

Issues in coherence in narrative discourse of schizophrenic speakers

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Abstract

Since Rochester and Martin (1979) reported their study on schizophrenic discourse using cohesion analysis in *Crazy Talk*, the studies in this area has become widespread. It has long been observed that schizophrenic language performance is impaired in various levels, which is difficult to diagnose whether the patients adopt thought disorder (TD) or not. Although, several diagnostic assessments have been proposed, the assessment depends largely on the psychiatrist's judgment during a psychiatric interview. Therefore, despite the significant language dysfunction of schizophrenic speakers and the vagueness of language assessment of thought disorder in schizophrenia, the researcher applies three linguistic frameworks to this present research: Halliday and Hasan's cohesion, Grice's cooperative principle and theme analysis following Longacre. The primary aim is to measure the overall coherence in narrative discourse of schizophrenic speakers. In doing so, the researcher chooses schizophrenic speakers who are asked to produce a narrative after viewing a wordless picture book. The researcher further group subjects into two groups according to the analysis in order to find out whether one of these group shows sign of thought disorder. The findings are discussed according to the interview with the psychiatrists. The prime benefit of this research is aimed to be one of the additional approaches to access language of schizophrenic speakers.

Keywords: coherence, cohesion, cooperative principle, theme analysis, narrative discourse, schizophrenic speakers

1. Introduction

The concept of coherence is very much interested by many linguists in different areas throughout the decades. Coherence has been applied to different genres of text including narrative discourse. In addition, coherence has also been applied to other disciplines including psychiatric study. As for schizophrenia, schizophrenia is a common psychotic disorder dominant worldwide. The onset of symptoms usually begins in late childhood or early adolescence (Lieberman, 2006, p.32). The symptoms of patient diagnosed schizophrenia vary individually. Other than severe mental disturbances, language also found to be deficit in schizophrenia in various levels including discourse coherence (Meilijson, Sara R., Kasher, Asa and Elizur, Avner., 2004, p.695). In schizophrenic patients, for example, Rochester and Martin stated that schizophrenic speakers exhibit incoherent speech (Rochester & Martin, 1979). Pavy also points out that schizophrenic patients fail to perform coherent language (Meilijson et al., 2004, p.695). In studying coherence in narrative discourse of schizophrenic speakers, the present research focuses on three linguistic frameworks: Halliday and Hasan's cohesion including Hasan's cohesive harmony, Grice's cooperative principle and theme analysis following Longacre.

Considering the study on cohesion, an earlier study of schizophrenic language was conducted by Rochester and Martin (1977; 1979). Rochester and Martin (1979) presented their seminal work on schizophrenic language in *Crazy Talk* focused on a comparative study of cohesion in the schizophrenic speech and normal population. The major finding lay in the impairment of the use of cohesive ties in schizophrenic patients. They found that no matter whether schizophrenia exhibits thought or non-thought disorder, cohesion is deeply impaired, especially in the area of reference. They reported that schizophrenic speaker makes use of

reference nonverbally e.g. by pointing. Moreover, schizophrenic speaker has difficulty in presumed information and reference that is not directly stated. While non-thought disorder schizophrenia tends to be unconfident in using indirect reference, thought disordered schizophrenia tends to use reference without presumed information or antecedents. In terms of lexical cohesion, the speech of non-thought disordered schizophrenia lacks lexical cohesion, whereas this category seems to be extremely used in thought disordered schizophrenia. However, words they used seem to refer to individual object only (Covington, Michael A., He, C., Brown, C., Naçi, L., McClain, Jonathan T., Fjordbak, Bess Sirmon, Semple, J., Brown, J., 2005, p. 14-15). Rochester and Martin (1979) revealed that thought disordered schizophrenic discourse depends primarily on lexical cohesion rather than any other cohesive ties. Technically, their discourse develops through word association - collocation, rather than in terms of topic as a whole. Wykes and Leff (1982) also studied cohesion in schizophrenia. They observed whether the speech of mania is easier to comprehend than schizophrenic speech. In doing so, the data was collected from transcripts of eight schizophrenics and four manics. Cohesion (Halliday & Hasan, 1976) was applied as framework of the study, which evaluated structural links between each ties. As a result, more structural links were found in manic speech than schizophrenics. Moreover, lexical cohesion found to be the least occurring category among other cohesive ties in the speech of schizophrenia. Finally, the finding of Wykes and Leff (1982) was consistent with Andreasen's (1979a) research on types of formal thought disorders in psychiatric patients. Implication of this study also suggested that the finding can be used as part of a diagnosis tool as well as used to study cognitive function of manic and schizophrenic disorders.

