Intratextual Factors in Source Text Trimming for Indonesian-English Machine Translation

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Abstract. Source text analysis is a crucial phase in the translation process. Several issues are proposed by experts in this particular field of study. Nord [1], for instance, proposes that this phase may be constrained by two types of factors, i.e. extra-textual and intra-textual ones, the latter consisting of eight factors which need consideration, i.e. subject matter, content, presuppositions, text composition, non-verbal elements, lexis, sentence structure, and suprasegmental features. This paper aims to consider the importance of each of the eight factors as the basis of trimming academic manuscripts in Indonesian before their mechanical rendering to English for international publication. The object of this study was 50 manuscripts in Indonesian prepared for the publication. The manuscripts were analyzed taking the eight factors into account. The trimming process, which refers to a process of making a text tidier for inter-lingual rendering, is applied to the texts considering the issues so as to be more ready for the translation. The effectiveness of the process is shown by means of comparing the results of rendering the original texts and the trimmed ones assuming that the latter is more qualified than the former. Given that the intra-textual factors are relatively influential in source text analysis for trimming purposes, it is suggestible to consider them as a supplementary procedure for the mechanical rendering of academic manuscripts in Indonesian prior to their translation to English.

1. Introduction

One of the three major stages of the practice of translation, source text analysis, has gained considerable attention from translation experts. Whatever the translation model they are proposing, this special stage will not escape the discussion. As two pioneers of the theory and practice of modern translation, Nida & Taber [2] proposed three stages in the translation process. They include source text analysis, transfer, and restructuring in the target language to produce target text that is equivalent to its counterpart in the source language. Furthermore, experts such as Snell-Hornby [3], Newmark [4], Larson [5], Mujiyanto [6] have strived to modify the three stages with their respective justifications. Hatim & Mason [7] analyze source text from the perspective of register analysis which focuses attention on the text as discourse, text as action, and text as a sign. They also emphasize the importance of inter-textuality and intentionality in the text that is intended to be rendered into a target language. Hatim & Mason [8] propose text analysis in translation focusing their attention on assumptions based on the standard of textuality, intertextuality, and intentionality. Hewson & Martin [9] redefine translation by introducing an inter-lingual translation model which they call the variational model. In the model, source text analysis is referred to as the "production of inter-linguistic..."
homologies", which includes a discussion on the nature of the source text along with its socio-cultural content and potential for the creation of target text forms.

Bell [10] introduces a translation model by dividing the source text analysis into three parts, namely syntactic, semantic, and pragmatic analyses based on the basic concepts of systemic-functional linguistics. Furthermore, Gentzler [11] summarizes several theories concerning contemporary translation, while Nord [12] emphasizing the importance of translating as a purposeful activity. In line with such models, Venuti [13] edits some articles on translation studies; Grego [14] considers specialized translation from theoretical issues and operational perspectives. Munday [15] introduces translation studies from the perspective of theories and their applications followed by a discussion of the relationship between text analysis and translation Munday [16]. Colina [17] examines the principles of translation; Tyler [18] invites readers to analyze the source text before translating it into the target language. Furthermore, Mujiyanto [19] offers strategies in translation practices that include source text analysis as well while Mujiyanto [20] introduces the model of clause restructuring in English-Indonesian translation. Discussing more source text analysis, Nord [1] focuses his attention to theory, methodology, and didactic application of a model for translation-oriented text analysis. In his proposed model, he shows two categories of significant factors, namely intra-textual and extra-textual factors. The former include subject matter, content, presuppositions, text composition, non-verbal elements, lexis, sentence structure, and suprasegmental features while the latter includes sender or writer of the source text, his/her intention of writing the text, target recipient, medium of communication, place of communication, time of communication, motives for communicating the message, and text functions.

