, August 29 - September 2, 2011.                                                                   |

Table 25: Best and worst English generations on 5L-GOLD-OOD by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

### E.3 English Generations on 5L-GOLD-OOD by FewShot

| Model   | Example (metric / quality) | Score / Content                                                                                                                                                                                               |
|---------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                  |
|         | Graph                      | ['Flybmi   airline accounting code   480', 'Flybmi   callsign of airline   MIDLAND', 'Flybmi   ICAO airline designator   BMR']                                                                                |
|         | Reference                  | Flybmi has an airline accounting code of 480, a callsign of MIDLAND, and an ICAO airline designator of BMR.                                                                                                   |
|         | Generation                 | Flybmi has an airline accounting code of 480, a callsign of MIDLAND, and an ICAO airline designator of BMR.                                                                                                   |
|         | <i>Worst on BLEU</i>       | <b>7.35</b>                                                                                                                                                                                                   |
|         | Graph                      | ['Jared Murillo   dance style   ballroom dance', 'Jared Murillo   country of citizenship   United States']                                                                                                    |
|         | Reference                  | Jared Murillo is an American ballroom dancer.                                                                                                                                                                 |
|         | Generation                 | Jared Murillo, a United States citizen, specializes in ballroom dance.                                                                                                                                        |
|         | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                  |
|         | Graph                      | ['Mongolia   Inequality-adjusted Human Development Index   0.644', 'Mongolia   Democracy Index   6.42', 'Mongolia   Happy Planet Index score   24.5', 'Mongolia   official name   [Mongolian Tokens]']        |
|         | Reference                  | Mongolia, officially known as [Mongolian Tokens], has an Inequality-adjusted Human Development Index of 0.644, a Democracy Index of 6.42, and a Happy Planet Index score of 24.5.                             |
|         | Generation                 | Mongolia, officially known as [Mongolian Tokens], has an Inequality-adjusted Human Development Index of 0.644, a Democracy Index of 6.42, and a Happy Planet Index score of 24.5.                             |
|         | <i>Worst on SBERT</i>      | <b>80.65</b>                                                                                                                                                                                                  |
|         | Graph                      | ['Electronic Government and the Information Systems Perspective - Second International Conference, EGOVIS 2011, Toulouse, France, August 29 - September 2, 2011   country   France']                          |
|         | Reference                  | The Second International Conference, EGOVIS 2011 was held in France.                                                                                                                                          |
|         | Generation                 | The Second International Conference, EGOVIS 2011, Electronic Government and the Information Systems Perspective, took place in Toulouse, France, from August 29 to September 2, 2011, and was held in France. |

Table 26: Best and worst English generations on 5L-GOLD-OOD by FewShot (LLaMA-3.1-70B-Instruct) according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold. [Mongolian Tokens] refers to some tokens in Mongolian script (ISO 15924 Mong) which can not be compiled.

#### E.4 Chinese Generations on 5L-GOLD-OOD by FTMT

[illegible]

Table 27: Best and worst Chinese generations on 5L-GOLD-ODD by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.5 Chinese Generations on 5L-GOLD-OOD by NLG+MT

| Model  | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NLG+MT | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|        | Graph                      | [‘1997 British Open   tournament type   ranking tournament’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|        | Reference                  | 1997年英国公开赛是一个排名锦标赛。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|        | Generation                 | 1997年英国公开赛是一个排名锦标赛。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|        | <i>Worst on BLEU</i>       | <b>0.0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|        | Graph                      | [‘dactinomycin   has use   medication’, ‘dactinomycin   ATC code   L01DA01’, ‘dactinomycin   canonical SMILES   CC1C(C(=O)NC(C(=O)N2C...C)C)C)N)C’, ‘dactinomycin   InChI   InChI=1S/C62H86N...+,48+,49+/m1/s1’, ‘dactinomycin   chemical formula   C <sub>62</sub> H <sub>86</sub> N <sub>12</sub> O <sub>16</sub> ’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|        | Reference                  | 放线菌素（dactinomycin）的化学表达式为C <sub>62</sub> H <sub>86</sub> N <sub>12</sub> O <sub>16</sub> ，它的标准SMILES表达式为CC1C(C(=O)NC(C(=O)N2CCCC2C(=O)N(CC(=O)N(C(C(=O)O1)C(C)C)C)C)C)NC(=O)C3=C4C(=C(C=C3)C)OC5=C(C(=O)C(=C(C5=N4)C(=O)NC6C(OC(=O)C(N(C(=O)CN(C(=O)C7CCCN7C(=O)C(NC6=O)C(C)C)C)C)C)C)N)C，它的InChI表达式为InChI=1S/C62H86N12O16/c1-27(2)42-59(84)73-23-17-19-36(73)57(82)69(13)25-38(75)71(15)48(29(5)6)61(86)88-33(11)44(55(80)65-42)67-53(78)35-22-21-31(9)51-46(35)64-47-40(41(63)50(77)32(10)52(47)90-51)54(79)68-45-34(12)89-62(87)49(30(7)8)72(16)39(76)26-70(14)58(83)37-20-18-24-74(37)60(85)43(28(3)4)66-56(45)81/h21-22,27-30,33-34,36-37,42-45,48-49H,17-20,23-26,63H2,1-16H3,(H,65,80)(H,66,81)(H,67,78)(H,68,79)/t33-,34-,36+,37+,42-,43-,44+,45+,48+,49+/m1/s1。同时，它具有ATC代码L01DA01。它的主要用途为药品 |
|        | Generation                 | [Empty]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|        | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|        | Graph                      | [‘1997 British Open   tournament type   ranking tournament’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|        | Reference                  | 1997年英国公开赛是一个排名锦标赛。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|        | Generation                 | 1997年英国公开赛是一个排名锦标赛。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|        | <i>Worst on SBERT</i>      | <b>10.25</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|        | Graph                      | [‘D-ribulose   InChI   InChI=1S/C5H10O5/c6-1-3(8)5(10)4(9)2-7/h3,5-8,10H,1-2H2/t3-,5-/m1/s1’, ‘D-ribulose   chemical formula   C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> ’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|        | Reference                  | 核酮糖（D-ribulose）具有化学表达式 C <sub>5</sub> H <sub>10</sub> O <sub>5</sub> 和InChI表达式InChI = 1S/C5H10O5/c6-1-3(8)5(10)4(9)2-7/h3,5-8,10H,1-2H2/t3-,5-/m1/s1。                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|        | Generation                 | [Empty]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

