

The Complexity of Relative Clause's Position in Fiction and Non-Fiction Text

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Abstract—Although relative clauses (RC) has been investigated across dozen of studies, how to identify the position of relative pronoun (RP) in several sources when it is undergoes movement leaving an empty space, still very limited. Thus, this study focuses on describing 4 positions (subject of verb, object of verb, object of preposition and possessive of the verb) of RC found in 4 novels as fiction text and compare it 64 articles as non-fiction text from social science and medical science articles. The corpus comprise 2.050.827 words derived from 4 novels and 2.165.636 words derived from 20 social science articles and 44 medical science. The results show that non-fiction text the most number of RC use in the sentences than in fiction sources (1.545 RC in non-fiction text and 1.519 RC in fiction text), but when we pair up it in the distribution of the position of RC in the sentences, we found that both of the text are almost equal (970/903 for subject of verb's position, 451/567 for object of verb's position, 82/59 for object of preposition's position and 16/16 for possessive of the verb's position). RP 'that' were the most frequent position in non-fiction text (1.067 RC), while RP 'which' became the most frequent position in fiction text (820 RC). The high frequency of the use of relative clauses in the sentences both in fiction and non-fiction sources can be related to the needs to refer to theories, concept, data and findings of the study.

Keywords—relative clause; fiction and non-fiction text; novel sources; medical science; social science

I. INTRODUCTION

Besides sentence, clause also can be analysed more specific and complete. Kind of clause that interesting to analyse is relative clause. English encyclopedia stated that "A relative clause (RC) can be defined as a subordinate clause which 'limits the potential reference' of a noun phrase (NP) in its containing clause, by describing a situation in which the referent of the NP participates [1]. Belletti et al. argue that "All relative clauses were semantically reversible (both characters could perform the action as well as receive it) so that the sentence could not be understood on the basis of vocabulary and world-knowledge alone. All the verbs used were simple transitives" [2].

In relative clause, there are the words that can be relative clause marker. Namely: *that*, *which*, *who*, *whom*, and *whose*. Relative clause can be known by looking those words after noun. If a noun that followed by those words, it means that is relative clause. A great variety of proposals as to the surface

constituent structure of restrictive relative clause constructions can be found in the literature [3]. Relativization in languages is a process through which one sentence is embedded in another sentence when the two sentences share the same referential noun or noun phrase [4]. Based on the topic discussed, the structures and the functions of relative clause is very important to analyse. Before writing a text, the structures of relative clause must be known to avoid the mistake grammatically.

Some experts have their own definitions and types about relative clauses. Sneddon stated that one way of adding information about a noun is by incorporating a clause within the noun phrase. This clause is preceded by *yang* in Indonesian and is called a relative clause [5]. Based on his opinion, he divided the types of relative clauses into three parts. Firstly, a defining relative clause is one whose subject corresponds to the head noun of the embedding phrase. A defining relative clause is referred to just as a relative clause, being by far the most common type of relative clause [5]. Secondly, in these constructions the head of embedding phrase is not identical to the subject of the relative clause. Instead, it is identical to the noun in a prepositional phrase within the relative clause [5]. Thirdly, these differ from other relative clauses in that they are not preceded by *yang* in Indonesian. The more traditional construction begins with *tempat*, translated "where" [5]. He also has own description about relative clauses in the noun phrase and in personal pronoun phrases. He said that one way for adding information about a noun is by placing a clause within the noun phrase; this is called a relative clause. A relative clause is always preceded by *yang* in Indonesian [5]. The other is relative clauses in personal pronoun phrases. Sneddon also said that adjectives must be preceded by *yang* in pronoun phrases [5]. This is thus relative clause: *kamu yang pandai*. It was translated into English as you who are clever [5].

The other expert, Radford described relative clause that it contains a relative pronoun (who/whose/which) that 'relates' to an antecedent in a higher clause. Besides, Radford also stated about the other type of relative clause. He said that a type of relative clause which we have not so far looked at are that-relatives [6].

The analysis based on a computerized collection makes the quality of this research better than the other research which without using it. Corpus linguistics is the study of language based on the evidence from large collections of computer-

readable texts and aided by electronic tools [7]. Two important things of corpus linguistics are: first, there appears to be a new focus on spoken language – this is beginning to receive the same sort of attention that the written language has received so far and a second important recent development is a renewed interest in and discussion of questions of methodology [7]. A corpus is ‘a collection of naturally occurring language text, chosen to characterize a state or variety of a language’ as well as ‘a sufficiently large body of naturally occurring data of the language to be investigated’ [8].

