SYNTACTIC STRATEGIES IN TRANSLATING AND ANALYZING ENGLISH MECHANICAL ENGINEERING TERMS INTO INDONESIAN

STRATEGI SINTAKSIS DALAM MENERJEMAHKAN DAN MENGANALISIS ISTILAH TEKNIK MESIN BAHASA INGGRIS KE BAHASA INDONESIA

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Abstract

This study reports the syntactic strategies used in translating mechanical engineering terms in the The Martian novel and its translation. The objective of this study is to find out what syntactic strategies are used by the translator in translating English mechanical engineering terms to Indonesian in The Martian novel. This study used the descriptive qualitative method. Meanwhile, the approach used in the study is descriptive analytical. The data of this study are in the forms of words and clauses reflecting the mechanical engineering terms. The writers used the theory of translation strategies from Chesterman. The results of this study show that from the 21 data analyzed, the syntactic strategies used were literal translation (10 data), calque (7 data), loan (3 data), and unit shift (1 datum). The less dominant syntactic strategy is the unit shift with only one datum. Meanwhile, the most dominant syntactic strategy used by the translator in translating The Martian novel is literal translation.
Keywords: *mechanical engineering terms, novel, syntactic strategies, translation*

Abstrak

Penelitian ini melaporkan strategi sintaksis yang digunakan dalam menerjemahkan istilah-istilah teknik mesin dalam novel The Martian dan terjemahannya. Tujuan dari penelitian ini adalah untuk mengetahui strategi sintaksis apa yang digunakan oleh penerjemah dalam menerjemahkan istilah-istilah teknik mesin dalam bahasa Inggris ke bahasa Indonesia dalam novel The Martian. Penelitian ini menggunakan metode kualitatif deskriptif. Sementara itu, pendekatan yang digunakan dalam penelitian ini adalah deskriptif analitis. Data penelitian ini berupa kata-kata dan klausa yang mencerminkan istilah-istilah teknik mesin. Penulis menggunakan teori strategi penerjemahan dari Chesterman. Hasil penelitian ini menunjukkan bahwa dari 21 data yang dianalisis, strategi sintaksis yang digunakan adalah literal translation (10 data), calque (7 data), loan (3 data), dan unit shift (1 datum). Strategi sintaksis yang kurang dominan adalah unit shift dengan hanya satu datum. Sementara itu, strategi sintaksis yang paling dominan digunakan oleh penerjemah dalam menerjemahkan novel The Martian adalah literal translation.
Kata kunci: *istilah teknik mesin, novel, strategi sintaksis, terjemahan*

Introduction

Language has an essential role in various aspects of life. In this world, there are various languages. One of the languages known as an international language is English. In this era of globalization, English is

an international language predominantly used as a global communication tool or a means of communication between countries. In addition, English is also the main language in various technical fields, such as engineering and technology. Unfortunately, most Indonesians still do not have a good command of English. In fact, currently, many documents, studies, books, guidebooks, and even novels use English. Therefore, translation has a very significant role in this case.

Translation is the activity of rendering the meaning of a written text from the source language into the target language using appropriate equivalent words. According to Larson (1998), translation involves conveying the meaning of a source language to a receptor language (p. 3). This is in line with Hatim and Munday (2004) that translation is the process of delivering a message in written text from the source to the target language (p. 6). Meanwhile, Nida and Taber (1982) defined translation as an activity that reproduces the message contained in the receptor language with the closest equivalence to the source language. Moreover, House (2017) defined translation as changing the original or source text into a target text in a different language. Nowadays, many literary works such as novels have been

translated, either translated from English to Indonesian or vice versa. However, there are still many translations that are sometimes ambiguous or less natural, making them difficult to understand. One of them is like in novels which contain many unfamiliar words and technical terms. Whereas, the most important thing is a translation that is accurate, acceptable, and readable. Many translators use translation strategies to overcome problems and make the translation process easier. Hence, the writers are interested in choosing translation strategies as a topic, especially syntactic strategies. The writers want to know what syntactic strategies are used in translating technical terms, especially English mechanical engineering terms into Indonesian in a novel.