Table 28: Best and worst Chinese generations on 5L-GOLD-OOD by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.6 Chinese Generations on 5L-GOLD-OOD by FewShot

| Model   | Example (metric / quality) | Score / Content                                          |
|---------|----------------------------|----------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>100.0</b>                                             |
|         | Graph                      | ['Antigua and Barbuda   official language   English']    |
|         | Reference                  | 安提瓜和巴布达的官方语言是英语。                                         |
|         | Generation                 | 安提瓜和巴布达的官方语言是英语。                                         |
|         | <i>Worst on BLEU</i>       | <b>3.63</b>                                              |
|         | Graph                      | ['Jonathan Roberts   dance style   ballroom dance']      |
|         | Reference                  | 乔纳森·罗伯茨是一个交谊舞舞者                                          |
|         | Generation                 | Jonathan Roberts 的舞蹈风格是社交舞。                              |
|         | <i>Best on SBERT</i>       | <b>100.0</b>                                             |
|         | Graph                      | ['Poland   Democracy Index   6.85']                      |
|         | Reference                  | 波兰的民主指数为6.85。                                            |
|         | Generation                 | 波兰的民主指数为6.85。                                            |
|         | <i>Worst on SBERT</i>      | <b>55.53</b>                                             |
|         | Graph                      | ['ASL Airlines Belgium   callsign of airline   QUALITY'] |
|         | Reference                  | ASL比利时航空的航空呼号是QUALITY。                                   |
|         | Generation                 | TNT航空的呼号是QUALITY。                                        |

Table 29: Best and worst Chinese generations on 5L-GOLD-OOD by FewShot Qwen2.5-72B-Instruct according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.7 French Generations on 5L-GOLD-OOD by FTMT

| Model | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                           |
|-------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FTMT  | <i>Best on BLEU</i>        | <b>75.06</b>                                                                                                                                                                                                                                                                                              |
|       | Graph                      | ['Brazil   official language   Portuguese']                                                                                                                                                                                                                                                               |
|       | Reference                  | La langue officielle du Brésil est le portugais.                                                                                                                                                                                                                                                          |
|       | Generation                 | La langue officielle du Brésil est le portais.                                                                                                                                                                                                                                                            |
|       | <i>Worst on BLEU</i>       | <b>9.15</b>                                                                                                                                                                                                                                                                                               |
|       | Graph                      | ['2008 Masters   sport   snooker', '2008 Masters   tournament type   invitational tournament', 'snooker   uses   snooker ball', '2008 Masters   number of participants   18']                                                                                                                             |
|       | Reference                  | Le Masters 2008 est un tournoi de snooker invité qui a compté 18 participants. Le snooker est un sport qui utilise des billes de snooker.                                                                                                                                                                 |
|       | Generation                 | Le club de football de football de football de football de football de... (repeated)                                                                                                                                                                                                                      |
|       | <i>Best on SBERT</i>       | <b>99.59</b>                                                                                                                                                                                                                                                                                              |
|       | Graph                      | ['Kosovo   official language   Albanian']                                                                                                                                                                                                                                                                 |
|       | Reference                  | Une langue officielle du Kosovo est l'albanais.                                                                                                                                                                                                                                                           |
|       | Generation                 | La langue officielle du Kosovo est l'Albanais.                                                                                                                                                                                                                                                            |
|       | <i>Worst on SBERT</i>      | <b>1.52</b>                                                                                                                                                                                                                                                                                               |
|       | Graph                      | ['lymphogranuloma venereum   has cause   Chlamydia trachomatis', 'lymphogranuloma venereum   has cause   Chlamydia trachomatis 434/BU', 'lymphogranuloma venereum   symptoms and signs   abscess']                                                                                                        |
|       | Reference                  | La fièvre de la tique du Colorado est causée par le virus de la fièvre à tique du Colorado et a une période d'incubation minimale de 1 jour chez l'homme.                                                                                                                                                 |
|       | Generation                 | Le corps céleste connu sous le nom de corps céleste connu sous le nom de corps céleste connu sous le nom de corps céleste connu sous le nom de corps céleste connu sous le nom de corps céleste connu sous le nom de corps céleste connu sous le nom de corps céleste connu sous le nom de corps céleste. |

Table 30: Best and worst French generations on 5L-GOLD-OOD by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.8 French Generations on 5L-GOLD-OOD by NLG+MT

[illegible]

Table 31: Best and worst French generations on 5L-GOLD-OOD by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.9 French Generations on 5L-GOLD-OOD by FewShot

| Model   | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                             |
|---------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                |
|         | Graph                      | ['Evelop Airlines   country   Spain']                                                                                                                                                                                                                                                       |
|         | Reference                  | Evelop Airlines est basée en Espagne.                                                                                                                                                                                                                                                       |
|         | Generation                 | Evelop Airlines est basée en Espagne.                                                                                                                                                                                                                                                       |
|         | <i>Worst on BLEU</i>       | <b>2.39</b>                                                                                                                                                                                                                                                                                 |
|         | Graph                      | ['Pediculus humanus capitis infestation   health specialty   infectious diseases', 'Pediculus humanus capitis infestation   symptoms and signs   irritability']                                                                                                                             |
|         | Reference                  | L'infestation par le Pediculus humanus capitis est une maladie infectieuse, caractérisée par des symptômes tels que l'irritabilité.                                                                                                                                                         |
|         | Generation                 | La pédiculose du cuir chevelu relève de la spécialité médicale de l'infectiologie et peut provoquer de l'irritabilité parmi ses symptômes.                                                                                                                                                  |
|         | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                |
|         | Graph                      | ['Evelop Airlines   country   Spain']                                                                                                                                                                                                                                                       |
|         | Reference                  | Evelop Airlines est basée en Espagne.                                                                                                                                                                                                                                                       |
|         | Generation                 | Evelop Airlines est basée en Espagne.                                                                                                                                                                                                                                                       |
|         | <i>Worst on SBERT</i>      | <b>60.24</b>                                                                                                                                                                                                                                                                                |
|         | Graph                      | ['yaws   health specialty   infectious diseases', 'yaws   drug or therapy used for treatment   benzylpenicillin', 'yaws   drug or therapy used for treatment   azithromycin', 'yaws   drug or therapy used for treatment   doxycycline', 'yaws   maximal incubation period in humans   90'] |
|         | Reference                  | Le pian est une maladie infectieuse qui peut être traitée avec de la benzylpénicilline, de l'azithromycine ou de la doxycycline. Chez l'homme, la période d'incubation maximale est de 90 jours.                                                                                            |
|         | Generation                 | La gale (yaws) relève de la spécialité médicale des maladies infectieuses. Elle peut être traitée par la benzylpénicilline, l'azithromycine ou la doxycycline. La période d'incubation maximale de la gale chez l'homme est de 90 jours.                                                    |

