QueryNER: Segmentation of E-Commerce Queries
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Overview
- Query segmentation dataset for e-commerce
- 17 entity types
- Nearly 10,000 annotated queries
- Query segmentation allows us to determine:
  - Which portions of the query are most important to relevance?
  - Which portions of the query might be most safely dropped?
  - Can we weight different spans for relevance rather than tokens?
- Dataset available on Github and Hugging Face

Prior Work
- Past work focuses on aspect-value extraction which has limited token coverage (Papenmeier et al., 2021)
- Many prior datasets are unreleased (e.g. Faranza et al., 2023; Joshi et al., 2015)

Baselines

<table>
<thead>
<tr>
<th>Transformation</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Original</td>
<td>airforce 1 women shoes white</td>
</tr>
<tr>
<td>Shuffled</td>
<td>shoes women white airforce 1</td>
</tr>
<tr>
<td>Butterfinger</td>
<td>airforce 1 women shoes white</td>
</tr>
<tr>
<td>Numeric</td>
<td>airforce 6 women shoes white</td>
</tr>
<tr>
<td>Color</td>
<td>airforce 1 women shoes green</td>
</tr>
<tr>
<td>Mention Replacement</td>
<td>zerogrand boys shoes leopard</td>
</tr>
<tr>
<td>All Transformations</td>
<td>shofs boys maple zerogrand</td>
</tr>
</tbody>
</table>

Table 3: Baseline results of BERT, XLM-R, and BERT with continued pre-training on the rest of the ESCI e-commerce dataset (Reddy et al, 2023)

Data Augmentation
- Transformed data to simulate real query variation
- Training on additional transformed data mitigates impact on performance
- Model trained on original and augmented data maintains good performance on the original test set while improving performance on augmented data

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References