Since Nord’s [1] introduction of the function of text analysis in translation, there have been many studies on the implementation of this type of analysis in translation from and to various languages in the world. Research on text analysis as the basis for the practice of translation considers the source text from various perspectives, such as philosophical, theoretical, and pedagogical ones. Zlateva [21], for example, uses text analysis as a tool in translation training. He questions the reasons, processes, and achievements of the analysis in handling current issues. Munday [16] explains the link between text analysis and translation. Meanwhile, Ayupova [22] examines text analysis as part of the steps in the pretranslation rendering process. Laviosa, Pagano, Kemppanen, and Ji (Eds.) [23] analyze text and its context in the study of translation practices. Furthermore, when reviewing news translation, Troque and Marchan [24] examine a text concerning fieldwork through various surveys. Rossetti and Gaspari [25] conduct a pilot study of trainee translators' perceptions concerning difficulties and time effectiveness in translation to create a model of text analysis in translation memory use and post-editing of raw machine-translation output. Meanwhile, Laviosa, et al. [23] edit topics which are related to textual and contextual analysis in empirical translation studies. Hansen-Schirra, Czulo, and Hofmann (2017) edit works related to empirical modeling in translation and interpreting processes.

Dicerto [26], [27], [28] in tandem introduces a new model for source text analysis in translation, analyzes multimodal source text for translation, and applies multimodal source text analysis as a model in pretranslation process. Meanwhile, Boukhaffa [29] examines source text analysis to create a model for enhancing the translation memory outcome. The research studies mentioned above generally focus on intra-textual factors which include subject matter, text organization, use of non-verbal elements, use of vocabulary, sentence structure, stylistic features, and suprasegmental features as they are suggested by Nord [1]. Those studies mainly focus on the use of grammar and vocabulary in the source language that will be translated into a target language.

The implementation of machine translation has been studied for more than five decades ago. Nevertheless, the advancement of information technology has triggered translation experts to proceed to improve this type of translation for the betterment of rendering results. Nirenburg, Somers, & Wilks [30] summarize essays on theories and practices in the use of machine translation in a professional rendering. Furthermore, Birch, Osborne, & Koehn [31] suggest a model of predicting the success of (or failure in) implementing machine translation. Kastberg [32] sees the use of machine translation tools for a professional translator, categorizing it into (1) fully automated machine translation
(FAMT), (2) human aided machine translation (HAMT), and machine-aided human translation (MAHT). Meanwhile, Lennon [33] considers the use of machine translation from the perspective of different cultures, while Rozmyslowicz [34] puts forward issues that are related to the use of machine translation constraining the construction of translation theories.

No matter what translation model is applied in translation practices, the implementation of machine translation is currently unavoidable. Several tools that are popular among translators include such online machines as DeepL Translator, Google Translate, SDL Trados, and SYSTRAN. Language aids that are also popular among them are grammar checkers, spell checkers, dictionaries, thesauruses, plagiarism checker, etc. Although the use of such devices facilitates the translators in undertaking their work, relying on them without taking manual work into account may lead to result in translations that do not fulfill the intention. The use of such devices requires the source text to be written in standardized language that is commonly used in academic writings such as research articles, reference books, academic essays, etc. To produce standard English texts, Indonesian essays that are written for that purpose should be trimmed before their translation to English.

This study focuses on the analysis of texts written in Indonesian as the source language prior to their machine translation into English as the target language. It involves the occurrence of intratextual factors as proposed by Nord [1]. The results of the analysis are used as the basis to trim the source texts before their rendering into English so that it results in quality translation fulfilling the requirement as standard texts for internationally accredited publication. Besides, this study aims to show differences in readability levels between the source texts (ST) and their respective trimmed results (TR).

2. Methodology

This study was designed based on a descriptive qualitative approach. Fifty academic manuscripts written in Indonesian were chosen as the object of this study. The manuscripts aimed to be submitted for internationally reputable indexed journal publications. They were analyzed in terms of their intratextual factors including (1) subject matter or main topic of the texts; (2) text organization or content of the text; (3) pragmatic presuppositions including the use of non-verbal elements; (4) text composition including the structuring of the texts; (5) uses of non-verbal elements including visual elements such as tables, graphs and diagram; (6) uses of lexis including its particular features; (7) uses of various types of sentence structure; (8) suprasegmental features commonly used in writing including, among other things, italics, punctuations, dashes, parentheses, etc., as suggested by Nord [1].

The results of the analysis were used as the bases for the trimming process. Then, the trimmed texts along with their originals were rendered to English employing Google Translate. The data for this research were two sets of linguistic elements covered in the intra-textual domains found in the translations of both the original texts and the trimmed ones. A comparison of the two translation results would show whether the impact of the trimming process is significant in causing the manuscripts to be more readable and, thus, viable for publication in internationally reputable journals.

