

INDONESIAN COHESION IN AI TRANSLATION

Mingliang Hu, Jie Zheng

Institute of Business, Timor-Leste, Shanxi University, China
minglianghu@yahoo.com

ABSTRAK

*Penelitian ini menyelidiki bagaimana masalah kohesi tekstual—khususnya referensi, elipsis, pengulangan, konjungsi, urutan kata, dan kohesi leksikal—mempengaruhi akurasi penerjemahan AI dari bahasa Indonesia ke bahasa Inggris. Meskipun AI meningkatkan kecepatan dan kualitas terjemahan, ia kadang-kadang salah menafsirkan perangkat kohesif, yang mengakibatkan kesalahan. Penelitian sebelumnya tentang terjemahan Indonesia-China menemukan lebih banyak kesalahan dalam referensi, elipsis, konjungsi, dan kohesi leksikal, dengan lebih sedikit kesalahan dalam pengulangan dan urutan kata. Dengan menggunakan ChatGPT, analisis ini menerjemahkan kutipan panjang dari karya sastra Indonesia, termasuk *Gentayangan* karya Intan Paramaditha, untuk mengidentifikasi perangkat kohesif mana yang menimbulkan tantangan terbesar dalam terjemahan Indonesia-Inggris. Tujuannya adalah untuk menentukan mengapa perangkat tertentu lebih bermasalah dan bagaimana kesalahan tersebut dibandingkan dengan kesalahan dalam terjemahan Indonesia-China. Temuan ini akan menawarkan panduan praktis bagi penerjemah manusia dalam revisi pasca-AI dan berkontribusi pada pemahaman tentang kesamaan.*

Keywords: Terjemahan AI; Bahasa Indonesia; Bahasa Inggris; kohesi; revisi pasca-terjemahan

1. INTRODUCTION

As artificial intelligence (AI) is more and more commonly used in translation, the speed and quality of translation is greatly enhanced. However, there are many factors that may hinder the accuracy of the translation result. One such factor is textual cohesion, including reference, ellipsis, repetition, conjunction, word order, and lexical cohesion. According to Kuang et al (2017), Lei et al (2022), Mishra et al (2020) and Unanue et al (2020), researchers are making efforts to improve translation with a new document-level machine translation framework by including cohesive devices.

Cohesion is an important feature of a text (Beaugrande & Dressler, 1981) and therefore may cause greater difficulty for understanding and translation than vocabulary and sentence structures (Hu 2007). Though AI may understand individual words and sentence structures, it may still be misled by the function of cohesive devices. Hu's (2025) studies of AI translation from Indonesian to Chinese showed that reference, ellipsis, conjunction and lexical cohesion cause more problems than repetition and word order.

This study turns to the AI translation from Indonesian to English and we may ask the following questions: Which cohesive devices cause problems for AI in Indonesian-English translation? Why do some cohesive devices cause problems than others? What suggestions can be made for human translators in their revision after AI?

The AI translator used in the study is ChatGPT, because the program is more accessible and easy to use. Most materials to be translated in this study are taken from the Indonesian novel *Gentayangan* written by Ms. Intan Paramaditha and some other literary works. The input passages for translation each time contain more than 1000 words to provide more context information for AI to better understand and render the original. The result of AI translation will then be examined to find errors concerning the cohesive devices mentioned above. Hopefully this study will help humans in translation between different languages, and will also shed more light on linguistic similarities and differences between Indonesian, English, and Chinese.

2. FINDINGS AND ANALYSIS

For individual words and sentence structures, AI is proficient in translation as well as, or even better, than human translators. For instance, when dealing with more local cohesive devices such as repetition and word order, relatively few errors have been found. But when dealing with cohesive devices involving several clauses or sentences, AI may have more difficulty figuring out reference. For instance, AI has more difficulty in dealing with ellipsis, conjunction, or lexical cohesion as discussed below.

2.1 REPETITION

Words or phrases may be repeated across clauses or sentence in a text to enhance cohesion. One prominent feature of AI translation is translating word by word. If repetition is used in the original Indonesian, English translation may follow suit, as shown in (1).

- (1) a. Ia sadar keputusannya memungut seorang lelaki yang telah menjadi puing adalah sebuah kegilaan. Ia juga paham bahwa Ismail tak pernah benar-benar waras setelah terusir dari tanah airnya. Tapi ia belum sanggup berhadapan dengan kegilaan yang lain. (Intan, p. 63)
 b. She realized that her decision to take in a man who had become ruins was madness. She also understood that Ismail had never truly been sane after being driven from his homeland. But she was not yet able to face another madness. (ChatGPT-5.2)

In (1a), *kegilaan* is used twice. Similarly in (1b), *madness* is also used twice. When (1a) uses another expression, *tak pernah benar-benar waras*, AI simply translates word by word to *never truly been sane* in (1b).