Table 32: Best and worst French generations on 5L-GOLD-OOD by FewShot Qwen2.5-72B-Instruct according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.10 Spanish Generations on 5L-GOLD-OOD by FTMT

| Model | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FTMT  | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                                                         |
|       | Graph                      | ['United Kingdom   official language   English']                                                                                                                                                                                                                                                                                                                                                                     |
|       | Reference                  | El idioma oficial del Reino Unido es el inglés.                                                                                                                                                                                                                                                                                                                                                                      |
|       | Generation                 | El idioma oficial del Reino Unido es el inglés.                                                                                                                                                                                                                                                                                                                                                                      |
|       | <i>Worst on BLEU</i>       | <b>9.70</b>                                                                                                                                                                                                                                                                                                                                                                                                          |
|       | Graph                      | ['Crimean-Congo hemorrhagic fever   drug or therapy used for treatment   corticosteroid', 'Crimean-Congo hemorrhagic fever   drug or therapy used for treatment   antibody', 'Crimean-Congo hemorrhagic fever   symptoms and signs   anuria', 'Crimean-Congo hemorrhagic fever   disease transmission process   contact transmission', 'Crimean-Congo hemorrhagic fever   maximal incubation period in humans   14'] |
|       | Reference                  | La fiebre hemorrágica de Crimea-Congo se transmite via contacto y puede causar síntomas como anuria. Se puede tratar con corticosteroides y anticuerpos y tiene un periodo máximo de incubación en humanos de 14.                                                                                                                                                                                                    |
|       | Generation                 | El cuerpo celeste conocido como el cuerpo celeste conocido como el cuerpo celeste... (repeated)                                                                                                                                                                                                                                                                                                                      |
|       | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                                                         |
|       | Graph                      | ['United Kingdom   official language   English']                                                                                                                                                                                                                                                                                                                                                                     |
|       | Reference                  | El idioma oficial del Reino Unido es el inglés.                                                                                                                                                                                                                                                                                                                                                                      |
|       | Generation                 | El idioma oficial del Reino Unido es el inglés.                                                                                                                                                                                                                                                                                                                                                                      |
|       | <i>Worst on SBERT</i>      | <b>-2.60</b>                                                                                                                                                                                                                                                                                                                                                                                                         |
|       | Graph                      | ['Crimean-Congo hemorrhagic fever   drug or therapy used for treatment   corticosteroid', 'Crimean-Congo hemorrhagic fever   drug or therapy used for treatment   antibody', 'Crimean-Congo hemorrhagic fever   symptoms and signs   anuria', 'Crimean-Congo hemorrhagic fever   disease transmission process   contact transmission', 'Crimean-Congo hemorrhagic fever   maximal incubation period in humans   14'] |
|       | Reference                  | La fiebre hemorrágica de Crimea-Congo se transmite via contacto y puede causar síntomas como anuria. Se puede tratar con corticosteroides y anticuerpos y tiene un periodo máximo de incubación en humanos de 14.                                                                                                                                                                                                    |
|       | Generation                 | El cuerpo celeste conocido como el cuerpo celeste conocido como el cuerpo celeste... (repeated)                                                                                                                                                                                                                                                                                                                      |

Table 33: Best and worst Spanish generations on 5L-GOLD-OOD by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

### E.11 Spanish Generations on 5L-GOLD-OOD by NLG+MT

| Model  | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  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| NLG+MT | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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|        | Graph                      | [‘Iberia   country   Spain’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     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|        | Reference                  | Iberia está en España.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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|        | Generation                 | Iberia está en España.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           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|        | <i>Worst on BLEU</i>       | <b>1.67</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      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|        | Graph                      | [‘isosorbide dinitrate   ATC code   C05AE02’, ‘isosorbide dinitrate   canonical SMILES   C1C(C2C(O1)C(CO2)O[N+](=O)[O-])O[N+](=O)[O-]’, ‘isosorbide dinitrate   InChI   InChI=1S/C6H8N2O8/c9-7(10)...6-/m1/s1’, ‘isosorbide dinitrate   chemical formula   C <sub>6</sub> H <sub>8</sub> N <sub>2</sub> O <sub>8</sub> ’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        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|

Table 34: Best and worst Spanish generations on 5L-GOLD-OOD by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.12 Spanish Generations on 5L-GOLD-OOD by FewShot

| Model   | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                             |
|---------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                |
|         | Graph                      | ['Royal Jordanian   country   Jordan']                                                                                                                                                                                                                                                      |
|         | Reference                  | Royal Jordanian es de Jordania.                                                                                                                                                                                                                                                             |
|         | Generation                 | Royal Jordanian es de Jordania.                                                                                                                                                                                                                                                             |
|         | <i>Worst on BLEU</i>       | <b>3.78</b>                                                                                                                                                                                                                                                                                 |
|         | Graph                      | ['Pakistan   suicide rate   9.8', 'Pakistan   Inequality-adjusted Human Development Index   0.38', 'Pakistan   Democracy Index   4.31', 'Pakistan   Happy Planet Index score   45.1']                                                                                                       |
|         | Reference                  | Pakistan tiene un índice de desarrollo humano ajustado a la desigualdad de 0,38 y un índice de democracia de 4,31. Su puntaje en el índice Happy Planet es de 45,1 y su tasa de suicidio es 9,8.                                                                                            |
|         | Generation                 | En Pakistán, la tasa de suicidios es de 9,8, mientras que el Índice de Desarrollo Humano ajustado por desigualdad es de 0.38. Además, el país tiene un Índice de Democracia de 4.31 y una puntuación en el Índice de Planeta Feliz de 45.1.                                                 |
|         | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                |
|         | Graph                      | ['Brazil   official language   Portuguese']                                                                                                                                                                                                                                                 |
|         | Reference                  | El idioma oficial de Brasil es el portugués.                                                                                                                                                                                                                                                |
|         | Generation                 | El idioma oficial de Brasil es el portugués.                                                                                                                                                                                                                                                |
|         | <i>Worst on SBERT</i>      | <b>77.20</b>                                                                                                                                                                                                                                                                                |
|         | Graph                      | ['yaws   health specialty   infectious diseases', 'yaws   drug or therapy used for treatment   benzylpenicillin', 'yaws   drug or therapy used for treatment   azithromycin', 'yaws   drug or therapy used for treatment   doxycycline', 'yaws   maximal incubation period in humans   90'] |
|         | Reference                  | La frambesia tiene un periodo máximo de incubación en humanos de 90. Puede ser tratado con bencilpenicilina, azitromicina o doxiciclina y cae bajo la especialidad de enfermedades infecciosas.                                                                                             |
|         | Generation                 | La enfermedad de yaws se clasifica dentro de las enfermedades infecciosas y puede ser tratada con Bencilpenicilina, azitromicina o doxiciclina. El período de incubación máximo en humanos es de 90 días.                                                                                   |

Table 35: Best and worst Spanish generations on 5L-GOLD-OOD by FewShot LLaMA-3.1-70B according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

### E.13 Russian Generations on 5L-GOLD-OOD by FTMT

[illegible]