3. Findings and Discussion

3.1. Findings

Figure 1 shows a model of translation process. In the model, Trimming is positioned between Source Text Analysis and Machine Translation, which is an inevitable effort in bilingual rendering. This particular phase executes the results of the ST analysis by taking necessary actions to make the text viable for the next phase, Machine Translation, which may or may not involve human aid.
As stated in the introduction, the trimming process includes eight intra-textual factors that can be presented in the following sub-subsections.

3.1.1. Subject Matter

The analysis of the ST in terms of its subject matter is important due to the reasons proposed by Nord [1], pp. 85-86). According to Nord, there are at least six indicators that can be used to obtain information about the existence of subject matter in a text. In ST trimming, the Subject Matter provides the following results.

Table 1. Results of Trimming the Subject Matter

| Indicators                     | Source Text       | Trimming Results |
|--------------------------------|-------------------|------------------|
| Text coherence                 | Needs improvement| Improved         |
| Hierarchy of subjects          | At random         | Deductive        |
| Fulfillment of expectation     | Personal          | Conventional     |
| Verbalization of subject matter| Implicit          | Explicit         |
| Culture bound                  | Yes               | Improved         |
| Relevance to convention        | Irrelevant        | Relevant         |

Table 1 presents the summary of the trimming results involving subject matter based on the six indicators as seen in Column 1. The table shows that the trimming process has yielded several improvements. While the text coherence and the culture-bound in the ST are improved through the process, the hierarchy of the subject is made deductive, the fulfillment of the reader’s expectation is made explicit, and the text as a whole is made more relevant to the prospective reader’s needs.

Excerpt 1

ST: Analysis of Soft Skills, Work Culture and Service Quality on Student Satisfaction of Anesthesia Specialist Doctor Education Program.

TR: The Influence of Soft Skills, Work Culture, and Service Quality on Student Satisfaction Level of Anesthesia Specialist Doctor Education Program.

In Excerpt 1, for instance, the term “Analysis” has been replaced with “Effect” and the term “Level” has been added to make this topic relevant to its contents. This is because the source text intends to show the influence of independent variables mentioned in the text towards certain phenomena. Therefore, the replacement of the term “Analysis” with “Effect”, is thus done to make the topic explicitly related to the contents of the text.

3.1.2. Contents

According to Nord [1] content is “the reference of the text to objects and phenomena in an extra-linguistic reality” (p. 90) It includes linking devices as well as other logical connections, theme-rheme relationship, functional sentence perspective, sentence patterns, tense, mood, etc. (p. 91).
Table 2. Results of Trimming the Contents

| Indicators                                      | Source Text | Trimming Results |
|------------------------------------------------|-------------|------------------|
| Verbalization of extratextual factors          | Explicit    | Explicit         |
| Spread of information units                    | Random      | Systemic         |
| Differences between external and internal situation | Ok          | Ok               |
| Gaps of cohesion/ coherence                    | Gaps        | Deviced          |
| Availability of conclusion                     | Available   | Improved         |
| Paraphrase                                     | Available   | Improved         |

Table 2 presents the summary of the trimming results involving the contents of the articles under analysis based on the six indicators as seen in Column 1. The table shows that the trimming process has yielded some improvement. While the availability of conclusion and the paraphrase are improved through the process, the Verbalization of extratextual factors is made explicit, the Spread of information units is made systemic, and the Gaps of cohesion/coherence is devised in order to make the whole contents of the draft more relevant to the prospective reader’s needs.

Excerpt 2

ST: Family support, support for the family is not only aimed at children with autism but also to families. Parents and siblings of children with autism experience more stress and depression than families who have children with normal development.

TR: Support is not only aimed at autistic people but also their families. Parents and siblings with autism suffer more depression than families with normal-growing children.

In Excerpt 2, the spread of information with “Support” as Theme followed by the rest of the clause as Rheme is expressed circularly in the ST. As a result, it uses 42 words merely to convey the meaning that can be expressed in 30 words. It is seen in the excerpt that several sentence elements have been dropped during the trimming process, resulting in a compact expression.