If Indonesian uses different words for the same meaning, AI may choose different words in accordance with English convention, as shown in (2).

- (2) a. Adaptasi Request Concert di Indonesia tak mungkin bertaut pada sepi. Setelah bertahun-tahun di Amerika, kadang aku lupa kalau di sini sunyi adalah kemewahan. (Intan, p. 142)
 b. February 20: Adapting Request Concert in Indonesia cannot rely on silence. After years in America, I sometimes forget that here, quiet is a luxury. (ChatGPT-5.2)
 In (2a) above, both Indonesian and English use different words, *sepi* and *sunyi* in Indonesian, and *silence* and *quiet* in English (2b).

Occasionally, AI chooses different words even when Indonesian repeats, resulting in less cohesion, as shown in (3) below.

- (2) a. May, pembunuh berdarah dingin kita, telah memuaskan nafsunya untuk menghancurkan. Ia menutup buku catatan kecilnya. Puas. Ceritanya tuntas sampai di sini. (Intan, p. 67)
 b. May, our cold-blooded killer, has sated her lust for destruction. She closes her small notebook. Satisfied. Her story is complete, up to this point. (ChatGPT- 4o)

In (3a), the same root *puas* is used twice, in *memuaskan* and as independent word *puas*. But in the English translation (3b), different words, sated and satisfied are used.

2.2 Word order

Since word orders are relatively similar in Indonesian and English, AI translation may simply follow the original word order with satisfactory results. Occasionally AI may change word order in accordance with English convention, as shown in (4).

- (4) a. Jangan sembarang menerima pemberian, demikian nasihat orang-orang tua dulu, tapi kau telanjur meminta paket itu: hadiah sekaligus kutukan. Iblis Kekasih telah memberimu sepasang sepatu merah. (Intan, p. 1)
 b. Don't accept gifts lightly, so the elders used to advise -- but you went and asked for that package: a gift that is also a curse. The Devil Lover gave you a pair of red shoes. (ChatGPT-4o)

The Indonesian original (4a) puts *demikian* at the beginning of the second clause, *demikian nasihat orang-orang tua dulu* (lit. so advised the elders in the past). The translation *so the elders used to advise* in (4b) imitates the original by placing the conjunction *so* at the head of the clause. But the other elements in the clause may change positions.

The English word order may be different from that of Indonesian, probably in accordance with English usage, as shown in (5).

- (5) a. Kau dan Yvete melangkah masuk ke dalam sebuah keda kopi. Ia memesan kopi hitam, sedangkan kau memilih cappucino. Di kasir, dikeluarkannya uang sepuluh euro untuk dua cangkir kopi. (Intan, p. 106)
- b. You and Yvette step into a coffee shop. She orders a black coffee, while you choose a cappuccino. At the cashier, she takes out ten euros for the two cups. (ChatGPT-5.2)

In (5a), a passive sentence, *dikeluarkannya*, is employed to give the verb more prominence while downplaying the logical subject *-nya* attached to the verb. In its English translation (5b), an active sentence is used instead. This means English passive is not used as frequently as Indonesian *di*-verb passive.

- (6) a. Perihal mengapa kau mengiyakan ajakan Muhammad untuk jalan-jalan cukup mengherankanmu. Kau tak terlalu membutuhkan pemandu wisata, apalagi yang berusia lanjut. (Intan, p. 73)
- b. You find it strange that you agreed to Muhammad's invitation to take a walk. You do not really need a tour guide, especially not one of advanced age. (ChatGPT-4o)

In (6a) above, the focus of the first sentence, *cukup mengherankanmu*, is placed at the end in order to connect to the following narration about a tour guide. The English translation (6b), instead, places *strange* before the main clause *that you agree...a walk* to stress the latter. The different word order, however, does not affect cohesion in translation.

But sometimes AI may misjudge the function of special Indonesian structure, resulting in an unsatisfactory translation as shown in (7).

- (7) a. Meena terlihat takjub melihat dunia menyatu di supermarket, atau lebih tepatnya supermarket yang menjejerkan dunia. (Intan, p. 220)
- b. Meena looked amazed to see the world come together in a supermarket — or more precisely, a supermarket that lined up the world side by side. (ChatGPT-5.2)

In (7a) above, the focus structure, *supermarket yang ...*, emphasizes *supermarket*. But in (7b), AI treats the focus structure as a normal noun followed by its attributive clause, in which *supermarket* is not stressed, leading to a less cohesive paragraph.

2.3 Reference

Reference is the use of pronouns and other referential phrases to refer to an entity that has been mentioned in the same text. ChatGPT may not fully understand the reference of a word in the text. Please look at (8) and (9).