Applying Grice's framework to study language performance of schizophrenic speaker, Colle, L., Angeleri, R., Vallana, M., Sacco, K., Bara, B. G., & Bosco, F.M. (2013) studied the inability in decoding maxim violation in comprehending communicative impairment of the schizophrenic participants. Moreover, as cited in Covington, Michael A., et. al. (2005), De Decker and Van de Craen (1987) stated that schizophrenic speech is "off-topic, rambling, and uncooperative" (2005, p. 16). Furthermore, Frith (1992) and Abu-Akel (1999) claimed that schizophrenic speakers fail to be cooperative following the rules of Grice (Covington et. al., 2005). In addition, Ditman and Kuperberg (2010) also examined language dysfunction using Grice's maxims of both healthy controls and schizophrenic speakers. As a result, schizophrenic speakers show "difficulty in interpreting sentences that violate these maxims" (2010, p. 12).

As far as theme development is concerned, most of the studies usually applied narrative as a tool to find out some neurological evidence of schizophrenic speakers. In terms of linguistics, Chaika and Lambe analyzed cohesion in schizophrenic narrative by applying cohesive ties proposed by Halliday and Hasan (1976) in their work entitled *Cohesion in schizophrenic narratives, Revised*. The subjects of this study are participants, who receive discharge diagnoses of schizophrenia, and mania as well as normal speakers, which all are told to retell a story after viewing a video. The study aimed to provide additional clarification of cohesive analysis studied by Rochester and Martin (1979). As opposed to Rochester and Martin's finding, Chaika and Lambe argued that their schizophrenic participants' uses of cohesive ties are inconsistent. The findings suggested that the use of cohesive ties were varied. Moreover, the study indicated that schizophrenic speakers suffer a great deal in producing narrative discourse. Chaika and Lambe added that the frequencies in using cohesive ties in narrative discourse between schizophrenic participants and normal speakers are relatively in the same range. Additionally, most cohesive ties are anaphoric reference, whereas schizophrenic speakers use less cohesive ties, accompanied mostly by exophoric references in Rochester and Martin's work. Moreover, Chaika and Lambe found that schizophrenic participants often add additional information into their narratives such as

people who are not mentioned in the video. The topic usually runs by idiosyncratic association, personal interested topic. Finally, Chaika and Lambe concluded that while schizophrenic and manic speakers retain competence in comprehending how cohesive ties function, they lack performance in using them.

Although studies on coherence in schizophrenia have been widely examined in various aspects by different frameworks, studies on coherence focusing on the compounding of cohesion, cooperative principle and theme development has not yet been found. Specially, the pragmatic frameworks of Grice (1975) as well as theme development in two aspects – participant reference and storyline, have been rarely applied in studying schizophrenic language. As for cohesion, this framework has been applied in many researches. However, in order to study coherence, cohesion is required. For these reasons, this current research aims to apply these three linguistic frameworks to study coherence in narrative discourse of schizophrenic speakers. Accordingly, schizophrenia is difficult to diagnose whether the patients adopt disorganized speech or thought disorder (TD)¹. Several diagnostic assessments of thought disorder have been proposed and among others Andreasen's *Scale for Assessment of positive symptoms (SAPS)*² (Andreasen, 1984) is widely used assessment in terms of types of formal thought disorder. However, the scale depends largely on individual psychiatrist's inference during a psychiatric interview. For this reason, due to the importance of language dysfunction of schizophrenic speakers and the vagueness of language assessment of thought disorder in schizophrenia, the researcher attempts to apply linguistic frameworks as one of the additional approaches to access language of schizophrenic speakers.

According to the frameworks applied, the researcher aims to access types of positive formal thought disorder proposed by Andreasen (1984) - *Scale for Assessment of positive symptoms (SAPS)* as illustrated in table 1. The researcher sees that cohesion can be used to access types of positive formal thought disorder such as derailment/loosening of association and incoherence. As far as cooperative principle is concerned, the researcher attempts to find out whether this pragmatic framework could yield significant insight to access types of positive formal thought disorders such as tangentiality, circumstantiality, distractible speech, illogicality and pressure of speech. And as for theme development, it is aimed that this framework could access types of positive formal thought disorders such as circumstantiality, derailment/ loosening of association, incoherence and distractible speech. Hence, the researcher attempts to apply these linguistic frameworks to study (1) coherence in narrative discourse of schizophrenic speakers, in which *how narrative discourse is tied up, how it is communicated, and how it is developed*, in other words, how these concepts lead to coherence in narrative discourse as a whole; and (2) types of positive formal thought disorder, in which how each framework meets which types of positive formal thought disorder and in what way.

¹ Andreasen (1984) used this term to refer to psychotic patients who exhibit disturbances in speech and thought. However, the diagnosis criteria of DSM-V used "disorganized thought (speech)" to refer to the same phenomenon. In this present research, one of the main concentrations lies on the study of types of positive formal thought disorder proposed by Andreasen (1984), therefore the term "positive formal thought disorder" will be used.