The other research that conducted by Dong Wan Cho also concerned into relative clauses. In his research, the corpus-based study presents how English relative clauses are used in science and engineering journal papers. Some unique features of relative clauses used in science and engineering journal papers are identified, such as the frequent use of relative clauses, the high frequency of non-restrictive relative clauses in the papers of *Journal of American Chemical Society* and *Journal of Solid State Circuits*, the high proportion of ‘prepositions + which,’ and the extremely high use of ‘that’ over ‘which’ for restrictive relative clauses [5]. Cho doing comparative corpus-based study and he examine how English relative clauses are used in science and engineering journal papers. Results show the frequent use of relative clauses, and high frequency of non-restrictive clauses. Extremely high use of ‘that’ over ‘which’ for restrictive relative clauses is also found. Cho also suggest that teaching English relative clauses are provided for pedagogical purposes [4]. In his research, the focus is in science and engineering journal papers, but this research concerned to analyse and to classify the positions of relative clauses in fiction (English novel) and non-fiction text (social and medical science articles).

Likewise, Mahand concerned into relative clause research, he presents how “the current corpus-based study of relative clause extraposition attempts to test the prediction of these different motivations in Persian [9]. Using logistic regression analysis, the effects of these various factors on the extraposition of relative clauses are investigated. The findings revealed that, among different influential sources, grammatical weight is the main factor influencing extraposition of relative clauses. Verb class and information status are found to be lower ranked factors, respectively. The analyses demonstrated that with a special verb class, i.e. linking verbs, which predominantly carries given information in discourse, relative clause extraposition happens more freely” [9]. Mahand’s research concerned on the extraposition of relative clauses, but this research focused to the positions of relative clause (subject of verb, object of verb, object of preposition and possessive of the verb) [9].

Several studies have shown that the relative clause discussion became complicated with several related topic. Levy found that “four self-paced reading experiments on the online comprehension of Russian relative clauses together with related corpus studies, taking advantage of Russian’s flexible word order to disentangle predictions of competing theories [10]. We find support for key predictions of memory-based theories in reading times at RC verbs, and for key predictions of expectation-based theories in processing difficulty at RC-initial accusative noun phrase (NP) objects, which corpus data

suggest should be highly unexpected” [10]. Although the research uses corpus, it only focuses on key predictions of memory-based theory in reading time on RC verbs, and for key predictions of hope-based theory in processing difficulties in RC initial accumative noun (NP) phrase objects. In this study also uses the corpus as a method in collecting data, but this research tried to focus on the position of the relative clause found in fiction and non-fiction texts.

Likewise, Adani found that “number conditions are always more accurate than Gender ones, showing that intervention is sensitive to DP-internal structure when we learn about relative clause produce by Italian children”. In Adani’s research, the condition of numbers in a study is very important, as is the case with this study which seeks accurate numbers or frequencies that can compare the frequency of occurrence of relative clauses between fiction and non-fiction texts [11].

Chen presents an experiment that compared high and low working memory span readers’ abilities to process Chinese subject-relative and object-relative clause structures in a self-paced reading paradigm [12]. Comprehension performance results indicated that the object-relative structure was easier to understand than the subject-relative structure. Reading time results showed that participants with low working memory span read the subject-relative structures more slowly than the object-relative structures, but there was no reading time difference for the high working memory span participants. The experiment provides further evidence that the Chinese subject-relative clause structure is more difficult to process than the Chinese object-relative clause structure, especially for low working memory span individuals. Furthermore, his results support a syntactic storage account of the observed complexity difference [12]. Chen’s research found that the structure of the Chinese relative-subject clause was more difficult to process than the Chinese object-relative clause structure, especially for individuals with low working memory ranges, but in this study focused more deeply on the position of the relative clause such as subject of verb, object of verb, object of preposition and possessive of the verb [12].

Belletti assessed the effect of gender morphology on children’s comprehension of object relatives in Hebrew and Italian [2]. He compared headed object relative clauses in which the relative head (the moved object) and the intervening embedded subject have the same or different genders. The participants were 62 children aged 3;9–5;5, 31 speakers of Hebrew and 31 speakers of Italian. The comprehension of relative clauses was assessed using a sentence–picture matching task. The main result was that whereas gender mismatch sharply improved the comprehension of object relatives in Hebrew, it did not significantly affect comprehension in Italian. Under the assumption that intervention effects are amenable to the locality principle Relativized Minimalist, it is expected that only features functioning as attractors for syntactic movement will enter into the computation of intervention. He account for the different effect of gender mismatch in object relative comprehension in the two developing systems. Thus, the main finding of this work is comparative in nature: there is no effect of gender per se; rather, the potential effect of gender is crucially modulated by the morphosyntactic status of the feature in each language

[2]. In previous studies, Belletti attempted to examine the relationship of language to gender especially in the relative clauses of head objects, but in this study, the relative clause was studied from a linguistic perspective [2].