Table 36: Best and worst Russian generations on 5L-GOLD-ODD by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.14 Russian Generations on 5L-GOLD-OOD by NLG+MT

| Model  | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NLG+MT | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|        | Graph                      | [‘luminol   has use   indicators and reagents’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|        | Reference                  | Люминол используется как индикатор и реагент.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|        | Generation                 | Люминол используется как индикатор и реагент.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|        | <i>Worst on BLEU</i>       | <b>11.15</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|        | Graph                      | [‘dactinomycin   has use   medication’, ‘dactinomycin   ATC code   L01DA01’, ‘dactinomycin   canonical SMILES   CC1C(C(=O)NC(C(=O)...N)C’, ‘dactinomycin   InChI   InChI=1S/C62H86N12O16...9+/m1/s1’, ‘dactinomycin   chemical formula   C <sub>62</sub> H <sub>86</sub> N <sub>12</sub> O <sub>16</sub> ’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|        | Reference                  | Дактиномицин, используемый в качестве лекарства, имеет код ATC L01DA01. Его химическая формула C <sub>62</sub> H <sub>86</sub> N <sub>12</sub> O <sub>16</sub> . Кроме того, его можно представить в системе канонического SMILES как CC1C(C(=O)NC(C(=O)N2CCCC2C(=O)N(CC(=O)N(C(C(=O)...N)C. Его представление InChI выглядит как 1S/C62H86N12O16/c1-27(2)42-59(84)73-23-17-19-36(73)57(82)69(13)25-38(75)71(15)48(29(5)6)61(86)88-33(11)44(55(80)65-42)67-53(78)35-22-21-31(9)51-46(35)64-47-40(41(63)50(77)32(10)52(47)90-51)54(79)68-45-34(12)89-62(87)49(30(7)8)72(16)39(76)26-70(14)58(83)37-20-18-24-74(37)60(85)43(28(3)4)66-56(45)81/h21-22,27-30,33-34,36-37,42-45,48-49H,17-20,23-26,63H2,1-16H3,(H,65,80)(H,66,81)(H,67,78)(H,68,79)/t33-,34-,36+,37+,42-,43-,44+,45+,48+,49+/m1/s1. |
|        | Generation                 | В соответствии со ст. 1 ст. 1 ст. 1 ст. 1 ст. 1 ст. 2 ст. 1 ст. 2 ст. 2 ст. 2 ст. 2 ст. 2 ст. 2 ст. 3 ст. 3 ст. 3 ст. 3 ст. ... 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|        | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|        | Graph                      | [‘luminol   has use   indicators and reagents’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|        | Reference                  | Люминол используется как индикатор и реагент.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|        | Generation                 | Люминол используется как индикатор и реагент.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|        | <i>Worst on SBERT</i>      | <b>24.52</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|        | Graph                      | [‘dactinomycin   has use   medication’, ‘dactinomycin   ATC code   L01DA01’, ‘dactinomycin   canonical SMILES   CC1C(C(=O)NC(C(=O)...N)C’, ‘dactinomycin   InChI   InChI=1S/C62H86N12O16...9+/m1/s1’, ‘dactinomycin   chemical formula   C <sub>62</sub> H <sub>86</sub> N <sub>12</sub> O <sub>16</sub> ’]                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|        | Reference                  | Дактиномицин, используемый в качестве лекарства, имеет код ATC L01DA01. Его химическая формула C <sub>62</sub> H <sub>86</sub> N <sub>12</sub> O <sub>16</sub> . Кроме того, его можно представить в системе канонического SMILES как CC1C(C(=O)NC(C(=O)N2CCCC2C(=O)N(CC(=O)N(C(C(=O)...N)C. Его представление InChI выглядит как 1S/C62H86N12O16/c1-27(2)42-59(84)73-23-17-19-36(73)57(82)69(13)25-38(75)71(15)48(29(5)6)61(86)88-33(11)44(55(80)65-42)67-53(78)35-22-21-31(9)51-46(35)64-47-40(41(63)50(77)32(10)52(47)90-51)54(79)68-45-34(12)89-62(87)49(30(7)8)72(16)39(76)26-70(14)58(83)37-20-18-24-74(37)60(85)43(28(3)4)66-56(45)81/h21-22,27-30,33-34,36-37,42-45,48-49H,17-20,23-26,63H2,1-16H3,(H,65,80)(H,66,81)(H,67,78)(H,68,79)/t33-,34-,36+,37+,42-,43-,44+,45+,48+,49+/m1/s1. |
|        | Generation                 | В соответствии со ст. 1 ст. 1 ст. 1 ст. 1 ст. 1 ст. 2 ст. 1 ст. 2 ст. 2 ст. 2 ст. 2 ст. 2 ст. 2 ст. 3 ст. 3 ст. 3 ст. 3 ст. ... 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст. 7 ст.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Table 37: Best and worst Russian generations on 5L-GOLD-OOD by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

### E.15 Russian Generations on 5L-GOLD-OOD by FewShot

| Model   | Example (metric / quality) | Score / Content                                                                                                                                                                      |
|---------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                         |
|         | Graph                      | [‘luminol   has use   indicators and reagents’]                                                                                                                                      |
|         | Reference                  | Люминол используется как индикатор и реагент.                                                                                                                                        |
|         | Generation                 | Люминол используется как индикатор и реагент.                                                                                                                                        |
|         | <i>Worst on BLEU</i>       | <b>1.29</b>                                                                                                                                                                          |
|         | Graph                      | [‘Electronic Government and the Information Systems Perspective - Second International Conference, EGOVIS 2011, Toulouse, France, August 29 - September 2, 2011   country   France’] |
|         | Reference                  | Коференция Electronic Government and the Information Systems Perspective - Second International Conference состоялась во Франции.                                                    |
|         | Generation                 | Вторая Международная конференция по электронному правительству и перспективам информационных систем (EGOVIS 2011) проходила в Тулузе, Франция, с 29 августа по 2 сентября 2011 года. |
|         | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                         |
|         | Graph                      | [‘cholera   disease transmission process   water-borne transmission’]                                                                                                                |
|         | Reference                  | Холера передается через воду.                                                                                                                                                        |
|         | Generation                 | Холера передается через воду.                                                                                                                                                        |
|         | <i>Worst on SBERT</i>      | <b>64.69</b>                                                                                                                                                                         |
|         | Graph                      | [‘Jade Above   dance style   house music’, ‘house music   country of origin   United States’]                                                                                        |
|         | Reference                  | Танцевальный стиль Jade Above — это хаус, жанр, который появился в Соединенных Штатах.                                                                                               |
|         | Generation                 | Джейд Абов танцует в стиле хаус, музыкальный жанр которого происходит из США.                                                                                                        |

Table 38: Best and worst Russian generations on 5L-GOLD-OOD by FewShot Qwen2.5-72B-Instruct according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.16 Breton Generations on WebNLG by FTMT