² According to Andreasen's study on both positive and negative symptoms presented in psychotic patients including schizophrenia, only the positive symptoms are focused in this research, because those symptoms are mainly related with language dysfunctions, whereas those of negative symptoms are mostly related to behavior.

Types of positive formal thought disorder (Andreasen, 1984)	Frameworks		
	Cohesion	Cooperative Principle	Theme development
1. Derailment	/		/
2. Tangentiality		/	
3. Incoherence	/		/
4. Illogicality		/	
5. Circumstantiality		/	/
6. Pressure of speech		/	
7. Distractible speech		/	/
8. Clanging ³			
Global Rating of positive formal thought disorder			

Table 1: Linguistic frameworks applied in this research and types of positive formal thought disorder defined by Andreasen (1984)

In doing so, the researcher further discusses whether cohesion, cooperative principle, and theme development can be used to categorize two groups of schizophrenic speakers (See Table 2 below) as hypothesized: group one of schizophrenic speakers (schizophrenic speakers who exhibit less coherent in their narrative discourse) can be categorized as exhibit sign of positive formal thought disorder, whereas group two of schizophrenic speakers (schizophrenic speakers who exhibit more coherent in their narrative discourse) shows no sign of positive formal thought disorder.

2. The Method

This research is qualitative research, which is primarily carried out with schizophrenic participants. There are two groups of participants– schizophrenic speakers and psychiatrists. As for schizophrenic speakers, this research focuses on schizophrenic patients who visited the outpatient department of psychiatry at Lampang Hospital, who were informed and willing to participate in the research. The current numbers of participants are 5 schizophrenic speakers, which is aimed to be no more than 20 participants in total. Schizophrenic patients who are diagnosed schizophrenia in accordance to DSM-V and ICD-10, able to speak Northern Thai, live in Lampang and/ or in northern provinces at least for 5 years, are 18 years old or above, have no sign of other psychiatric disorders, and are accompanied by their family members or close relatives at the time of data collection, were invited to participate in the research. In addition, patients with neurological disorder, affective disorder, drugs and/ or alcohol abuse, mental retardation, or stress-related thought disorder, and patient with seeing, hearing, and speaking disabilities were excluded from the research. The other groups of participant in this

³ The researcher sees that these three frameworks cannot measure clanging.

present research concerns with psychiatrists, who work at the department of psychiatry at Lampang Hospital at least for 5 years, have examined the patients weekly and have not made an errand leave for work or study at the time of data collection, are invited to participate in the research. The numbers of psychiatrists are 3 in total.

Data collection consists of three steps: general information, narrative discourse task, and questions about narrative discourse task, which are conducted in the aforementioned order. First of all, schizophrenic speakers were required to answer general questions, which are mainly about the participants' state of diagnosis. Then, the participants were required to narrate the story from a wordless picture book entitled "*A boy, a dog, a frog, and a friend*" from Mercer Mayer and Marina Mayer (1971). They, then, were requested to answer the questions concerning the story told. Hence, the only data used in the analysis is the data from the participants' narrative discourse.

Coherence from three frameworks		Characteristics of coherence	
		Less coherent	More coherent
1. Cohesion - The ties are...cohesive.	less	/	
	more		/
2. Cooperative principle - Observe the maxims	less	/	
	more		/
3. Theme development - The continuity of participant - Characteristics of storyline	less	/	
	more		/
Grouping in accordance to coherence in narrative discourse of participants		group 1	group 2

Table 2: Characteristics of coherence in narrative discourse between two groups of participants

3. The Analysis

Five schizophrenic narrative discourse using cohesion, cooperative principle, and theme analysis are provided as follows.

3.1 Cohesion Analysis

In terms of Halliday and Hasan's (1976) categorization of cohesive ties, the researcher found that among other cohesive ties, reference plays a significant role in all narrative discourse of schizophrenic participants, while substitution was found to be the least occurring category. Apart from reference, lexical cohesion is markedly found in the narratives. As illustrated in table 3, the narrative of the fourth speaker is highly cohesive, because the number of cohesive ties per total number of occurrences is 0.99, comparing to those from the third and fifth speakers, 0.40 each.

Table 3 The number of cohesive ties of schizophrenic participants' narrative discourse

	1 st speaker	2 nd speaker	3 rd speaker	4 th speaker	5 th speaker
Reference	56	70	50	47	62
Substitution	-	1	-	-	-
Ellipsis	-	3	2	1	1
Conjunction	18	3	33	12	7
Lexical cohesion	55	64	26	33	44
Number of cohesive ties	129	141	111	93	114
Total number of occurrences	151	186	281	95	286
Number of cohesive ties per total number of occurrences	0.85	0.75	0.40	0.99	0.40

Contrary, in terms of untied tokens, although the speakers tend to use reference in their narratives, the number of untied tokens in this category is also significantly higher than other categories in all the speakers. For example, the fifth speaker usually provides ambiguous or exophoric references (119 tokens out of 286), causing the narratives to become difficult to comprehend. Table 4 illustrates these data.