- (8) a. Mulutmu terbungkam meski kau berharap kupingmu yang tersumpal, dan, sialnya, ketimbang menolak kedap ia malah mendesakkan seluruh getar ke gendang telingamu, menjejalkannya ke jejaring pembuluh darahmu yang berangsur kebal diserbu histeris suara televisi, knalpot motor, klakson mobil, tukang bakso, deru kereta api. (Intan, p. 1)
- b. Your mouth was gagged even though you wished your ears were plugged, and, damn it, rather than silencing sound it shoved every vibration into your eardrums, forcing them into the network of blood vessels that had gradually become numb from the hysterical assault of television noise, motorcycle exhausts, car horns, the street-vendor's cry, the rumble of trains. (ChatGPT-4o)

In (8a) above, the pronoun *ia* in the original refers back to *kupingmu* (your ears). But the translation (8b) uses *it*, which is a singular pronoun which cannot refer back to the plural *your ears*.

- (9) a. Yvette menyeka bibirnya dengan serbet, dan jejak warna merah menempel di sana. (Intan, p. 135)
 b. Yvette wiped her lips with a napkin, leaving a trace of red behind. (ChatGPT-5.2)

In (9a) above, the pronoun *sana* refers to *serbet* (napkin). But in the translation (9b), *behind* may also refer to the lips, which had already been red before she wiped them and therefore need not be colored again.

2.4 Ellipsis

In the case of ellipsis, certain elements in a sentence are not expressed because their reference can be inferred from the context. As in the case of pronouns, ellipsis may also cause problems for AI translation.

- (10) a. Tak sampai sebulan setelah resmi berpacaran, kau membuang tumpukan mawar kering yang tersimpan di laci pakaianmu. (Intan, p. 4)
 b. Not a month after you went official, you threw out the pile of dried roses stored in your clothes drawer. (ChatGPT-4o)

In the original (10a), the logical subject of *resmi berpacaran* (became official) is *kau dan kekasihmu* (you and your lover), which is elided. In English (10b), the logical subject is expressed as *you*. However, as *you* in English may be singular or plural, and the subject of the following clause is definitely singular, the pronoun here may refer to the singular listener alone, which is wrong.

- (11) a. Kau lupa ceramahnya tentang Brecht dan Kurt Weill saat itu, tapi yang jelas kau selalu mengingat Yudi sebagai ensiklopedia budaya. Jika dipikir-pikir, ia lebih mirip Wikipedia ketimbang filsuf. (Intan, p. 74)
 b. You forgot his lecture about Brecht and Kurt Weill that day, but you always remembered Yudi as a cultural encyclopedia. Thinking about it, he was more like Wikipedia than a philosopher. (ChatGPT-5.2)

In (11a) above, *dipir-pikir* (lit. is thought of) does not show the object, which is coreferential with the subject of the following main clause *ia lebih mirip...filsuf*. The English translation (11b) recovers the object of *thinking about* as *it*, but the pronoun in this case cannot refer to the subject, a person, in the main clause.

2.5 Conjunction

Conjunctions are usually not a problem with AI. But if a conjunction is ambiguous or a paragraph is long, AI may not figure out the correct logical relations between clauses. For instance, in (12a), *namun* can mean “though” or “but”.

- (12) a. Wajah keriput kakak beradik penyihir membayangi setiap langkah gadis manis yang mengira bisa pulang namun kakinya telah dikutuk untuk terus berjalan. (Intan, p. 11)
 b. The wrinkled faces of the witch sisters haunt every step of the sweet girl who believes she can return home, even though her feet are cursed to keep walking. (ChatGPT-4o)

Though *namun* can mean “but” or “although”, in the case of (12a), it means “but” to emphasize the following clause. The translation (12b) renders it as *even though*, giving the following clause a sense of concession.

When a text is long with many clauses, human readers can use their knowledge about text and context to infer the logical relation between clauses. In contrast, AI’s guessing ability about longer text is much weaker than humans, as shown in (13).

- (13) a. Padahal setiap orang di kampung percaya bahwa kepergiannya akan membawa sesuatu yang lebih baik buat kampung itu, ia akan mewujudkan mimpinya berkeliling dunia. (Intan, p. 28)
 b. Yet everyone in the village believed that his departure would bring something better for them, that he would fulfill his dream of traveling the world. (ChatGPT-4o)

In (13a) above, the conjunction *padahal* begins the first clause, meaning “though everyone...”, followed by the main clause *ia akan...*(he still wants...). AI in translation (13b) uses *yet* to connect to the preceding text, and uses *that* before *he would fulfill...* to make it part of what the villagers believe, hence a wrong translation.

2.6 Lexical cohesion

Lexical items used to achieve cohesion can also cause difficulty for AI when words are ambiguous, as shown in (14).

