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<http://open-writing-evaluation.github.io>

Abstract

GEC errant stanza errant GEC https://github.com/open-writing-evaluation/jp_errant_bea

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GEC (NLP) L1L2 (Marjokorpi, 2023; Van Beuningen et al., 2012) GECtransformers (Zhao et al., 2019) Zeng et al., 2024 Bryant et al., 2023

GECGEC

M², Dahlmeier and Ng, 2012; GLEU, Napoles et al., 2015 errant T GEC errant 55 (Bryant et al., 2017) errant 2019 (Bryant et al., 2019)

GECMultiGEC-2025 (Masciolini et al., 2025a,b)

Masciolini et al. (2025a) MultiGEC errant errant errant POS

errant stanza 70GEC § 2 errant stanza § 3 § 4 errant § 5 GEC

2

2.1 errant

errant (Bryant et al., 2017)

Felice et al. (2016) Damerau-Levenshteinmeetmeeting (Felice et al., 2016)

errant spaCy¹ 25 M U R 55 R:VERB:TENSE errant M2 CoNLL-2013 GEC S A A 1

S This are a sentence .
 A 1 2 ||| R:VERB:SVA ||| is ||| -REQUIRED- ||| NONE ||| 0
 A 3 3 ||| M:ADJ ||| good ||| -REQUIRED- ||| NONE ||| 0

Figure 1: BEA-2019 M2

errant GEC $F_{0.5}$ errant GEC BEA-2019 errant errant 24 21² (Bryant et al., 2019)

¹<https://spacy.io>

²errant 25 UNK nown Bryant et al., 2017 BEA-2019

errant GEC OTHER OTHER (Korre and Pavlopoulos, 2020)

Wang et al. (2025) errant GEC Wang et al. (2025) errant

2.2 errant

errant (Belkebir and Habash, 2021) (Hinson et al., 2020; Zhang et al., 2022; Gu et al., 2025) (Náplava et al., 2022) (Boyd, 2018) (Korre et al., 2021) (Sonawane et al., 2020) (Yoon et al., 2023) errant

errant errant M U R WO NOUN VERB errant_zh (Hinson et al., 2020) ChERRANT M R S W (Zhang et al., 2022)

GEC spaCy errant NLP errant spaCy Tree-Tagger (Boyd, 2018) Kkma KAGAS (Yoon et al., 2023) LTP ChERRANT (Zhang et al., 2022)

GEC

GEC errant errant_zh (Hinson et al., 2020) Gu et al. (2025)

2.3 stanza spaCy

errant spaCy spaCy errant

stanza (Qi et al., 2020) Universal Dependencies (UD) stanza 70UD³

UDUD stanza UDNLP

3

MRU M R U

3.1

MRU M (M) R (R) U (U)

M (M) M:NOUN

R (R) R:VERB R:P₁→P₂ pattern, where P₁ is replaced by P₂.

³<https://stanfordnlp.github.io/stanza/>

U A superfluous linguistic element is present in a sentence, resulting in redundancy or ungrammaticality. These errors often involve extraneous words or phrases that disrupt sentence structure or meaning. Similar to missing and replacement errors, unnecessary errors are annotated with POS information to specify the redundant element. For example, U:DET denotes an unnecessary determiner.

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stanza errant stanza

4.1 errant

errant stanza § 2.3

errant NOUN:POSS (Petrov et al., 2012) PART case:poss NOUN:POSS

errant 2 errant OTHER PRON is played VERB AUX VERB R

Original errant:
S Volleyball is a sport play every place ...
A 4 4||M:OTHER||that is||REQUIRED||-NONE-|||0
A 4 5||R:VERB:FORM||played||REQUIRED||-NONE-|||0

Our implementation:
S Volleyball is a sport play every place ...
A 4 4||M:PRON||that||REQUIRED||-NONE-|||0
A 4 5||R:VERB → AUX VERB||is played||REQUIRED||-NONE-|||0

Figure 2: errant

GECT5 (Rothe et al., 2021) 1 errant

	TP	FP	FN	Prec	Rec	F _{0.5}
errant	2589	1639	4030	0.6123	0.3911	0.5501
Ours	2565	1613	4028	0.6139	0.3890	0.5503