Table 4 The number of untied tokens of schizophrenic participants' narrative discourse

	1 st speaker	2 nd speaker	3 rd speaker	4 th speaker	5 th speaker
Reference	21	45	103	2	119
Substitution	-	-	1	-	-
Ellipsis	-	-	7	-	1
Conjunction	-	-	17	-	15
Lexical cohesion	1	-	42	-	37
Number of untied tokens	22	45	170	2	172
Total number of occurrences	151	186	281	95	286

As stated, coherence does not solely depend on the number of occurrences of cohesive ties. Therefore, in this study the researcher also uses Hasan's (1984) *Coherence and Cohesive Harmony* to study cohesion as well. Hasan urged that the so-called "chain interaction" is important in creating "unified whole". From Hasan's (1984) perspective, two or more tokens that interact with each other can be defined as "central token (CT)". Another important type of token is "peripheral token (PT)", which is the token that does not provide connection with other token in the discourse. Hence, Hasan (1984) affirmed that (1) what measures 'cohesive harmony' in discourse is the central tokens as percentage of total tokens, and (2) what measures 'coherence' is the central tokens per peripheral tokens, which is "the higher the ratio of CT to PT, the more coherent the text would be" (Hasan, 1984, p.217).

Analysis using Hasan (1984) is also consistent with Halliday and Hasan's (1976) work above. The most coherent narrative in terms of cohesion analysis is the narrative from the fourth speaker, whereas the least coherent one is from the third speaker. These can be seen from the ratio of CT to PT. The CT to PT of the fourth speaker is 5.9, which is the highest, whereas narratives from the third and fifth speakers only have 0.41 and 0.85, respectively.

What is doubtful is the percentage of the CT to TT. As illustrated in the table 5, while the percentage of CT to TT of the second speaker is the highest, the ratio of CT to PT shows that the narrative is average coherent. The percentage of CT to TT of the first speaker is

similar to those of the second speaker. Moreover, it seems like the percentage of CT to TT of the fourth speaker is not much higher than the percentage of the first speaker, 57.28% and 56.49%, respectively. However, the question remains: why the ratio between CT to PT of the fourth speaker is much higher than that from the first speaker, 5.9 comparing to 3.48. The answer to this question lies on the analysis of cohesive ties using Halliday and Hasan (1976) in table 3 and 4 above. As can be seen in the category of lexical cohesion of the first and second speakers, the number of lexical cohesion is relatively high, which is 64 and 55, comparing to those of untied tokens of the same speakers. In contrary, as far as the number of reference and lexical cohesion of the fourth speaker are concerned, the number of ties and untied tokens are relatively low. As a result, the percentage of CT to TT of this speaker is not significantly high although the whole narrative is highly cohesive. Hence, this observation of cohesion analysis can be marked that (1) ‘cohesive harmony’ that results from CT as percentage of TT concerns with how many tokens in the narrative relevant to other tokens, whereas (2) ‘coherent’ results from ‘the degree of chain interaction’, which is measured by the ratio of the CT per PT.

Table 5 Analysis using Hasan’s (1984) Coherence and Cohesive Harmony

	1 st speaker	2 nd speaker	3 rd speaker	4 th speaker	5 th speaker
CT as % to TT	56.49%	64.04%	23.11%	57.28%	42.54%
CT per PT	3.48	3.08	0.41	5.9	0.85

3.2 Cooperative principle

As far as content of the narrative is concerned, the researcher applies Grice’s cooperative principle in the analysis. Table 6 shows the number and percentage of maxim occurrences both maxims observation and infringing maxims. The researcher found that of five speakers, the fourth speaker receives the highest number of maxim observation, which is 85.29%. In contrary, the most uncooperative narrative goes to the narrative of the fifth speaker. The highest percentage of infringing maxims (94.56%) shows that the fifth speaker is less cooperative. Moreover, the percentage of infringing maxims of the third speaker is also relatively high, which is 77.48%. Similarly, the percentages of infringing maxims of the first and second speakers are in the same direction. These speakers infringe maxims 67.31% and 59.72%, respectively.