| Model | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                     |
|-------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FTMT  | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                        |
|       | Graph                      | ['Abdul-Taib_Mahmud   residence   Sarawak', 'Abdul-Taib_Mahmud   party   Parti_Pesaka_Bumiputera_Bersatu']                                                                                                                                                                                          |
|       | Reference                  | Ezel eo Abdul Taib Mahmud eus ar Parti Pesaka Bumiputera Bersatu ha bevañ a ra e Sarawak.                                                                                                                                                                                                           |
|       | Generation                 | Ezel eo Abdul Taib Mahmud eus ar Parti Pesaka Bumiputera Bersatu ha bevañ a ra e Sarawak.                                                                                                                                                                                                           |
|       | <i>Worst on BLEU</i>       | <b>0.75</b>                                                                                                                                                                                                                                                                                         |
|       | Graph                      | ['Mexico   currency   Mexican_peso', 'Mexico   demonym   Mexicans', 'Bionico   course   Dessert', 'Bionico   mainIngredient   "Chopped Fruits, Sour Cream, Condensed Milk, Granola, Shredded Coconut, Raisins"', 'Dessert   dishVariation   Sandesh_(confectionery)', 'Bionico   country   Mexico'] |
|       | Reference                  | Ar Bionico, un dibenn-pred a gaver e Bro-Vec'hiko, gant ar Sandesh ivez (lipouzi), zo graet gant koaven put, tammoù frouezh, laezh koazhet, granola, rezin sec'h ha kraoñ koko rasket hag ar Vec'hikaned, an dud a vev e Bro-Vec'hiko, a implij ar peso, moneiz ar vro, evit prenañ anezhañ.        |
|       | Generation                 | Sandesh (konfectionery) a zo ur varzhoneg eus Sandesh e Mec'hiko hag a zo hec'h arc'hant peso Mec'hiko. anavezet eo Mec'hiko evel Mec'hiko evel un dessert.                                                                                                                                         |
|       | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                        |
|       | Graph                      | ['Abdul-Taib_Mahmud   residence   Sarawak', 'Abdul-Taib_Mahmud   party   Parti_Pesaka_Bumiputera_Bersatu']                                                                                                                                                                                          |
|       | Reference                  | Ezel eo Abdul Taib Mahmud eus ar Parti Pesaka Bumiputera Bersatu ha bevañ a ra e Sarawak.                                                                                                                                                                                                           |
|       | Generation                 | Ezel eo Abdul Taib Mahmud eus ar Parti Pesaka Bumiputera Bersatu ha bevañ a ra e Sarawak.                                                                                                                                                                                                           |
|       | <i>Worst on SBERT</i>      | <b>34.12</b>                                                                                                                                                                                                                                                                                        |
|       | Graph                      | ['The_Two_Towers   precededBy   The_Fellowship_of_the_Ring']                                                                                                                                                                                                                                        |
|       | Reference                  | An Daou Dour a zeu war-lerc'h Breuriez ar Walenn.                                                                                                                                                                                                                                                   |
|       | Generation                 | The Two Towers a zo bet priet gant The Fellowship of the Ring.                                                                                                                                                                                                                                      |

Table 39: Best and worst Breton generations on WebNLG by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.17 Breton Generations on WebNLG by NLG+MT

| Model  | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NLG+MT | <i>Best on BLEU</i>        | <b>55.96</b>                                                                                                                                                                                                                                                                                                                                                                                                      |
|        | Graph                      | [ 'Bootleg_Series_Volume_1:_The_Quine_Tapes   artist   The_Velvet_Underground', 'Bootleg_Series_Volume_1:_The_Quine_Tapes   producer   The_Velvet_Underground' ]                                                                                                                                                                                                                                                  |
|        | Reference                  | The Velvet Underground, o deus product o albom Bootleg Series 1 : The Quine Tapes.                                                                                                                                                                                                                                                                                                                                |
|        | Generation                 | The Velvet Underground producted Bootleg Series Volume 1: The Quine Tapes.                                                                                                                                                                                                                                                                                                                                        |
|        | <i>Worst on BLEU</i>       | <b>0.44</b>                                                                                                                                                                                                                                                                                                                                                                                                       |
|        | Graph                      | [ 'Mexico   currency   Mexican_peso', 'Mexico   demonym   Mexicans', 'Bionico   course   Dessert', 'Bionico   region   Guadalajara', 'Bionico   ingredient   Sour_cream', 'Dessert   dishVariation   Sandesh_(confectionery)', 'Bionico   country   Mexico' ]                                                                                                                                                     |
|        | Reference                  | Ur vro eo Bro-Vec'hiko, hag an dud eno a vez graet Mec'hikaned anezhe. Ma fell deoc'h prenañ boued eno e vo ret deoc'h ober gant o moneiz, ar peso. Dibennoù-pred lipous zo e Bro-Vec'hiko, evel ar bionico. Meur a aozenn a ya d'ober ar bionico, en o zouesk koaven put, ha kavet e vez e Guadalajara hag e Mec'hiko kenkoulz all. Ma ne gavit ket mat ar bionico e c'hallit kemer sandesh, un dibenn-pred all. |
|        | Generation                 | Mae Sandesh (confectionery) a Bionico yn desserts. Mae Bionico o ranbarth Guadalajara ym Meccico lle mae'r arian cyfred y peso a'r bobl yn cael eu galw'n Meccicaniad.                                                                                                                                                                                                                                            |
|        | <i>Best on SBERT</i>       | <b>97.99</b>                                                                                                                                                                                                                                                                                                                                                                                                      |
|        | Graph                      | [ 'Bootleg_Series_Volume_1:_The_Quine_Tapes   producer   The_Velvet_Underground' ]                                                                                                                                                                                                                                                                                                                                |
|        | Reference                  | Product eo The Bootleg Series Volume I : The Quine Tapes gant The Velvet Underground.                                                                                                                                                                                                                                                                                                                             |
|        | Generation                 | The Velvet Underground producted Bootleg Series Volume 1: The Quine Tapes.                                                                                                                                                                                                                                                                                                                                        |
|        | <i>Worst on SBERT</i>      | <b>25.65</b>                                                                                                                                                                                                                                                                                                                                                                                                      |
|        | Graph                      | [ 'Kingdom_of_England   foundingYear   0927' ]                                                                                                                                                                                                                                                                                                                                                                    |
|        | Reference                  | Er bloaz 927 eo bet krouet Rouantelezh Bro-Saoz.                                                                                                                                                                                                                                                                                                                                                                  |
|        | Generation                 | Sefydlwyd Teyrnas Lloegr yn 0927.                                                                                                                                                                                                                                                                                                                                                                                 |

Table 40: Best and worst Breton generations on WebNLG by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.18 Breton Generations on WebNLG by FewShot

