LINGUISTIC INTERPRETATIONS OF TEXT BASED ON SYSTEMIC CODING

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Abstract

This article is a short and simple discussion of how someone should use Systemic Coder in order to linguistically analyze a text. Understanding of certain linguistic theories is a must for those who may conduct a linguistic analysis with this product of computational linguistics. They must decide the unit of analysis, design the scheme, do the coding, and provide the interpretation, which are all based on linguistic theories. Explanation of how Systemic Coder is applied in order to help interprete a text and the SFG-based interpretation of text is provided in the discussion.

Key words: *Systemic Coder, linguistic interpretation, computational linguistics, SFG*

A. Introduction

Understanding and interpreting texts could be a routine for anyone in his daily life. A university student, for example, must read and try to understand and interprete what he or she reads, which could be a part of literary work, film review, poem, lyric, or a letter to the editor, etc. This student may tend to use his or her intuition in order to understand the text though such intuitive understanding is less linguistically supported.

Such an intuitive understanding was so far developed by students because they have not known the linguistically accepted way of understanding a text. Students of English, especially, should be able to move from an intuitive way of understanding a text into a linguistic way of understanding a text because they enroll themselves in Introduction to Discourse Analysis – a subject that may help students to gain a competence in linguistically understanding and interpreting a text. There are many different ways of understanding and interpreting a text under the subject of Introduction to Discourse Analysis (Schiffrin, 1994). One of them is by employing the theory of Systemic Functional Grammar.

Systemic functional grammar or SFG (Halliday, 1985) considers language as a resource for making meaning, thus, ideational/experiential meaning, interpersonal meaning, and textual meaning (Eggins, 1994). Therefore, by employing the theory of SFG a student can interprete the meaning or message of a text based on those three strands of meaning. Ideational meaning indicates an individual experience and is realized in the Process which could be categorized as doing, happening, being, having, thinking, or saying. Interpersonal meaning indicates an individual interactive interaction with language as is realized in Mood. Textual meaning, on the other hand, is the accommodation of the previous two meanings in a cohesive discourse and is realized in Theme (Halliday, 1985; Eggins, 1994; Gerot and Wignell 1994).

This may mean that in order to interprete a text, a student needs to segment the text into its unit of analysis. The next step is coding the segments based on the theory of SFG. Manual coding could be a real problem when the text is long. However, the existence of computational linguistic software, Systemic Coder could be of help for segmenting and coding the text to be interpreted so long as they are based on the theory

of SFG. The questions are: (1) how is Systemic Coder applied in order to help interprete text? (2) what is the SFG-based interpretation of text like?

This article, therefore, tries to explain (1) how Systemic Coder is applied in order to help interprete text, (2) what the SFG-based interpretation of text is like.

The discussion related to the topic of this article is meant to (1) publicly inform about the application of Systemic Coder in analyzing a text based on SFG theory; (2) publicly inform about the existence of computational linguistic software, Systemic Coder which could used to analyze a text; (3) provide critical opinion and point about the importance of merging the development and advancement of information and computer technology and linguistics or applied linguistics in order to encourage the development of computational linguistics; (4) encourage people to develop a model text analysis which is based on a certain linguistic theory; (5) provide a preliminary discussion about the application of Systemic Coding in analyzing a text based on SFG theory; (6) provide an understanding that interpreting a text could be accomplished by employing Systemic Coder and the theory of SFG.

B. Theoretical Framework

Text

Based on the theory of literacy, a text may mean an object to read, a part of literary work, a traffic sign, a design of a building, clothes, etc. According to Lotman (2014) a text is a coherent set of signs that transmits some kind of informative message. This set of symbols is considered in terms of the informative message's content, rather than in terms of its physical form or the medium in which it is represented. A text must be coherent that it be written based on the correct convention, such as (a) a text must be written based on a certain genre, (b) the paragraphs contained must also be written on the basis of linguistically accepted paragraph development, (c) a text must communicate the three different strands of meaning.

Genre

Genre is a text type which is written based on a certain scaffolding or structure. According to Martin (1992), Halliday (1985), dan Eggins (1994) scaffolding is a step-by-step organization of a text. Based on how a text is organized, people may recognize many academic text types, such as recount, descriptive, spoof, narrative, explanation, procedure, discussion, exposition. (Gerot and Wignell, 1994).

Besides social functions, academic texts also communicate messages or meanings recognized in SFG as ideational meaning, interpersonal meaning, and textual meaning.