3.1.3. Presuppositions

A pragmatic presupposition refers to one that is implicitly assumed by the source text writer, taking it for granted that this will also be the case with the target text reader ([1], p. 95); it usually refers to objects and phenomena of the source culture when the target reader is not fully aware of the aspects of the source culture in the ST and transferred into the TT. Therefore, adjustment of the explicitness level to the background knowledge of the intended TT recipient is a must (p. 98). The existence of presuppositions in translation-oriented source text analysis is indicated by the items presented in Table 3.

Table 3. Results of Trimming the Presuppositions

| Indicators                                      | Source Text | Trimming Results |
|------------------------------------------------|-------------|------------------|
| Reference to reality model                      | Vague       | Made clear       |
| Verbalization of reference to reality           | Available   | Available        |
| Availability of implicit allusion               | Available   | Available        |
| Existence of redundancies                       | Exists      | Minimized        |
| Verbalization of known/unknown presupposed information | Available   | Made clearer     |

Table 3 presents the summary of the trimming results involving the use of pragmatic presuppositions in the articles under analysis based on the five indicators as seen in Column 1. The table shows that the trimming process has yielded some changes. While the availability of the reference to reality model and the verbalization of known/unknown presupposed information are made clearer by changing them to become explicit through the process, the existence of redundancies is minimized. The rest remains as it is to make the whole contents of the draft fulfill the prospective reader’s needs.
Excerpt 3

ST: According to Berthal (Muqowim, 2012: 5) soft skills are defined as personal and interpersonal behaviors that develop and maximize human performance (including military lecturers). Sharma in Utama et al, (2010: 3), stated that soft skills are all aspects of generic skills which also include cognitive elements related to non-academic skills.

TR: According to Berthal (as cited in Muqowim, 2012: 5), soft skills are defined as personal and interpersonal behavior that develops and maximizes human performance (including military lecturers). Sharma as cited in Utama et al (2010: 3) states that soft skills are all aspects of generic skills including cognitive elements related to non-academic skills.

In Excerpt 3, the ST presupposes the availability of the names “Berthal” and “Sharma” along with their claims on “soft skills”, “generic skills”, and “non-academic skills”. However, the presence of the names “Muqowim” and “Utama, et al” needs clarification because their presence can potentially cancel the presupposition. The addition of the prepositional phrase “as cited in” during the trimming process has supposedly improved the readability level of the TR.

3.1.4. Text Composition

Text composition refers to text structuring that may consist of several shorter texts or parts of a bigger text where the macrostructure of the text is marked by chapters and paragraphs and the microstructure by syntactic structures, lexical devices, or suprasegmental features. Both the micro- and macrostructure are important for the source text analysis because, (1) a text can be comprised of smaller elements with different functions; (2) the beginning and the end of the text may play specific roles in its comprehension; (3) some text types may be subject to conventions; (4) if a text is complex or incoherent, the microstructure analysis may result in information about the subject matter (Nord [1], p. 101). Based on the notions mentioned above, the source texts are analyzed employing the indicators presented in Table 4 before their trimming process.

Table 4. Results of Trimming the Text Composition

| Indicators                                   | Source Text | Trimming Results |
|----------------------------------------------|-------------|------------------|
| Text dependence on larger unit              | Independent | Dependent        |
| Signals of macrostructure                   | Available   | Improved         |
| Availability of conventional composition    | ST-oriented | TT-oriented      |
| Realization of certain thematic progression  | Redundancy  | Compact          |

Table 4 presents the summary of the trimming results involving the realization of the text composition of the articles based on the four indicators as seen in Column 1. The table shows that the trimming process has yielded some changes. While parts of the larger units are made interdependent to one another, the signals of macrostructure are improved, the availability of conventional composition is made target text-oriented, and the realization of certain thematic progression is made more compact. Again, these aim to make the whole contents of the draft fulfill the prospective reader’s needs.

Excerpt 4

ST: Interviews and observations regarding: how the emotional and social abilities, how the range of concentration and attention, how the ability and general knowledge according to age such as understanding the limbs, the concept of color, shape, communication skills, fine motor and gross motor, ability to care for themselves. severity of autism using CARS (Childhood Autism Rating Scale).