| Model   | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>83.05</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|         | Graph                      | [ 'Liselotte_Grschebina   birthDate   1908-05-02',<br>'Liselotte_Grschebina   nationality   Israel' ]                                                                                                                                                                                                                                                                                                                                                                                               |
|         | Reference                  | Liselotte Grschebina zo bet ganet d'an 2 a viz Mae 1908 hag he deus ar vroadelezh Israelian.                                                                                                                                                                                                                                                                                                                                                                                                        |
|         | Generation                 | Liselotte Grschebina a zo bet ganet d'an 2 a viz Mae 1908 hag he deus bro Israel.                                                                                                                                                                                                                                                                                                                                                                                                                   |
|         | <i>Worst on BLEU</i>       | <b>1.42</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|         | Graph                      | [ '11th_Mississippi_Infantry_Monument   location  <br>Adams_County,_Pennsylvania',<br>'11th_Mississippi_Infantry_Monument   municipality  <br>Gettysburg,_Pennsylvania', 'Adams_County,_Pennsylvania  <br>hasToItsSoutheast   Carroll_County,_Maryland',<br>'11th_Mississippi_Infantry_Monument   category  <br>Contributing_property', 'Adams_County,_Pennsylvania  <br>hasToItsNorth   Cumberland_County,_Pennsylvania',<br>'11th_Mississippi_Infantry_Monument   country   "United<br>States"' ] |
|         | Reference                  | Er Stadoù-Unanet emañ Monumant 11vet Rejumant Troadegiezh ar Mississippi, en ul lec'h anvet kumun Gettysburg e Kontelezh Adams, e Pennsylvania. Er gevred d'al lec'h-se emañ Kontelezh Carroll, er Maryland, hag en norzh emañ Kontelezh Cumberland, e Pennsylvania. Rummet eo Monumant 11vet Rejumant Troadegiezh ar Mississippi evel domani gladel.                                                                                                                                               |
|         | Generation                 | Echuet e voe gant an 11vet Mississippi Infantry monument e Gettysburg, Adams County, Pennsylvania, Stadoù-Unanet. Lec'hiet eo e kumuniezh kumunioù Gettysburg ha rummadet evel perzh kevredadel. Adams County a zo ouzh norzh Cumberland County, Pennsylvania ha soir-dehoù Carroll County, Maryland.                                                                                                                                                                                               |
|         | <i>Best on SBERT</i>       | <b>99.53</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|         | Graph                      | [ 'The_Hobbit   followedBy   The_Lord_of_the_Rings' ]                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|         | Reference                  | An Hobbit zo ul levr a ya Aotrou ar Gwalennoù war e lerc'h.                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|         | Generation                 | An Hobbit a zo heuliet gant Aotrou ar Gwalennoù.                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|         | <i>Worst on SBERT</i>      | <b>28.09</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|         | Graph                      | [ 'The_Fellowship_of_the_Ring   followedBy   The_Two_Towers',<br>'The_Fellowship_of_the_Ring   releaseDate   1954-07-29' ]                                                                                                                                                                                                                                                                                                                                                                          |
|         | Reference                  | Breuriezh ar Walenn, bet embannet d'an 29 a viz Gouere 1954, zo a-raok An Daou Dour.                                                                                                                                                                                                                                                                                                                                                                                                                |
|         | Generation                 | Embannet e voe al levr "The Fellowship of the Ring" d'an 1954-07-29, hag heuliet gant "The Two Towers".                                                                                                                                                                                                                                                                                                                                                                                             |

Table 41: Best and worst Breton generations on WebNLG by FewShot LLaMA-3.1-70B according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.19 Irish Generations on WebNLG by FTMT

| Model | Example (metric / quality) | Score / Content                                           |
|-------|----------------------------|-----------------------------------------------------------|
| FTMT  | <i>Best on BLEU</i>        | <b>100.0</b>                                              |
|       | Graph                      | ['Tokat   country   Turkey']                              |
|       | Reference                  | Tá Tokat suite sa Tuirc.                                  |
|       | Generation                 | Tá Tokat suite sa Tuirc.                                  |
|       | <i>Worst on BLEU</i>       | <b>0.0</b>                                                |
|       | Graph                      | ['Bedford_Aerodrome   cityServed   Bedford_Autodrome']    |
|       | Reference                  | Rinne Aeradróm Bedford fónamh do Rásraon Carranna Bedford |
|       | Generation                 | Tá Aeródróm Bheadford ag freastal ar chathair Bheadford.  |
|       | <i>Best on SBERT</i>       | <b>100.0</b>                                              |
|       | Graph                      | ['Anatole_de_Grunwald   deathPlace   London']             |
|       | Reference                  | Fuair Anatole de Grunwald bás i Londain.                  |
|       | Generation                 | Fuair Anatole de Grunwald bás i Londain.                  |
|       | <i>Worst on SBERT</i>      | <b>15.51</b>                                              |
|       | Graph                      | ['Manila   isPartOf   Metro_Manila']                      |
|       | Reference                  | Tá Mainile ina cuid de Mheitreo Mhainile.                 |
|       | Generation                 | Tá Manila mar chuid de Metro Manila.                      |

Table 42: Best and worst Irish generations on WebNLG by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.20 Irish Generations on WebNLG by NLG+MT

| Model  | Example (metric / quality) | Score / Content                                |
|--------|----------------------------|------------------------------------------------|
| NLG+MT | <i>Best on BLEU</i>        | <b>100.0</b>                                   |
|        | Graph                      | ['Anatole_de_Grunwald   deathPlace   London']  |
|        | Reference                  | Fuair Anatole de Grunwald bás i Londain.       |
|        | Generation                 | Fuair Anatole de Grunwald bás i Londain.       |
|        | <i>Worst on BLEU</i>       | <b>0.0</b>                                     |
|        | Graph                      | ['Ciudad_Ayala   type   City']                 |
|        | Reference                  | ""                                             |
|        | Generation                 | Tá Ciudad Ayala ina chathair.                  |
|        | <i>Best on SBERT</i>       | <b>100.0</b>                                   |
|        | Graph                      | ['Anatole_de_Grunwald   deathPlace   London']  |
|        | Reference                  | Fuair Anatole de Grunwald bás i Londain.       |
|        | Generation                 | Fuair Anatole de Grunwald bás i Londain.       |
|        | <i>Worst on SBERT</i>      | <b>9.73</b>                                    |
|        | Graph                      | ['Istanbul   populationMetroDensity   2691.0'] |
|        | Reference                  | ""                                             |
|        | Generation                 | Tá 2691.0 duine ina gcónaí i Istanbul.         |

Table 43: Best and worst Irish generations on WebNLG by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.21 Irish Generations on WebNLG by FewShot

| Model   | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                |
|---------|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                                   |
|         | Graph                      | ['Kingdom_of_England   foundingYear   0927']                                                                                                                                                                                                                                                                   |
|         | Reference                  | Bunafodh Ríocht Shasana sa bhliain 927.                                                                                                                                                                                                                                                                        |
|         | Generation                 | Bunafodh Ríocht Shasana sa bhliain 927.                                                                                                                                                                                                                                                                        |
|         | <i>Worst on BLEU</i>       | <b>0.0</b>                                                                                                                                                                                                                                                                                                     |
|         | Graph                      | ['Super_Capers   editing   Stacy_Katzman', 'Super_Capers   starring   Michael_Rooker', 'Super_Capers   starring   Tom_Sizemore', 'Super_Capers   language   English_language', 'Super_Capers   runtime   98.0', 'Super_Capers   distributor   Roadside_Attractions', 'Super_Capers   distributor   Lionsgate'] |
|         | Reference                  | ""                                                                                                                                                                                                                                                                                                             |
|         | Generation                 | Is cathair é Ciudad Ayala.                                                                                                                                                                                                                                                                                     |
|         | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                                   |
|         | Graph                      | ['Anatole_de_Grunwald   deathPlace   London']                                                                                                                                                                                                                                                                  |
|         | Reference                  | Fuair Anatole de Grunwald bás i Londain.                                                                                                                                                                                                                                                                       |
|         | Generation                 | Fuair Anatole de Grunwald bás i Londain.                                                                                                                                                                                                                                                                       |
|         | <i>Worst on SBERT</i>      | <b>17.30</b>                                                                                                                                                                                                                                                                                                   |
|         | Graph                      | ['Manila   isPartOf   Metro_Manila']                                                                                                                                                                                                                                                                           |
|         | Reference                  | Tá Mainile ina cuid de Mheitreo Mhainile.                                                                                                                                                                                                                                                                      |
|         | Generation                 | Is Manila cuid de Metro Manila.                                                                                                                                                                                                                                                                                |