Paragraph

A paragraph is a unit of a discourse which uses language to express thoughts or messages in a certain topic or theme. Therefore, a paragraph usually consist of several senences, beginning with a topic sentence and followed by sentences which function as supporting details and tied up in a unity, coherence, and completeness. Akhadiah et. al. (1991) explain that a piece of writing can be considered as a paragrapgh only when it fulfills the elements of unity, coherence, and completeness. Unity refers to the one topic or theme. This means that a paragraph should be developed on the basis of the content of the topic sentence. Coherence means that a paragraph must be written or organized on the basis of a paragraph structure or the genre of a paragraph. Thus, a paragraph must be organized by providing sentences which function as supporting details under the category of elaboration, extention, and enhancement (Halliday, 1985). Completeness

relates to the sufficient explanation contained in the supporting sentences and their ability in describing or explaining the topic sentence.

According to Ramlan (1993) the topic sentence of a paragraph is put at the beginning or at the end of a paragraph. The supporting details, which are usually categorized an elaboration, extention, and enhancement (Halliday, 1985), contain sentences which function to provide clarification, description, or explanation of the topic sentence of a paragraph. The concluding sentence is the sentence which usually ends the paragraph and functions to tie up the whole paragraph and to convince the readers about the important things in the paragraph.

A paragraph development is an important aspect in academic writing. This may mean that students should be introduced with different procedures of developing a paragraph. According to Tarigan (1998) there are ten procedures of developing a paragraph: (1) point of view, (2) climax and anticlimax, (3) extended definition, (4) classification, (5) comparison or contrast, (6) analogy, (7) cause or effect, (8) general-specific, (9) example, and (10) process.

1. Point of view means developing a paragraph based on the writer's points of view at the moment of writing a paragraph.
2. Example or illustration is a paragraph development which focuses on providing examples in the supporting details.
3. Process is a paragraph development which focuses on providing direct and step-by-step descriptions about the topic sentence.
4. Extended definition is a paragraph development which focuses on providing information or explanation about a certain terminology.
5. Comparison and contrast is a paragraph development which focuses on providing comparisons between two different things or objects.
6. Classification is a paragraph development which focuses on providing the supporting sentences which classify items or objects based on their characteristics or basic nature.
7. Cause and Effect is a paragraph development which explains an event or happening and why it happens.
8. Analogy is a paragraph development which provides an analogy of something or event with another.
9. Reason is a paragraph development which focuses on the process of reasoning in order to decide the conclusion (deductive reason) or in order to decide the rules (inductive reason).
10. Detail is a paragraph development which focuses on providing the elaboration, extension, and enhancement of the topic sentence.

The three strands of meaning in SFG

Every text or paragraph, no matter the genre is, its language always conveys certain messages or meanings because according to Halliday (1985) and Eggins (1994) language is a resource for making meaning. This could mean that the clauses used in a text or paragraph always convey three different interrelated strands of meaning. Those messages or meanings are understood and ideational meaning, interpersonal meaning, and textual meaning (Halliday, 1985).

Ideational meaning expresses experience. Interpersonal meaning expresses interaction with language. Textual meaning expresses how both experience and interaction with language are accommodated in a cohesive discourse. In ideational

meaning, a clause is considered as a representation because it represents experience, such as inner world of experience, outer world of experience, verbal experience, etc. and is identified or recognized in transitivity system with such elements as Participant, Process, dan Circumstance. In interpersonal meaning, a clause is considered as an exchange that it indicates interaction with language, thus, a clause indicates how participants in the interaction develop and build their interpersonal attitudes as for being involved in the interaction. This is identified and recognized through the system of mood. In textual meaning, a clause is considered as a message. This could mean that a message is organized through the selection of themes and is realized in the system of theme.

Coder

Coder is a product of computational linguistics which functions to help users to conduct a linguistic analysis right after the system is built or developed by the users. The software can work in Windows, Unix, or Linux and has the following interface:

1. Text segmentation, functions to segment a text in its unit of analysis (clause, sentence, etc).
2. Scheme management, functions to formulate the system which is intended to accomplish the linguistic analysis.
3. Coding, functions to label the segment which was based on the unit of analysis and under the adopted linguistic theory.
4. Review, functions to explore the data in details but based on the linguistic theory formulated in the system.
5. Statistics, functions to display the data in statistical calculation which is based on the linguistic theory formulated in the system.