II. RESEARCH METHODOLOGY

Several research on relative clause study using different methodology in doing their research. Botwinik using four groups of participants: three groups of PA-speaking children, aged 3;0--4;0 (Threes),5;1--5;11(Fives) and 8;1--9;0 years (Eights) ,with 20 participants each, and one control group of 10 PA-speaking adults in doing the research [13]. While this research, the data sources of this research were taken from fiction and non-fiction text. For fiction text, it was used 4 English novels. For non-fiction text, it was used 64 articles of international journal. They are 20 social science articles and 44 medical science articles. It can be described as follows:

TABLE I. DATA SOURCES

No.	Kinds of Text	Source	Number of novels	Number of words
1.	Fiction Text	English Novel	4	2.050.827
2.	Non-Fiction Text	Social Science Article	20	1.149.630
		Medical Science Article	44	1.016.006

Corpus linguistics is used as the method of collecting data. Corpus linguistics used an application in computer. It is AntConc3.2.4w2011. When using corpus, it is needed to use some words as triggers in the application. Those words that used are *that*, *which*, *who*, *whom*, and *whose*. Especially for the word *that*, it was found the other functions besides relative clause. They are *that* as determinant and *that* as subordinate. The number of *that* which is used in this research are 65 in fiction text and 304 in non-fiction. Then, the data were moved to Microsoft excel to analyse easily. By using Microsoft excel, the data can be classified based on their positions (subject of verb, object of verb, object of preposition and possessive of the verb) in a sentence.

III. RESULTS AND DISCUSSION

A. The Use of Relative Clauses in Fiction and Non-Fiction Text

Based on the method mentioned in the previous section that the data figure 1.

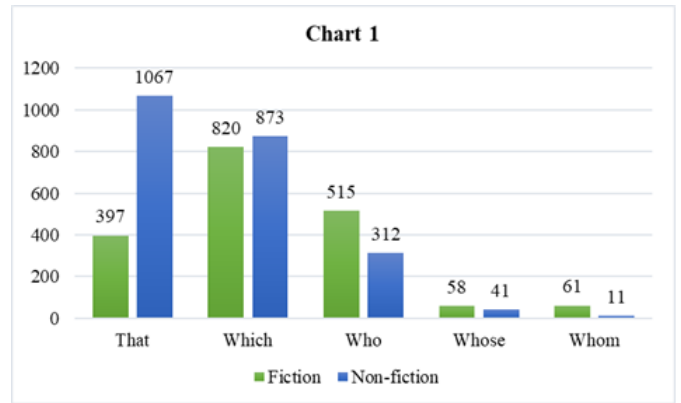


Fig. 1. The use of relative clauses in fiction and non-fiction.

From the figure 1, it can be seen that relative pronoun which was taken from non-fiction text (some social science articles and some medical science articles) have larger number of relative clause marker (2.304) than fiction text (some English Novel) (1.851).

1) Fiction text

- Those are the only results *that* you will ever see. (1984.txt)
- Relative clause marker used in this sentence is *that*. The data was found as fiction text in an English Novel.

2) Non-fiction text

- The survey revealed that these young adults, *who* had grown up with patriotism education, have a unique conception of patriotism. (1149-1672-1-PB.txt)
- Relative clause marker used in this sentence is *who*. The data was found as non-fiction text in a Social Science Article.