TR: Interviews and observations about emotional and social abilities, their concentration and attention span, age-specific abilities and general knowledge such as understanding limbs, color concepts, shapes, communication skills, fine motor and gross motor skills, self-care ability, and severity autism uses Childhood Autism Rating Scale (CARS).
In **Excerpt 4**, The ST is composed of clausal elements that potentially relate to one another. However, the elements had been arranged without observing the strict principles of text composition, generally employing the macro- and microstructure of academic texts. As a result, besides structuring an incomplete sentence and offering inconsistent use of clause elements, the readability level of the TS is supposed to be relatively low. The TR shows that a number of sentence elements have been restructured in such a way that it supposedly improves the readability level.

### 3.1.5. Non-Verbal Elements

Non-verbal elements are various signs which do not belong to any linguistic code and which are used as supplements to them. It aims to illustrate, disambiguate, or even intensify the message contained in a text (Nord [1], p. 108). They may include photos, illustrations, emblems, special types of print, etc. They should not be mistaken for suprasegmental features.

| Indicators                            | Source Text   | Trimming Results |
|---------------------------------------|---------------|------------------|
| Inclusion of non-verbal elements      | Available     | Available        |
| Functions of non-verbal elements      | Illustration  | Clarification    |
| Conventionality bound to text type    | Clarification | Clarification    |
| Determination by medium               | Unfocused     | Focused          |
| Relations to source culture           | Related       | Related          |

Table 5 presents the summary of the trimming results involving the use of non-verbal elements in the articles under analysis based on the five indicators as seen in Column 1. The table shows that the trimming process has yielded several improvements. While the inclusion of non-verbal elements remains the same, the functions of non-verbal elements and the conventionality bound to text type are clarified, the determination by the medium is focused and the relations of the elements to the source culture are made explicit. These aim to make the whole contents of the draft fulfill the prospective reader’s needs.

#### Excerpt 5

| Exogenous Variables          | Score t | α- 5% | Explanation |
|------------------------------|---------|-------|-------------|
| Soft Skills Lecturer         | 4.77    | 1.96  | Significant |
| Work Culture                 | 3.12    | 1.96  | Significant |
| Service quality              | 3.82    | 1.96  | Significant |

$R^2 = 0.72$

ST: Based on the results of calculations with the Lisrel program 8.54 using a significance level of 5% (1.96) as in Table 4.26 above, the soft skills variable of the lecturer obtained a score of $t 4.77 > 1.96$, the work culture variable gained a score of $t 3.12 > 1.96$ and the variable of service quality obtained $t 3.82 > 1.96$. The t value of each exogenous variable is greater than the t score at the significance level of 5%.

TR: Table 4 shows that with a significance level of 5% (1.96), the soft skills variable of lecturers gave a score of $t 4.47 > 1.96$; work culture variable $t 3.07 > 1.96$. The t value of each exogenous variable is greater than the t value at the significance level of 5%.

In **Excerpt 5**, the table is followed by a lengthy sentence describing it. While the ST strives to elaborate the meaning of each of the figures in the table to clarify it, the use of unnecessary elements, as well as the repetitions, has caused the description to be more than required by its prospective reader. If the description is meant to make the table easier to understand, then it should have been simpler than the table itself. The TR shows it clearly.
3.1.6. Lexical Items
According to Nord [1], lexical items refer to the affiliation of words to stylistic levels and registers, word formation, connotations, rhetorical figures, parts of speech, morphological aspects, collocations, idioms, addressing, word choices, degree of originality, etc. Nord also states that “the choice of lexis in a particular text is determined by extratextual and intratextual factors” (p. 112).

Table 7. Results of Trimming the Lexical Items

| Indicators | Source Text | Trimming Results |
|------------|-------------|------------------|
| Reflection of extratextual factors in using dialects, varieties, register, convention, functions, etc. | Available | Improved |
| Indication of writer’s attitude through lexical items (stylistic markers, connotations, figures of speech, coinages, etc.) | Minimal | Maximiz-ed |
| Representation of fields of lexis (terminologies and metalanguage) | Common | Specified |
| Dominant use of parts of speech and patterns of word formation | Nominalization | Verbal-ization |
| Dominant use of rhetorical style | Available | Varied |

Table 7 presents the summary of the trimming results involving the use of lexical items in the articles under analysis based on the five indicators as seen in Column 1. The table shows that the trimming process has yielded several improvements. While the reflection of extratextual factors in using dialects, varieties, register, convention, functions, etc. is improved, the indication of writer’s attitude through lexical items (stylistic markers, connotations, figures of speech, coinages, etc.) is maximized, the representation of fields of lexis (terminologies and metalanguage) is made more specific, parts of speech and patterns of word formation are verbalized, and the use of rhetorical style is made varied. These aim to make the whole contents of the draft fulfill the prospective reader’s needs.