Table 6 Analysis using Grice’s cooperative principle

	1 st speaker	2 nd speaker	3 rd speaker	4 th speaker	5 th speaker
Maxim observation	17	29	25	29	8
2.1 Infringing maxim of quantity	23	2	6	3	24
2.2 Infringing maxim of quality	3	24	1	1	21
2.3 Infringing maxim of relation	5	-	70	-	59
2.4 Infringing maxim of manner	4	17	9	1	35
Infringing maxim	35	43	86	5	139
Percentage of maxim observation	32.69%	40.28%	22.52%	85.29%	5.44%
Percentage of infringing maxims	67.31%	59.72%	77.48%	14.71%	94.56%

Furthermore, the most infringing category is maxim of relevance, which the third speaker infringes as high as 70 times, and the fifth speaker infringes 59 times, comparing to

the third and fourth speakers who infringe none of this maxim. The second category is infringing maxim of manner with the total number of 66 times. The third and fourth categories, which are not significantly different from one another are infringing maxim of quantity and quality, with the total number of 58 and 50, respectively.

Of these results, it can be interpreted that the fourth speaker is highly cooperative, whereas the fifth speaker is the least cooperative by providing unrelated or irrelevant data to the whole narrative. Similarly, the third speaker also provides irrelevant details in the narrative. The first speaker is less informative, because the narrative contains too much information. Additionally, the second speaker usually provides details or ideas, which do not occur in the narrative.

3.3 Theme development

In terms of theme development, the researcher divided into two parts, which are participant reference and storyline. The former analyzed participant rank, grammatical form that encodes each participant, and participant operation in the narrative. As for the latter, this framework analyzed storyline and non-storyline elements.

As for participant reference, the researcher analyzed participant rank of each narrative and found that schizophrenic speakers sometimes make a reference to the participant in the narrative with ambiguous, exophoric and/or with unidentified reference. Table 7 indicates that the fourth speaker uses reference to participant in an appropriate manner, with the highest percentage of 97.33% although two ambiguous references were found. The lowest percentage of all five speakers lies on the narrative of the third speaker, with 61.73% used of ambiguous or exophoric reference. Moreover, speakers use various grammatical forms to encode participants in the narrative. These grammatical features are noun phrase, noun, personal pronoun, possessive pronoun, demonstrative pronoun, and ellipsis, which vary individually.

Table 7 Participant Reference

	1 st speaker	2 nd speaker	3 rd speaker	4 th speaker	5 th speaker
Number of participant reference	69	73	62	73	88
Number of ambiguous/ exophoric/ unidentified reference of participant	30	48	100	2	92
Total number of occurrences	99	121	162	75	180
Percentage of participant reference	69.67%	60.33%	38.27%	97.33%	48.89%
Percentage of ambiguous/ exophoric/ unidentified reference of participant	30.30%	39.67%	61.73%	2.67%	51.11%

In terms of participant operation - introducing, reintroducing, maintaining, or removal of each participant, the fourth speaker rarely reintroduces participant, regardless of primary, secondary, or tertiary participants. Additionally, the fourth speaker highly maintains the main participant, causing the narrative to be strongly sequential in terms of topical subject or thematic participant. As for other remaining speakers, they often reintroduce participants with mostly pronoun and ellipsis. Their narratives also consist of exophoric reference, which does not belong to the story. Therefore, regards this evidence, some of these narratives is considered 'less coherent'.

Moving on to the analysis of storyline, the researcher found that most of the speakers provide characteristic of storyline elements, which comprises motion verbs, action verbs, cognitive experiences and events proper. Table 8 illustrates that as similar to participant reference; the fourth speaker provides sufficient elements of storyline, with the highest percentage of 64.58% more than other speakers. Action verbs were found to be the most occurring types of this narrative. The lowest percentage of storyline verbs is 18.06% of the third speaker, consists of non-storyline elements as nearly as five times of the storyline elements. Additionally, it is found that the most occurring type of non-storyline element of this narrative is irrealis. As for the fifth speaker, non-storyline element found to be 71.31%, with elements from the setting category found to be the highest. The second speaker provides elements of the storyline with the percentage of 62.65%, which is not significantly different from that of the fourth speaker. In addition, most of the elements are action verbs. Lastly, although the number of storyline elements is higher than non-storyline elements (1 time), the number of non-storyline elements is clearly seen.

Table 8 Storyline and Non-storyline

	1 st speaker	2 nd speaker	3 rd speaker	4 th speaker	5 th speaker
Number of storyline element	23	52	26	31	35
Number of non-storyline element	22	31	118	17	87
Total number of occurrences	45	83	144	48	122
Percentage of storyline element	51.11%	62.65%	18.06%	64.58%	28.69%
Percentage of non-storyline element	48.89%	37.35%	81.94%	35.42%	71.31%

4. The Discussion

The analysis of five narrative discourse using three linguistic frameworks can be summarized in the table 9 below. As hypothesized, the researcher found that of these five narratives, the narratives of the third and the fourth speakers can be grouped into ‘group one’ because the analysis is in agreement among three frameworks, which leads their narratives to become less coherent. In contrast, with the highest percentage in all three areas, the narrative of the fourth speaker found to be more coherent. Interesting is, the narrative of the first and second speakers cannot be categorized to either of the two groups. As for the first speaker, although the percentage and the ratio of cohesive tie as well as the percentage of both participant reference and storyline elements are relatively high, the percentage of cooperative principle is low. The narrative of the second speaker is in the same direction. Therefore, these two speakers were firstly grouped as ‘unidentified’.