Table 44: Best and worst Irish generations on WebNLG by FewShot LLaMA-3.1-70B according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.22 Welsh Generations on WebNLG by FTMT

| Model | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                        |
|-------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FTMT  | <i>Best on BLEU</i>        | <b>84.65</b>                                                                                                                                                                                                                                           |
|       | Graph                      | ['Detroit   isPartOf   Michigan']                                                                                                                                                                                                                      |
|       | Reference                  | Mae Detroit yn rhan o Michigan.                                                                                                                                                                                                                        |
|       | Generation                 | Detroit yn rhan o Michigan.                                                                                                                                                                                                                            |
|       | <i>Worst on BLEU</i>       | <b>0.0</b>                                                                                                                                                                                                                                             |
|       | Graph                      | ['Lady_Anne_Monson   deathDate   1776-02-18',<br>'Lady_Anne_Monson   nationality   Kingdom_of_England',<br>'Lady_Anne_Monson   residence   India', 'Lady_Anne_Monson  <br>spouse   George_Monson', 'Lady_Anne_Monson   professionalField<br>  Botany'] |
|       | Reference                  | Roedd y Fonesig Anne Monson, o Loegr, yn byw yn India gyda'i phriod<br>George Monson. Gyda Botaneg fel ei maes proffesiynol, bu farw ar<br>1776-02-18.                                                                                                 |
|       | Generation                 | Mae'r Daleithiau Daleithiau Daleithiau Daleithiau Daleithiau Daleithiau<br>Daleithiau Daleithiau Daleithiau Daleithiau Daleithiau Daleithiau                                                                                                           |
|       | <i>Best on SBERT</i>       | <b>99.40</b>                                                                                                                                                                                                                                           |
|       | Graph                      | ['Detroit   isPartOf   Michigan']                                                                                                                                                                                                                      |
|       | Reference                  | Mae Detroit yn rhan o Michigan.                                                                                                                                                                                                                        |
|       | Generation                 | Detroit yn rhan o Michigan.                                                                                                                                                                                                                            |
|       | <i>Worst on SBERT</i>      | <b>14.40</b>                                                                                                                                                                                                                                           |
|       | Graph                      | ['Liselotte_Grschebina   nationality   Israel',<br>'Liselotte_Grschebina   birthPlace   German_Empire',<br>'Liselotte_Grschebina   training  <br>School_of_Applied_Arts_in_Stuttgart']                                                                 |
|       | Reference                  | Ganwyd Liselotte Grschebina yn Ymerodraeth yr Almaen, ei chenedligrwydd<br>yw Israelaidd a mynychodd the School of Applied Arts yn Stuttgart.                                                                                                          |
|       | Generation                 | Mae'r Daleithiau Daleithiau yn wladwriaeth i'r Daleithiau Daleithiau. Mae'r<br>Daleithiau Daleithiau yn wladwriaeth i'r Daleithiau Daleithiau a'r Daleithiau<br>Daleithiau yn y Daleithiau Daleithiau.                                                 |

Table 45: Best and worst Welsh generations on WebNLG by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

### E.23 Welsh Generations on WebNLG by NLG+MT

| Model  | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                                       |
|--------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NLG+MT | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                          |
|        | Graph                      | ['Ciudad_Ayala   type   City']                                                                                                                                                                                                                                                                                                                                                        |
|        | Reference                  | Mae Ciudad Ayala yn ddinas.                                                                                                                                                                                                                                                                                                                                                           |
|        | Generation                 | Mae Ciudad Ayala yn ddinas.                                                                                                                                                                                                                                                                                                                                                           |
|        | <i>Worst on BLEU</i>       | <b>0.54</b>                                                                                                                                                                                                                                                                                                                                                                           |
|        | Graph                      | ['Mexico   currency   Mexican_peso', 'Mexico   demonym   Mexicans', 'Bionico   course   Dessert', 'Bionico   region   Guadalajara', 'Bionico   ingredient   Sour_cream', 'Dessert   dishVariation   Sandesh_(confectionery)', 'Bionico   country   Mexico']                                                                                                                           |
|        | Reference                  | Gwlad yw Mecsico, a gelwir ei phobl yn Mecsicaniaid. Os ydych chi eisiau prynu bwyd yno byddai'n rhaid i chi ddefnyddio eu harian, sef y peso. Mae gan Fecsico bwdinau blasus fel bionico. Gwneir Bionico o sawl cynhwysyn gan gynnwys hufen sur, a gellir dod o hyd iddo yn Guadalajara yn ogystal â Mecsico. Os nad ydych chi'n hoffi bionico, gallwch ddewis sandesh, pwdin arall. |
|        | Generation                 | Bionico yw o'r ardal Guadalajara o México, lle mae'r arian yn y peso a mae'r bobl yn cael ei nair Mexicanaidd.                                                                                                                                                                                                                                                                        |
|        | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                          |
|        | Graph                      | ['Zaoyang   isPartOf   Xiangyang']                                                                                                                                                                                                                                                                                                                                                    |
|        | Reference                  | Mae Zaoyang yn rhan o Xiangyang.                                                                                                                                                                                                                                                                                                                                                      |
|        | Generation                 | Mae Zaoyang yn rhan o Xiangyang.                                                                                                                                                                                                                                                                                                                                                      |
|        | <i>Worst on SBERT</i>      | <b>31.05</b>                                                                                                                                                                                                                                                                                                                                                                          |
|        | Graph                      | ['German_Empire   currency   South_German_gulden']                                                                                                                                                                                                                                                                                                                                    |
|        | Reference                  | Arian cyfred Ymerodraeth yr Almaen oedd Gulden De'r Almaeneg.                                                                                                                                                                                                                                                                                                                         |
|        | Generation                 | Mae'r monedfa yn y Daleithiau Daleithiau yn y Daleithiau Daleithiau.                                                                                                                                                                                                                                                                                                                  |

