# Learning Simplifications for Specific Target Audiences

Carolina Scarton and Lucia Specia

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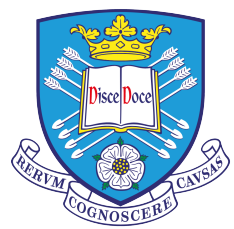


ACL 2018, Melbourne, Australia

# Text Simplification

If the trend continues, **the researchers say,** some of the rarer amphibians could **disappear in as few as six years** from roughly half the sites where **they're** now found**, while the more common** species could see similar declines in 26 years.

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- For **improving NLP tasks**, e.g. MT

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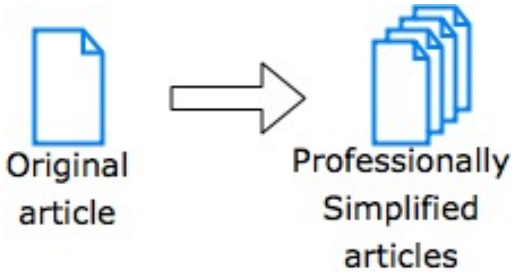


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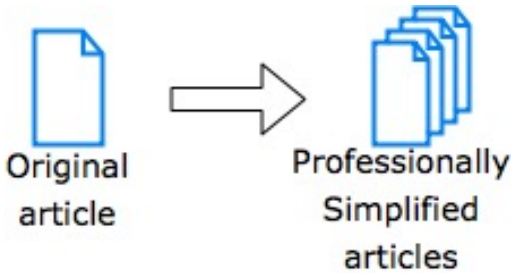


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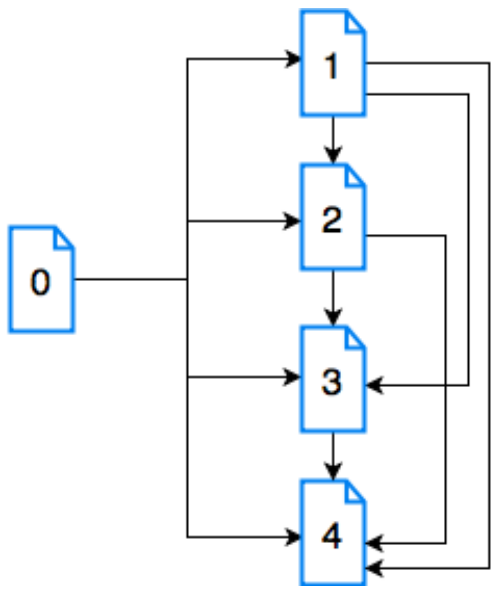


- **Automatic** sentence-level alignments
  - **Identical** (146,251)
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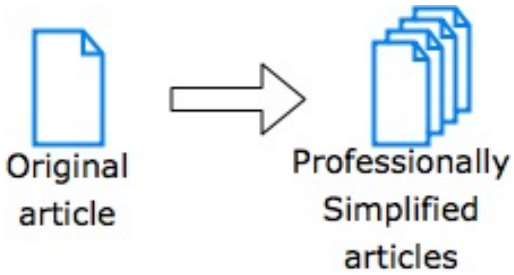


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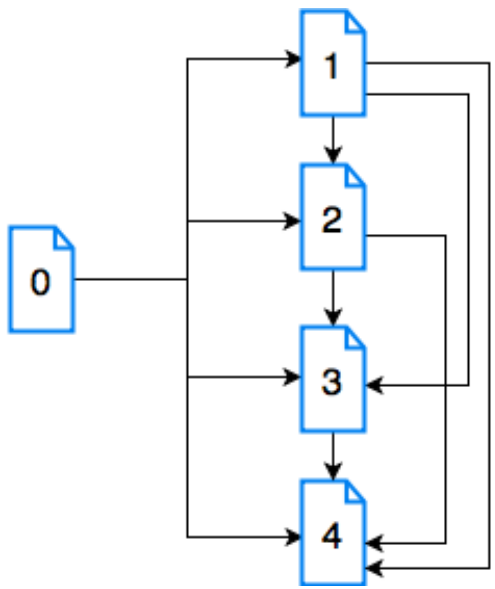


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- **Newsela:** ≈550K sentences pairs (≈ 280K W-SW)

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- **Our approach**: artificial token representing the **grade level of the target sentence**

# TS for Different Grade Levels

**< 2 >** dusty handprints stood out against the rust of the fence near Sasabe.

dusty handprints could be seen on the fence near Sasabe.