Table 9 Summary of the analysis

	1 st speaker	2 nd Speaker	3 rd speaker	4 th speaker	5 th speaker
Cohesion					
• CT as % of TT	56.49%	64.04%	23.11%	57.28%	42.54%
• CT per PT	3.48	3.08	0.41	5.9	0.85
• Tie as % of TT	85.43%	75.80%	39.50%	97.89%	39.86%
Cooperative principle					
• Obs. as % of TT	32.69%	40.28%	22.52%	85.29%	5.44%
Theme development					
• PR as % of TT	69.67%	60.33%	38.27%	97.33%	48.89%
• S as % of TT	51.11%	62.65%	18.06%	64.58%	28.69%
Status	Unidentified	Unidentified	Group 1	Group 2	Group 1

Three psychiatrists were invited to participate in the study. They were requested to answer three tasks. From task two, psychiatrists analyzed examples given and suggested that group one shows signs of disorganized speech, whereas group two does not exhibit any sign, which is consistent with the hypothesis of the research. However, the answer of types of disorganized speech found in example from group one varies. Some similarities are ‘derailment/ loose association’, ‘incoherence/ word salad’, ‘distractible speech’, and ‘illogicality’.

As far as types of disorganized speech are concerned, task one of the psychiatrists consists of 12 items of characteristics of coherence found in narratives of group one of the schizophrenic speakers. Of these 12 items, 6 items coin similar answers among three psychiatrists, while the remaining 6 items are distinct. As far as 6 similar answers are concerned, the researcher found that what cohesion analysis can measure are ‘derailment/ loose association’ as expected, but answers from the psychiatrists suggest that cohesion cannot measure ‘incoherence/ word salad’ as aimed in table 1 above. Moreover, cooperative principle can use to measure ‘tangentiality’, ‘illogicality’, ‘circumstantiality’, ‘pressure of speech’, and ‘distractible speech’. To be specify, infringing maxim of quantity, which runs “do not make your contribution more informative than is required”, can be used to measure ‘tangentiality’, ‘circumstantiality’ and ‘pressure of speech’, whereas infringing maxim of quantity by do not “make your contribution as informative as is required for the current purposes of the exchange” cannot measure any types of disorganized speech. As far as infringing maxim of quality is concerned, it can be used to measure ‘illogicality’. Infringing maxim of relevance can used to measure ‘distractible speech’. In addition, it has been suggested that infringing this maxim can use to measure ‘incoherence / word salad’ as well. Moreover, infringing maxim of manner in the category “be orderly” can be used to measure ‘incoherence’. As for theme development, evidence from the psychiatrists suggests that the only type of disorganized speech that can be applied to is ‘incoherence’. However, one of these psychiatrists suggests that it might be used to measure ‘tangentiality’ as well. Table 10 illustrates linguistic frameworks that are considered to be in relation with types of disorganized speech.

Table 10 Linguistics frameworks in relation to types of disorganized speech

Linguistic frameworks – types of disorganized speech	Psychiatrist1	Psychiatrist 2	Psychiatrist 3
Cohesion Analysis – derailment / loose association	/	/	/
Cohesion Analysis – incoherence / word salad	X	X	X
Cooperative principle – tangentiality	/	/	/
Cooperative principle – illogicality	/	/	/
Cooperative principle – circumstantiality	/	/	/
Cooperative principle – pressure of speech	/	/	/
Cooperative principle – distractible speech	/	/	/
Theme development – derailment	X	X	X
Theme development – incoherence	/	/	/
Theme development – circumstantiality	X	X	X
Theme development - distractible speech	X	X	X
Suggestions:			
Cooperative principle – derailment	X	/	/
Cooperative principle – incoherence	/	/	/
Theme development – tangentiality	X	/	X

Moreover, if these linguistic frameworks can be used to measure types of disorganized speech as expected, the narratives of the first and second speakers might be interpreted. For example, the percentage of maxim observation of the first speaker is 32.69%, which is low. To find the answer to this doubt, the relation between cooperative principle and types of disorganized speech in the table 10 above is taken into account. The first speaker infringes maxim of quantity 23 times out of 35, in which the speaker “*make the contribution more informative than is required*”, therefore this speaker can be considered as having one or more of these types: “tangentiality”, “circumstantiality” and/ or “pressure of speech”. As for the second speaker, it has been found that the speaker is less cooperative. The highest percentage of infringing maxims is maxim of quality. From the psychiatrist’s perspective indicated in the table 10 above, infringing maxim of quality seems in a relation to ‘illogical inference or faulty assumption’. Hence, this speaker is considered to have a sign of ‘illogicality’.