Translations strategies by Chesterman (1997) are widely used by translators. According to Chesterman (1997), syntactic strategies particularly manipulate form. There are several types of syntactic strategies. First, literal translation, in a broad sense, refers to a translation that is as close as possible to the source language structure while still being grammatical. Second, Loan and calque, this strategy addresses the borrowing of both singular items and phrases. Third, transposition, the concept of

transposition, as defined by Vinay and Darbelnet, refers to any alteration in word class, such as transitioning from a noun to a verb or from an adjective to an adverb. Fourth, unit shift, the units include: morpheme, word, phrase, clause, sentence, and paragraph. A unit shift takes place when a source text (ST) unit is translated into a different unit in the target text (TT). Fifth, phrase structure change involves several alterations at the phrase level, such as alterations in number, definiteness, and modification within the noun phrase, as well as changes in person, tense, and mood within the verb phrase. Sixth, clause structure change encompasses the arrangement of constituents (analyzed simply as Subject, Verb, Object, Complement, Adverbial), active vs. passive voice, finite vs. non-finite structure, transitive vs. intransitive. Seventh, Sentence structure change influences the composition of the sentence unit, as it consists of clause units. This encompasses alterations between the main clause and subordinate clause status, changes in the types of subordinate clauses, etc. Eighth, cohesion change, is something that impacts aspects such as intra-textual referencing, ellipsis, substitution, pronominalization and repetition, or the utilization of various types of connectors. Ninth, level shift, the levels include phonology, morphology, syntax, and lexis. Tenth, scheme change pertains to the various alterations that translators implement when translating rhetorical schemes like parallelism, repetition, alliteration, meter, rhythm, and so on.

The Martian is a novel by Andy Weir that was published on February 11, 2014. This novel has been translated into more than 45 languages, one of which is Indonesian. In Indonesian, this novel is entitled *Si Penghuni Mars* and translated by Rosemary Kesauly. *The Martian* novel tells the story of Mark Watney, an astronaut stranded on Mars who must survive with limited resources. He used his mechanical engineering degree to create a pathfinder to communicate with NASA again. *The Martian* is one of the novels that contains many technical terms, such as mechanical engineering terms*.* That is why the writers are interested in choosing *The Martian* novel as the object of this study.

The writers find several previous studies. First, Haya and Djohan (2022) analyzed the syntactic translation strategies applied in the English-Indonesian *ASEAN Charter* document. This study aims to determine which strategies are most

frequently used and the possible reasons for this. They conducted the analysis based on Chesterman's translation strategy and used the qualitative method. The data used in this study is in the form of text on the *ASEAN Charter* document. The results of this study indicated that there are 8 syntactic strategies, namely literal translation (33%), loan and calque (31%), transposition (8%), unit shift (14%), phrase structure change (8%), clause structure change (0,38%), level shift (1%), and scheme change (5%).

Second, Mohamed (2023) examined the translation strategies for retaining parallelism in Dr. Mostafa Mahmoud's book *A Dialogue with an Atheist*. The aim of this study is to investigate how parallelism in the Arabic version is handled in its translation into English. The results of the study show that there are ten strategies used, namely literal translation, loan translation, transposition, unit shift, phrase structure change, clause structure change, sentence structure change, cohesion change, level shift, and scheme change to maintain parallelism in the English translation of the book. The most used strategies to maintain parallel structure were literal translation (25%), cohesion change (22%), and schema change (11.4%).

Third, Larasati and Nurochman (2024) analyzed the translation of cultural terms in the *It Ends With Us* novel. The purpose of this study was to identify various cultural terms in the novel and analyze their functions. This study used a qualitative approach. They applied Newark's framework and Chesterman's translation strategy theory. This study shows, there are 46 data on cultural terms translated using seven translation strategies described by Chesterman. The translation strategy includes 3 data using literal translation, 1 datum using loan, 1 datum using information strategy, 11 data using expansion, 11 data using compression, 14 data using unit shift, and 2 data using calque. This study also found five types applied in the translated text, namely 1 data on ecology, 20 data on materials, 1 datum on socio-culture, 6 data on political and social organizations, and 12 data on gestures and habits.

There are several similarities and differences between this study and the three previous studies described above. This study and the three previous studies have similarities, namely, using Chesterman's translation strategy. Furthermore, between this study, the first and second previous studies focused on syntactic strategies. This

study and the third previous study examined similar data sources, namely novels. Besides the similarities, there are differences between this study and the three previous studies. First, the second previous study identified translation strategies from Arabic to English, while this study identifies translation strategies from an English to Indonesian. The third previous study used Newmark's framework and Chesterman's translation strategy; this study only uses Chesterman's translation strategy.

