

# Bearbeitungshinweise

## Seminar Software Engineering

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**Zusammenfassung.** Hier kommt der Abstract hin. Der Abstract behandelt alle Unterpunkte, welche auch in der Introduction behandelt werden (s. Section ??) und liefert damit eine Zusammenfassung über die Seminararbeit als Ganzes. Im Gegensatz zur Zusammenfassung ist der Abstract sehr kurz gehalten und hat ca. ein bis zwei Sätze pro Unterpunkt.

## 1 Introduction

## 2 Methodik

### 2.1 Task 2: Klassifikation

- $s$ : Zeilen im Dokument,
- $t$ : Tokens pro Zeile (Padding gemäß längster Zeile)
- $d$ : Dimension des Modells (z. B. 150)
- $c$ : Anzahl Klassen

$$X_{ztd} = \text{LSTM}_t(X) \quad (1)$$

$$A_{zt} = \text{softmax}_t \left( \sum_d X_{ztd} W_d^1 \right) \quad (2)$$

$$X_{zd} = \sum_t X_{ztd} A_{zt} \quad (3)$$

$$A_z = \text{softmax}_z \left( \sum_d X_{zd} W_d^2 \right) \quad (4)$$

$$X_d = \sum_z X_{zd} A_z \quad (5)$$

$$Y_c = X_d W_{dc} \quad (6)$$

$$W_{L,C_i} = \left( \frac{|C_{\max}|}{|C_i|} \right)^\alpha, \quad \alpha = 0.6 \quad (7)$$

## Higher-Order Constituent Parsing and Parser Combination

### Abstract

This paper presents a higher-order model for constituent parsing aimed at utilizing more local structural context to decide the score of a grammar rule instance in a parse tree. Experiments on English and Chinese treebanks confirm its advantage over its first-order version. It achieves its best F1 scores of 91.86% and 85.58% on the two languages, respectively, and further pushes them to 92.80% and 85.60% via combination with other highperformance parsers.

### Introduction

Factorization is crucial to discriminative parsing.

Previous discriminative parsing models usually factor a parse tree into a set of parts. Each part is scored separately to ensure tractability. In dependency

parsing (DP), the number of dependencies in a part

is called the order of a DP model. Accordingly, existing graph-based DP models can be categorized into tree groups, namely, the first-order, second-order and third-order models.

|          |     | Voraussage |    |     |    |    |    |    |    |    |    |    |     |
|----------|-----|------------|----|-----|----|----|----|----|----|----|----|----|-----|
|          |     | AU         | CA | CN  | FR | DE | IN | IL | JP | SG | CH | UK | USA |
| Wahrheit | AU  | 6          |    | 8   |    | 1  |    |    |    |    |    | 7  | 6   |
|          | CA  | 1          | 8  | 4   |    |    |    | 2  |    | 1  |    | 7  | 32  |
|          | CN  | 1          | 1  | 188 |    | 1  |    | 2  | 1  |    |    | 1  | 17  |
|          | FR  |            |    | 1   | 36 | 3  |    | 1  |    |    |    | 2  | 4   |
|          | DE  |            | 2  | 2   | 2  | 47 |    | 1  |    |    |    | 12 | 11  |
|          | IN  |            |    | 1   |    |    | 6  |    |    |    |    | 2  | 11  |
|          | IL  |            | 1  |     | 1  |    |    | 14 | 2  |    |    |    | 10  |
|          | JP  |            |    | 2   | 1  |    |    | 45 |    | 1  | 1  |    | 6   |
|          | SG  |            | 1  | 6   |    |    |    |    | 9  |    |    | 2  | 8   |
|          | CH  |            |    | 3   |    | 7  |    |    |    |    | 4  | 4  | 8   |
|          | UK  | 3          | 5  | 1   | 6  | 1  | 2  | 1  |    | 2  |    | 66 | 18  |
|          | USA | 3          | 13 | 38  | 17 | 6  | 1  | 2  | 8  | 2  | 3  | 32 | 746 |

**Tabelle 1.** Konfusionsmatrix der Klassen Australien (AU), Canada (CA), China (CN), Frankreich(FR), Deutschland (DE), Indien (IN), Israel (IL), Japan (JP), Singapur (SG), Schweiz (CH), Großbritannien (UK), Amerika (USA)