B. The Position of Relative Clauses in Fiction and Non-Fiction Text

Relative clauses are embedded phrases that modify an NP. In their simplest form, they are headed by relative pronouns such as ‘which’, ‘who’, ‘whose’, ‘whom’, and ‘that’, which can originate in various positions within the clause. Wh relative pronouns move from their position in deep structure to [spec, CP] leaving a ‘gap’. Different types of relative clauses include: subject, object, oblique, or genitive. Examples: Subject: The woman [who__bought flower] is my aunt. Object (transitive verb). The man [who I saw__] is famous actor. Object (ditransitive verb): She is the girl [who I gave a book to __] oblique. The friend [who I told you about__] got a new apartment. Genitive: The neighbor [whose dog I walk__] is moving. The relative pronoun ‘that’ differs from Wh pronouns in that it does not undergo movement. Instead, it originates and remains at C (head of CP). In this case, an empty operator (OP) is needed to fill the gap position. Examples: Subject: The dog [that OP buried his bone] forgot where it was. Object (transitive): The author wrote a book [that his publisher liked OP]. Object (intransitive): She liked the present [that we gave OP to her]. Note that sometimes relative pronouns are missing, especially in natural speech (e.g. The friend I told you about,

the dog I saw last week. In this exercise we will use overt relative pronouns. For each sentences below, draw the syntactic tree.

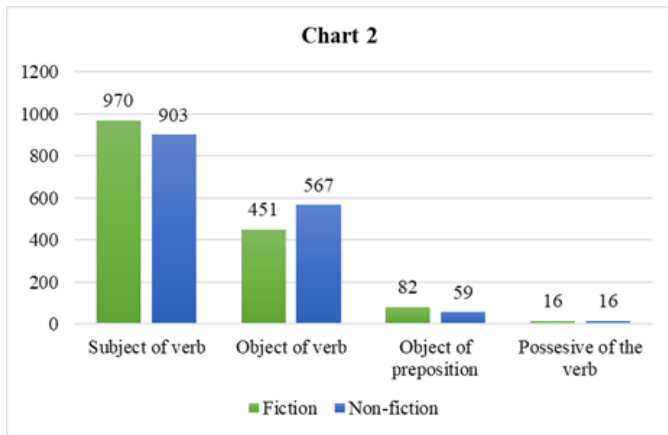


Fig. 2. The position of relative clauses in fiction and non-fiction text.

Based on the figure 2, it was found 4 positions of relative clause which found in fiction text and non-fiction text. The most position in fiction text and non-fiction text are same. That is subject of verb. For object of verb, non-fiction text (567) has larger number than fiction text (451). For possessive of the verb, they have same number (16/16).

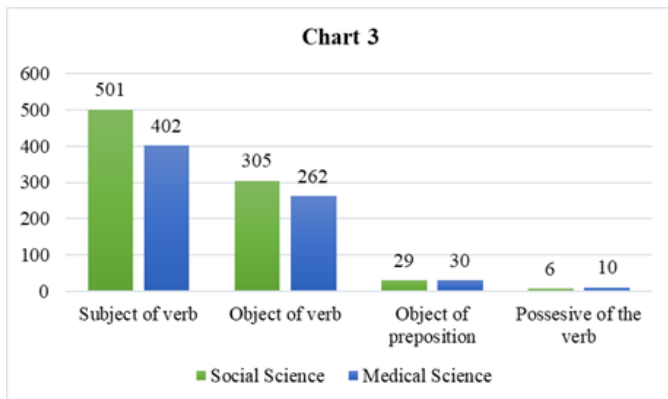


Fig. 3. The position of relative clauses in social science and medical science articles.

The chart 3 shows the number of relative clause's positions in non-fiction text (social science articles and medical science articles). The number of relative clause found in social science articles (841) is larger than medical science articles (704). For subject of verb and object of verb, \social science articles still has larger number than medical science articles.

The chart 3 presents the position of relative clauses in the sentences.

1) The positions of relative clause

a) Fiction text

- A blond-headed, silly-faced young man named Wilsher, whom he barely knew, was inviting him with a smile to a vacant place at his table. (1984.txt) (**Subject of verb**, 'Whom' refers to 'A blond-headed, silly-faced young

man named Wilsher' which is the subject of the verb 'knew')

- The positions of trust were given only to the common criminals, especially the gangsters and the murderers, who formed a sort of aristocracy. (1984.txt) (**Object of the verb**, 'Who' refers to 'the gangsters and the murderers' which is the object of the verb 'were given')
- The next moment, it was hard to say by whose act, she was in his arms. (1984.txt) (**Object of preposition**, 'Whose' refers to 'act', which is the object of the preposition 'by')
- There was something about him that always got her going. (A novel by - Jeffrey Carver.txt) (**Possesive of the verb**, 'That' refers to 'him', which is the possessive of the verb 'got')