In this study, the writers conduct a descriptive-analytical study because it focuses on analyzing certain items, such as mechanical engineering terms in the source text that become the writers' interests. Analytical descriptive research is used to analyze mechanical engineering terms obtained from novels and their translations by describing the translation of these terms in the analysis. The problem in this study is what syntactic strategies are used by the translator in translating English mechanical engineering terms to Indonesian in *The Martian* novel. The purpose of this study is to find out what syntactic strategies are used by the translator in translating English mechanical engineering terms to Indonesian

in *The Martian* novel. Hence, the limitation of this study is the writers want to find out the syntactic strategies used by the translator in translating English mechanical engineering terms to Indonesian in *The Martian* novel using Chesterman's (1997) theory.

Method

In this study, the writers used a descriptive qualitative method because all data are analyzed descriptively, and the results are in the form of word descriptions supported by data. According to Cresswell (2018), qualitative study data are descriptive. In other words, the data is conveyed through words (mostly the participants' own words) or images instead of numerical representations. The source of the data in this study is an English novel entitled *The Martian* which was published on February 11, 2014 and its translation entitled *Si Penghuni Mars* which was published by Gramedia Pustaka Utama on February 12, 2016. The data of this study are in the forms of words and clauses reflecting the mechanical engineering terms. The writers used a random sampling technique. The writers collect 87 data, and then 21 data will be randomly chosen to be analyzed. The

writers took several steps to collect data. First, the writers find *The Martian* novel as the source book and its translation. Second, the writers read thoroughly the original novel *The Martian* and its translation. Third, the writers identify the English mechanical engineering terms and their translation. Then, the writers recheck the data to find whether there are some mistakes. The data found by the writers will be analyzed using Chesterman's (1997) translation strategy.

Result and Discussion

Result

The writers found 87 data on mechanical engineering terms in *The Martian* novel, but only 21 data were deliberately selected to be analyzed. The writers applied Chesterman's syntactic strategy to analyze the data. Syntactic strategies used for analyzing these 21 data are: (10) literal translation, (7) calque, (3) Loan, (1) Unit Shift. The table below provides a summary of the findings.

The table above shows that the less dominant syntactic strategy is the unit shift with only one datum. Meanwhile, the most dominant syntactic strategy used by the translator in translating The Martian novel is literal translation with ten data.

Discussion

Here, are detailed analyses of the discoveries of syntactic strategies used to translate English mechanical engineering terms into Indonesian in *The Martian* novel.

a. Literal Translation

Datum 1 and datum 2 are categorized as literal translation. Chesterman (1997) explained that Literal translation, in a broad sense, refers to a translation that is *as close as possible to the source language structure while still being grammatical.*

Datum 1

ST: It's nothing more than a funnel with a **valve** at the small end and an unbelievably sticky resin on the wide end.

TT: *Alat itu hanya berupa corong yang memiliki **katup** diujung sempitnya dan cairan super lengket diujung lebarnya.*

In the sentence above, the mechanical engineering term of *…***valve***…* is translated into *…**katup**…* in the target text. According to *Oxford Dictionary of Mechanical Engineering* (2019), the word valve means any of various manual or automatic devices that are able to initiate, regulate, or stop the flow of a fluid through a conduit or from a closed container (p. 1190).

Table 1. Syntactic Strategies by Chesterman (1997)

Syntactic Strategy	Amount
Literal Translation	10
Calque	7
Loan	3
Unit shift	1
Total	21

The word ***katup*** in the target text is the closest translation to the form of the source text. Hence it is categorized as a literal translation.

Datum 2

ST: First, I was assembling **solar panels** with Vogel when Commander Lewis drove off, and I saw she headed due south.

TT: *Pertama, aku sedang memasang **panel-panel surya** bersama Vogel saat komandan Lewis pergi, dan aku melihat dia pergi ke selatan.*

In the datum above, **…solar panels…** is a mechanical engineering terms, which is translated into ***…panel-panel surya…*** in the target text. The datum above is translated to Indonesian word by word. In this translation, the syntactic structure of the source language, namely **solar panels** (plural noun), is maintained in the target language ***panel-panel Surya***. The sentence in the target text is the closest translation to the form of the source text. Hence, the strategy used is literal translation.

b. Calque

Datum 3 and datum 4 are categorized as a calque. According to Chesterman (1997), This strategy addresses the borrowing of both singular items and phrases. Similar to the other strategies, it pertains to a conscious decision rather than an involuntary effect of unwanted interference.

