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Structural Shifts and Information Density of Complex Noun Phrases in *Sinta* 2 Abstract: A Translation Study

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Abstract: This study examines structural shifts and information density in the translation of Complex Noun Phrases (CNPs) from Indonesian into English in *Sinta* 2-accredited bilingual journal abstracts. Grounded in Catford's (1965) framework of structural shift and Halliday's (1985) lexical density formula as a measurement instrument for information density, the study addresses three research questions: (1) how CNPs are structurally restructured in Indonesian-English translation; (2) what linguistic mechanisms characterize those structural shifts; and (3) how structural shifts relate to information density in translated CNPs. A descriptive qualitative design was employed, with data consisting of 110 CNPs extracted from fifteen purposively selected bilingual abstracts across five *Sinta* 2 ELT and linguistics journals published between 2021 and 2026. Findings reveal that structural shifts occurred consistently across all fifteen abstracts, with four predominant mechanisms: modifier-head reordering (43.6%), modification pattern change (26.4%), constituent expansion or reduction (17.3%), and grammatical relation transformation (12.7%). Information density effects were variable: some shifts increased density by compressing meaning into compact English pre-modifier stacks, others preserved informational equivalence, and a smaller number reduced density when nominalized source-language concepts were merged into more general target-language expressions. These findings reveal a tension in academic translation between grammatical naturalness and conceptual precision, contributing to translation studies by integrating structural and functional perspectives on Indonesian-English academic translation.

Keywords: academic translation; Complex Noun Phrase; information density; lexical density; structural shift;
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INTRODUCTION

Academic abstracts represent one of the most condensed forms of scholarly communication. Within a limited number of words, authors are expected to introduce a research problem, outline the methodology, and highlight the significance of their findings.

This demand for brevity encourages writers to maximize the amount of information conveyed in a restricted textual space. One important linguistic resource for achieving this goal is the Complex Noun Phrase (CNP). According to Biber and Gray (2016), contemporary academic writing increasingly relies on phrasal rather than clausal constructions, with noun phrases serving as a major means of expressing complex meanings efficiently.

A Complex Noun Phrase refers to a noun phrase whose head noun is expanded by one or more modifying elements (Biber et al., 1999). These modifiers provide descriptive, classificatory, or relational information, enabling writers to convey sophisticated ideas in a compact form. From a systemic functional perspective, Halliday and Matthiessen (2014) argue that nominal groups function as grammatical resources for condensing meaning without the need for additional clauses. For example, the phrase *project-based learning material development* expresses information that would otherwise require a longer clausal construction. Such meaning compression has become a defining characteristic of academic discourse.

Drawing on Biber et al. (1999) and Ansarifar et al. (2018), this study adopts four criteria for identifying CNPs. First, a noun phrase must contain at least two modifying elements attached to a single head noun. Second, it may involve noun–noun stacking. Third, it may contain adjectival or participial pre-modifiers. Fourth, it may include post-modifying elements such as prepositional phrases, relative clauses, or non-finite clauses. A phrase is categorized as a CNP when it satisfies the first criterion and at least one of the remaining criteria.

The use of CNPs is closely related to information density, which refers to the amount of semantic content encoded within a linguistic unit. In academic writing, information density is often achieved through nominalization and the compaction of relational meanings into noun phrase structures (Halliday, 1985; Biber & Gray, 2016). Consequently, CNPs enable writers to present substantial conceptual information within relatively few words. When translated, however, the density of information carried by a CNP may change depending on how its structure is reorganized, potentially affecting how accurately the target-language reader receives the source content.

To examine this phenomenon, the present study adopts Halliday's (1985) lexical density formula—the ratio of lexical items to total running words—as an analytical instrument for measuring information density. While lexical density serves as the quantitative measure, the primary focus remains on information density as the functional outcome of structural transformations. This perspective is particularly relevant in academic abstracts, where the ability to preserve dense information is crucial for effective scholarly communication. Research on academic discourse has similarly highlighted the importance of linguistic choices in shaping the communicative effectiveness of abstracts (Rohayati & Herlina, 2021).