Table 46: Best and worst Welsh generations on WebNLG by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.24 Welsh Generations on WebNLG by FewShot

| Model   | Example (metric / quality) | Score / Content                                                                                                                                                                       |
|---------|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                          |
|         | Graph                      | ['John_Mills   deathYear   2005']                                                                                                                                                     |
|         | Reference                  | Bu farw John Mills yn 2005.                                                                                                                                                           |
|         | Generation                 | Bu farw John Mills yn 2005.                                                                                                                                                           |
|         | <i>Worst on BLEU</i>       | <b>1.82</b>                                                                                                                                                                           |
|         | Graph                      | ['Mexico   currency   Mexican_peso', 'Mexico   demonym   Mexicans', 'Bionico   ingredient   Granola', 'Bionico   region   Jalisco', 'Bionico   country   Mexico']                     |
|         | Reference                  | Arian cyfred Mecsico yw'r peso a gelwir y bobl leol yn Fecsicaniaid. Ym Mecsico mae rhanbarth o'r enw Jalisco sy'n gwneud pwdin o'r enw bionico sydd â granola fel un o'i gynhwysion. |
|         | Generation                 | Mae Mecsico yn defnyddio'r arian peso Mecsico ac mae'r trigolion yn cael eu galw yn Mexicaidd. Mae Bionico, yn Jalisco, Mecsico, yn cynnwys granola.                                  |
|         | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                          |
|         | Graph                      | ['John_Mills   child   Hayley_Mills']                                                                                                                                                 |
|         | Reference                  | Mae Hayley Mills yn blentyn i John Mills.                                                                                                                                             |
|         | Generation                 | Mae Hayley Mills yn blentyn i John Mills.                                                                                                                                             |
|         | <i>Worst on SBERT</i>      | <b>40.82</b>                                                                                                                                                                          |
|         | Graph                      | ['India   leaderTitle   Chief Justice']                                                                                                                                               |
|         | Reference                  | Mae Prif Ustus yn deitl arweinyddiaeth yn India.                                                                                                                                      |
|         | Generation                 | Mae'r prif ustus o India yn cael ei adnabod yn y Barnwr Prif.                                                                                                                         |

Table 47: Best and worst Welsh generations on WebNLG by FewShot LLaMA-3.1-70B according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

### E.25 Maltese Generations on WebNLG by FTMT

[illegible]

Table 48: Best and worst Maltese generations on WebNLG by FTMT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.26 Maltese Generations on WebNLG by NLG+MT

| Model  | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                                                                                                                                                      |
|--------|----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NLG+MT | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                         |
|        | Graph                      | ['John_Mills   deathYear   2005']                                                                                                                                                                                                                                                                                                                                                    |
|        | Reference                  | John Mills miet fl-2005.                                                                                                                                                                                                                                                                                                                                                             |
|        | Generation                 | John Mills miet fl-2005.                                                                                                                                                                                                                                                                                                                                                             |
|        | <i>Worst on BLEU</i>       | <b>56.57</b>                                                                                                                                                                                                                                                                                                                                                                         |
|        | Graph                      | ['Olga_Bondareva   deathDate   1991-12-09']                                                                                                                                                                                                                                                                                                                                          |
|        | Reference                  | Olga Bondareva mietet fid-9 ta' Diċembru 1991.                                                                                                                                                                                                                                                                                                                                       |
|        | Generation                 | Barra minn hekk, il-Kummissjoni tinnota li l-pjan ta' ristrutturar ta' Alpha Bank kien ibbażat fuq il-pjan ta' ristrutturar ta' Alpha Bank u l-pjan ta' ristrutturar ta' Alpha Bank, kif ukoll fuq il-pjan ta' ristrutturar ta' Alpha Bank u l-pjan ta' ristrutturar ta' Alpha Bank, kif ukoll fuq il-pjan ta' ristrutturar ta' Alpha Bank u l-pjan ta' ristrutturar ta' Alpha Bank. |
|        | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                                                                                                                                                         |
|        | Graph                      | ['Manila   isPartOf   Metro_Manila']                                                                                                                                                                                                                                                                                                                                                 |
|        | Reference                  | Manila hija parti minn Metro Manila.                                                                                                                                                                                                                                                                                                                                                 |
|        | Generation                 | Manila hija parti minn Metro Manila.                                                                                                                                                                                                                                                                                                                                                 |
|        | <i>Worst on SBERT</i>      | <b>25.54</b>                                                                                                                                                                                                                                                                                                                                                                         |
|        | Graph                      | ['Olga_Bondareva   knownFor   Bondareva-Shapley_theorem', 'Olga_Bondareva   birthDate   1937-04-27']                                                                                                                                                                                                                                                                                 |
|        | Reference                  | Olga Bondareva, maghrufa għal Bondareva-Shapley theorem, twieldet fis-27 ta' April 1937.                                                                                                                                                                                                                                                                                             |
|        | Generation                 | Barra minn hekk, il-Kummissjoni tinnota li l-pjan ta' ristrutturar ta' Alpha Bank kien ibbażat fuq il-pjan ta' ristrutturar ta' Alpha Bank u l-pjan ta' ristrutturar ta' Alpha Bank u l-pjan ta' ristrutturar ta' Alpha Bank u l-pjan ta' ristrutturar ta' Alpha Bank.                                                                                                               |

Table 49: Best and worst Maltese generations on WebNLG by NLG+MT according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.

## E.27 Maltese Generations on WebNLG by FewShot

| Model   | Example (metric / quality) | Score / Content                                                                                                                                                                                                                                     |
|---------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FewShot | <i>Best on BLEU</i>        | <b>100.0</b>                                                                                                                                                                                                                                        |
|         | Graph                      | ['John_Mills   deathYear   2005']                                                                                                                                                                                                                   |
|         | Reference                  | John Mills miet fl-2005.                                                                                                                                                                                                                            |
|         | Generation                 | John Mills miet fl-2005.                                                                                                                                                                                                                            |
|         | <i>Worst on BLEU</i>       | <b>1.54</b>                                                                                                                                                                                                                                         |
|         | Graph                      | ['Mexico   currency   Mexican_peso', 'Mexico   demonym   Mexicans', 'Bionico   region   Guadalajara', 'Bionico   ingredient   Granola', 'Bionico   country   Mexico']                                                                               |
|         | Reference                  | Bionico (maghmul mill-granola) huwa ikel misjub fil-Guadalajara, il-Messiku. Il-munita fil-Messiku hija l-peso Messikana, u l-pajjiz huwa abitat mill-Messikani.                                                                                    |
|         | Generation                 | Il-Messiku ghandu valuta wahda, il-peso Messikan. In-nies ta' Messiku huma maghrufa bhala Messikani. Bionico, li huwa originat minn Messiku, huwa prodott li jintuza fir-regjun ta' Guadalajara u fih huwa wkoll ingredjent importanti, il-granola. |
|         | <i>Best on SBERT</i>       | <b>100.0</b>                                                                                                                                                                                                                                        |
|         | Graph                      | ['Max_Benedict   activeYearsStartYear   1947-01-01']                                                                                                                                                                                                |
|         | Reference                  | Max Benedict beda l-karriera tieghu fl-1947.                                                                                                                                                                                                        |
|         | Generation                 | Max Benedict beda l-karriera tieghu fl-1947.                                                                                                                                                                                                        |
|         | <i>Worst on SBERT</i>      | <b>37.63</b>                                                                                                                                                                                                                                        |
|         | Graph                      | ['The_Two_Towers   followedBy   The_Return_of_the_King']                                                                                                                                                                                            |
|         | Reference                  | The Two Towers kien segwit minn The Return of the King.                                                                                                                                                                                             |
|         | Generation                 | It-Tnejn Turi kienu qabel il-Hatra tar-Regina.                                                                                                                                                                                                      |

Table 50: Best and worst Maltese generations on WebNLG by FewShot LLaMA-3.1-70B according to BLEU and SBERT. Long texts wrap automatically inside the third column. Metric scores are bold.