Datum 3

ST: Woven carbon thread ran slowly through the press, which sandwiched in between **polymer** sheets.

TT: *Benang-benang karbon yang jalin-menjalin dicetak pelan-pelan, dipres diantara lembar-lembar **polimer**.*

Polymer is included in the term of mechanical engineering. Polymer is a technical term that refers to large compounds made up of repeating molecules called monomers. In the source text **…polymer…** is translated into ***…polimer…*** in the target text. The word **polymer** is borrowed but adapted to Indonesian phonetics and spelling rules, namely replacing (y) with (i)

and not significantly changing the word structure. Hence it is categorized as a calque.

Datum 4

ST: Hydrazine breaking down is extremely **exothermic**.

TT: *Pemecahan hidrazine sangat **eksotermik**.*

Exothermic is included in the term of mechanical engineering. In the target text, the word ***…eksotermik*** is borrowed and translated from the word **…exothermic** by changing the letter (x) to the letters (k) and (s), removing the letter (h) and replacing the last letter (c) with the letter (k). The word ***…eksotermik*** is borrowed because there is no equivalent for term **…exothermic** in Indonesian. Thus, the strategy used is calque.

c. Loan

Datum 5 and datum 6 are categorized as a loan. Chesterman (1997) explained that this strategy addresses the borrowing of both singular items and phrases. Similar to the other strategies, it pertains to a conscious decision rather than an involuntary effect of unwanted interference.

Datum 5

ST: The RTG is a **generator**.

TT: *RTG adalah **generator**.*

According to *Dictionary of Mechanical Engineering* (2024), the word generator means a device which converts mechanical energy into electrical energy; an important means of power generation (p. 156). The English mechanical engineering of **…generator** in the source text is translated and retained as ***…generator*** in the target text, Indonesian, to reflect accurately the meaning of the original text. Hence, it is categorized as a loan.

Datum 6

ST: Henceforth, **rover** experimental missions will be "Sirius" missions.

TT: *Mulai, saat ini, misi-misi eksperimen **Rover** akan disebut misi-misi "Sirius."*

Rover falls under the mechanical engineering term, especially in the context of robotics and autonomous vehicle systems. In the source text **…rover…** is translated and retained as ***…Rover…*** in the target text, Indonesian, to reflect accurately the meaning of the original text. Hence, it is called loan.

d. Unit Shift

Datum 9 is classified as Unit Shift. Chesterman (1997) said that this term originates from Catford (1965). The units include: morpheme, word, phrase, clause,

sentence, and paragraph. A unit shift takes place when a source text (ST) unit is translated into a different unit in the target text (TT): this occurrence is quite common, and various subclassifications can be established for different types of unit shifts.

Datum 7

ST: The **torsion** on the clamp snapped the strong composite like a brittle twig.

TT: *Tekanan mendadak itu membuat sambungan Rover dan trailer patah seperti ranting kering.*

According to *Dictionary of Mechanical Engineering* (2024), the word torsion means a twisting action produced on a rotating element (shaft) about its longitudinal axis (p. 387). In the source text, the mechanical engineering term of **…torsion…** is a word and is translated into *Tekanan mendadak…* which is a phrase in the target text. There is a shift of one word **(torsion)** into a phrase *(Tekanan mendadak).* Hence, it is categorized as unit shift.

Conclusion

The purpose of this study is to find out what syntactic strategies are used in translating mechanical engineering terms from English to Indonesian in *The Martian*

novel. The writers applied a descriptive qualitative method because all data is analyzed descriptively. Based on the results and discussion, it can be concluded that there are several syntactic strategies used in translating mechanical engineering terms in *The Martian* novel. The writers found 87 data on mechanical engineering terms in *The Martian* novel and only analyzed 21 selected data using the theory of syntactic strategies by Chesterman (1997). After the writers analyzed the data, the writers found 9 syntactic strategies namely (10 data) literal translation, (7 data) calque, (3 data) Loan, (1 datum) Unit Shift. The less dominant syntactic strategy is the unit shift with only one datum. Meanwhile, the most dominant syntactic strategy used by the translator in translating *The Martian* novel by Andi Weir is a literal translation with ten data. It represents that the data in the form of the mechanical engineering terms are translated as close as possible to the source text form.

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