(14) a. Iblis Kekasih memicingkan mata. Ia menghardikmu dengan suara pelan, serak, “Kau anak manja yang menyedihkan!” Ia berhenti sebentar, seolah baru saja mendapat pencerahan dari pernyataannya. “Maaf. Tapi kau memang menyedihkan. Dua puluh tujuh adalah usia keramat...” “Oke, stop. Kamu mau bilang Jim Morrison dan lainnya mati di umur 27? Basi.” (Intan, p. 5)

b. The Devil Lover squinted. It scolded you in a low, hoarse voice, “You’re a pathetic spoiled child!” It paused, as if just enlightened by its own remark. “Sorry. But you are pathetic. Twenty-seven is a sacred age...” “Okay, stop. You want to say Jim Morrison and others died at 27? Tired.” (ChatGPT-4o)

The word *basi* has many meanings, including “tired”. But in the context of (14a), the speaker is trying to say that it is boring to say that 27 is a sacred age. Probably in this case *tired* in (14b) can be changed to *cliché*.

(15) a. Saat mengatakan ini kau merasa heran mengapa Iblis bisa begitu rendah diri. Tapi bukankah ia selalu begitu sejak awal penciptaan? Ia mati-matian menutupinya dengan kesombongan. Rendah diri, penyebab iri dengki, adalah akar kejahatan di dunia. (Intan, p. 6)

b. When it said this you felt surprised that the Devil could be so insecure. But hasn’t it always been like that since Creation? It desperately covers it with arrogance. Insecurity, the cause of envy, is the root of evil in the world. (ChatGPT-4o)

In (15a) the pair of antonyms, *rendah diri* (feel humble) and *kesombongan* (arrogance), is used as lexical cohesion. The translation of *rendah diri* to *insecure* and *insecurity* in (15b) may not be appropriate, since *insecure* is not an antonym to *arrogant*. They can be changed to *feel humble* and *humility*. Apparently, AI is not as capable as humans to make use of semantic relations such as antonym in translation.

(16) a. Status orang yang berganti tiap menit di dunia maya terus berteriak minta didengar, menarik-narikmu agar menjadi bagian dari sebuah keluarga besar. Kau tak terasing, tapi tersedot keluar. (Intan, p. 144)

b. People’s statuses changing every minute in cyberspace constantly scream to be heard, pulling you in to become part of a big family. You are not isolated, but sucked outwards. (ChatGPT-5.2)

In (16a) above, the last sentence, *Kau tak terasing, tapi tersedot keluar*, means “Although you are not a stranger, you still feel your inner is being sucked out”. The translation (16b) of the last sentence is questionable. The word *outwards* may be confusing: Out of what? It can mean out of the community, or out of oneself.

3. SUMMARY

This study of AI translation from Indonesian to English shows that AI still has a long way to go before becoming as knowledgeable and competent as human translators in understanding and translating texts involving cohesive devices.

AI tends to imitate the original language in translation. Imitation works better with repetition and word order. When languages are different in certain functions, translation results may not be satisfactory, as with the ambiguous structure with noun + *yang* and the interpretation of English pronoun *you*. Those problems cannot be solved without knowledge about language, context, and culture.

Since the machine’s knowledge and reasoning ability are more limited than humans, when handling larger text, AI has more difficulty than human translators. Therefore, reference, ellipsis, conjunction, and

lexical cohesion that involve more global inference may cause more errors, similar to Hu's (2025) report on Indonesian-Chinese translation.

When revising after AI translation, human editors may not only pay attention to individual words and sentences, but also consider the cohesive devices used in the original, especially to those that cause more errors.

REFERENCES:

- Beaugrande, R. de, and W. U. Dressler 1981, *Introduction to text linguistics*, Longman, London.
- Hu Mingliang 2007, *Yupian xianjie yu fanyi [Textual cohesion and translation]*, Bashu Publishing House, China.
- Hu Mingliang 2025, *Indonesian cohesion and translation*, China Culture Press, Albany, USA.
- Intan Paramaditha 2017, *Gentayangan*, Kompas Gramedia, Jakarta.
- Kuang, S., D. Xiong, W. Luo, and G. Zhou 2017, 'Modeling coherence for neural machine translation with dynamic and topic caches'. *arXiv*. <https://arxiv.org/abs/1704.05156>.
- Lei, Y., Y. Ren and D. Xiong 2022, 'CoDoNMT: Modeling cohesion devices for document-level neural machine translation'. In *Proceedings of the 29th International Conference on Computational Linguistics* (pp. 5205–5216). International Committee on Computational Linguistics.
- Mishra, V., C. Chu and Y. Arase 2020, 'Lexically cohesive neural machine translation with copy mechanism'. *arXiv*. <https://arxiv.org/abs/2010.03273>.
- Unanue, I. J., N. Esmaili, G. Haffari, and M. Piccardi 2020, *Leveraging discourse rewards for document-level neural machine translation*. Cornell University.