Excerpt 6
ST: Based on the results of the study showed that the influence of soft skills of lecturers on service quality has a coefficient of 0.79 this means that the influence of soft skills of school lecturers on service quality is (0.79)^2, ie 0.6241 or 62.41% changes that occur in the quality of service to students of anesthesia specialist doctor UNDIP Semarang is caused by the soft skills of lecturers, the remaining 37.59% service quality is influenced by other variables.

TR: The results of this study indicate that the influence of soft skills of lecturers on service quality gives a coefficient of 0.79. That is, soft skills of lecturers improve the quality of service by (0.79)^2 or 62.41% to students of anesthesia specialist doctor UNDIP Semarang; the rest (37.59%) is influenced by other variables.

In Excerpt 6, the ST has been made simpler by trimming it employing the similar lexical items to construct a new sentence showing close relations among its elements. Using a complex sentence, whose elements are arranged, the TR promises a high level of readability compared with its counterpart in the ST.

3.1.7. Sentence Structure
Sentence structure, among other things, includes questions whether (1) it is mainly paratactic or hypotactic; (2) it contains simplex or complex sentences; (3) there are deviations from functional sentence perspective; (4) the text flow with syntactic figures of speech, parallelism, chiasm, rhetorical question, parenthesis, ellipsis, etc. (Nord [1], pp. 118-120); it has specific functions in the source text.
Table 8. Results of Trimming the Sentence Structure

| Indicators                                                                 | Source Text | Trimming Results |
|---------------------------------------------------------------------------|-------------|------------------|
| Sentence length including coordination and subordination                 | Lengthy     | Rationalized     |
| Dominant occurrence of sentence types                                     | Personal-ized| Impersonal-ized |
| Theme-rheme (marked-unmarked)                                             | Marked      | Unmarked         |
| Occurrence of text ‘relief’                                               | Simple      | Modalized        |
| Functions of syntactic figures of speech (parallelism, chiasm,            | Inconsistent| Consistent       |
| rhetorical question, parenthesis, ellipsis, etc.)                         |             |                  |
| Syntactic features which are recipient-oriented including                 | Writer-oriented| Reader-oriented |
| adoption and adaptation                                                   |             |                  |

Table 8 presents the summary of the trimming results involving sentence structure based on the six indicators as seen in Column 1. The table shows that the trimming process has yielded the following improvement: the text length is rationalized, the sentences are impersonalized, the theme-rheme relations are made unmarked, the sentences are modalized whenever necessary, the functions of syntactic figures of speech are made consistent, and the syntactic features are made reader-oriented. These are made for the benefits of the prospective reader’s needs.

Excerpt 7

ST: Speech therapy is very helpful because people with autism have a lack of communication and must be done during the development of speech.

TR: Speech therapy for people with autism is very important and must be given to him during the development of speech because he faces problems in communication.

In Excerpt 7, the ST is trimmed by means of replacing the adjective “helpful” with “urgent”. The subject which is a noun phrase “Speech therapy” is extended by modifying the noun phrase “penyandang autis” to the prepositional phrase “bagi penyandang autis” to function as the post modifier of the subject. The passive verb “to be done”, a generalized verb in Indonesian, is replaced with a particular verb “diberikan” (“to be given”), which more common in English. The replacement, modification, and word arrangement have made the sentence more readable.

3.1.8. Suprasegmental Features

Suprasegmental features function “to highlight or focus certain parts of the text and to push others to background” (Nord [1], p. 80), and they possess both an informative (i.e. denotative) and a stylistics (i.e. connotative) function. In writing, they involve such elements as italics, spacing, bold type, quotation marks, dashes, parentheses, underlining, affirmative words (actually, in fact), emphatic evaluations (fantastic, great), clefts (It was John who...), ellipsis, etc.

