Research Square

Preprints are preliminary reports that have not undergone peer review.
They should not be considered conclusive, used to inform clinical practice,
or referenced by the media as validated information.

Translator style holds across plays and outweighs theme in Chinese translations of Shakespeare's four great tragedies

Lili Liu
Shandong University
Xin Li
Tongji University
Yonggang Su
syg@sdu.edu.cn

Shandong University

Article

Keywords: translator style, consistency across texts, quantitative identifiability, explicitation, dependency distance, Chinese translations of Shakespeare

Posted Date: November 26th, 2026

DOI: https://doi.org/10.21203/rs.3.rs-11590830/v1

License: This work is licensed under a Creative Commons Attribution 4.0 International License.
Read Full License

Additional Declarations: No competing interests reported.

Translator style holds across plays and outweighs theme in Chinese translations of Shakespeare's four great tragedies

Abstract

Studies of translator style usually compare several translations of one source text, which makes it hard to tell which components of a translator's style hold across works, which change with the work and which are shared with other translators. This study examines Shakespeare's four great tragedies as translated by Zhu Shenghao, Liang Shiqiu, Bian Zhilin and Sun Dayu, with 16 translations and 5,015 translated speeches aligned one to one with the English. Drawing on the explicitation and simplification hypotheses and on dependency distance minimisation, it measures 16 features of length and explicitation, lexical diversity and information, and syntactic structure and word-class distribution. Stylometric clustering groups the 16 translations by translator under a range of settings. When each play is held out in turn, every text block from the held-out play is assigned to the correct translator. Accuracy is 0.80–0.92 for scenes and 0.48–0.56 for single speeches (median 43 English words), about twice the chance level of 0.25 and within 3 percentage points of within-play attribution. Nine features, including lexical diversity, lexical density, word frequency and the rate of *de (的)*, are stable components. Four, including relative length and structural length, are variable, and three, including dependency direction, are shared. The classification survives a change of segmenter and parser. Compared with matched controls, death-themed speeches differ significantly after correction on lexical diversity alone, since none of the translations reproduces the higher lexical diversity of the English death speeches. In the same model, translators account for about eight times as much variance as the theme. The stable part of translator style lies in lexical choice, sentence organisation varies with the work and a core theme matters far less than the translator.

Keywords: translator style; consistency across texts; quantitative identifiability; explicitation; dependency distance; Chinese translations of Shakespeare

1 Introduction

Research on translator style assumes that translators leave a recognisable linguistic imprint across their translations (Baker, 2000; Saldanha, 2011). In the revision proposed by Sun (2026), a translator's style is distinctive as a whole, yet some of its components hold across works, some change with the work or over time and some are shared with other translators. Existing work follows broadly two routes. One compares several translations by each of several translators (Baker, 2000; Olohan, 2003; Saldanha, 2011; Zhang and Liu, 2019). Since each translator worked from different originals, differences between source texts are confounded with differences between translators. The other route compares several translations of one source text (Fang and Liu, 2023; Chou and Liu, 2024; He et al., 2026). This controls the source, but a single work cannot show whether the differences recur in a translator's other translations. Stylometric work adds that in corpora with several authors and translators, translations typically cluster by author rather than by translator (Rybicki, 2012). If several translators have each translated the same works, and the translations are aligned with the originals, the effects of translator, work and their interaction can be estimated within one design. The components of style that hold across works can then be separated from those that change with the work and those shared with other translators.

Quantitative work on Chinese translations of Shakespeare already has some history. Studies based on an English–Chinese parallel corpus of the plays have examined explicitation and the *ba* construction in translations of *Hamlet* (Hu and Zhu, 2008; Hu, 2009). They have also compared how Zhu Shenghao and Liang Shiqiu render evaluative meaning, finding more explicitation in Zhu (Hu and Ma, 2015). Adding the verse translations of Bian Zhilin and Sun Dayu, and comparing each translator across plays, allows us to ask which features belong to the translator and whether they persist from one play to the next.

The translator is, of course, only one source of variation. Genre and register change translations systematically (Niu and Jiang, 2024; Jiang, 2025; Li and Gao, 2025). Whether passages with different content within the same work elicit different

linguistic choices has yet to be tested. Death is a suitable test case. It is a central concern of English Renaissance tragedy (Neill, 1997) and among the taboo domains most often euphemised across languages, typically through circumlocution (Allan and Burridge, 2006). Translators handle sensitive content through euphemism, attenuation and omission (Zhang and Mo, 2025), and emotional load also shapes their decisions (Hubscher-Davidson, 2018). Together with the explicitation hypothesis (Blum-Kulka, 1986), this work allows three outcomes for death speeches. If translators use circumlocution or added explanation, the translations should become relatively longer, perhaps with more conjunctions and more *de*. If they attenuate or omit, relative length should fall. If their general habits prevail, the difference between death and control speeches should be the same in translation as in the English.

The study takes Sun's (2026) revised definition and Saldanha's (2011) criteria as its frame. Its 16 features draw on the explicitation and simplification hypotheses (Blum-Kulka, 1986; Baker, 1993) and on dependency distance minimisation (H. Liu, 2008; Futrell et al., 2015). The corpus consists of the four tragedies as translated by Zhu, Liang, Bian and Sun, with each English speech aligned one to one with its four translations. Combining variance decomposition, cross-play classification, stylometric clustering and matched controls, we address two research questions: 1) Are the translators' quantitative features stable across plays? Which are stable, which vary with the play and which are shared between translators?; 2) Does the death theme change these features? How large is its effect relative to that of the translator, and does it differ between translators?

In answering them, the study turns the three components of translator style into separately testable questions and adds transferability to Saldanha's (2011) criterion of consistency across texts. It also extends the discussion of genre and register to theme within a work, and its design can be applied to retranslations of other classics.

2 Theoretical framework and literature review

2.1 Translator style as distinctive, stable and shared

Hermans (1996) argues that a translation always contains a second voice, that of the translator. Baker (2000, p. 245) treats translator style as a matter of 'preferred or

recurring patterns of linguistic behaviour' and proposes examining several translations by the same translator. Saldanha (2011, p. 31) offers a fuller definition. Style is a way of translating that can be recognised across several translations by the same translator and that sets this translator apart from others. It forms a coherent pattern of choices, has a discernible function and cannot be explained by the style of the source text or by linguistic constraints alone. These definitions all treat style as a stable property. Building on the view of style as a set of features (Herrmann et al., 2015), Sun (2026, p. 363) proposes a revision. Translator style is the translator's distinctive way of translating, realised by a complex system of linguistic features. It may share some components with other translators and may change with the work or over time. Sun (2026, p. 360) also notes that features introduced by editing form part of the style that readers perceive.

We operationalise the three components as testable properties. In a stable component, translator differences transfer from three plays to the fourth, and the translator ranking is consistent across plays. The translator main effect also clearly exceeds the translator × play interaction. A variable component shows translator differences whose ranking or size changes with the play. A shared component shows no reliable difference between the translators. Of Saldanha's five criteria, the first and second are tested by cross-play attribution and variance decomposition. The fifth, which rules out the style of the source text, is met through speech-level alignment and within-speech comparison. The fourth concerns functional motivation, and we address it through the translators' statements of principle (Section 2.4) and an annotation of additions (Section 4.6).

2.2 Multi-work and multi-translation designs

Corpus-based research on translator style has used two main designs. The first compares several translations by each of several translators. Baker (2000) found that Peter Bush and Peter Clark differed in type–token ratio, mean sentence length and the use of say, and Olohan (2003) found that Bush used contracted forms much more often than Dorothy Blair. Saldanha (2011) compared Bush with Margaret Jull Costa, and Zhang and Liu (2019) traced changes in Howard Goldblatt's translating across 22

translations. This design shows consistency across works, yet the differences may well come from the originals. The second design compares several translations of one source text. Fang and Liu (2023) and He et al. (2026) identified the translators of three Chinese versions of *Alice's Adventures in Wonderland and of Peter Pan*. Chou and Liu (2024) found that two English translations of *Hongloumeng* differed in different ways in narration and in character speech, and Tan (2025) distinguished translators of the same novel by dependency distance. This design controls the source text, but it involves a single work. In stylometry, Delta usually groups translations by author when a corpus has several authors (Rybicki, 2012), while the translator's signal is easy to detect when the source is fixed (Rybicki and Heydel, 2013). B. Sun and Yue (2023) found that Lin Yutang and James Legge converged when translating the same source, and L. Huang (2015) reviews both approaches.

Each design, then, lacks one dimension. In a fully crossed design every translator translates every source text. Alignment controls differences between originals, holding out one work tests whether translator differences recur and the translator × work interaction gives the variable component directly. Cross-work testing has a precedent in translatorship attribution. Caballero et al. (2021) trained a classifier on Ghosts, which both William Archer and R. Farquharson Sharp had translated, and tested it on six further Ibsen plays, most of them translated by only one of the two. In our corpus translators and plays are fully crossed, so each play can serve in turn as the test set.

2.3 Indicators from explicitation, simplification and dependency distance

Blum-Kulka (1986) proposed that translations tend to make explicit the cohesive relations left implicit in the source, and Baker (1993) listed explicitation and simplification among universals that can be tested in corpora. Explicitation is usually studied through connectives and translation length (Zufferey and Cartoni, 2014; Song, 2022), and simplification through lexical density, the proportion of frequent words, type–token ratio and entropy (Laviosa, 1998; Niu and Jiang, 2024; Z. Wang et al., 2025). The strength of these tendencies varies with the translator, the direction of translation and target-language norms (Song, 2022; Zhan and Jiang, 2024). We have

no reference corpus of non-translated Chinese and compare translators with one another. The two hypotheses therefore guide the selection and interpretation of indicators, rather than a comparison of translated and original writing. They underlie the first group of features (length and explicitation) and the second (lexical diversity and information).

The third group rests on dependency distance theory. H. Liu (2008) used mean dependency distance as a measure of comprehension difficulty, Futrell et al. (2015) found a tendency towards dependency length minimisation in 37 languages and H. Liu et al. (2017) describe it as a cognitive constraint on syntactic patterns. Mean dependency distance has been used to study simplification in English–Chinese translation (Jiang, 2025) and translator style (Tan, 2025), and it varies with genre (Y. Wang, 2025). The group covers structural length (mean dependency distance, mean sentence length and mean punctuation-segment length), word order (dependency direction) and word-class distribution (POS entropy and the Busemann coefficient). We therefore call it syntactic structure and word-class distribution.

2.4 Chinese translations of Shakespeare and the four translators

Research on Chinese translations of Shakespeare has long concentrated on reception history, performance and the comparison of translations (R. Li, 2003; A. C. Y. Huang, 2009). Hu Kaibao and colleagues built an English–Chinese parallel corpus of the plays (Hu and Zou, 2009). Their studies cover explicitation and the *ba* construction in translations of *Hamlet* (Hu and Zhu, 2008; Hu, 2009). They also show Zhu to be more marked than Liang in explicitation, intensification and sharpening when rendering the evaluative meaning of good (Hu and Ma, 2015). More recent studies have compared several translations for stylistic diversity and polysemy (H. Sun and W. Liu, 2023), contrasted the translation discourse of Zhu Shenghao and Xu Yuanchong using translation archives (M. Zhang, 2025) and analysed how a Cantonese *King Lear* distinguishes verse from prose (Xie, 2024).