According to Rochester and Martin’s study on cohesion in *Crazy Talk* (1979), their findings indicate that both thought disorder and non-thought disorder schizophrenia exhibit disturbance in reference. Schizophrenic speakers often rely on extralinguistics such as referring to an object in their discourse by pointing. This result is supported by the finding of this current research. The researcher found that group one of the schizophrenic speakers exhibits difficulty in using reference. The numbers of ambiguous as well as exophoric references are much higher than the number of ties jointed by reference. Moreover, Rochester and Marin also found that schizophrenic speakers have problem with presumed information, especially thought disorder schizophrenia. Evidence from the current research also suggests that in analyzing items that are referred to by cohesive ties, the researcher found vague presumed information, and sometimes these referring items were not found. In terms of lexical cohesion, Rochester and Martin’s result indicates that non-thought disorder schizophrenia uses small amount of lexical cohesion, which is in contrast with the used of lexical cohesion in thought disordered discourse, which significantly rely on lexical cohesion more than any other cohesive categories. This is true for the narrative of the third speaker. The number of ambiguous lexical cohesion is higher than lexical that tied discourse together, while this result does not compatible with the used of lexical cohesion of the fifth speaker, which the researcher has grouped into the same group with the third speaker. The researcher found that the number of ambiguous lexicon found in the narrative of the fifth speaker is

lesser than the number of lexicon that coheres. Hence, evidence from the analysis suggests that narratives of thought disorder schizophrenia do not always rely on lexical cohesion i.e. by using collocation as suggested in Rochester and Martin (1979). Another study on cohesion comes from Wykes and Leff (1982). Their finding suggested that schizophrenic speech contains less structural links. However, Wykes and Leff did not separate between thought and non-thought disorder. As analyzed, the researcher has found less structural links in narratives of group one of schizophrenic speakers, whereas narrative of group two contains much higher number of structural links. Unlike Rochester and Martin as well as the finding from this current study, Wykes and Leff found that schizophrenic speakers use small amount of lexical cohesion. Additionally, the finding from this present research suggests that substitution is the least occurring category in narratives of both groups. This might be because of the language differences between Thai and English, or other related language family. In Thai, people rarely substitute words or clauses, but Thai people often repeat them.

In addition, Chaika and Lambe also studied cohesion in narrative of schizophrenic speakers. Their finding of cohesion analysis is different from the result of Rochester and Martin (1979). Chaika and Lambe claimed that schizophrenic uses of cohesive ties are inconsistency, or in other words, the use of cohesive tie varies. Unlike Rochester and Martin, Chaika and Lambe found that schizophrenic speakers use cohesive tie as moderate number as normal speakers and most of them are anaphoric, whereas Rochester and Martin's result suggested that schizophrenic speakers use less cohesive tie and most of them are exophoric.

In terms of cooperative principle, the works of De Decker and Van de Craen (1987), Frith (1992) and Abu-Akel (1999) reported that schizophrenic speakers are uncooperative. However, their works do not make a separation between thought and non-thought disorder, as well as they do not clearly state the finding of each infringing of maxims. To this point, this current research found that group one of schizophrenic speakers tend to infringe maxims more than observe the maxims, whereas the other group, group two, observes maxims more than infringing them. These results suggest that the speaker of group two are more likely to be cooperative than from group one. Moreover, in terms of infringing maxims, the analysis shows that both of the speakers in group one infringe maxim of relevance the most, which clearly shows that the ideas presented in their narratives are unrelated to what the whole narrative is about. Infringing maxim of manner of the third and fifth speakers from group one also indicates that the utterances are mostly unclear or ambiguous, or the utterances are presented in an unordered way. These also cause the narratives of the two speakers to be less coherent. Infringing maxim of quantity especially in the subtype: "*do not make your contribution more informative than is required*" demonstrates that the speakers are repetitive. Infringing maxim of quality signifies that the speakers provide information that do not present in the picture book. The study of Chaika and Lambe also supported that schizophrenic speakers often provide information such as people who are not stated in the video quite often. Moreover, their topic of narrative usually follows the speaker's preferred topic. Hence, evidence from the analysis is consistent with the findings of De Decker and Van de Craen (1987), Frith (1992) and Abu-Akel (1999) and the study of Chaika and Lambe.

4.1 Issues in data collection and data analysis

This part of the paper presents some issues in data collection and data analysis raised during the study.