In translation, the structure of a CNP often changes as it is transferred from one language to another. Such changes may affect not only grammatical form but also the amount of information compressed within the phrase. To account for these transformations, this study focuses on structural shift, one of the categories within Catford's (1965) framework of translation shifts. Structural shift refers to changes in grammatical arrangement that occur during the transfer from source language to target language. It is particularly relevant to CNP translation because it directly concerns the reorganization of noun phrase structure, which may influence information density in the translated text.

Although Catford introduced the concept of structural shift, later scholars provided more detailed explanations of its manifestations. Newmark (1988) argues that structural shifts frequently occur when translators adjust grammatical patterns to achieve naturalness in the target language. Similarly, Vinay and Darbelnet (1995) emphasize that syntactic restructuring is often necessary because languages organize meaning differently. These observations are especially relevant to Indonesian–English translation, where noun phrase structures differ considerably. Indonesian noun phrases generally place modifiers after the head noun, whereas English frequently relies on extensive pre-modification (Sneddon et al., 2012; Biber et al.,

1999). As a result, translators often need to reorganize the internal structure of noun phrases when moving between the two languages.

To facilitate systematic analysis, this study operationalizes structural shift through four analytical indicators adapted from Catford (1965), Newmark (1988), and previous studies on noun phrase translation: (1) modifier–head reordering, referring to changes in the sequence of modifiers and head nouns; (2) modification pattern change, involving shifts between post-modification and pre-modification; (3) constituent expansion or reduction, occurring when modifiers are added, omitted, or simplified; and (4) grammatical relation transformation, whereby structural relationships are altered, such as the conversion of a prepositional phrase into a noun modifier or a clause-based modifier into a phrase-based modifier.

Previous studies have documented the prevalence of translation shifts in cross-linguistic transfer. Darso (2018) found that structural shifts frequently occurred in the translation of English noun phrases into Indonesian due to differences in modifier ordering. Finsen and Puspani (2019) demonstrated that noun phrase translation between Indonesian and English often involves structural adjustments caused by differing modifier placement conventions. Pajariah (2019) reported that structure shift was the most dominant shift category in noun phrase translation. Similar findings have been reported in studies of subtitles and literary translation, where grammatical restructuring commonly occurs while overall meaning is preserved (Fitria, 2020; Ariefyanti, 2020; Rupiah & Hartono, 2018). Furthermore, studies in translation have shown that translators employ various strategies and techniques to accommodate linguistic differences between source and target languages (Putranti, 2019). However, most previous research has focused on English–Indonesian translation, literary texts, subtitles, or journalistic discourse. Comparatively little attention has been given to Indonesian–English translation in academic writing, particularly in journal abstracts.

More importantly, previous studies have generally concentrated on identifying translation shifts without examining how those shifts influence information density. Consequently, the relationship between structural transformation and informational compactness remains underexplored. To address this gap, the present study investigates Complex Noun Phrases in bilingual abstracts published in *Sinta* 2-accredited journals by applying Catford's (1965) concept of structural shift alongside Halliday's (1985) lexical density measure as an indicator of information density. Specifically, the study seeks to answer the following research questions:

(1) How are Complex Noun Phrases restructured in the Indonesian–English translation of *Sinta* 2 journal abstracts?

(2) How can the relationship between structural shifts and information density be interpreted in translated Complex Noun Phrases?

METHOD

This study employed a descriptive qualitative design with a translation product analysis approach. Qualitative research is appropriate for describing and interpreting linguistic phenomena in their natural contexts (Creswell & Creswell, 2018). A qualitative approach was considered suitable for generating detailed explanations rather than statistical generalizations (Miles et al., 2014). In translation studies, qualitative product analysis enables researchers to examine linguistic transformations and explain how meaning and structure are represented across languages (Saldanha & O'Brien, 2014).