(O'Donnell, 2002)

This Systemic Coder software was firstly developed by Fujitsu (Jepang) for the sake of analyzing discourses. Then, O'Donnell (2002) develops the software for the sake of analyzing texts under the theory of SFG.

C. The application of Systemic Coder in interpreting a text

In interpreting a text on the basis of SFG theory, people need to segment the text into the unit of analysis – clause. This can be done by using the Systemic Coder software.

The text segmentation interface of the software allows users split a newly imported plain-text file into the segments they wish to code. The same interface allows them to change segment boundaries even after they have started coding. Initially, an imported text is treated as a single segment. Users can then click at the places they want segment boundaries to be made, thus, at the unit of analysis.

Figure: Text Segmentation Interface

The above figure shows the Text Segmentation Interface. The text is shown in the main text window, and on the left are a number of buttons (the toolbar). These buttons are either mode buttons (which change how you interact with the text window) or action buttons (which actually do something directly).

The segmentation interface allows two modes of interaction: Segment mode and edit mode. Segment Mode allows users to click on the text window that will produce a new segment divider at the point where they click. If there is already a segment marker at that point, it is deleted. Edit Mode allows users to edit the text as in a normal text edit window.

The two action buttons are paragraphs and sentences. The paragraphs button produces a segment boundary at each double paragraph mark in the text. The sentences button produces a segment boundary after each end of sentence.

The next step is managing the scheme. After users have segmented the text, they will need to provide a scheme (unless they specified an existing scheme when they loaded the text/codings). Users can click on the Scheme button on the top toolbar to change to the Scheme Management interface. They will be presented with something like the following.

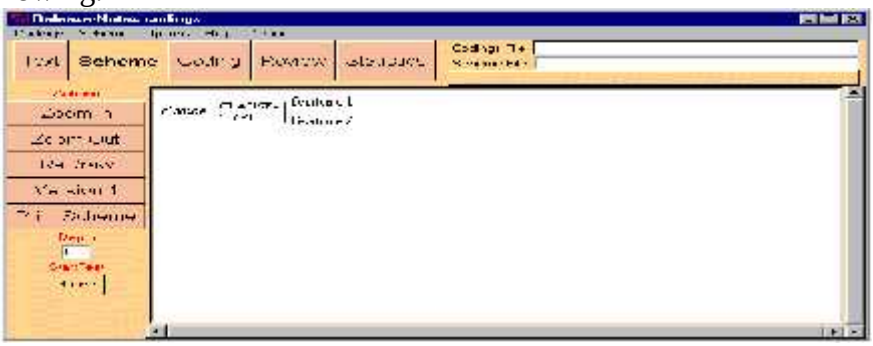
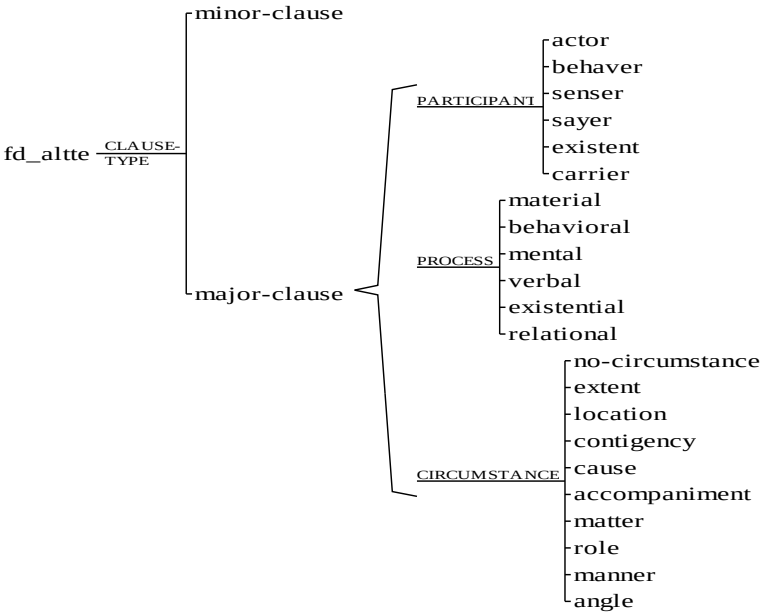
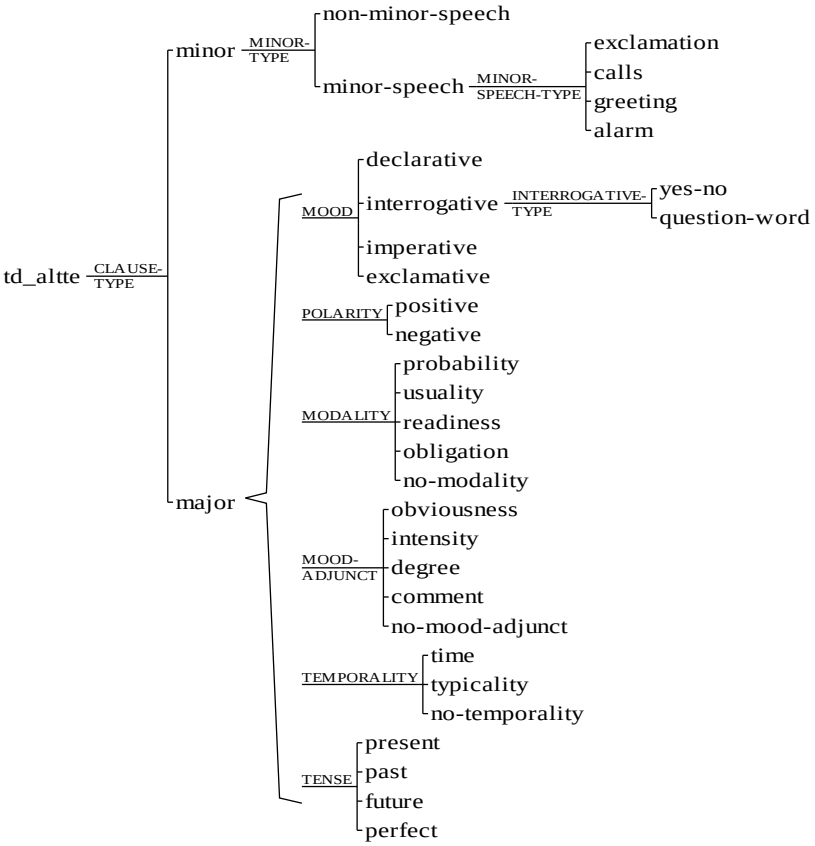