Table 1: t5 GEC

4.2

POS MRU (Boyd, 2018) (Náplava et al., 2022)

3 WO WO

2 MRU ?? (R:P₁ → P₂)

stanza MultiGEC (Masciolini et al., 2025a)

	Missing	Replacement	Unnecessary	Total
Czech				
Náplava et al. (2022)	693	3707	515	4915
Ours	695	3672	530	4897
German				
Boyd (2018)	1341	4406	638	6385
Ours	1310	4348	612	6270

Table 2: (1000; ?) (Boyd, 2018) M R U

4.3

(Yoon et al., 2023) NIKL(i) INSERTION > DELETION > others(ii) WS = WB > WO > SPELL > SHORTEN > PUNCTUATION > OTHERS

?? WB WB:M WB:U

(i) ADP (ii) PART (iii) HON M U R 4 eumsig-i‘food. NOM ’ eumsig-eul‘food. ACC ’ R:NOUN -> NOUN:ADP magyeossseubnida meogeossseubnida“⁴

4.4

(Qiu et al., 2025) (Zhang et al., 2022; Gu et al., 2025) LTP⁵ stanza GSD⁶

UTF8gbsn wèishéme UTF8gbsn

LTP stanza GSDLTP

LTPGSD stanza stanza 5

5

errant

errant stanza POSNLP

GEC

6

NLP stanza

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⁴1 maj-asseubnida

⁵<https://github.com/HIT-SCIR/ltp>

⁶https://github.com/UniversalDependencies/UD_Chinese-GSD

Czech	S Mám velkou rodinu , tak nemohla jsem mít naději , e nco dostanu .
Náplava et al. (2022)	A 5 7 R:WÖ jsem nemohla REQUIRED -NONE- 0
Ours	A 5 7 R:VERB AUX -> AUX VERB jsem nemohla REQUIRED -NONE- 0 (‘I have a big family, so I couldn’t hope to get anything.’)
German	S Dagegen wieder , bekommen BA Studenten die ein extra Jahr oder mehr studiert haben , leichter Jobs .
Boyd (2018)	A 0 3 R:OTHER Dahingegen REQUIRED -NONE- 0 A 4 5 U:PNOUN REQUIRED -NONE- 0 A 5 6 R:NOUN BA-Studenten REQUIRED -NONE- 0
Ours	A 0 2 R:ADV ADV -> ADV Dahingegen REQUIRED -NONE- 0 A 2 3 U:PUNCT REQUIRED -NONE- 0 A 5 5 M:PUNCT - REQUIRED -NONE- 0 (‘On the other hand, BA students who have studied an extra year or more find jobs more easily again.’)

Figure 3:

S 1 3 .
A 1 2||R:NOUN -> NOUN:ADP||||REQUIRED||-NONE-||0
A 3 4||R:Orthographic||||REQUIRED||-NONE-||0
A 3 4||R:VERB -> VERB||||REQUIRED||-NONE-||1

Figure 4: M2 01

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Chinese GSD-based WB (Gu et al., 2025):
 UTF8gbsnS ... 10 ...
 A ...
 A 10 11 ||R:PROPN -> PRON VERB AUX||UTF8gbsn ||REQUIRED||-NONE-|||0
 Correction: UTF8gbsn... ...

Our LTP-based WB:
 UTF8gbsnS ... 7 8 ...
 A ...
 A 7 8 ||R:ADP -> ADV VERB||UTF8gbsn ||REQUIRED||-NONE-|||0
 A 8 9 ||R:PROPN -> AUX||UTF8gbsn||REQUIRED||-NONE-|||0
 Correction: UTF8gbsn... ...
 ... jìshì wèishéme chxiàn le zhèyàng de qíngkuàng ...
 ('... explain why this kind of situation has occurred ...')

Figure 5: GSD UTF8gbsn wèishéme UTF8gbsn shénme chxiàn leLTP UTF8gbsn wèishéme chxiàn

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