The data consisted of Indonesian–English bilingual abstracts published in five Sinta 2-accredited journals in Indonesia. Fifteen abstracts published between 2021 and 2026 were selected through purposive sampling, resulting in a total of 110 identified Complex Noun Phrases. The sampling followed four criteria: (1) the article contained both Indonesian and English abstracts; (2) the journal held *Sinta* 2 accreditation; (3) the Indonesian abstract contained identifiable CNPs; and (4) the English version represented the published translation

rather than direct machine translation. Detailed information regarding journal sources and CNP distribution is presented in Table 1.

Table 1. Data Sources and CNP Distribution across the Five Selected Journals

No.	Journal (*Sinta* 2)	Abstracts	Years	CNPs
1	*Sawerigading*	3	2021–2025	27
2	*Indonesia Language Education and Literature*	3	2022–2025	24
3	*Ghancaran: Jurnal Pend. Bahasa dan Sastra Indonesia*	3	2023–2025	22
4	*Jurnal Indonesia: Jurnal Linguistik dan Sastra*	3	2022–2026	19
5	*Disastra: Jurnal Pend. Bahasa dan Sastra Indonesia*	3	2023–2026	18
Total		**15**		**110**

Note. CNP = Complex Noun Phrase.

Data were collected through document analysis by arranging Indonesian abstracts as source texts and English abstracts as target texts in parallel form. CNPs were identified using four operational criteria adapted from previous descriptions of noun phrase complexity: multiple modifiers attached to a head noun, noun–noun stacking, adjectival or participial pre-modification, and post-modifying structures. Each identified CNP and its translated equivalent were extracted and organized into an analysis table. Meanwhile, The analytical instrument was a coding framework derived from Catford's (1965) concept of structural shift, consisting of four indicators: modifier–head reordering, modification pattern change, constituent expansion or reduction, and grammatical relation transformation.

Data analysis was conducted in three stages. First, source-language and target-language CNPs were compared to identify structural changes and classify shift patterns. Second, the identified shifts were interpreted by examining differences between Indonesian and English noun phrase structures to answer the first research question. Third, information density was interpreted using Halliday's (1985) lexical density formula as a descriptive indicator to examine whether structural restructuring resulted in information compression, stability, or reduction, thereby addressing the second research question. Representative examples were then selected to illustrate recurring patterns.

RESULTS AND DISCUSSION

A total of 110 Complex Noun Phrases (CNPs) were identified across fifteen Indonesian–English bilingual abstracts. All abstracts contained at least one instance of structural restructuring, indicating that CNP translation consistently involved grammatical adjustment rather than direct formal transfer. Table 2 summarizes the distribution of restructuring patterns identified in the dataset; manwhile Table 3 summarizes structural restructuring of complex noun phrases.

Table 2: Distribution of CNP Restructuring Patterns across 110 Analyzed CNPs

No.	Restructuring Pattern	CNPs	%	Direction of Change
1	Modifier-head reordering: post-nominal modifiers relocated to pre-head position	48	43.6	Head moves from initial (ID) to final (EN) position
2	Modification strategy change: post-nominal sequence restructured into	29	26.4	Post-modification → compact premodifier

No.	Restructuring Pattern	CNPs	%	Direction of Change
	premodification cluster			stack
3	Constituent change: addition or omission of modifying elements across SL and TL	19	17.3	Expansion or reduction of phrase constituents
4	Grammatical category shift: nominal or clausal modifier restructured into different grammatical form	14	12.7	Noun → adjective; clause → phrase
	Total	**110**	**100.0**	

Note. A single CNP may display more than one restructuring pattern; classification reflects the dominant pattern. ID = Indonesian; EN = English.

The analysis revealed four dominant restructuring patterns: modifier–head reordering (43.6%), modification strategy change (26.4%), constituent expansion or reduction (17.3%), and grammatical category shift (12.7%). Overall, the findings suggest that structural restructuring was systematic and reflected differences between Indonesian and English noun phrase organization rather than individual translation preferences.