Figure: The Scheme Interface with a new scheme

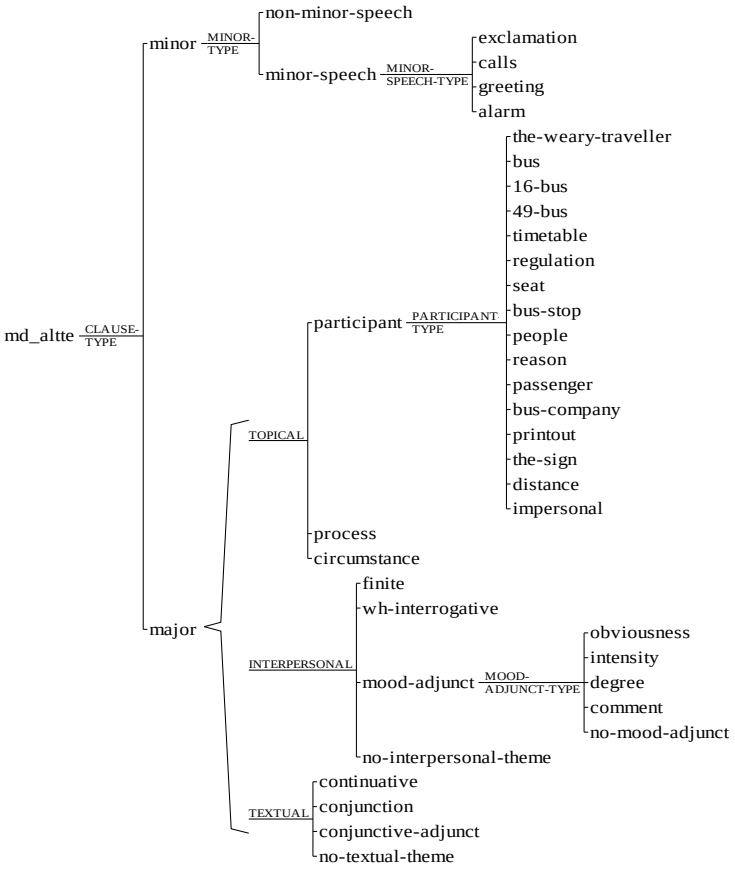
When importing the text file, the program asked users to specify a feature to describe all units (clause) they are coding. Users now have to enter a coding scheme, the heirarchical organization of the features they wish to use to code their text. The system starts with a minimal 'dummy' scheme, which users have to modify and extend to make their scheme. The scheme for analyzing clause as representation could be represented as follows:



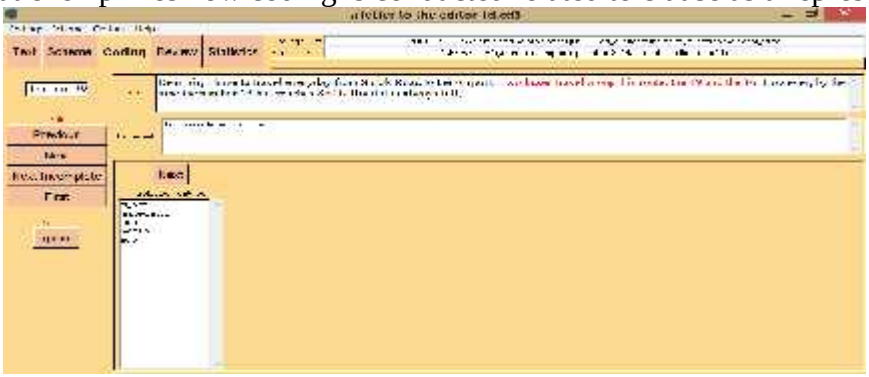
The scheme for analyzing clause as exchange could be represented as follows:



The scheme for analyzing clause as message could be represented as follows:

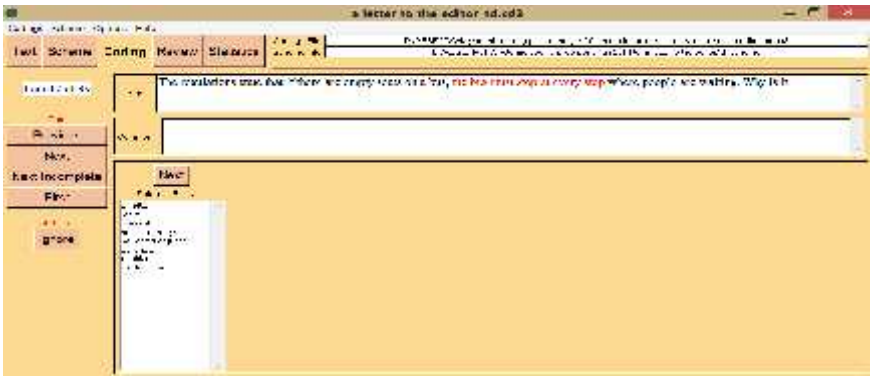


When the scheme has been made, the next step is coding the segments. Below is a figure that exemplifies how coding is conducted related to clause as a representation.



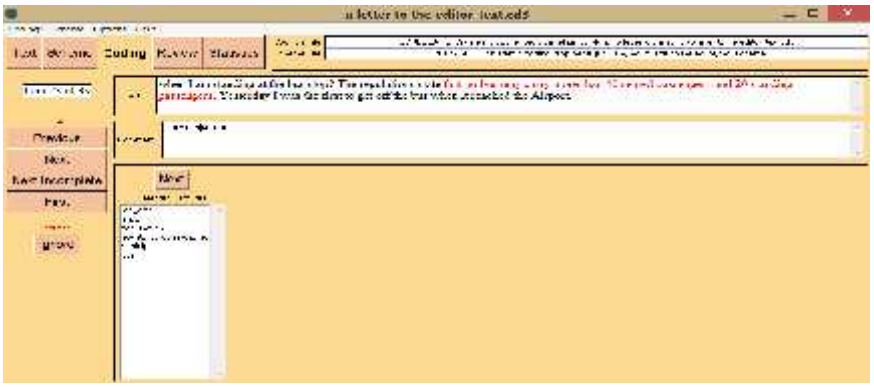
The clause *Two buses travel along this route: the 49 and the 16*, which is red highlighted, is coded as (a) a major clause, (b) actor for *the two buses*, (c) material process for *travel*, (d) *location for along this route*.

Below is a figure that exemplifies how coding is conducted related to clause as an exchange.



The clause *the bus must stop at every stop*, which is red highlighted, is coded as (a) a major clause, (b) declarative, (c) present time, (d) positive polarity, (e) obligation for the modulation *must*.