The four translators fall into two groups by the form of their dialogue, and each stated clear principles. Zhu described his aim as conveying the meaning and spirit of the original faithfully in clear and fluent wording (Zhu, 1947). Liang followed the

Oxford edition of W. J. Craig and translated mainly into vernacular prose, rendering rhymed passages and songs in verse (Liang, 2002). Bian lists the editions used for each play and translates verse line for line (Bian, 1988). Sun Jinren explains in his preface that Sun Dayu matched each English foot with a Chinese sound group, so that a line of five feet becomes exactly five sound groups (J. Sun, 2010, p. 3). In the terms of Holmes (1994), Bian and Sun come close to mimetic form, which imitates the form of the original (see also Escudero, 2021). The translations span half a century (Bian, 1988; Luo, 2016). Zhu's were completed in the 1940s, while Bian translated his four plays between 1954 and 1984.

3 Corpus and methods

3.1 Corpus

The English texts are the TEI versions of the Folger Digital Texts (Mowat et al., 2017; TEI Simple, version 0.5, February 2017). We downloaded them through the DraCor Shakespeare corpus on 20 October 2026 (Fischer et al., 2019; identifiers shake000032, shake000034, shake000033 and shake000031). Each <sp> element is one speech. Words are counted as alphabetic strings, a contracted form counts as one word and stage directions and speaker names are excluded. The four plays contain 4,033 speeches and 97,750 words, and the 1,312 speeches with at least 20 words form the units of analysis (Table 1). Of these, 76.3% are in blank verse, 21.0% in prose and 2.7% mixed. Zhu, Liang, Bian and Sun each translated all four plays, so translator and play are fully crossed. Zhu and Liang render Shakespeare's verse in prose, while Bian and Sun match his blank verse with lineated verse.

Table 1 English source texts (Folger editions via DraCor)

Play	Speeches	Words	Speeches ≥ 20 words
Hamlet	1,138	29,795	352
Othello	1,182	25,998	353
King Lear	1,064	25,394	367
Macbeth	649	16,563	240
Total	4,033	97,750	1,312

The Chinese texts are the published editions of the 16 translations (Shakespeare, 1988, 1991, 2002a, 2002b, 2002c, 2002d, 2010, 2012, 2014a, 2014b, n.d.-a, n.d.-b).

3.2 Segmentation, alignment and units of analysis

We analyse the dialogue only, without stage directions, notes, page numbers or other paratext. The Chinese texts were segmented into speeches by speaker label and aligned with the English by a Python program written for this study, in three steps. First, speeches were aligned with the length-based dynamic programming of Gale and Church (1993), by scene for Hamlet and by act for the other plays. The length cost of a candidate pair is $[\ln(c/rw)]^2/0.35$, where w is the number of English words, c the number of Chinese characters and r the ratio of characters to words in the unit. Besides one-to-one links, the program allows one-to-two, two-to-one, one-to-three and three-to-one links and one-sided gaps, each with a fixed penalty. Second, we built a table matching English and Chinese speaker names, by hand for Hamlet and automatically for the other plays. For the latter, a first alignment without speaker constraints assigns to each English speaker the Chinese label occurring most often, and at least twice, in its one-to-one links. Third, we realigned with the table as a constraint, lowering the cost of candidates whose speakers agree and raising it for the rest.

We checked the alignment in two ways. Of the 13,195 one-to-one links where speaker labels could be compared, 98.9% had matching labels. We also drew eight one-to-one pairs of at least 20 words at random from each translation and checked all 128 by hand against the English. Every pair was correct. In 13 pairs the Chinese contained a little extraneous text, such as remnants of stage directions, page headers, fragments of adjacent speeches or translator's notes. In three pairs one sentence of the original was missing. We revised the cleaning rules accordingly. Bracketed dialogue in Bian, Sun and Liang is now kept, where the earlier rule had removed it as stage direction. Damaged stage directions, stray characters, page headers, intruding notes and series catalogues are removed, and the explicit corrections from the check are applied. The revision changed 104 translated speeches (2.1%), while the three missing sentences cannot be restored from the available texts. All analyses use the revised texts.

The analysis uses only one-to-one links in which the English has at least 20 words and the Chinese at least 10 characters. The proportion retained ranges from

87.5% (Bian's *Hamlet*) to 99.2% (Liang's and Sun's *Othello*), and every speech not retained belongs to an alignment unit that is not one to one. Blank verse makes up 76.2–78.6% of the retained speeches for each translator, close to the 76.3% of all 1,312 English speeches. The final data consists of 5,015 translated speeches for 1,312 English speeches, of which 1,112 have all four translations.

3.3 Features

We use 16 features in three groups (Table 2). Chinese segmentation and part-of-speech tagging for groups A and B use jieba 0.42.1 (fxsjy, n.d.). Dependency parsing uses the zh_core_web_sm model of spaCy 3.8 (Honnibal et al., 2020), whose own pkuseg segmentation and universal part-of-speech tags (UPOS) underlie group C. English is parsed with en_core_web_sm, with verse lines kept together and no dependency arcs across sentences. Wherever a feature can be computed for English, we compute it for the English speech as well for use in RQ2.

Table 2 Quantitative features

Group	Feature	Computation	Rationale
A. Length and explicitation	Relative length (expansion ratio)	Chinese characters ÷ English words	Explicitation (Blum-Kulka, 1986)
	Conjunction density	Conjunctions ÷ words (jieba POS tag *c* for Chinese, CCONJ and SCONJ for English)	Explicitation of cohesion (Zufferey and Cartoni, 2014; Song, 2022)
	Rate of *de* (的)	Tokens of 的 segmented as a separate word ÷ words	Marking of modification
B. Lexical diversity and information	MATTR	Mean type–token ratio over 20-word moving windows (step = 1) (Covington and McFall, 2010)	Simplification (Laviosa, 1998)
	MTLD	Mean number of words needed for the type–token ratio to fall to 0.72, averaged over forward and backward passes, with the final partial segment prorated (McCarthy and Jarvis, 2010)	Simplification
	Windowed entropy	Mean Shannon entropy (base 2) of the word-frequency distribution within 20-word windows	Information content (Z. Wang et al., 2025)
	Content-word repetition	1 − content-word types ÷ content-word tokens (nouns, verbs and adjectives; proper names and 10 high-frequency delexical verbs	Simplification

Group	Feature	Computation	Rationale
		excluded)	
	Mean word length	Chinese characters per word (letters per word for English)	Lexical complexity
	Lexical density	Nouns, verbs, adjectives and adverbs ÷ words	Simplification (Laviosa, 1998)
	Mean word-frequency rank	Mean $\log_{10}$ rank of each word in the jieba dictionary frequency list; out-of-vocabulary words are assigned dictionary size + 1; higher values indicate rarer words	Preference for high-frequency words (Laviosa, 1998)
C. Syntactic structure and word-class distribution	Mean dependency distance	Mean absolute distance between head and dependent positions over all dependency arcs in the speech, excluding the root and punctuation (H. Liu, 2008)	Dependency distance minimisation
	Mean sentence length	Mean number of words per sentence, with sentences split at sentence-final punctuation	Structural length
	Mean punctuation-segment length	Mean number of words per segment, with segments split at commas, semicolons, colons and sentence-final punctuation	Structural length
	Dependency direction	Proportion of dependents that precede their heads	Word order
	POS entropy	Shannon entropy of the UPOS distribution in the speech	Word-class distribution (Z. Wang et al., 2025)
	Busemann coefficient	VERB ÷ (VERB + ADJ) (Busemann, 1925); missing when both counts are zero	Word-class distribution

MATTR, windowed entropy and MTLD cannot be computed for translated speeches of fewer than 20 words and are treated as missing (46–72 speeches per feature and translator).

3.4 Death-themed speeches and matched controls

Death theme is determined from the English alone. We searched English speeches of at least 20 words with a list of 53 word forms (*die, death, kill, murder, grave, bury, corpse, tomb, poison, mortal and others*). After uses without a death sense were excluded, 208 speeches remained, and each was coded by hand. A speech counted as death-themed when death or killing was its main content (150 speeches) and as non-thematic when death words occurred only in oaths, figures of speech or passing mentions (58 speeches). Death-themed speeches were further divided by function into narrating a death (47), plotting or threatening killing (49), mourning (26)

and reflecting on death (28). To estimate what the list misses, we checked by hand 80 speeches drawn at random from those without hits. Three of the 50 with no death-related word had death as their main content, and so did three of the 30 containing related words such as *ghost, blood or grave-maker*.

Each death-themed speech was paired with a control speech from the same play with no death word or related word, at least 20 words and a length ratio of at most 1.5. Matching falls back through four tiers, namely same speaker and act, same speaker, same act and form (verse or prose), and same form. Within each tier the candidate closest in length is chosen, controls are not reused and death speeches are matched from the longest down. Both speeches must be one-to-one links in all four translations, so that every pair has a version by each translator. The list-based definition (any death word) and three density definitions (at least 1.5, 2 or 3 death words per 100 words) serve as sensitivity analyses.

3.5 Statistical analysis

RQ1 involves four analyses. The first is variance decomposition. For each feature we centre the translations within each English speech to remove differences between source speeches, using speeches with at least two translations (equation (1)).

$$\tilde{y}_{st} = y_{st} - \bar{y}_s \qquad (1)$$

Here y_{st} is the value for translator t's version of English speech s, and $\bar{y}_s$ is the mean over the versions of that speech. We then compute the within-speech total sum of squares SS_W, the translator main-effect sum of squares SS_T and the translator × play interaction sum of squares $SS_{T\times P}$ (equation (2)).

$$\mathrm{SS_W} = \sum_{s}\sum_{t} \tilde{y}_{st}^2, \quad \mathrm{SS_T} = \sum_{t} n_t\, \bar{\tilde{y}}_t^2, \quad \mathrm{SS_{T\times P}} = \sum_{t}\sum_{p} n_{tp}\, \bar{\tilde{y}}_{tp}^2 - \mathrm{SS_T} \qquad (2)$$

Here n_t and $\bar{\tilde{y}}_t$ are the number of speeches and the centred mean for translator t, and n_{tp} and $\bar{\tilde{y}}_{tp}$ are the same quantities for translator t in play p. Both effects take SS_W as a common denominator (Lakens, 2013), as in equation (3).

$$\eta_T^2 = \frac{SS_T}{SS_W}, \quad \eta_{T\times P}^2 = \frac{SS_{T\times P}}{SS_W} \qquad (3)$$

The ratio of the two is simply the ratio of SS_T to $SS_{T\times P}$. Confidence intervals (95%) for η^2 and for the ratio come from 2,000 bootstrap resamples of scenes within plays. We also fit linear mixed models to the raw standardised values with a random intercept for speech and test the effects by likelihood ratio. Kendall's *W* (Kendall and Babington Smith, 1939) describes how consistent the translator ranking is across plays (equation (4)). Here $m = 4$ is the number of plays, $k = 4$ the number of translators and R_t the sum of translator t's ranks, and *W* also receives a scene bootstrap interval.

$$W = \frac{12\sum_{t=1}^{k}(R_t - \bar{R})^2}{m^2(k^3 - k)} \qquad (4)$$

The second analysis is multivariate. We apply permutational multivariate analysis of variance (PERMANOVA) to the 16 centred and standardised features. Translator labels are permuted within speech for the translator effect, and residuals of the reduced model are permuted within speech for the interaction (Freedman-Lane method; Anderson, 2001), with 999 permutations each. This assumes only that the versions of an English speech are exchangeable, without requiring independence between speeches, scenes or speakers. Distances to each translator's centroid test for differences in dispersion.