Table 3: Representative Examples of CNP Restructuring Patterns from the Corpus

No.	Restructuring Pattern	Source (ID)	Target (EN)	Criteria	Source
1	Modifier-head reordering: post-nominal modifiers relocated to pre-head position	*keterampilan berbicara siswa*	students' speaking skills	C1+C3	Abstract 1
2	Modifier-head reordering: multi-modifier cascade across constituents	*kemahiran bahasa Inggris mahasiswa*	English proficiency of non-English majors	C1+C2	Abstract 2
3	Modification strategy change: post-nominal sequence → compact premodification cluster	*keterampilan menulis puisi siswa SMA*	high school students' poetry writing skills	C1+C2 +C3	Abstract 6
4	Constituent change (expansion): implicit contextual element made explicit in TL	*media pembelajaran interaktif*	interactive learning medium for classroom use	C1+C3 +C4	Abstract 3
5	Constituent change (reduction): dual coordinated heads dissolved into single verbal form	*pemertahanan dan pemartabatan bahasa Indonesia*	to uphold the Indonesian language	C1+C4	Abstract 13
6	Grammatical category shift: Indonesian	*integrasi aspek kebahasaan dan*	integration of Indonesian	C1+C2 +C4	Abstract 9

No.	Restructuring Pattern	Source (ID)	Target (EN)	Criteria	Source
	nominal modifiers restructured as English adjectives	*kebudayaan Indonesia*	linguistic and cultural aspects		

Note. C1 = ≥ 2 modifying elements; C2 = noun-noun stacking; C3 = adjectival/participial premodification; C4 = post-modification. ID = Indonesian; TL = target language; EN = English.

Pattern 1: Modifier-Head Reordering

The most pervasive restructuring pattern involved the relocation of post-nominal modifiers to a pre-head position, reflecting the contrasting word-order conventions of Indonesian and English. In Indonesian, modifiers characteristically follow the head noun; in English academic prose, they are typically stacked before it. This directional reversal was observed in 48 CNPs (43.6% of the total).

Example 1 (Abstract 1, Yunidar et al., 2025):

SL: keterampilan [HEAD] berbicara siswa

TL: students' speaking skills [HEAD]

In the SL, the head noun keterampilan (skills) occupies the initial position, followed by the post-nominal modifiers berbicara (speaking) and siswa (students). In the TL, the head noun moves to final position and both modifiers are repositioned before it. The phrase satisfies Criterion 1 (two modifying elements) and Criterion 3 (participial premodification). The structural result is a complete reversal of constituent order with no addition or removal of lexical content.

Example 2 (Abstract 2, Arisandi et al., 2025):

SL: kemahiran [HEAD] bahasa Inggris mahasiswa

TL: English proficiency [HEAD] of non-English majors

This example illustrates how reordering can operate in multiple directions within the same CNP. In the SL, the head kemahiran (proficiency) is followed by bahasa Inggris (English) and mahasiswa (students). In the TL, bahasa Inggris migrates to a pre-head position as a premodifier (English proficiency), while mahasiswa is restructured as a post-head prepositional phrase (of non-English majors). One modifier moves forward; the other moves backward. The phrase satisfies Criteria 1 and 2. This multi-directional reordering demonstrates that restructuring does not always follow a single linear direction, but responds to the specific modification conventions of academic English.

Pattern 2: Modification Strategy Change

A second restructuring pattern involved a wholesale change in the dominant modification strategy — most commonly, from a post-nominal sequence in Indonesian to a compact premodification cluster in English. This pattern accounted for 29 CNPs (26.4%) and was particularly prominent in abstracts with longer, multi-element noun phrases.

Example 3 (Abstract 6, Frananda et al., 2025):

SL: keterampilan [HEAD] menulis puisi siswa SMA

TL: high school students' poetry writing skills [HEAD]

In the SL, the head noun keterampilan (skills) is followed by a successive chain of four post-nominal modifiers: menulis (writing), puisi (poetry), siswa (students), and SMA (high school). The SL structure is entirely post-modificational. In the TL, this linear post-nominal sequence is replaced entirely by a premodification cluster — high school students' poetry writing — that precedes the head noun skills. The phrase satisfies Criteria 1, 2, and 3. This restructuring represents not merely a change in constituent position but a transformation of the modification architecture itself: the TL abandons the SL's sequential post-nominal pattern and replaces it with the compact nominal stacking characteristic of English academic prose.