Below is a figure that exemplifies how coding is conducted related to clause as a message.



The clause *that no bus may carry more than 40 seated passengers and 20 standing passengers*, which is red highlighted, is coded as (a) a major clause, (b) textual theme for conjunction *that*, (c) topical theme for participant *bus*.

The review interface is as follows:

This step lets the user to check if everything is on the right track, meaning that everything is based on SFG theory. If everything is as intended, then, users may proceed to the statistical calculation. The sample results of statistical calculation could be presented as follows:

The Descriptive Statistics for Clause as representation

Descriptive Statistics for file: C:/Users/liliek soepriatmadji/Desktop/systemic coding prop penel jun 2014/a letter to the editor.cd3.
Date: 25 Juni 2014 17:43:10
Filter:
Counting: Global

System	Feature	N	Mean
CLAUSE-TYPE	minor-clause	5	12.8%
	major-clause	34	87.2%
PARTICIPANT	actor	16	41.0%
	behaver	0	0.0%
	senser	0	0.0%
	sayer	5	12.8%
	existent	3	7.7%
	carrier	10	25.6%
PROCESS	material	16	41.0%
	behavioral	0	0.0%
	mental	0	0.0%
	verbal	5	12.8%
	existential	3	7.7%
	relational	10	25.6%
CIRCUMSTANCE	no-circumstance	13	33.3%
	extent	1	2.6%
	location	15	38.5%
	contigency	0	0.0%
	cause	0	0.0%
	accompaniment	1	2.6%
	matter	2	5.1%
	role	0	0.0%
	manner	1	2.6%
	angle	1	2.6%

The Descriptive Statistics for Clause as exchange

Descriptive Statistics for file: C:/Users/liliek soepriatmadji/Desktop/systemic coding prop penel jun 2014/td_a letter to the editor/a letter to the editor_td.cd3.
Date: 25 Juni 2014 20:39:02
Filter:
Counting: Global

System	Feature	N	Mean
CLAUSE-TYPE	minor	5	12.8%
	major	34	87.2%
MINOR-TYPE	non-minor-speech	3	7.7%
	minor-speech	2	5.1%

MINOR-SPEECH-T	exclamation	0	0.0%
	calls	1	2.6%
	greeting	1	2.6%
	alarm	0	0.0%
MOOD	declarative	31	79.5%
	interrogative	3	7.7%
	imperative	0	0.0%
	exclamative	0	0.0%
INTERROGATIVE-	yes-no	1	2.6%
	question-word	2	5.1%
POLARITY	positive	30	76.9%
	negative	4	10.3%
MODALITY	probability	2	5.1%
	usuality	2	5.1%
	readiness	0	0.0%
	obligation	4	10.3%
	no-modality	26	66.7%
MOOD-ADJUNCT	obviousness	1	2.6%
	intensity	0	0.0%
	degree	0	0.0%
	comment	0	0.0%
	no-mood-adjunct	33	84.6%
TEMPORALITY	time	0	0.0%
	typicality	0	0.0%
	no-temporality	34	87.2%
TENSE	present	26	66.7%
	past	7	17.9%
	future	0	0.0%
	perfect	1	2.6%

The Descriptive Statistics for Clause as message

Descriptive Statistics for file: C:/Users/liliek soepriatmadji/Desktop/systemic coding prop penel jun 2014/md_a letter to the editor/a letter to the editor_text.cd3.
Date: 26 Juni 2014 17:15:25
Filter:
Counting: Global

System	Feature	N	Mean
CLAUSE-TYPE	minor	5	12.8%
	major	34	87.2%
MINOR-TYPE	non-minor-speech	3	7.7%
	minor-speech	2	5.1%
MINOR-SPEECH-T	exclamation	0	0.0%
	calls	1	2.6%

	greeting	1	2.6%
	alarm	0	0.0%
TOPICAL	participant	31	79.5%
	process	0	0.0%
	circumstance	3	7.7%
PARTICIPANT-TY	the-weary-traveller	5	12.8%
	bus	5	12.8%
	16-bus	4	10.3%
	49-bus	3	7.7%
	timetable	2	5.1%
	regulation	2	5.1%
	seat	0	0.0%
	bus-stop	0	0.0%
	people	1	2.6%
	reason	0	0.0%
	passenger	1	2.6%
	bus-company	3	7.7%
	printout	1	2.6%
	the-sign	1	2.6%
	distance	1	2.6%
	impersonal	2	5.1%
INTERPERSONAL	finite	1	2.6%
	wh-interrogative	2	5.1%
	mood-adjunct	2	5.1%
	no-interpersonal-th	29	74.4%
MOOD-ADJUNCT-T	obviousness	1	2.6%
	intensity	0	0.0%
	degree	0	0.0%
	comment	1	2.6%
	no-mood-adjunct	0	0.0%
TEXTUAL	continuative	0	0.0%
	conjunction	14	35.9%
	conjunctive-adjunct	0	0.0%
	no-textual-theme	20	51.3%