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- Advantages:
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  - Real world scenario $\rightarrow$ grade level is **given by the end-user**
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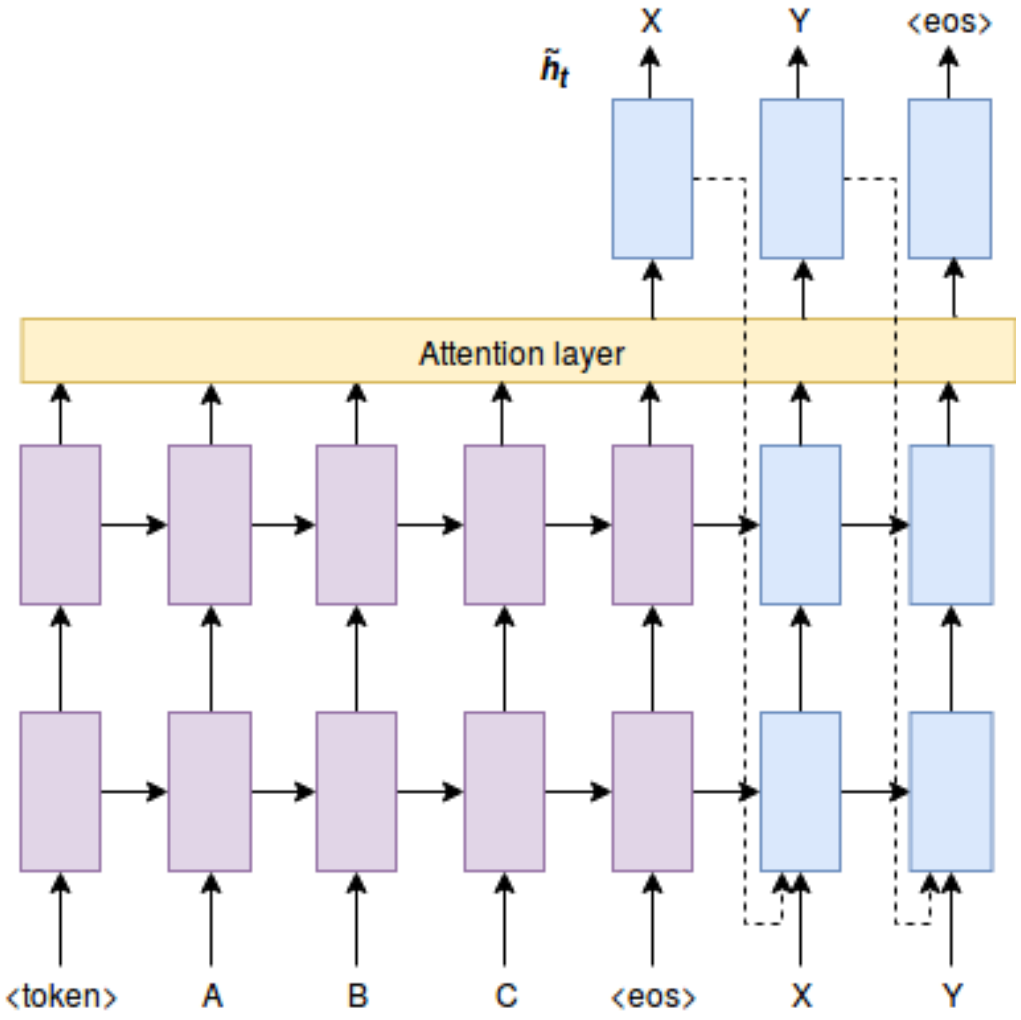
- **Simplification operations classification**
  - **four-class** classifier → Naive Bayes with **nine features**
  - **Accuracy: 0.51**

# Experiment and results

- NMT approach → **default OpenNMT**



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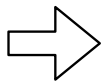
| s2s+operation (gold) | 63.24 | 41.81 | 84.47 |
| s2s+to-grade+operation (gold) | **64.78** | **45.41** | **85.44** |