Pattern 3: Constituent Change (Expansion and Reduction)

A third restructuring pattern involved a change in the number of meaningful constituents within the CNP — either through the addition of elements absent from the SL (expansion) or the omission of SL elements in the TL (reduction). This pattern accounted for 19 CNPs (17.3%) and produced the most structurally divergent translation pairs in the dataset.

Example 4 — Expansion (Abstract 3, Andhini et al., 2025):

SL: media [HEAD] pembelajaran interaktif

TL: interactive learning medium [HEAD] for classroom use

In the SL, the head noun media is followed by two post-nominal modifiers: *pembelajaran* (learning) and i*nteraktif* (interactive), satisfying Criteria 1, 3, and 4. In the TL, both modifiers are repositioned as premodifiers (interactive learning medium), and a new post-nominal element for classroom use is added — a constituent absent from the SL. This expansion makes the context of use explicit where the SL left it implicit, resulting in a TL phrase that carries more structural information than its source counterpart.

Example 5 — Reduction (Abstract 13, Santoso et al., 2026):

SL: pemertahanan dan pemartabatan [COORD. HEADS] bahasa Indonesia

TL: to uphold the Indonesian language

In the SL, the CNP contains two coordinated nominalized heads — *pemertahanan* (language maintenance) and *pemartabatan* (language valorization) — each derived through the Indonesian *pe-an* formation and linked by dan (and). These two nominalized forms share the post-modifier *Bahasa Indonesia* and encode two conceptually distinct processes, satisfying Criteria 1 and 4. In the TL, both nominalized heads are dissolved entirely into the single verbal infinitive to uphold, and *Bahasa Indonesia* is recast as the direct object of that verb. The entire noun phrase architecture of the SL disappears: the two distinct conceptual heads become irrecoverable in the TL, and the phrase type shifts from a nominal to a verbal construction. This represents the most radical form of constituent reduction observed in the dataset.

Pattern 4: Grammatical Category Shift

The fourth restructuring pattern involved a change in the grammatical category through which a semantic relationship is expressed — for example, when nominal modifiers in Indonesian are rendered as adjectival modifiers in English. This pattern accounted for 14 CNPs (12.7%) and reflected the different morphological resources available in the two languages for encoding modifying relationships.

Example 6 (Abstract 9, Romadhon et al., 2026):

SL: integrasi [HEAD] aspek kebahasaan [NOUN] dan kebudayaan [NOUN] Indonesia

TL: integration [HEAD] of Indonesian linguistic [ADJECTIVE] and cultural [ADJECTIVE] aspects

In the SL, the modifiers *kebahasaan* and *kebudayaan* are Indonesian nouns derived through the suffix -an from *bahasa* (language) and *budaya* (culture) respectively. They function as nominal modifiers within the post-head group *aspek kebahasaan dan kebudayaan Indonesia*, satisfying Criteria 1, 2, and 4. In the TL, *kebahasaan* is rendered as the adjective linguistic and *kebudayaan* as cultural. The grammatical category of both modifiers changes from noun to adjective, reflecting the different morphological resources available in each language for encoding modifying relationships. Additionally, the modifier Indonesia shifts from a post-modifier position in the SL to a pre-modifier position in the TL. The semantic relationship is preserved, but the grammatical form through which it is expressed changes fundamentally.

Across all six examples, the data confirm that structural restructuring in the corpus is pervasive and systematic. Every CNP in the dataset underwent at least one form of internal reorganization as it moved from Indonesian to English, and in many cases multiple restructuring patterns co-occurred within a single phrase. The head noun, which occupies the initial position in Indonesian CNPs, was consistently relocated, reduced, or categorically

transformed in the TL — a pattern driven not by individual translator preference but by the contrasting grammatical architectures of the two languages.

Interpreting the Relationship between Structural Shift and Information Density

To address the second research question, information density was interpreted through lexical density values calculated for representative CNP pairs (Table 4). The analysis identified three outcomes: increased density, stable density, and reduced density.