The third analysis is cross-play attribution. Classifiers trained on three plays predict the translator of speeches in the fourth, with each play held out in turn. The main classifier is multinomial logistic regression (L2 penalty, C = 1, features standardised within the training set), with a linear support vector machine (C = 0.5) and a random forest (200 trees) for comparison. All parameters and random seeds are fixed in advance, without tuning. Raw values attribute a single translation, while speech-centred values, which need several versions of an English speech, attribute translations relative to one another. Permutation tests permute translator labels by speech within the training set (499 permutations for logistic regression, 199 for the

support vector machine and 99 for the random forest). For each classifier and feature type, the four held-out plays form one family under Holm (1979) correction. We report accuracy with scene bootstrap intervals, balanced accuracy, macro *F1*, recall for each translator, confusion matrices and the majority-class baseline. Five-fold cross-validation grouped by English speech serves as a within-play reference, and the cross-play training set is reduced at random to the within-play size (30 repetitions) to compare the two.

The fourth analysis is stylometric clustering. For the dialogue of each translation we compute the Delta of Burrows (2002) and its cosine variant (Evert et al., 2017). We use the 100 to 1,000 most frequent words, excluding proper names, and repeat the analysis with function words only. We apply average-linkage hierarchical clustering, choose the number of clusters by the silhouette coefficient and measure agreement with the translator and play partitions by the adjusted Rand index (ARI). We also divide each translation into five equal blocks and assign each block of a held-out play to the nearest translator centroid computed from the other three plays. To test the influence of play-specific content words, we repeat the clustering without words whose mean z score in the translations of one play exceeds that in the other plays by more than one standard deviation.

Stability is judged at three levels. Transferability, a judgement on the 16 features as a whole, requires cross-play attribution to exceed chance significantly on all four held-out plays. A single feature is a stable component when its translator main effect reaches $\eta^2 \geq 0.02$ and its translator ranking is consistent across plays (Kendall's $W \geq 0.85$, which allows at most two swaps of adjacent ranks). It is a variable component when $\eta^2 \geq 0.02$ and the ranking changes with the play, and a shared component when $\eta^2 < 0.02$, so that the translators do not differ substantially.

Six robustness checks apply to RQ1. Two vary the unit of analysis, using scenes without the one-to-one filter and English speeches with all four translations. One varies the tools, with pkuseg segmentation for six lexical features and the zh_core_web_md parser for four dependency features. The others separate blank verse from prose, drop MTLD and windowed entropy (which correlate highly with

MATTR), and compare texts before and after revision.

For RQ2, each feature is standardised within play. Chinese values are pooled over the four translations to compute the mean and standard deviation, and English values are standardised separately, so that topic effects and translator differences share the same units. For features with an English counterpart, the topic effect for pair i is a difference-in-differences (equation (5)).

$$\Delta_i = \frac{1}{4}\sum_{t=1}^{4}[(z_{itD}^{ZH} - z_{itC}^{ZH}) - (z_{iD}^{EN} - z_{iC}^{EN})] \qquad (5)$$

Here z is the standardised value, D and C denote the death and control speech and t the translator. The expansion ratio is itself a ratio of translation to source length, and the rate of *de* and mean word-frequency rank depend on Chinese segmentation and a Chinese dictionary. For these three features, which have no English counterpart, only the first term in the brackets is used. We apply a one-sample *t* test to Δ_i over pairs, obtain confidence intervals from 2,000 bootstrap resamples of the scenes containing the death speeches and apply Holm correction across the 16 tests (Simmons et al., 2011).

To judge whether a topic effect is smaller than the differences between translators, we use two one-sided tests (TOST; Lakens et al., 2018). The null hypotheses $\mu_\Delta \leq -\varepsilon$ and $\mu_\Delta \geq \varepsilon$ are tested together, and when both are rejected the effect is taken to lie within $(-\varepsilon, \varepsilon)$. The bound ε is the median pairwise difference in means between the four translators in the same matched speeches, with 0.2 standard deviations as a second bound. To compare topic and translator in one model, we fit equation (6) for each feature.

$$z_{ict} = \alpha_i + \lambda z_{ic}^{EN} + \beta c + \gamma_t + \delta_t c + e_{ict} \qquad (6)$$

Here α_i is a fixed effect for pair and c is topic (1 for the death speech and 0 for the control). γ_t is the translator effect, δ_t the topic × translator interaction and z_{ic}^{EN} the English counterpart, omitted for the three features without one. We enter the English counterpart, topic, translator and interaction in turn and divide the sum of squares added by each by the total sum of squares. This gives η^2 values with a

common denominator, and a scene bootstrap gives the interval for the difference between translator and topic η^2.

Differences between translators in the topic effect are examined through the difference-in-differences for each translator, the Friedman (1937) test and contrasts of each translator against the other three. In the multivariate case, a one-sample Hotelling T^2 test is applied to the 16-dimensional vector of estimates for each pair, using pairs for which all 16 features can be computed. Sensitivity analyses cover the three density definitions and the list-based definition, 30 repetitions with a shuffled matching order and a regression of Chinese values on topic, English counterpart and translator in place of the difference-in-differences. All computations use Python (SciPy 1.18.1, statsmodels 0.15.0 and scikit-learn 1.9.1).

4 The stability of translator features across plays

4.1 Stylometric clustering and cross-play assignment

With classic Delta on the most frequent words, proper names excluded, the 16 translations fall into four clusters exactly by translator at 100 or 200 words (ARI = 1.00; Fig. 1). From 300 to 1,000 words, every setting except 800 places only Sun's King Lear in Bian's cluster, and the other 15 translations still group by translator (ARI = 0.82). At 800 words, the Hamlet, Othello and King Lear of the two verse translators Bian and Sun form one cluster, and the Macbeth translations of Liang, Bian and Sun form another (ARI = 0.48). Both exceptions come from content words specific to one play. Beyond 300 words the list takes in plot words from King Lear such as 傻子 'fool', 小子 'lad' and 马 'horse', which lie 1.9 to 3.0 standard deviations above the mean of the other plays in Sun's and Bian's King Lear. Without play-specific words, clustering matches the translator partition exactly at every list size and at every threshold from 0.5 to 1.5 standard deviations (ARI = 1.00). Except at 800 words, the ARI with the play partition lies between −0.25 and −0.21, and no cluster consists of translations of one play. Cosine Delta at 100 to 400 words, classic Delta on function words at 100 to 900 words and cosine Delta on function words at all settings agree exactly with the translator partition. Without a preset number of clusters, the

silhouette coefficient peaks at four clusters in all four settings (0.25–0.43). Above the level of the translator, Sun and Bian merge first and then join Liang, while Zhu stands furthest from the rest.

When each translation is divided into five blocks, all 80 blocks of the held-out plays go to the correct translator under all 12 settings (accuracy 100%).

4.2 Cross-play attribution

Classifiers trained on three plays identify the translator of speeches in the fourth (Table 3; Fig. 2b). With multinomial logistic regression and raw features, accuracy on the four held-out plays is 0.483–0.557, and balanced accuracy and macro F1 differ from it by less than 0.01. All lie well above the chance level of 0.25 and the majority-class baseline of 0.256–0.263. The permutation p value is 0.002 for each play, or 0.008 after Holm correction. Recall for each translator is 0.35–0.68, so the result does not rest on one easily identified translator. With speech-centred features, accuracy rises to 0.632–0.716. The support vector machine and the random forest give similar results (raw 0.479–0.557, centred 0.594–0.716, corrected $p \leq 0.040$). So does an analysis of the 963 English speeches with all four translations and all 16 features (raw 0.499–0.557, centred 0.652–0.733). A single speech has a median length of only 43 English words (67 Chinese characters), and four-way attribution of such short units is hard in itself. Longer units give higher accuracy, with 0.80–0.92 for scenes (Section 4.5) and 100% for the blocks of Section 4.1.

The gap between cross-play and within-play attribution is small. Within-play cross-validation gives 0.503–0.559 with raw features and 0.645–0.729 with centred features. With equal training sizes, cross-play accuracy is lower by 0.7 to 2.8 percentage points with raw features and by 2.6 to 4.0 points with centred features. Translator features learned from other plays thus lose only 1–6% of within-play accuracy on a new play. By the criterion of Section 3.5, attribution exceeds chance significantly on all four held-out plays, and the translator signal carried by the 16 features transfers across plays.

Table 3 Cross-play translator attribution (multinomial logistic regression)

Features	Held-out play	Test speeches	Accuracy [95% CI]	Balanced accuracy	Macro *F*1	Majority baseline	Holm *p*	Within-play CV	Equal-*n* difference [95% interval]
Raw	*Hamlet*	1242	0.483 [0.460, 0.509]	0.480	0.476	0.263	0.008	0.503	−2.8 [−4.4, −1.3]
Raw	*Othello*	1283	0.557 [0.528, 0.584]	0.556	0.556	0.259	0.008	0.559	−1.6 [−2.9, −0.5]
Raw	*King Lear*	1329	0.533 [0.507, 0.565]	0.530	0.528	0.257	0.008	0.549	−2.1 [−3.5, −0.6]
Raw	*Macbeth*	867	0.548 [0.519, 0.575]	0.549	0.545	0.256	0.008	0.541	−0.7 [−3.0, +1.5]
Speech-centred	*Hamlet*	1242	0.632 [0.600, 0.666]	0.631	0.631	0.263	0.008	0.645	−2.6 [−4.8, −0.4]
Speech-centred	*Othello*	1283	0.679 [0.647, 0.706]	0.678	0.679	0.259	0.008	0.702	−3.4 [−5.2, −2.0]
Speech-centred	*King Lear*	1329	0.650 [0.617, 0.686]	0.647	0.646	0.257	0.008	0.686	−4.0 [−5.6, −2.4]
Speech-centred	*Macbeth*	867	0.716 [0.675, 0.754]	0.716	0.715	0.256	0.008	0.729	−2.7 [−4.9, −0.9]

Note. Test speeches are those for which all 16 features could be computed. Accuracy intervals are scene-level bootstrap intervals (2,000 resamples). Permutation tests used 499 permutations, with Holm correction across the four held-out plays. The equal-*n* difference is cross-play accuracy (training set randomly reduced to the size of the within-play cross-validation training set, 30 repetitions) minus within-play cross-validation accuracy, in percentage points; the interval gives the 2.5th and 97.5th percentiles of the 30 draws.

4.3 Variance decomposition into stable, variable and shared components

Table 4 gives the within-speech variance decomposition. The translator main effect accounts for 0.6% (Busemann coefficient) to 24.0% (rate of *de*) of within-speech variance, and the translator × play interaction for 0.3% to 3.6%. The mixed models agree. The translator main effect is significant for all 16 features ($p < 0.0001$), and the interaction for 15 ($p \leq 0.041$; Busemann coefficient $p = 0.29$). The interaction is, however, only a small fraction of the main effect. In PERMANOVA, translator accounts for 11.5% of the total variance of the speech-centred features (pseudo-$F = 206.2$, $p = 0.001$) and the interaction for 1.1% (pseudo-$F = 6.67$, $p = 0.001$). Mean distances to the translator centroids range from 3.46 to 3.65. The difference in dispersion is significant ($F = 6.24$, $p = 0.0003$), yet the extremes differ

by less than 6%, far less than the differences in location between translators.

By the criteria of Section 3.5, the features fall into three classes. Nine are stable components, namely conjunction density, the rate of *de*, the three lexical diversity measures, mean word length, lexical density, mean word-frequency rank and POS entropy. Their translator main effects are 6.9 to 37.5 times the interaction, and the translator ranking is the same in all four plays or differs by at most two adjacent swaps (W = 0.85–1.00). MATTR, windowed entropy, lexical density, conjunction density and POS entropy have exactly the same ranking in every play. Lexical diversity runs Sun > Bian > Zhu > Liang and lexical density Bian > Sun > Liang > Zhu. The rate of de is higher for the prose translators Zhu and Liang than for the verse translators Bian and Sun in every play. Four features are variable components, namely relative length and the three structural length features. Their translator differences are just as large (η^2 = 0.069–0.194), but the ranking changes with the play (W = 0.62–0.78). Zhu has the highest relative length, and Bian the lowest mean dependency distance and mean sentence length, in every play, while the order of the others varies. Three features are shared components, namely content-word repetition, dependency direction and the Busemann coefficient. Their translator main effects all fall below η^2 = 0.012, and the translators do not differ substantially on these dimensions.