# Example

Original



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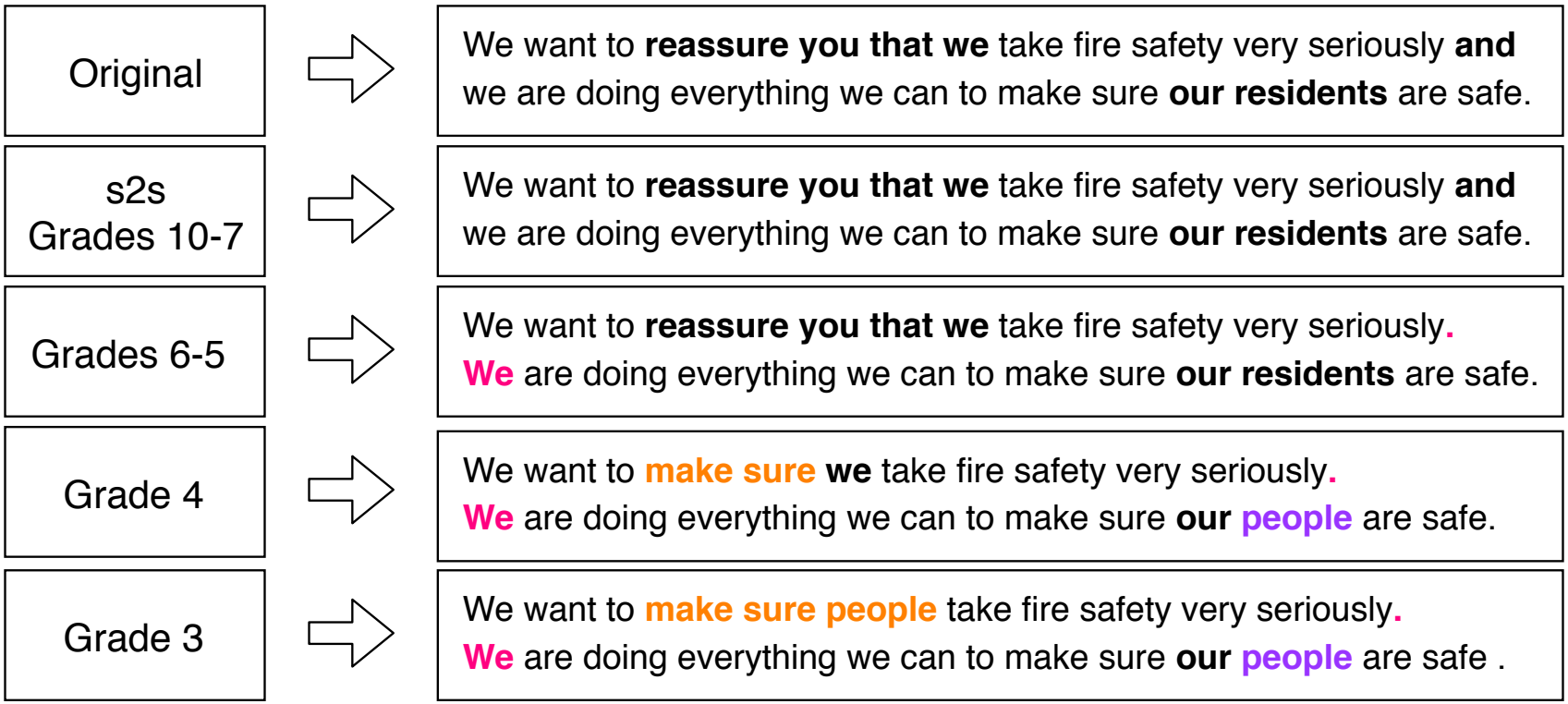
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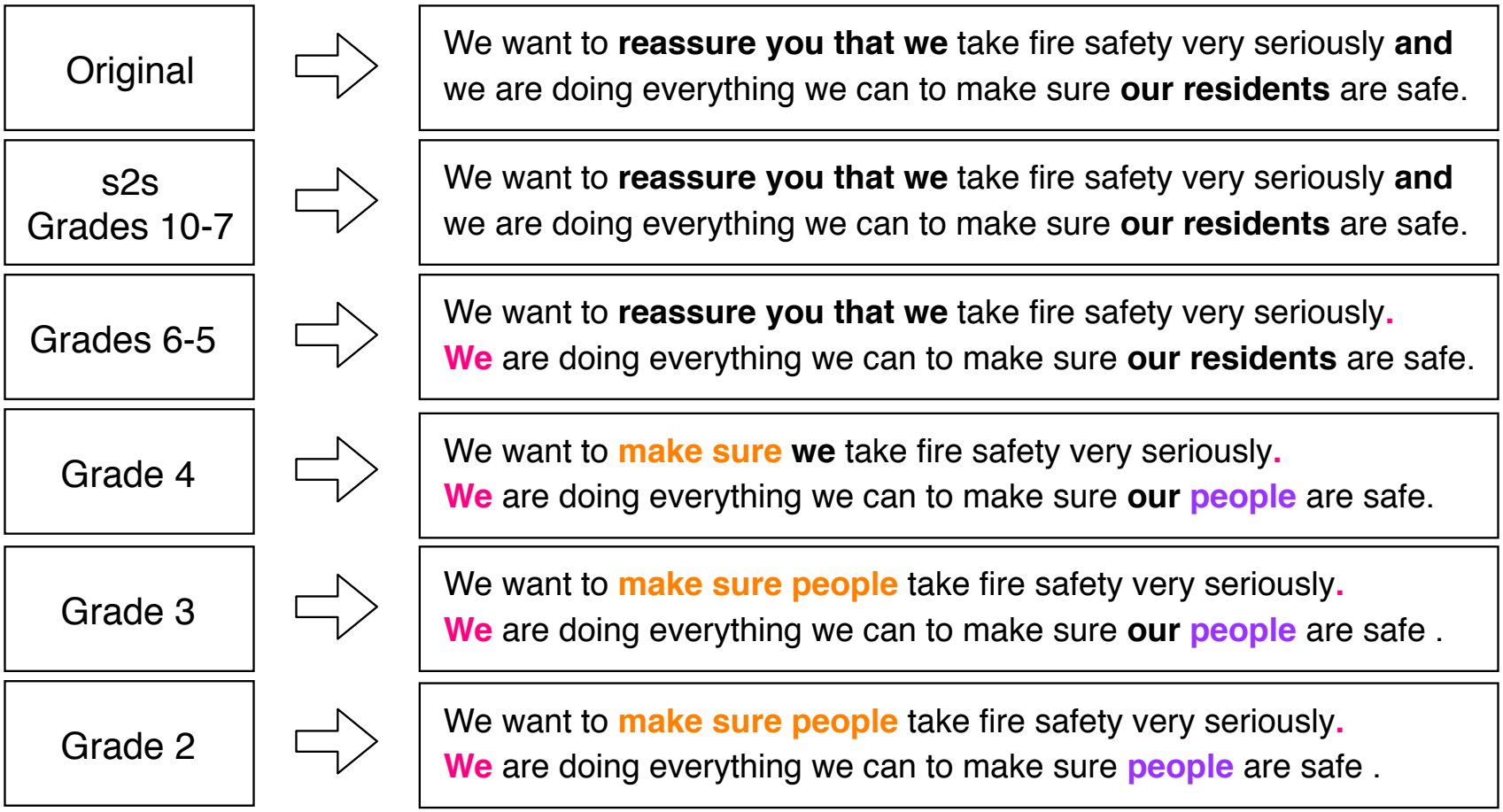
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- **Zero-shot TS** among grade levels
  - Example: **from grade level 12 to grade level 4**
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| | **BLEU ↑** | **SARI ↑** | **Flesch ↑** |
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| **12-to-4** | | | |
| s2s | 44.56 | 37.56 | 79.50 |
| s2s+to-grade | 49.43 | 50.76 | 91.04 |
| **s2s+to-grade+zs** | **50.18** | **50.85** | **91.08** |

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| **6-to-5** | | | |
| s2s | **69.71** | **26.47** | 84.74 |
| s2s+to-grade | 69.39 | 26.32 | **87.07** |
| **s2s+to-grade+zs** | 68.78 | 26.23 | 86.80 |

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  - enables **target-audience-oriented** simplifications
  - enables **zero-shot TS**
- **Simplification operation** information can help
  - improve classifier for the task
  - explore multi-task learning

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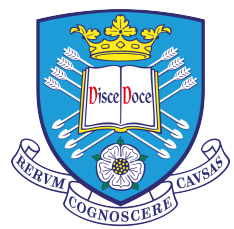


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