Table 4: Information Density Analysis of Selected CNP Pairs

CNP Pair	Language	Total Words	Lexical Items	LD (%)	Information Density Pattern
strategi membaca akademik yang terstruktur structured academic reading strategies	SL (ID) TL (EN)	5 4	4 4	80% 100%	Increase — same lexical content compressed into English pre-modification; grammatical marker yang eliminated
ekspresi doa di Instagram prayer expressions on Instagram	SL (ID) TL (EN)	4 4	3 3	75% 75%	Stable — purely positional reordering; lexical items and count unchanged
pemertahanan dan pemartabatan bahasa Indonesia to uphold the Indonesian language	SL (ID) TL (EN)	5 5	5 2	100% 40%	Significant decrease — two nominalized concepts collapsed into single verb; 60-point LD drop; conceptual distinction lost

Table 4 reveals three distinct patterns in how structural shifts affect information density. The following sub-sections provide a qualitative interpretation of each pattern.

When Shifts Increase Information Density

In several cases, the English translation packed more information into a smaller grammatical space, most commonly when a post-nominal Indonesian sequence was restructured into a pre-modification cluster in English:

SL: *strategi membaca akademik yang terstruktur* (Abstract 2, Arisandi et al., 2025)

TL: structured academic reading strategies

SL lexical density: 4 lexical items / 5 total words = 80%

TL lexical density: 4 lexical items / 4 total words = 100%

In the source language (SL), the phrase contains four lexical items *(strategi, membaca, akademik, terstruktur*) from five total words, resulting in a lexical density of 80%. The presence of the grammatical marker *yang* expands the structure through a clause-like modification pattern. In the target language (TL), this relationship is compressed into a compact pre-modification structure (*structured academic reading strategies*), producing four lexical items across four total words and increasing lexical density to 100%. No conceptual information is removed; instead, the same semantic content is reorganized into a more economical grammatical form. This finding suggests that modification pattern change from post-modification into English pre-modification can increase information density by reducing grammatical load while maintaining informational equivalence, reflecting the nominal compression

When Shifts Leave Information Density Unchanged

Several cases in the dataset revealed structural restructuring with no meaningful change in information density, occurring most commonly in instances of purely positional modifier-head reordering. The following data illustrates this pattern:

SL: *ekspresi doa di Instagram* (Abstract 4, Atikoh & Ma'nawi, 2025)

TL: prayer expressions on Instagram

SL lexical density: 3 lexical items / 4 total words = 75%

TL lexical density: 3 lexical items / 4 total words = 75%

In the SL, the head noun *ekspresi* (expressions) is followed by the modifier *doa* (prayer) in post-nominal position, and the phrase is further extended by the locative element di Instagram (on Instagram). In the TL, the modifier *doa* is relocated to pre-nominal position (prayer expressions), while "on Instagram" remains in post-head position. The lexical densities of both phrases are identical at 75%, and the three lexical items — expressions, prayer, Instagram — remain constant across the translation. No semantic content is added or removed; only the position of the modifier *doa* changes. Equivalent lexical density values were confirmed across similar cases in Abstracts 10, 11, and 12. These cases consistently demonstrate that purely positional restructuring does not alter the informational load of a CNP: meaning is fully preserved, merely redistributed in accordance with the grammatical conventions of each language.

When Shifts Reduce Information Density

The most theoretically significant finding concerns structural shifts that reduce information density. The most pronounced instance of this pattern was identified in Abstract 13 (Santoso et al., 2026). The data is as follows:

SL: *pemertahanan dan pemartabatan bahasa Indonesia* (Abstract 13, Santoso et al., 2026)

TL: to uphold the Indonesian language

SL lexical density: 5 lexical items (*pemertahanan, pemartabatan, bahasa*, Indonesia + coordinator) / 5 total words = 100%

TL lexical density: 2 lexical items (uphold, Indonesian) / 5 total words = 40%

The data reveals a 60% point drop in lexical density: from 100% in the SL (five lexical items) to 40% in the TL (two lexical items). This reduction originates in the constituent structure of the SL, whose two nominalized heads *pemertahanan* (language maintenance) and *pemartabatan* (language valorization/dignification) each encode a distinct conceptual process. In the TL, both are collapsed into the single verb "uphold", which cannot individually recover the two distinct meanings. The distinction between language maintenance and language valorization, explicitly encoded in the SL through two separate nominalized forms, is thus invisible in the, illustrating how constituent reduction combined with nominalization-to-verbalization conversion can produce significant conceptual loss in academic translation.