Table 4 Within-speech variance decomposition and feature classes

Group	Feature	Translator main effect η^2 [95% CI]	Interaction η^2 [95% CI]	SS ratio [95% CI]	Kendall's W	Pooled ranking across four plays	Class
A	Relative length	0.194 [0.156, 0.240]	0.036 [0.026, 0.054]	5.4 [3.2, 8.4]	0.78	Zhu > Sun > Bian > Liang	Variable
A	Conjunction density	0.050 [0.035, 0.069]	0.004 [0.003, 0.014]	11.1 [3.1, 18.3]	1.00	Liang > Zhu > Sun > Bian	Stable
A	Rate of *de* (的)	0.240 [0.211, 0.270]	0.006 [0.003, 0.017]	37.5 [13.3, 80.1]	0.85	Zhu > Liang > Bian > Sun	Stable
B	MATTR	0.138 [0.116, 0.164]	0.008 [0.004, 0.017]	17.9 [7.5, 35.8]	1.00	Sun > Bian > Zhu > Liang	Stable
B	MTLD	0.128 [0.109, 0.151]	0.008 [0.005, 0.018]	15.9 [7.1, 24.1]	0.93	Sun > Bian > Zhu > Liang	Stable
B	Windowed entropy	0.144 [0.123, 0.168]	0.008 [0.005, 0.018]	17.6 [7.4, 30.9]	1.00	Sun > Bian > Zhu > Liang	Stable
B	Content-word	0.009 [0.005, 0.017]	0.007 [0.005, 0.015]	1.2 [0.4, 2.3]	0.55	Liang > Zhu >	Shared

Group	Feature	Translator main effect η^2 [95% CI]	Interaction η^2 [95% CI]	SS ratio [95% CI]	Kendall's *W*	Pooled ranking across four plays	Class
	repetition					Bian > Sun	
B	Mean word length	0.086 [0.070, 0.105]	0.009 [0.006, 0.018]	9.9 [4.6, 15.0]	0.85	Zhu > Bian > Sun > Liang	Stable
B	Lexical density	0.149 [0.125, 0.174]	0.007 [0.004, 0.018]	20.8 [8.1, 38.4]	1.00	Bian > Sun > Liang > Zhu	Stable
B	Mean word-frequency rank	0.141 [0.112, 0.172]	0.011 [0.006, 0.024]	12.9 [5.9, 22.6]	0.85	Sun > Bian > Zhu > Liang	Stable
C	Mean dependency distance	0.100 [0.081, 0.120]	0.023 [0.018, 0.032]	4.4 [2.8, 6.0]	0.62	Sun > Liang > Zhu > Bian	Variable
C	Mean sentence length	0.142 [0.119, 0.169]	0.019 [0.013, 0.032]	7.4 [4.2, 11.7]	0.68	Sun > Liang > Zhu > Bian	Variable
C	Mean punctuation-segment length	0.069 [0.051, 0.091]	0.010 [0.006, 0.021]	7.2 [3.2, 11.8]	0.70	Zhu > Liang > Sun > Bian	Variable
C	Dependency direction	0.011 [0.007, 0.018]	0.005 [0.003, 0.012]	2.2 [0.8, 4.0]	0.68	Sun > Liang > Bian > Zhu	Shared
C	POS entropy	0.068 [0.049, 0.087]	0.010 [0.007, 0.020]	6.9 [3.1, 10.5]	1.00	Zhu > Sun > Liang > Bian	Stable
C	Busemann coefficient	0.006 [0.002, 0.012]	0.003 [0.002, 0.009]	2.0 [0.4, 4.3]	0.57	Bian > Liang > Sun > Zhu	Shared

Note. η^2 uses the within-speech total sum of squares as a common denominator. The SS ratio is the ratio of the translator main-effect sum of squares to the interaction sum of squares. CIs are scene-level bootstrap intervals (2,000 resamples). A = length and explicitation; B = lexical diversity and information; C = syntactic structure and word-class distribution.

4.4 Dimensions that distinguish the translators

Lexical features carry most of the translator differences. In permutation importance for logistic regression on the held-out plays, the top six raw features are windowed entropy, mean word length, mean word-frequency rank, MATTR, the rate of *de* and relative length. With centred features the leading five are mean word-frequency rank, mean word length, relative length, the rate of *de* and windowed entropy. Only mean sentence length from the syntactic group enters the top eight. Since the groups differ in size, we also compare sets of three features. Group A, which has exactly three, gives a cross-play accuracy of 0.432 (centred 0.539). The 35 three-feature subsets of the lexical group give a mean of 0.369 (0.327–0.421; centred

0.443), and the 20 subsets of the syntactic group 0.330 (0.300–0.361; centred 0.396), which is still above chance. Without MTLD and windowed entropy, which correlate highly with MATTR (ρ = 0.76 and 0.99), accuracy with 14 features (0.490–0.559) equals that with all 16. The overlap between the diversity measures, then, does not inflate attribution.

4.5 Robustness checks

Four further checks support these results. At scene level, with all translated text pooled and no one-to-one filter, cross-play attribution of 318 scene texts reaches 0.80–0.92 (logistic regression, corrected p = 0.020). The filter, then, has not created the translator differences, and longer units make the signal clearer still. With the alternative segmenter and parser, Spearman correlations with the original values are 0.63–0.95 (0.53–0.92 after centring). Pooled translator rankings are identical apart from a swap of the top two for mean word length. Ratios of sums of squares stay in the same range, for example 16.9 against 20.9 for MATTR, 4.4 against 5.4 for mean dependency distance and 2.2 against 1.7 for dependency direction. The two parsers differ slightly more for Sun (0.42 standard deviations in mean dependency distance, against 0.28–0.35 for the others).

In blank verse and in prose, the translator rankings for the three diversity measures and lexical density are identical. The translator main effect is simply smaller in prose (η^2 for MATTR 0.070, against 0.169 in verse), and the rate of *de* is higher for Zhu and Liang than for Bian and Sun in both. Against the texts before revision, the classification of the 16 features is unchanged, η^2 for the translator main effect changes by at most 0.002 and cross-play accuracy by at most 0.004.

4.6 Examples and annotation of explicitation in Zhu

Zhu has the highest rate of *de* and the highest relative length. To see where the additional characters go, we drew 20 speeches at random from those with all four translations (five per play) and annotated by hand each addition in Zhu and Liang against the English. Zhu has 36 additions in 19 speeches, and Liang seven additions in seven speeches. Of Zhu's additions, 16 (44%) make implicit meaning explicit, 13 (36%) supply a referent, subject, form of address or possessive, four (11%) add a

connective and three (8%) add an intensifying modifier. Examples 1 and 2, both from Othello, illustrate these types.

Example 1 *Othello* 2.1.48–51 (Cassio, verse)

Thanks, you the valiant of this warlike isle, / That so approve the Moor! O, let the heavens / Give him defense against the elements, / For I have lost him on a dangerous sea.

Translator	Translation	Chinese characters per English word
Zhu	*谢谢，你们这座尚武的岛上的各位壮士，因为你们这样褒奖我们的主帅。啊！但愿上天帮助他战胜风浪，因为我是在险恶的波涛之中和他失散的。*	1.81
Liang	*多谢了，诸位英勇岛上的武士，你们如此的称赞那摩尔。啊！上天保佑他平安，因为我在汹险的海上遗失了他。*	1.34
Bian	*谢谢你们英雄海岛的勇士 / 这么样称道摩尔将军！愿上天 / 保佑他顶住了这番恶劣的天气， / 我是在惊涛骇浪中和他失散的。*	1.53
Sun	*多谢，你们这勇武的岛上勇士们，这么样高兴这摩尔人。啊，让上天保护他莫受风雨的危难，因为我在危险的海面上跟他失散。*	1.56

Zhu's additions beyond Liang are of three kinds. Zhu renders *That so approve the Moor* as "因为你们这样褒奖我们的主帅". This adds the connective "因为" and the possessive "我们的", which is referential explicitation. It also replaces the ethnic designation *the Moor* with the title "主帅", a reformulation of the character's identity. *The valiant* becomes "各位壮士", which supplies a form of address, and *on a dangerous sea* becomes "在险恶的波涛之中", a rhetorical expansion. Bian renders four lines with four lines, as his line-for-line principle requires, and he too expands "摩尔" to "摩尔将军".

Example 2 *Othello* 3.3.5–7 (Desdemona, verse)

O, that's an honest fellow! Do not doubt, Cassio, / But I will have my lord and you again / As friendly as you were.

Translator	Translation	Chinese characters per English word
Zhu	*啊！你的丈夫是一个好人。放心吧，凯西奥，我一定会设法使我的丈夫对你恢复原来的友谊。*	1.57
Liang	*啊！他真是诚恳的人。不必疑虑了，卡希欧，我一定使我的丈夫与你和好如初。*	1.30
Bian	*噢，那是个诚实人。别担心，凯西奥，/ 我一定叫我的丈夫和你两个人 / 恢复友好。*	1.30
Sun	*啊！那是个诚实人。别怀疑，凯昔欧，我准使我官人跟您友好如*	1.09

Translator	Translation	Chinese characters per English word
	初。	

Desdemona is speaking of Iago, Emilia's husband, in reply to Emilia. Zhu renders *that* as "你的丈夫" and so makes the referent explicit, while the other three keep a demonstrative ("他", "那"). Zhu also adds "设法" and turns *as friendly as you were* into the noun phrase "原来的友谊", where Liang and Sun compress it to "如初". Sun uses "官人" for *my lord* and the honorific "您" for Cassio. His wording is more archaic and elegant, and his version is the shortest. This fits his position in Table 4, with the highest mean word-frequency rank, that is the rarest words, and the highest lexical diversity

5 The effect of the death theme

5.1 Topic effects

Death-themed speeches leave a trace that survives correction on lexical diversity alone (Table 5; Fig. 3a). Across the 117 pairs with all four translations, MTLD in the English death speeches is 0.42 standard deviations higher than in the controls (p = 0.010). The translations show no corresponding rise, and the difference-in-differences is −0.52 (95% CI [−0.81, −0.20], p = 0.001, Holm-corrected p = 0.019). The four translators agree in direction (Zhu −0.53, Liang −0.51, Bian −0.45, Sun −0.59), and none of their intervals includes zero. Over 30 shuffles of the matching order the estimate ranges from −0.57 to −0.43, and in a regression of Chinese values on topic, English counterpart and translator the topic coefficient is −0.23 (p = 0.007). Put simply, the English death speeches vary their vocabulary more than other speeches do, and all four translations level out this difference.

No other feature shows a topic effect after correction. Before correction, relative length (+0.20, p = 0.022), lexical density (−0.36, p = 0.009) and mean punctuation-segment length (+0.21, p = 0.011) reach nominal significance. The slightly longer translations partly match the first outcome set out in the Introduction, yet conjunction density (+0.10, p = 0.48) and the rate of *de* (+0.14, p = 0.12) show no reliable change. The Hotelling T^2 test is not significant (n = 97, $F(16, 81)$ = 1.70, p = 0.063), with 20 pairs left out because MTLD and related measures cannot be

computed for speeches under 20 words. Under the list-based definition (158 pairs) and the three density definitions (121, 104 and 71 pairs), the difference-in-differences for MTLD lies between −0.56 and −0.37. The direction holds, yet with smaller samples none of these estimates is significant after correction, and none of the four Hotelling tests is significant (p = 0.20–0.73).