4.1.1 Issue A: How to approach participant when no one is interested in the poster?

According to the data collection procedures, this research approaches schizophrenic participant by posters, which has been posted on the notice boards of the Lampang Hospital in order to recruit participants according to the inclusion criteria. However, at first no one

was interested in the poster; the researcher then asked the staff from the outpatient department of psychiatry at Lampang Hospital to announce the researcher's study without any specific details. Some of the schizophrenic participant volunteered to participate in the research. However, the number of participants was low. So, the researcher gave the poster out for everyone who came to the department of psychiatry at Lampang Hospital. As a result, the researcher has recruited more cases of schizophrenic participants. The reason by doing so is that the researcher concerns the issue in ethic consideration, because the subject of the study is the patients. As a result, the rights of the patients are the main concentration.

4.1.2 Issue B: Is it true that discourse is governed by 'lexical cohesion'?

According to the findings using cohesion analysis, the researcher found that the amount of lexical cohesion is very high in some narratives. Moreover, a closer look at these narratives, the amount of repetition i.e. 'same item' as defined by Halliday and Hasan (1976) are higher than other subtypes of lexical cohesion. This can be inferred that these speakers (the first and second speakers) are highly repetitive. Therefore, as primarily grouped into "unidentified" the researcher has to re-analyze whether the narratives are actually governed by lexical cohesion or not. Additionally, the analysis has to be compared to other results using cooperative principle as well as theme development to see whether these speakers can be categorized as group one of the schizophrenic speakers.

4.1.3 Issue C: Is narrative discourse suitable for studying disorganized speech?

Coherence has been applied to different genre of text including narrative discourse, which is the most suitable genre in studying coherence as it is highly structured in both structure and content. In addition, as stated in Rochester and Martin, narrative discourse is "naturalistic descriptions of speakers' discourse production" (1979, p. 56), as well as the topic of one narrative is considerably stable. As far as disorganized speech is concerned, it is used as a psychiatric definition of the disturbance of language and/or thought. Hence, in order to study how the participant performs language, clinical interview might not be enough. Some patients answered to the question without any difficulty, but when he/she is asked to narrate a story, the participant has difficulty in narrating a well-organized and coherent discourse. This is suggested in the data collection of speaker one. As the general questions are concerned, the speaker answered them normally. But when it came to the narration task, the speaker provided the same information over and over again, which does not help the progression of the narrative. This narrative has shown that the speaker is highly repetitive. Moreover, as suggested by psychiatrists, they urged that in order to comprehend how disorganized speech functions, the patients are required to conduct monologue i.e. narrative.

4.1.4 Issue D: Narrating with or without the picture book, which one is better?

As far as narration is concerned, the speakers are required to narrate the story from the picture book. However, during the narration, the speakers cannot open the book. This method is used because the researcher avoid the overuse of demonstrative reference such as 'nii' 'nan' 'throN nii' or 'throN nan', which are 'this' 'that' 'here' 'there', respectively. These references are usually accompanied by the action of pointing, which is considered as extralinguistic information and causing the discourse to be less coherent. According to Rochester and Martin's (1979) finding, they stated that schizophrenic speakers highly used this kind of referring expression, which is difficult to measure. Hence, in order to avoid this problem, narrating without picture book is highly measureable in studying coherence. However, using this method also leads to another doubt. The speakers seem to have difficulty in remembering events that happen in the story. They tend to cut the story short, so some events are not mentioned in the narrative.

5. Summary

This paper presents some of the data collection procedures and data analysis. Parts of the findings and discussion seem to be consistent with previous studies of Rochester and Martin (1979). In order to categorize two groups of schizophrenic participants that result from their discourse production, three linguistic frameworks are applied. Some of the analysis shows that the speakers with less cohesive, less cooperative and less productive of sequential of action i.e. storyline elements as well as less amount of participant maintenance in the narrative can be grouped into group one “participant with less coherent”. In addition, another group with opposite results can be grouped into group two “participant with more coherent”. However, the researcher has found another group, “unidentified”. Their narratives consist of the compounding of the characteristics of group one and group two. As far as the interview with three psychiatrists are concerned, all of them categorized group one of the participant as having “disorganized speech”, whereas group two can be identified as having mild or none of the disorganized speech. In terms of the relationship between linguistic frameworks and types of disorganized speech, the interview with the psychiatrists demonstrates that cohesion can measure “derailment/ loose association”. Cooperative principle can be applied to analyze “tangentiality”, “illogicality”, “circumstantiality”, “pressure of speech”, “distractible speech”, and “incoherence” as suggested by the psychiatrists. And theme development can be used to study “incoherence”. Furthermore, some issues in data collection and data analysis are presented in the last section, which mostly concerns problems that occurred during the research. The researcher is not yet claim that the finding is a complete result, but more data is required to be collected and analyzed.

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