Table 9. Results of Trimming the Suprasegmental Features

| Indicators                                             | Source Text | Trimming Results |
|--------------------------------------------------------|-------------|------------------|
| Representation of suprasegmental features               | Inconsist-ent| Made consistent  |
| Specification of suprasegmental features                | General-ized| Specified        |
| Provision of clues to emotional state of the sender     | Implicit    | Explicit         |
| Division of text to prosodic units for clarity, stress, | Available   | Specified        |
| or focus                                              |             |                  |
| Correspondence of suprasegmental features to theme-rheme structure | Inconsist-ent | Made consistent |
| Adaption of suprasegmental features in TL patterns      | Minimal     | Improved         |

Table 9 presents the summary of the trimming results involving sentence structure based on the six indicators as seen in Column 1. The table shows that the trimming process has yielded the following improvement: the suprasegmental features and the division of text to prosodic units are specified for clarity, stress, or focus, the representation of suprasegmental features is made consistent, the clues to
emotional state of the sender are made explicit, the correspondence of suprasegmental features to theme-rheme structure is made consistent, and the adaption of suprasegmental features in TL patterns is improved. These are made for the benefits of the prospective reader’s needs.

**Excerpt 8**

ST: Research and Development research methods, through 4 stages, namely (i) the preliminary research stage, (ii) the model development stage, (iii) the validation stage and (iv) the final model.

TR: This research applies the Research and Development approach through four stages, namely (1) preliminary research, (2) model development, (3) validation, and (4) final model.

**Excerpt 8** shows the misuse of the comma (,), numbering, and repetition of the word “tahap” (step”). The suprasegmental features are then trimmed by correcting how the features are commonly used in English texts except for the italicization capitalization of the words “Research and Development” which has been adopted from the English language. The trimming process, along with the correct use of lexis and sentence structure, has improved the sentence.

3.1.9. Text Readability

As shown in Mujiyanto [6], the readability of the source texts and their trimmed ones’ translations was assessed using the seven readability formulas available in [http://www.readabilityformulas.com](http://www.readabilityformulas.com). They were employed to help determine the grade levels of the two translations. The followings are the seven formulas along with their uses. (1) The Flesch Reading Ease formula provides numbers ranging from 0 to 100: A lower score indicates harder reading and vice versa; (2) The Flesch-Kincaid Grade Level indicates the average reader of the texts; (3) The Fog Scale compares syllables and sentence lengths, a higher score indicates easier reading and the other way round; (4) The SMOG Index indicates the average reader capable of reading the text with minimal difficulties; (5) The Coleman-Liau Index relies on characters: A 10.6 grade implies the text appropriateness for 10-11th graders; (6) Automated Readability Index shows the grade level index needed to comprehend the text: Index 3 implies 3rd graders ability to comprehend the texts; (7) Linsear Write Formula is designed to calculate the grade level of a text based on the sentence length and the number of words containing three or more syllables.

| No | Readability Formulas                  | TL Manuscripts | Quality                  |
|----|---------------------------------------|----------------|-------------------------|
|    |                                       | Original       | Trimmed                 |
| 1  | Flesch Read-ing Ease score            | 48.3           | 51.2 (Fairly) difficult to read |
| 2  | Gunning Fog                           | 11.9           | 11 Hard to read          |
| 3  | Flesch-Kincaid Grade Level            | 9.4            | 8.5 Ninth Grade          |
| 4  | Coleman-Liau Index                   | 9              | 10 Nine (Tenth) Grade    |
| 5  | The SMOG Index                        | 9.1            | 8.3 Ninth (Eight) Grade  |
| 6  | Automated Readability Index           | 6.1            | 5.5 Fifth to Sixth Graders |
| 7  | Linsear Write Formula                 | 7.3            | 5.8 Seventh (Sixth) Grade |
| 8  | Readability Consensus                | 8              | 8 Reading Level: (Fairly) difficult to read; 12-14 yrs. old (Seventh and Eighth graders) |

Table 10 shows that, in general, the trimmed text gives lower scores than the original one, except the Coleman-Liau Index. As for the Flesch Reading Ease score, it is noted that the higher the score of the text, the easier it is to understand. Therefore, by and large, the trimmed text is relatively more readable than the original one meaning that it is more appropriate for college graduates and beyond who are the target readers of the texts. In other words, the trimmed text is more readable than the original one, implying that the trimming of a text prior to its machine translation is needed for ease of understanding.
Table 11. Word Statistics

| No | Characters, Syllables, Words | TL Manuscripts | Original | Trimmed |
|----|-----------------------------|----------------|----------|---------|
| 1  | Total # of words            | 3,292          | 3,191    |         |
| 2  | Total # of unique words     | 27%            | 35%      |         |
| 3  | Average # of words per sentence | 12          | 10       |         |
| 4  | Average # of characters per word | 4.6      | 4.7      |         |
| 5  | Average # of syllables per word | 2         | 2        |         |
| 6  | Percent of double syllables in text | 18%    | 17%      |         |
| 7  | Percent of single syllables in text | 62%    | 62%      |         |
| 8  | Percent of 3+ syllables in text | 21%    | 21%      |         |