Broken down by function, which we treat descriptively, mourning speeches (19 pairs) change most, with relative length +0.77, MTLD −0.90 and lexical density −0.59. Speeches plotting or threatening killing (40 pairs) show an MTLD effect of −0.77, while those narrating a death (38 pairs) or reflecting on death (20 pairs) change less.

Table 5 Topic effects in death-themed speeches (117 pairs, within-play SD units)

Note. The topic effect is a difference-in-differences, namely the death − control gap in the translations minus the corresponding gap in the English source. † marks features without an English counterpart, for which the gap in the translations is used. CIs are scene-level bootstrap intervals (2,000 resamples), unadjusted for multiple comparisons; Holm correction covers the 16 features. Equivalence bounds are the

Feature	Topic effect [95% CI]	Uncorrected *p*	Holm *p*	Valid pairs	Median pairwise translator gap	Equivalence test *p*	Translator η^2	Topic η^2
Relative length†	+0.20 [+0.05, +0.38]	0.022	0.291	117	0.42	0.008	0.109	0.010
Conjunction density	+0.10 [−0.21, +0.36]	0.481	1	117	0.16	0.313	0.016	0.001
Rate of *de* (的)†	+0.14 [−0.05, +0.29]	0.117	0.934	117	0.57	0.000004	0.145	0.006
MATTR	−0.23 [−0.44, −0.00]	0.053	0.476	104	0.34	0.197	0.066	0.005
MTLD	−0.52 [−0.81, −0.20]	0.001	0.019	100	0.34	0.882	0.082	0.012
Windowed entropy	−0.25 [−0.47, −0.00]	0.040	0.470	104	0.35	0.211	0.068	0.006
Content-word repetition	+0.03 [−0.18, +0.25]	0.777	1	113	0.09	0.260	0.005	0.001
Mean word length	−0.23 [−0.46, +0.03]	0.039	0.470	117	0.24	0.486	0.029	0.019
Lexical density	−0.36 [−0.64, −0.06]	0.009	0.128	117	0.37	0.477	0.085	0.014
Mean word-frequency rank†	−0.18 [−0.35, −0.02]	0.047	0.470	117	0.35	0.031	0.054	0.010
Mean dependency distance	+0.04 [−0.19, +0.24]	0.723	1	117	0.30	0.009	0.058	0.001
Mean sentence length	+0.05 [−0.10, +0.20]	0.487	1	117	0.28	0.002	0.045	0.000
Mean punctuation-segment length	+0.21 [+0.04, +0.36]	0.011	0.157	117	0.21	0.489	0.028	0.009
Dependency direction	−0.02 [−0.27, +0.28]	0.912	1	117	0.13	0.217	0.011	0.000
POS entropy	+0.09 [−0.12, +0.34]	0.437	1	117	0.25	0.087	0.037	0.009
Busemann coefficient	+0.12 [−0.13, +0.37]	0.377	1	117	0.05	0.685	0.002	0.000

median pairwise mean difference among the four translators in the same matched speeches. Translator η^2 and topic η^2 come from the same model, with the total sum of squares as the denominator. MATTR, windowed entropy and MTLD have fewer valid pairs because some speeches contain fewer than 20 words.

5.2 Topic effects compared with translator effects

On the same matched speeches, translators matter far more than the death theme (Fig. 3b). Summed over the 16 features, translators account for $\eta^2 = 0.84$ and topic for 0.10. For single features, translator η^2 is 1.5 to 315 times topic η^2, with a median of 11.7. For 11 features the bootstrap interval for the difference excludes zero. Of the remaining five, content-word repetition and the Busemann coefficient are shared components with both values close to zero, and the intervals for mean word length, mean punctuation-segment length and POS entropy include zero. Even for MTLD, the one feature with a significant topic effect, translator η^2 (0.082) is seven times topic η^2 (0.012). Equivalence tests show that the topic effects on the rate of *de* and on mean sentence length are smaller than the typical difference between translators (Holm-corrected $p = 0.00007$ and $p = 0.029$). Relative length, mean dependency distance and mean word-frequency rank meet this condition before correction (p = 0.008, 0.009 and 0.031).

5.3 Translator differences in the topic effect

The topic effect hardly varies between translators. Friedman tests comparing the four translators are not significant for any feature after correction (corrected $p \geq 0.27$). Of the 64 contrasts between each translator and the other three, only one survives Holm correction across the family. In Sun's death speeches, mean dependency distance rises 0.35 standard deviations more than in those of the other translators (p = 0.0004, corrected $p = 0.028$), and Sun's own difference-in-differences is +0.30 (95% CI [0.02, 0.57]).

6 Discussion

6.1 Main findings

The quantitative features of the four translators transfer across plays as a whole. Nine features, mainly lexical, are stable components, relative length and structural

length are variable and three features are shared. The death theme leaves all four translations without the higher lexical diversity of the English death speeches, the only topic effect to survive correction. In the same model, translators account for about eight times as much variance as topic, and the topic effect hardly varies by translator, Sun's relative increase in dependency distance being the one exception.

6.2 Stable, variable and shared components and the revised definition of translator style

Sun (2026) argues that translator style is a system of features, some of which hold across works while others change with the work or are shared with other translators. The fully crossed design lets us observe the three kinds of component separately. The results agree with the revised definition, and they also show how the components are distributed over linguistic dimensions. Stable components lie in lexical choice, variable components in length and sentence organisation and shared components in features constrained jointly by Chinese grammar and the task of translation.

The contrast between stable lexis and variable syntax reflects where the constraints on a translator's decisions come from. Which words to use, and how varied they are, depend largely on the translator's repertoire and aesthetic preferences, and differences between source texts affect them relatively little. Where a sentence breaks and how its constituents are ordered are tied rather more closely to the syntax and line structure of the source. As the plays differ in their share of verse and their rhetorical density, sentence organisation adjusts from play to play. Bian is the exception. His mean dependency distance and mean sentence length are the lowest in all four plays, in line with the line-for-line rule he set himself for verse. An explicit formal rule, then, makes sentence organisation stable too. Since the rankings and the gap between structural and lexical features survive a change of segmenter and parser (Section 4.5), the gradation is no artefact of parsing error.

Shared components are equally part of each translator's style. Dependency direction is largely fixed by Chinese word order, and content-word repetition and the Busemann coefficient do not separate the translators either. Conventional comparisons

would set such features aside as carrying no style (Sun, 2026). In a fully crossed design they appear as choices that all four translators follow in every play. A claim that a translator's style is stable, in other words, needs to name the dimension concerned. In this corpus lexical choice is the most stable dimension, and sentence organisation is markedly less so.

6.3 Quantitative identifiability depends on the design of the comparison

Rybicki (2012) found that Delta usually groups translations by author when a corpus has several authors and translators, whereas Rybicki and Heydel (2013) detected a translator signal where the source was fixed. Our corpus has one author, four works and four fully crossed translators, and here differences between works do not override the translators. A play-based cluster appears under one setting only and disappears without play-specific words, and every cross-play block is assigned correctly. Whether translators can be identified quantitatively, then, depends on what changes in the comparison. When the author changes, the author's signal dominates. When the author is fixed and the work changes, the translator's signal can transfer across works.

What we measure is quantitative identifiability, that is, whether a translator's linguistic preferences generalise from one work to another. This lies at a different level from the sociocultural visibility discussed by Venuti (1995) or the translator's intervention in narrative described by Hermans (1996). The two are connected in one respect. A reader can only sense a consistent voice in a translator if these preferences recur across works, and our results show that this precondition holds at the lexical level.

6.4 Verse form and explicitation as two sources of translator difference

Translator differences have at least two sources. The first is a lexical orientation shared by the two verse translators. In all four plays Bian and Sun have higher lexical diversity and lexical density and a lower rate of *de* than the prose translators, and they are the first pair to merge in Delta clustering. Bian's line-for-line translation and Sun's matching of sound groups to feet both come close to what Holmes (1994, p. 26) calls mimetic form (see also Escudero, 2021). A fixed number of characters or sound

groups per line leaves less room for function words and markers of modification. Yet the same ranking holds in prose speeches, which Bian and Sun translate as prose (Section 4.5). This orientation is therefore more than a by-product of the verse line. It is a personal preference that extends into prose. The verse line amplifies it, with translator main effects 2.1 to 2.6 times larger in blank verse than in prose, yet it does not create it.

The second source is explicitation. Zhu has the highest relative length in all four plays and the highest rate of de in three of them, with Liang marginally ahead in Othello. In the annotated sample, about four-fifths of his additional material is referential or semantic explicitation in the sense of Blum-Kulka (1986), and connectives account for only about a tenth. This agrees with Hu and Ma's (2015) comparison of Zhu and Liang. Our results add that the explicitation runs through all four of Zhu's tragedies and fits his stated aim of clear and fluent wording (Zhu, 1947). Liang also translated into prose, yet his relative length is close to that of the verse translators. Length differences, then, reflect the individual translator's tendency to explicitate rather than the division between verse and prose. Relative length counts as variable only because the order of the three translators after Zhu changes with the play.

6.5 The role of theme

The death theme affects the translations in a specific and limited way. The lexical diversity gap is largest in mourning and in plotting killing. With English MTLD computed on lemmas, the English gap falls from +0.42 to +0.18 and the difference-in-differences from −0.52 to −0.33 ($p = 0.042$). About a third of the effect thus comes from the inflectional variety of the English death speeches (*die*, *dies*, *died*, *dying*, *dead*), a distinction that Chinese morphology does not make. The rest reflects lexical diversity in the translations that does not rise with that of the source. Since the tendency runs in the same direction for four very different translators, it reflects a common treatment in translation rather than a particular effect of theme on one translator.

Compared with the translator effect, the topic effect is small. Translators account

for about eight times as much variance, and the topic effects on the rate of de and mean sentence length are clearly smaller than the typical difference between translators. This does not contradict the finding of Li and Gao (2025) that register effects exceed those of translation variety. Register is a property of whole texts, whereas theme here is a local difference within one work, often within the same speaker and act. The death theme may well leave traces beyond our distributional measures. Euphemisms, forms of address and ritual vocabulary are likely candidates (Allan and Burridge, 2006; Zhang and Mo, 2025), and they call for research at the level of lexical semantics.

6.6 Theoretical contributions and practical implications

The study extends research on translator style in three ways. First, building on Sun (2026), it identifies the stable, variable and shared components of translator style separately and shows that they are distributed systematically over linguistic dimensions. Second, it adds a test of transferability to Saldanha's (2011) criterion of consistency across texts. Translator features learned from some works apply to another, for single speeches and for text blocks alike. Third, it compares theme within a work and translator in one model and shows that a core theme affects only individual dimensions, far less than the translator does.

There are practical implications too. In comparing and selecting Chinese translations of Shakespeare, differences in lexical diversity, lexical density and the rate of *de* generalise from one tragedy to the others, while the middle ranks for length and sentence length do not. Bian and Sun suit readers who want concise and varied wording, as they hold the top two places for lexical density and lexical diversity in every play. Zhu suits readers who want explicit reference and meaning, as he explicitates most in every play. The design, with full crossing, speech-level alignment and held-out-work testing, can be applied to other classics retranslated by several translators, with the alignment unit adjusted to the genre. In translator training, students can compare their own features across texts to separate habits that hold across texts from those that change with the source.