D. SFG-based interpretation of text

The three different strands of meaning as are explained under the theory of SFG can be linguistically construed. Butt (2000) states that a text always implies field of the discourse, tenor of the discourse and mode of the discourse. He further explains that field of the discourse conveys (1) experiential domain, (2) short term goal, and (3) long term goal. Tenor of the discourse conveys (1) societal role, (2) power or status and (3) social distance. Mode of the discourse conveys (1) role of language, (2) type of interaction, (3) medium and channel, and (4) rhetorical thrust.

The following is an example of how an English text is interpreted linguistically under the theory of SFG right after it is being analyzed with Systemic Coder software.

Text: FILM REVIEW

Danger in the Desert

The new film at the Paramount Cinema this week is Sahara Safari, produced and directed by Anthony Faith and starring Mark Manly and Gloria Gosh.

The film tells the story of Professor Brain (Mark Manly) and his assistant Diana Hope (Gloria Gosh) who set out from Cairo to explore the interior of the Sahara Desert. Professor Brain, an archeologist, is searching for the lost city of Tumtomcapal. Everything goes wrong for the explorers. Their truck breaks down, and they are attacked and captured by bandits. Professor Brain breaks a leg while trying to escape.

Eventually he persuades the bandits to be of help to him in finding the lost city. He gains their assistance by telling them there is gold buried beneath the city. After many days of travelling, the city is discovered. However, it is guarded by more bandits. During the fierce battle between the two groups of bandits, Professor Brain and his assistant steal two camels and escape.

Sahara Safari is nonsense from the start to the finish and both Mark Manly and Gloria Gosh give hopeless performances. The film is worth seeing, however, for the very fine technicolour photography of the Sahara Desert.

(Soepriatmadji, 2014)

The field of the discourse (Film Review) can be explained from the analysis of clause as representation as follows:

The experiential domain of the FILM REVIEW text is *two main characters of a film experiencing some fierce and dangerous incidents on their way from Cairo to Sahara Dessert in their effort to explore the interior of the Desert*. Their experience is elaborated in mostly material processes such as *set out, search, attack, capture, break, escape* etc. **The immediate purpose** of the text production is *to illustrate that the film is full of challenge and action that may endanger the actors*. This can be seen from the semantic property of the material processes (such as: *attack, capture, break, escape*) being used in the film review text. **The long-term goal** is *to tell people that they must make efforts to get something done for them.* This is implicitly picturized in the film review text. You can also say that the long-term goal is as in a proverb "*Kill the bear before you sell the skin*", that is you have to do something as your effort before you really achieve it.

The experiential meaning of the FILM REVIEW text is developed particularly by introducing Sahara Safari in a Relational Process *is* as in *The new film at the Paramount Cinema this week is Sahara Safari* which provides identification to the new film being reviewed. It then moves to Material Processes, which dominate the whole text, to introduce the dangerous activities, challenges and actions undergone by the actors. This means that the text encodes events, goings on, or doings rather than expressing the beings and in the internal world of cognition or perception. To end the film review text the text writer again presents Sahara Safari in a Relational Process *is* as in *The film is worth seeing,…* to construe the relationship of being between the participants.

Here is another example of how an English text is interpreted linguistically under the theory of SFG right after it is being analyzed with Systemic Coder software.

Text: LETTER TO THE EDITOR

Bus Services

Dear Sir,

I have to travel everyday from So Uk Road to the Airport. Two buses travel along this route: the 49 and the 16. However, by the time the number 16 bus reaches So

Uk Road it is always full, so it is of no use to me. This leaves the 49, which sometimes has empty seats on it.

The timetable states that there are buses from So Uk Road to the Airport every ten minutes. If this is so, why do I have to wait half an hour for a bus nearly everyday?

The regulations state that if there are empty seats on a bus, the bus must stop at every stop where people are waiting. Why is it that half-empty buses go straight past me when I am standing at the bus stop?