b) Non-fiction text

- According to Chopra4, large quantity of mucilage which acts as demulcent that is effective in diarrhoea is present in the fruit's pulp. (35872-127412-3-PB.txt) (**Subject of verb**, 'Which' refers to 'large quantity of mucilage' which is the subject of the verb 'acts')
- On the other hand, this approach will benefit non-affluent people who commonly get their health needs from public sector. (325-1-522-1-10-20180327.txt) (**Object of the verb**, 'Who' refers to 'non-affluent people' which is the object of the verb 'will benefit')
- with teachers in all subjects on the program in primary and secondary school, including three high school history teachers, with whom we explored the issue of the purposes and the social context of history education. (85-1768-2-PB.txt) (**Object of preposition**, 'Whom' refers to 'three high school history teachers', which is the object of the preposition 'with')
- They are emerging nosocomial pathogens and every effort should be made for prevention and control of infections caused by them which depends on practices of effective hospital infection control measures and minimization of risk factors. (13452-46148-1-SM.txt) (**Possesive of the verb**, 'Which' refers to 'them', which is the possessive of the verb 'depends')

IV. CONCLUSION

After the text edit has been completed, the paper is ready for the template. Duplicate the template file by using the Save As command, and use the naming convention prescribed by your conference for the name of your paper. In this newly created file, highlight all of the contents and import your prepared text file. You are now ready to style your paper; use the scroll down window on the left of the MS Word Formatting toolbar.

Based on the discussion above, non-fiction text the most number of RC use in the sentences than in fiction sources (1.545 RC in non-fiction text and 1.519 RC in fiction text), but when we pair up it in the distribution of the position of RC in

the sentences, we found that both of the text are almost equal (970/903 for subject of verb's position, 451/567 for object of verb's position, 82/59 for object of preposition's position and 16/16 for possessive of the verb's position). RP 'that' were the most frequent position in non-fiction text (1.067 RC), while RP 'which' became the most frequent position in fiction text (820 RC). The high frequency of the use of relative clauses in the sentences both in fiction and non-fiction sources can be related to the needs to refer to theories, concept, data and findings of the study.

REFERENCES

- [1] E.L. Keenan, "Relative clauses," *Language Typology and Syntactic Description*, 2(c), 141–170, 1985.
- [2] A. Belletti, N. Friedmann, D. Brunato, and L. Rizzi, "Does gender make a difference? Comparing the effect of gender on children's comprehension of relative clauses in Hebrew and Italian," *Lingua*, vol. 122, no. (10), pp. 1053–1069, 2012.
- [3] J.D. McCawley, "c' DeA7 Je NAS," *Lingua*, vol. 53, 1980.
- [4] D.W. Cho and K. Lee, "English relative clauses in science and engineering journal papers: A comparative corpus-based study for pedagogical purposes," *Ampersand*, vol. 3, pp. 61–70, 2016.
- [5] J.N. Sneddon, *Indonesian Reference Grammar (Second Edi)*. China: Everbest Printing Co, 2010.
- [6] A. Radford, *Minimalist Syntax: Exploring The Structure of English (First Edit)*. Cambridge: Cambridge University Press, 2004.
- [7] W. Teubert and R. Krishnamurthy, *Corpus Linguistics Vol. I (First Edit)*. New York: British Library, 2007.
- [8] A.C. Frutos, "A corpus-based genre study of instruction manuals for household appliances," *Procedia-Social and Behavioral Sciences*, vol. 198(Cilc), pp. 103–111, 2015.
- [9] M. Rasekh-Mahand, M. Alizadeh-Sahraie, and R. Izadifar, "A corpus-based analysis of relative clause extraposition in Persian," *Ampersand*, vol. 3, pp. 21–31, 2016.
- [10] R. Levy, E. Fedorenko, and E. Gibson, "The syntactic complexity of Russian relative clauses," *Journal of Memory and Language*, vol. 69, no. (4), pp. 461–495, 2013.
- [11] F. Adani, H.K.J. van der Lely, M. Forgiarini, and M.T. Guasti, "Grammatical feature dissimilarities make relative clauses easier: A comprehension study with Italian children," *Lingua*, vol. 120, no. (9), pp. 2148–2166, 2010.
- [12] B. Chen, A. Ning, H. Bi, and S. Dunlap, "Chinese subject-relative clauses are more difficult to process than the object-relative clauses," *Acta Psychologica*, vol. 129, no. (1), pp. 61–65, 2008.
- [13] I. Botwinik, R. Bshara, and S. Armon-Lotem, "Children's production of relative clauses in Palestinian Arabic: Unique errors and their movement account," *Lingua*, vol. 156, pp. 40–56, 2015.