6.7 Limitations

The study covers four tragedies by one author, four translators and one language pair, leaving aside the verse translations by Fang Ping and others, more recent translators and the comedies and histories. The translations were made decades apart, and we cannot separate translator differences from differences in the language of their time. The measurements also depend on tools and filters. Jieba and spaCy were built for modern Chinese and may handle archaic wording less accurately, the one-to-one filter excludes up to 12.5% of the speeches in one translation and single speeches are short (median 43 English words). The analysis of theme is limited in scope and power. The word list misses some death-themed speeches, and the one topic effect to survive correction is modest, partly reflects English inflection and loses significance under the alternative definitions. Our distributional measures cannot capture euphemism or forms of address, and the annotation of additions covers only 20 speeches. Finally, without a reference corpus of non-translated Chinese, explicitation and simplification are interpreted relative to the other translators.

7 Conclusion

In the Chinese translations of Shakespeare's four great tragedies, the translator outweighs the theme. The quantitative features of the four translators transfer from three plays to a fourth, and the 16 translations cluster by translator. Translators account for about eight times as much variance as the death theme, whose effect is limited to a reduction in lexical diversity common to all four.

Translator style can be broken down into stable, variable and shared components. Lexical choice holds across works, sentence organisation varies with the work and features constrained by the rules of the language are shared. Whether a translator's style is stable can thus be tested by naming the dimension first and then checking transfer across works, consistency of ranking and the ratio of main effect to interaction. Future work can apply the design to one translator's work from different periods, testing the change over time described by Sun (2026), and use lexical semantic annotation to examine theme in word choice.

References

Allan K, Burridge K (2006) Forbidden words: taboo and the censoring of

language. Cambridge University Press, Cambridge

Anderson MJ (2001) Permutation tests for univariate or multivariate analysis of variance and regression. Can J Fish Aquat Sci 58(3):626–639. https://doi.org/10.1139/f01-004

Baker M (1993) Corpus linguistics and translation studies: implications and applications. In: Baker M, Francis G, Tognini-Bonelli E (eds) Text and technology. John Benjamins, Amsterdam, pp 233–250

Baker M (2000) Towards a methodology for investigating the style of a literary translator. Target 12(2):241–266. https://doi.org/10.1075/target.12.2.04bak

Bian Z (1988) Yiben shuoming [Notes on the translation]. In: Shakespeare W, Shashibiya beiju si zhong [Shakespeare's four tragedies] (trans: Bian Z). People's Literature Publishing House, Beijing (in Chinese)

Blum-Kulka S (1986) Shifts of cohesion and coherence in translation. In: House J, Blum-Kulka S (eds) Interlingual and intercultural communication: discourse and cognition in translation and second language acquisition studies. Gunter Narr, Tübingen, pp 17–35

Burrows J (2002) 'Delta': a measure of stylistic difference and a guide to likely authorship. Lit Linguist Comput 17(3):267–287

Busemann A (1925) Die Sprache der Jugend als Ausdruck der Entwicklungsrhythmik. Fischer, Jena

Caballero C, Calvo H, Batyrshin I (2021) On explainable features for translatorship attribution: unveiling the translator's style with causality. IEEE Access 9:93195–93208. https://doi.org/10.1109/ACCESS.2021.3093370

Chou I, Liu K (2024) Style in speech and narration of two English translations of Hongloumeng: a corpus-based multidimensional study. Target 36(1):76–111. https://doi.org/10.1075/target.22020.cho

Covington MA, McFall JD (2010) Cutting the Gordian knot: the moving-average type–token ratio (MATTR). J Quant Linguist 17(2):94–100. https://doi.org/10.1080/09296171003643098

Escudero T (2021) The translation of verse form: a revision of Holmes' model

based on the Spanish translations of Shakespeare's sonnets. Sendebar 32:7–29. https://doi.org/10.30827/sendebar.v32.16892

Evert S, Proisl T, Jannidis F et al (2017) Understanding and explaining Delta measures for authorship attribution. Digit Scholarsh Humanit 32(suppl_2):ii4–ii16. https://doi.org/10.1093/llc/fqx023

Fang Y, Liu H (2023) Seeing various adventures through a mirror: detecting translator's stylistic visibility in Chinese translations of Alice's Adventure in Wonderland. Digit Scholarsh Humanit 38(1):50–65. https://doi.org/10.1093/llc/fqac024

Fischer F, Börner I, Göbel M et al (2019) Programmable corpora: introducing DraCor, an infrastructure for the research on European drama. Paper presented at Digital Humanities 2019, Utrecht, 9–12 July 2019. https://doi.org/10.5281/zenodo.4284002

Friedman M (1937) The use of ranks to avoid the assumption of normality implicit in the analysis of variance. J Am Stat Assoc 32(200):675–701

Futrell R, Mahowald K, Gibson E (2015) Large-scale evidence of dependency length minimization in 37 languages. Proc Natl Acad Sci USA 112(33):10336–10341. https://doi.org/10.1073/pnas.1502134112

fxsjy (n.d.) jieba (version 0.42.1) [computer software]. GitHub. https://github.com/fxsjy/jieba

Gale WA, Church KW (1993) A program for aligning sentences in bilingual corpora. Comput Linguist 19(1):75–102. https://aclanthology.org/J93-1004/

He T, Kong D, Li B (2026) Unveiling stylometric signatures in translated children's literature: Peter Pan in Chinese. Humanit Soc Sci Commun 13:1415. https://doi.org/10.1057/s41599-026-07761-4

Hermans T (1996) The translator's voice in translated narrative. Target 8(1):23–48. https://doi.org/10.1075/target.8.1.03her

Herrmann JB, van Dalen-Oskam K, Schöch C (2015) Revisiting style, a key concept in literary studies. J Lit Theory 9(1):25–52

Holm S (1979) A simple sequentially rejective multiple test procedure. Scand J

Stat 6(2):65–70. https://www.jstor.org/stable/4615733

Holmes JS (1994) Translated! Papers on literary translation and translation studies. Rodopi, Amsterdam

Honnibal M, Montani I, Van Landeghem S, Boyd A (2020) spaCy: industrial-strength natural language processing in Python [computer software]. Zenodo. https://doi.org/10.5281/zenodo.1212303

Hu K (2009) Jiyu yuliaoku de Shaju Hamuleite Hanyi wenben zhong “ba” zi ju yingyong ji qi dongyin yanjiu [A corpus-based study of the use of ba constructions in Chinese translations of Hamlet and its motivations]. Waiyu Xuekan [Foreign Language Research] (1):111–115 (in Chinese)

Hu K, Ma X (2015) Shashibiya xiju Hanyiben zhong “good” pingjia yiyi de zaixian yanjiu [A study of the representation of the appraisal meaning of “good” in the Chinese translations of Shakespeare’s plays]. Dangdai Waiyu Yanjiu [Contemporary Foreign Languages Studies] 15(3):7–13. https://doi.org/10.3969/j.issn.1674-8921.2015.03.002 (in Chinese)

Hu K, Zhu Y (2008) Jiyu yuliaoku de Shaju Hamuleite Hanyi wenben zhong xianhua xianxiang ji qi dongyin yanjiu [A corpus-based study of explicitation in Chinese translations of Hamlet and its motivations]. Waiyu Yanjiu [Foreign Languages Research] (2):72–80 (in Chinese)

Hu K, Zou S (2009) Shashibiya xiju Ying-Han pingxing yuliaoku de chuangjian yu yingyong [The construction and application of an English–Chinese parallel corpus of Shakespeare’s plays]. Waiyu Yanjiu [Foreign Languages Research] (5):64–71 (in Chinese)

Huang ACY (2009) Chinese Shakespeares: two centuries of cultural exchange. Columbia University Press, New York

Huang L (2015) Style in translation: a corpus-based perspective. Springer, Berlin. https://doi.org/10.1007/978-3-662-45566-1

Hubscher-Davidson S (2018) Translation and emotion: a psychological perspective. Routledge, New York

Jiang Z (2025) Does LLM translation align with translation universals? A

cross-genre simplification study on English-Chinese translation based on dependency grammar. PLoS ONE 20(6):e0324830. https://doi.org/10.1371/journal.pone.0324830

Kendall MG, Babington Smith B (1939) The problem of m rankings. Ann Math Stat 10(3):275–287

Lakens D (2013) Calculating and reporting effect sizes to facilitate cumulative science: a practical primer for t-tests and ANOVAs. Front Psychol 4:863. https://doi.org/10.3389/fpsyg.2013.00863

Lakens D, Scheel AM, Isager PM (2018) Equivalence testing for psychological research: a tutorial. Adv Methods Pract Psychol Sci 1(2):259–269. https://doi.org/10.1177/2515245918770963

Laviosa S (1998) Core patterns of lexical use in a comparable corpus of English narrative prose. Meta 43(4):557–570. https://doi.org/10.7202/003425ar

Li J, Gao Y (2025) Variability of cohesion and coherence in Chinese-to-English translation: measuring the effect of translation variety and register divergence. Humanit Soc Sci Commun 12:1526. https://doi.org/10.1057/s41599-025-05814-8

Li R (2003) Shashibiya: staging Shakespeare in China. Hong Kong University Press, Hong Kong

Liang S (2002) Liyan [Translator's notes]. In: Shakespeare W, Hamuleite [Hamlet] (trans: Liang S). China Radio & Television Publishing House, Beijing (in Chinese)

Liu H (2008) Dependency distance as a metric of language comprehension difficulty. J Cogn Sci 9(2):159–191. https://hdl.handle.net/10371/70907

Liu H, Xu C, Liang J (2017) Dependency distance: a new perspective on syntactic patterns in natural languages. Phys Life Rev 21:171–193. https://doi.org/10.1016/j.plrev.2017.03.002

Luo X (2016) Du tu: wan Qing Minguo shiqi de Shashibiya Zhongwen ban dou zhang sha yang? [What did Chinese editions of Shakespeare look like in the late Qing and Republican periods?]. The Paper, 20 April 2016. https://www.thepaper.cn/newsDetail_forward_1458861 (in Chinese)

McCarthy PM, Jarvis S (2010) MTLD, vocd-D, and HD-D: a validation study of

sophisticated approaches to lexical diversity assessment. Behav Res Methods 42(2):381–392. https://doi.org/10.3758/BRM.42.2.381

Mowat B, Werstine P, Poston M, Niles R (eds) (2017) Folger Shakespeare: Hamlet, Othello, King Lear, Macbeth (TEI Simple texts, version 0.5). Folger Shakespeare Library, Washington, DC. Retrieved via DraCor, https://github.com/dracor-org/shakedracor. Accessed 20 October 2026

Neill M (1997) Issues of death: mortality and identity in English Renaissance tragedy. Clarendon Press, Oxford

Niu J, Jiang Y (2024) Does simplification hold true for machine translations? A corpus-based analysis of lexical diversity in text varieties across genres. Humanit Soc Sci Commun 11:1–10. https://doi.org/10.1057/s41599-024-02986-7

Nosek BA, Ebersole CR, DeHaven AC, Mellor DT (2018) The preregistration revolution. Proc Natl Acad Sci USA 115(11):2600–2606. https://doi.org/10.1073/pnas.1708274114

Olohan M (2003) How frequent are the contractions? A study of contracted forms in the Translational English Corpus. Target 15(1):59–89

Rybicki J (2012) The great mystery of the (almost) invisible translator: stylometry in translation. In: Oakes MP, Ji M (eds) Quantitative methods in corpus-based translation studies. John Benjamins, Amsterdam, pp 231–248. https://doi.org/10.1075/scl.51.09ryb

Rybicki J, Heydel M (2013) The stylistics and stylometry of collaborative translation: Woolf's Night and Day in Polish. Lit Linguist Comput 28(4):708–717. https://doi.org/10.1093/llc/fqt027