Taken together, the findings demonstrate that the relationship between structural shift and information density is not uniform. Modifier–head reordering tended to be informational neutral, modification strategy change generally increased compactness, and constituent reduction produced the greatest decrease in informational density. These results extend previous translation studies that mainly classified structural shifts by showing that different restructuring patterns generate different informational outcomes.

The most substantial informational change occurred in cases of constituent reduction. When multiple source-language elements were condensed into fewer target-language units, informational differentiation became less explicit. This finding differs from previous studies that mainly viewed structural shift as a mechanism for preserving equivalence across languages. The present study demonstrates that some restructuring patterns may preserve

overall communicative meaning while simultaneously changing how information is represented.

Overall, the findings show that the relationship between structural shift and information density is interpretive rather than deterministic. Structural restructuring does not inherently increase or reduce informational compactness; instead, different restructuring mechanisms lead to different informational outcomes. Modifier reordering tends to preserve information density, modification change promotes informational compression, and constituent reduction may reduce informational differentiation. These findings extend previous translation research by showing that structural shift should be understood not only as grammatical adjustment but also as a mechanism through which information is preserved, compressed, and redistributed in Indonesian–English academic translation.

Finally, this study contributes to translation research by integrating structural and functional perspectives through the combined analysis of structural shift and information density. While previous studies have largely focused on identifying categories of translation shift, the present study demonstrates that restructuring patterns also influence the distribution and organization of meaning in translated academic discourse. The findings therefore provide a more comprehensive understanding of Indonesian–English academic translation and highlight the importance of considering informational consequences alongside grammatical equivalence. In this way, the study advances current knowledge by showing that structural choices in translation carry measurable implications for meaning representation.

CONCLUSION

This study investigated how Complex Noun Phrases (CNPs) are structurally restructured in the Indonesian–English translation of bilingual abstracts published in *Sinta* 2-accredited journals and examined how such restructuring relates to information density. The findings demonstrate that structural restructuring is a systematic feature of translated academic abstracts rather than an incidental grammatical adjustment. Across the dataset, translators consistently adapted Indonesian nominal structures to conform to English academic discourse conventions while maintaining communicative effectiveness. These findings indicate that translation of academic noun phrases involves strategic linguistic choices rather than direct structural transfer.

With regard to the first objective, the study found that CNP restructuring occurred through multiple grammatical mechanisms, including modifier–head reordering, modification strategy change, constituent expansion or reduction, and grammatical relation transformation. These restructuring patterns frequently interacted within a single translated phrase, indicating that translation operates through coordinated adaptation rather than isolated structural replacement. The findings further suggest that differences between Indonesian and English noun phrase organization shape how information is grammatically represented in translation. Therefore, structural restructuring should be interpreted as an adaptive process that enables translated abstracts to function appropriately within target-language academic conventions.

Regarding the second objective, the findings show that the relationship between structural restructuring and information density is not uniform but depends on the type of restructuring applied. Some restructuring patterns maintained informational compactness, others increased information compression, and certain forms reduced the explicit representation of conceptual distinctions in the target language. These results demonstrate that grammatical restructuring influences not only linguistic form but also how information is organized and accessed by target-language readers. Consequently, information density should be understood as a functional outcome of translation decisions rather than a fixed property of grammatical structure.

Practically, the findings may inform translators, academic writers, and journal editors in making translation decisions that balance grammatical naturalness and informational

preservation in bilingual abstracts. Greater awareness of how restructuring affects information organization may improve the quality and readability of translated academic texts. Future studies may expand the dataset across broader journal categories, compare disciplinary variations, or investigate additional indicators of informational change beyond lexical density. Further research may also explore whether similar restructuring patterns occur in other academic genres and language pairs.

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