The regulations state that no bus may carry more than 40 seated passengers and 20 standing passengers. Yesterday I was the first to get off the bus when it reached the Airport. I counted the other passengers as they got off. There were 129 of them.

Clearly printed on the back of every bus is a sign that says 'Maximum speed: 50 m.p.h.' The distance from So Uk Road to Kai Tak is 10 m. On Saturday morning a 49 bus travelled this distance in 10 minutes, at an average speed of 60 m.p.h. At times it must have done at least 80 or even 90 m.p.h.

It is obvious that our bus companies have no respect for the regulations or consideration for their passengers. Can nothing be done about this?

Yours,
Weary traveller

(Soepriatmadji, 2014)

The tenor of the discourse (Letter to the Editor) can be explained from the analysis of clause as exchange as follows:

The agentive or societal roles are the bus service officer and a weary traveler as indicated by the addressee *dear sir*, and the addresser *a weary traveler* in the letter to the editor. The status is unequal as several clauses are intended to demand information and services, such as *Why do half-empty buses go straight past me…? Why do I have to wait half an hour for a bus nearly everyday? Can nothing be done about this?* The social distance is maximal as both the bus service officer and the traveler haven't met before. Therefore, the addresser tends to use fuse or congruent finites, some proverbs *do* in his question, and some *be* to indicate what is still going on, and modalization *may, can* and *have to* as his type of intermediacy, though he also uses modulation *must* to indicate strong points. The weary traveler selects positive declaratives as the mood type in order to disseminate his complaint.

The mode of the discourse (Letter to the Editor) can be explained from the analysis of clause as message as follows:

The role of language in the text is constitutive. This means that the language used in the communication (through text) is primary because it is the only source for the speaker or writer (the weary traveler) to picturize the happenings, and for the message recipient (service officer) to see the happenings. The text is monologue but the type of interaction has genuinely dialogic qualities as it renders others to participate. This is seen in the use of vocative or addressee *dear sir*, and in the use of interpersonal theme in some clauses: *…which sometimes has empty seats on it"; "…why do I have to wait half an hour for a bus nearly everyday?"; "Why do half-empty buses go straight past me …?"; "Can nothing be done about this?";* etc. However, the medium is written and the channel is graphic because it is in the form of a letter. We can say then that the text is as "speech written down". The rhetorical thrust is a complaint and is developed in topical themes

and textual themes. Some interpersonal themes are also employed in order to show that the text is a complaint.

E. Conclusion

Systemic Coder is a product of computational linguistics which functions to help users to conduct a linguistic analysis. However, users must understand the theory of linguistics (such as SFG or Sociolinguistics, etc.) they are going to use in order to develop the scheme, to do the coding, and to construe or to entreprete the text to be analyzed.

F. References

Akhadiah M.K., Sabarti dkk. 1991/1992. *Bahasa Indonesia I.* Jakarta: Ditjen Dikti Depdikbud.

Butt, David, et. al. 2000. *Using Functional Grammar: an explorer's guide*. Second edition. Sydney: Macquarie University.

Eggins, Suzanne. 1994. *An Introduction to Systemic Functional Linguistics*. UK: Pinter Publisher Ltd..

Gerot, Linda and Wignell, Peter. 1994. *Making Sense of Functional Grammar*. Australia: Antipodean Educational Enterprises.

Halliday, MAK. 1985. *An Introduction to Functional Grammar*. UK: St Edmundsbury Press Ltd.

Lotman, Yuri. 2014. *Text (literary theory)* http://en.wikipedia.org/wiki/Text_(literary_theory) (5 April 2014)

Martin, JR. 1992. *English Text*. Philadelphia /Amsterdam: John Benjamin Publishing Company.

O'Donnell, Michael. 2002. *Systemic Coder: A Text Markup Tool. Version 4.5. User Guide*.

Ramlan, M. 1993. *Paragraf: Alur Pikiran dan Kepaduannya dalam Bahasa Indonesia.* Yogyakarta: Andi Offset.

Schiffrin, Deborah. 1994. *Approaches to Discourse*. Cambridge: Blackwell Publishers

Soepriatmadji, Liliek. 2014. *Understanding and Producing Language with Functional Grammar*. Semarang: BPEE Stikubank University (UNISBANK)

Tarigan, H.G. (1998). *Metodologi pengajaran bahasa*. Jakarta: Depdikbud.