Saldanha G (2011) Translator style: methodological considerations. Translator 17(1):25–50. https://doi.org/10.1080/13556509.2011.10799478

Shakespeare W (n.d.-a) Hamuleite [Hamlet] (trans: Sun D), bilingual illustrated edn. Shanghai Translation Publishing House, Shanghai. ISBN 978-7-5327-5845-6 (in Chinese)

Shakespeare W (n.d.-b) Aosailuo [Othello] (trans: Sun D), bilingual illustrated edn. Shanghai Translation Publishing House, Shanghai. ISBN 978-7-5327-5846-3 (in

Chinese)

Shakespeare W (1988) Shashibiya beiju si zhong [Shakespeare's four tragedies] (trans: Bian Z). People's Literature Publishing House, Beijing (in Chinese)

Shakespeare W (1991) Hamuleite. Shashibiya xiju ji [Hamlet. Plays of Shakespeare] (trans: Bian Z, Cao Y, Fang P). Zhejiang Literature & Art Publishing House, Hangzhou (in Chinese)

Shakespeare W (2002a) Makebai [Macbeth] (trans: Liang S). Complete works of Shakespeare, vol 31. China Radio & Television Publishing House, Beijing; Far East Book Company, Taipei (in Chinese)

Shakespeare W (2002b) Hamuleite [Hamlet] (trans: Liang S). Complete works of Shakespeare, vol 32. China Radio & Television Publishing House, Beijing; Far East Book Company, Taipei (in Chinese)

Shakespeare W (2002c) Li'er wang [King Lear] (trans: Liang S). Complete works of Shakespeare, vol 33. China Radio & Television Publishing House, Beijing; Far East Book Company, Taipei (in Chinese)

Shakespeare W (2002d) Aosailuo [Othello] (trans: Liang S). Complete works of Shakespeare, vol 34. China Radio & Television Publishing House, Beijing; Far East Book Company, Taipei (in Chinese)

Shakespeare W (2010) Shashibiya si da beiju [Four tragedies of Shakespeare] (trans: Sun D), 3rd printing 2012. Shanghai Translation Publishing House, Shanghai (in Chinese)

Shakespeare W (2012) Maikebaisi [Macbeth], bilingual illustrated edn. Shanghai Translation Publishing House, Shanghai (in Chinese)

Shakespeare W (2014a) Hamuleite. Han-Ying duizhao [Hamlet. Chinese–English] (trans: Zhu S). China Translation & Publishing Corporation, Beijing (in Chinese)

Shakespeare W (2014b) Aoseluo; Li'er wang; Maikebai [Othello; King Lear; Macbeth] (trans: Zhu S) [e-texts]. Qingpingguo Data Center (in Chinese)

Simmons JP, Nelson LD, Simonsohn U (2011) False-positive psychology: undisclosed flexibility in data collection and analysis allows presenting anything as

significant. Psychol Sci 22(11):1359–1366. https://doi.org/10.1177/0956797611417632

Song H (2022) A corpus-based comparative study of explicitation by investigating connectives in two Chinese translations of The Lord of the Rings. Babel 68(1):139–164. https://doi.org/10.1075/babel.00253.son

Sun B, Yue M (2023) The translator's visibility: a stylistic perspective. Across Lang Cult 24(1):52–72. https://doi.org/10.1556/084.2023.00149

Sun H, Liu W (2023) Shaju Hanyu yiben yuanzuo fengge zaixian de duowei kaocha. Yi Li'er wang he Wensha de fengliu niangrmen wei li [A multidimensional examination of how Chinese translations of Shakespeare represent the original style: King Lear and The Merry Wives of Windsor]. Jiefangjun Waiguoyu Xueyuan Xuebao [Journal of PLA University of Foreign Languages] (6) (in Chinese)

Sun J (2010) Yiben xu [Preface to the translation]. In: Sun D (trans) Shashibiya si da beiju [Four tragedies of Shakespeare]. Shanghai Translation Publishing House, Shanghai, pp 1–4 (in Chinese)

Sun R (2026) Towards a more comprehensive theoretical framework for translator style. Target 38(3):354–390. https://doi.org/10.1075/target.25066.sun

Tan H (2025) Can syntactic complexity distinguish translator style? A novel stylometric analysis of Hongloumeng with dependency grammar. SAGE Open 15(3). https://doi.org/10.1177/21582440251358121

Venuti L (1995) The translator's invisibility: a history of translation. Routledge, London

Wang Y (2025) A quantitative study of syntactic complexity across genres: dependency distance in English and Chinese. In: Proceedings of the Third Workshop on Quantitative Syntax (QUASY, SyntaxFest 2025). Association for Computational Linguistics, pp 39–46

Wang Z, Cheung AKF, Xu H, Liu K (2025) Assessing lexical and syntactic simplification in translated English with entropy analysis. Humanit Soc Sci Commun 12:1213. https://doi.org/10.1057/s41599-025-05562-9

Xie G (2024) "To go 'into' my dialect": Jane Lai's Cantonese translation of King

Lear and the historical context of its performances in Hong Kong. Multicult Shakespeare 30(45):91–108. https://doi.org/10.18778/2083-8530.30.06

Zhan J, Jiang Y (2024) Testing the unique item hypothesis with phrasal verbs in Chinese–English translations of Lu Xun's short stories: the perspective of translation directionality. Humanit Soc Sci Commun 11:344. https://doi.org/10.1057/s41599-024-02814-y

Zhang B, Mo A (2025) Corpus-based critique of translator behaviour in rendering swear words: a case study of Chi-Chen Wang's Stories of China at War. Humanit Soc Sci Commun 12:1838. https://doi.org/10.1057/s41599-025-06120-z

Zhang D, Liu Z (2019) Ge Haowen Zhongguo wenxue Yingyi fengge xin tan [A revisit of Goldblatt's Chinese literature translations and his style]. Waiyu Dianhua Jiaoxue [Technology Enhanced Foreign Language Education] (4):25–32 (in Chinese)

Zhang M (2025) Cong "shenyun" dao "chuangyi": Zhongguo Shaju fanyi huayu chuancheng tansuo. Jiyu Zhu Shenghao yu Xu Yuanchong fanyi dang'an de duibi fenxi [From "spiritual pursuit" to "creative translation": the succession of Chinese discourses on Shakespeare translation]. Dangdai Waiyu Yanjiu [Contemporary Foreign Languages Studies] 25(6):203–212. https://doi.org/10.3969/j.issn.1674-8921.2025.06.022 (in Chinese)

Zhu S (1947) Yizhe zixu [Translator's preface]. In: Shashibiya xiju quanji [Complete plays of Shakespeare]. World Book Company, Shanghai. Reprint available at https://res.sflep.com/upload/teaching/teachingtext/adda2ee7-cd84-48c9-bec4-b1460e30255b.pdf (in Chinese)

Zufferey S, Cartoni B (2014) A multifactorial analysis of explicitation in translation. Target 26(3):361–384. https://doi.org/10.1075/target.26.3.02zuf

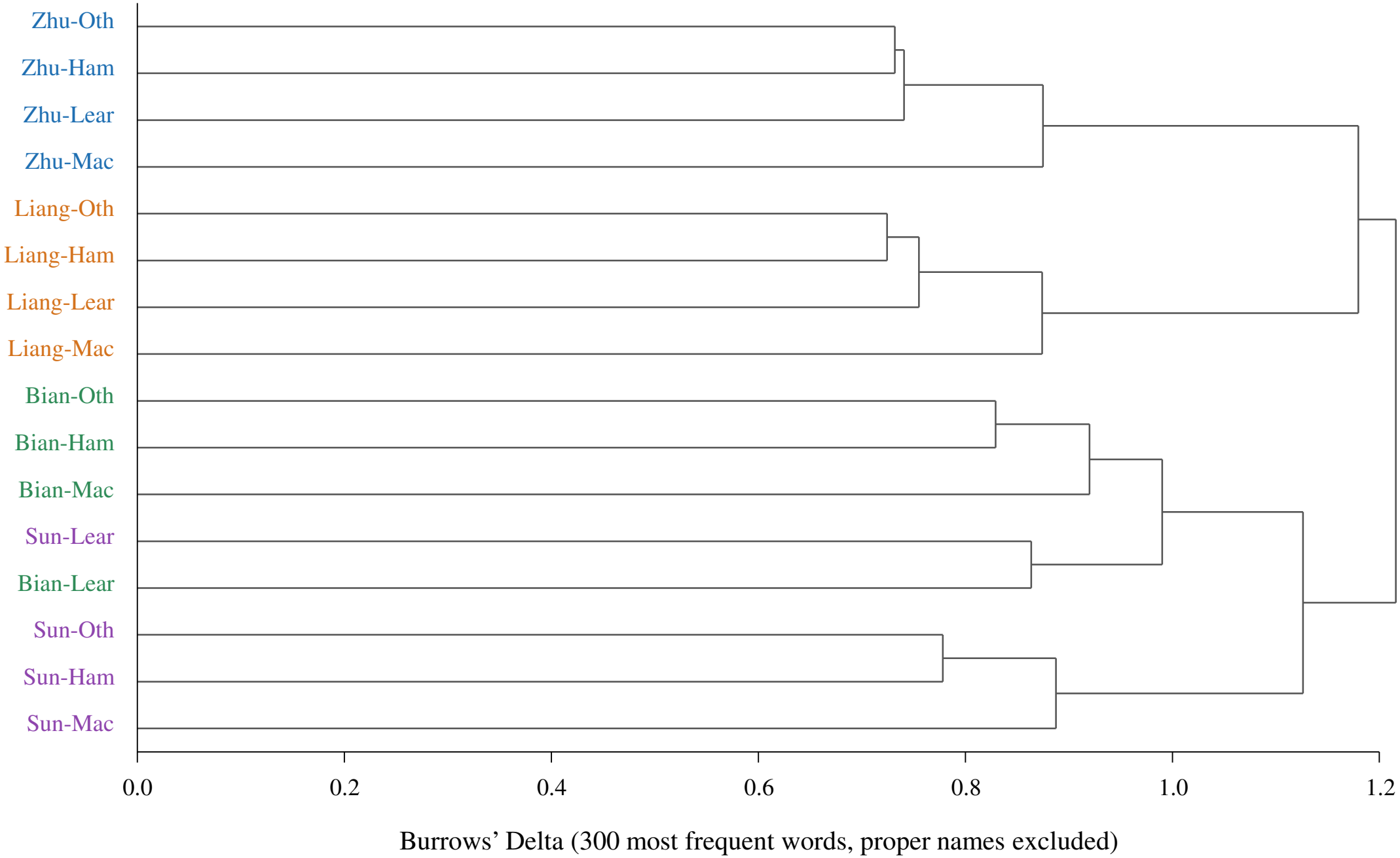
Figure legends

Fig. 1 Burrows's Delta dendrogram of the 16 translations, based on the 300 most frequent words after removal of proper names, with average linkage.