The use of these measures also results in word statistics as they are presented in Table 11 showing the situation in which the translation of the original text contains 3,292 words and it's trimmed one 3,191 words. The table also shows that the average number of words per sentence and percent of double syllables in the trimmed text is lower than that of the original one. Besides, the total number of unique words and the average number of characters per word in the trimmed text is higher that that of the original one implying that the trimming process contributes to the standardization of the text. In other words, the trimming process.

4. Discussion

Nord’s [1] introduction to text analysis in translation has triggered many researchers to undertake studies that are focused on the functions as well as the significance of text analysis in translation context. Zlateva’s [21] questions about the reasons, processes, and achievements of the analysis have been answered comprehensively, while. Munday’s [16] explanation about the relations between text analysis and translation has also been answered. Meanwhile, Ayupova’s [22] assessment of text analysis as a step in the pretranslation rendering process and Laviosa’s et al. [23] examination of the source text and its context in translation practices have yielded urgent findings on the importance of source text analysis which is oriented to translation purposes.

Other studies emphasizing the importance of source text analysis by Troque and Marchan [24], Rossetti and Gaspari [24], Laviosa, et al. [23]. Hansen-Schirra, Czulo, and Hofmann [35], Dicerto [26], [27], [28], and Boukhaffa [29] prove that source text analysis which is an integral part of translation practices show nothing more than its role as the preliminary assessment of the source text prior to its rendering to the target language.

The implementation of machine translation that has been studied since more than five decades ago has been shown by Nirenburg, et al. [30], Birch, Osborne, and Koehn [31], and Kastberg [32] who sees the use of machine translation tools for a professional translator. Meanwhile, Lennon’s [33] use of machine translation from the perspective of different cultures and Rozmyslowicz’s [34] study on issues related to the use of machine translation disclose the importance of machine translation even though dependency on human work is still required.

The inevitable use of machine translation tools and language aids in translation undertaking necessitate the translator to trim the source text proceeding the source text analysis and before its machine translation. It is this particular point which has made this study significant to be conducted, assuming that such a supplementary phase triggers sound restructuring texts in the target language.

5. Conclusion

As a crucial phase in the rendering process, source text analysis proposed by Nord [1] is constrained by extra- and intra-textual factors, the latter consisting of subject matter, content, presuppositions, text
composition, non-verbal elements, lexis, sentence structure, and suprasegmental features. Aimed to consider the importance of each of the eight factors, this study find out that source text analysis alone is not adequate to prepare manuscripts written in Indonesian to be rendered into English employing machine translation tools. This has triggered the idea of implementing a process of trimming the manuscripts considering the eight factors. The trimming process, which refers to a process of making a text tidier for inter-lingual machine rendering, is implemented to the texts considering the issues to be more ready for the translation.

Trimming 50 manuscripts in Indonesian for their rendering to English employing machine translation tools, this study disclose several aspects assumed to improve the quality of the manuscripts before their machine translation. The aspects include, among other things, improvement of the eight factors, making the text sound plausible by minimizing redundancies and maximizing clarity as well dependency on the effective uses of macro- and micro-structures of the texts. The trimming process also takes into account the clarity of relations between verbal texts and non-verbal images, the expliciteness in meaning making despite the use of metaphors, parts of speech, connotations, and collocations.

The effectiveness of the trimming process is assessed by comparing the results of rendering the original texts and the trimmed ones in terms of their levels of readability. The comparison employing the readability indices results in evidence that the trimmed text is a bit more readable that the source or original text and there is a reduction of word count. Given that the intra-textual factors are influential in source text analysis for trimming purposes, it is suggestible to consider them as a supplementary procedure for mechanical rendering of academic manuscripts in Indonesian prior to their translation to English.

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