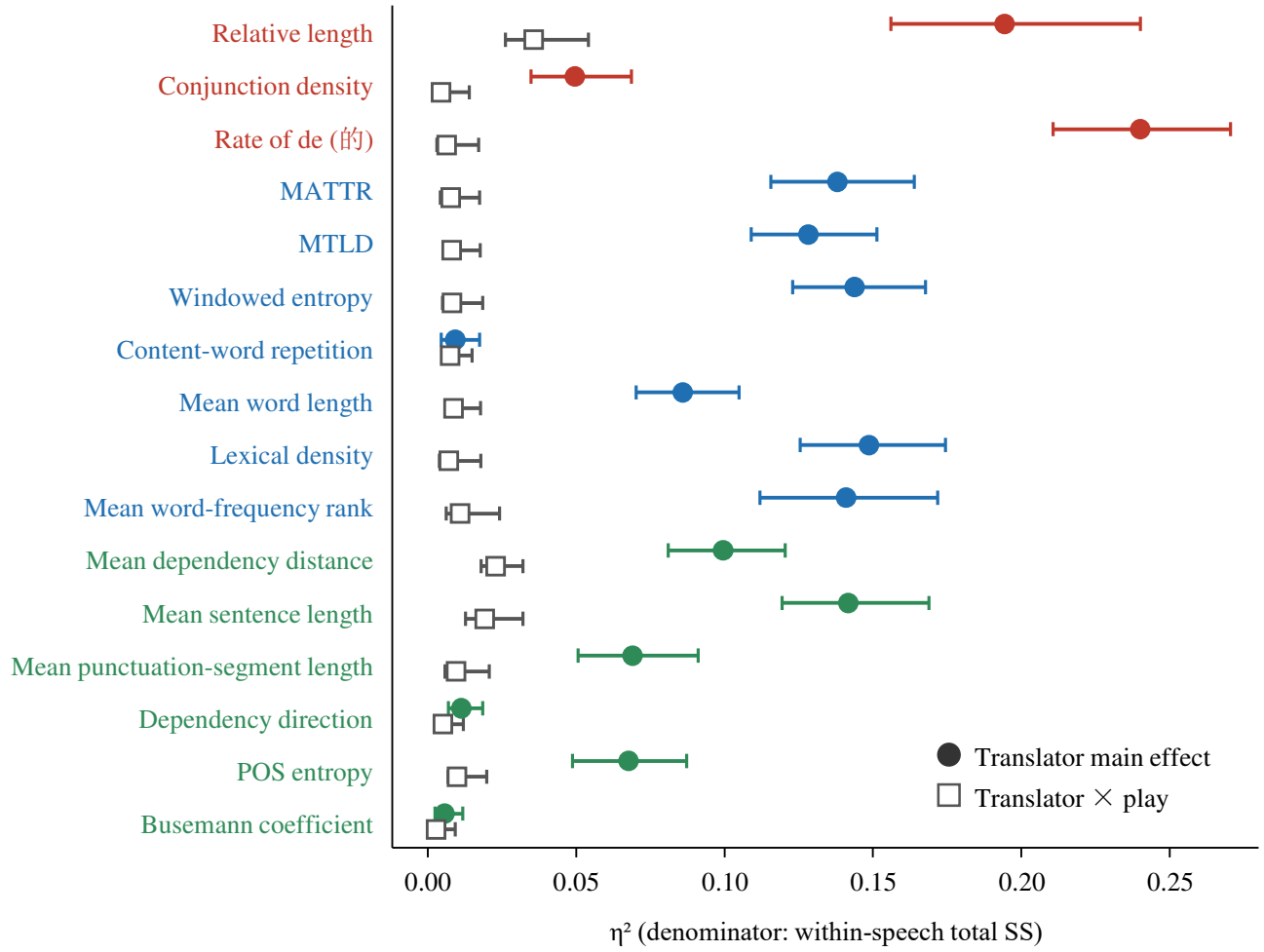
Fig. 2 Variance decomposition and cross-play attribution. (a) Translator main effect

and translator × play interaction for each feature, as η^2 with the within-speech total sum of squares as denominator, with 95% scene bootstrap intervals. (b) Accuracy and balanced accuracy of multinomial logistic regression in predicting the translator of speeches in a fourth play after training on three. Error bars show 95% scene bootstrap intervals for accuracy, and the dashed line marks chance.

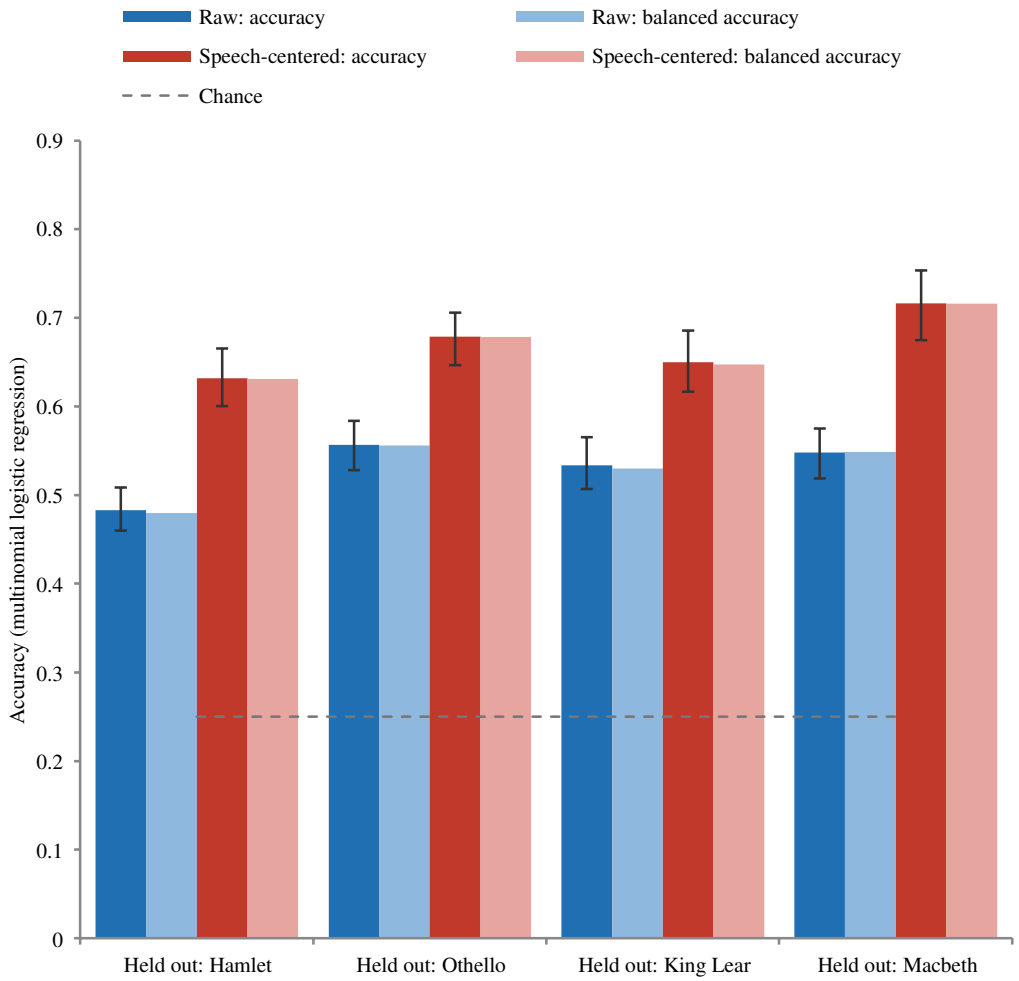
Fig. 3 Topic and translator effects. (a) Topic effects of death-themed speeches against matched controls, with 95% scene bootstrap intervals. Filled points are significant after Holm correction, grey bands show the median pairwise gap between translators in the same matched speeches and † marks features without an English counterpart. (b) Variance explained by translator and by topic in the same model, as η^2 with the total sum of squares as denominator.


Zhu-Oth
Zhu-Ham
Zhu-Lear
Zhu-Mac
Liang-Oth
Liang-Ham
Liang-Lear
Liang-Mac
Bian-Oth
Bian-Ham
Bian-Mac
Sun-Lear
Bian-Lear
Sun-Oth
Sun-Ham
Sun-Mac
0.0
0.2
0.4
0.6
0.8
1.0
1.2
Burrows' Delta (300 most frequent words, proper names excluded)

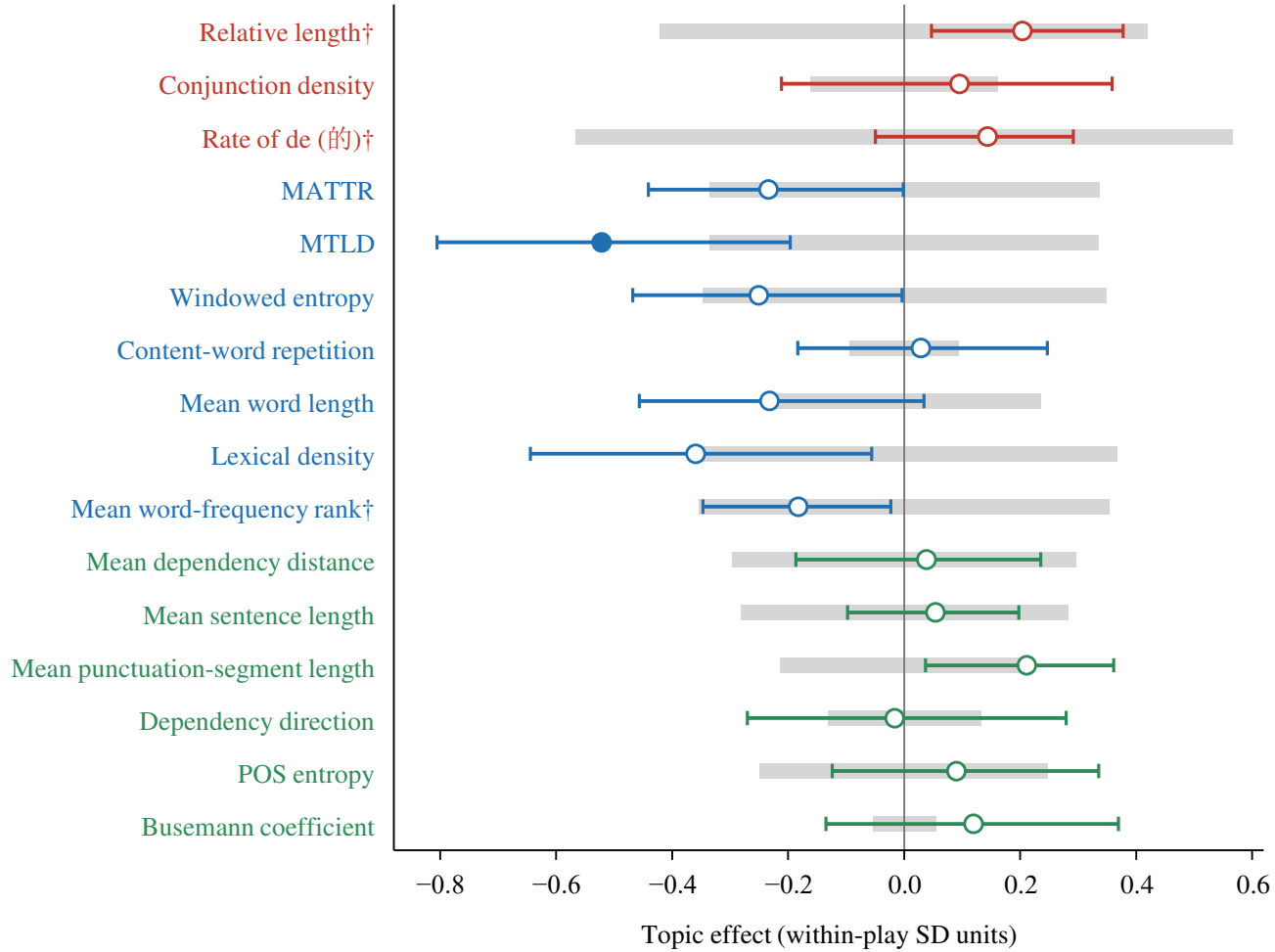
(A) Variance decomposition with 95% scene-bootstrap intervals



(B) Cross-play attribution (dashed line: chance = 0.25)



(A) Death-themed speeches − matched controls



(B) Translator and topic in the same sample

