



**A TRANSITIVITY ANALYSIS OF RADIOTELEPHONY  
AT AHMAD YANI INTERNASIONAL AIRPORT**

**JOURNAL ARTICLE**

**Submitted in Partial Fulfillment of the Requirements for the Degree of  
*Sarjana Sastra (S.S)***

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SEMARANG  
2015**

## **PAGE OF APPROVAL**

This journal has been approved by Advisor, English Study Program, Faculty of Humanities, Dian Nuswantoro University on 11 August 2015.

Advisor,

**Sunardi, S.S., M.Pd.**

# A TRANSITIVITY ANALYSIS OF RADIOTELEPHONY AT AHMAD YANI INTERNASIONAL AIRPORT

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## ABSTRACT

*This thesis entitled A Transitivity Analysis of Radiotelephony at Ahmad Yani International Airport is presented to find the participants, processes, and circumstances in the radiotelephony between Pilot and ATC (Air Traffic Controller) in Ahmad Yani International Airport. Moreover, this thesis is conducted to know the field of discourse and the purpose of dominant process of the data. The data were taken from a recording in ATC Department in Ahmad Yani International Airport. There were five recordings which were used as a random data sampling in this thesis. In doing this thesis, there were several steps which have been done. The steps were getting the recording from ATC Department in Ahmad Yani International Airport with permission, observing the ATC Department in Ahmad Yani International Airport, listening the data, making a transcript, and segmenting the data into clause. The data collection was done under the qualitative research. Then, the method of data analysis was done by segmenting the transcription into clauses. Finally, it is found that material process (65.15%) is the most dominant process used during the conversation between pilot and controller through radiotelephony. The dominant participant is goal (36.47%) and the circumstance of place (35.41%) is the dominant circumstance. The field of discourse reveals that there are experiential domain, long term goal, short term goal. The experiential domain of the discourse is about a continuous communication between pilot, co-pilot, and both controller and co pilot in the air ground communication. While the short term goal of the discourse concludes that the speakers use mostly material and verbal process to share information during the journey in the air.*

**Keywords:** *air traffic controller, Ahmad Yani International Airport, pilot, radiotelephony, transitivity*

## INTRODUCTION

As a medium of communication, language can be used not only for the transmission of informative messages but also for establishing and maintaining contact between people. It is very needed. Because, people express this social function of language when they interact casually with another everyday.

In some professional contexts, accomplishing a very specific task can entirely depend on verbal communication between experts of a given field: being able to communicate is for these experts a necessity for sharing and transferring the specialised knowledge required to fulfil their job. When these communication-dependent situations are recurrent enough, linguistic norms can be created by institutions and authorities, who then enforce them.

The aim of these linguistic norms is usually to create less ambiguous communication thanks to simplified rules (at a syntactic, lexical and semantic level for instance). The linguistic normalisation also enables the various interlocutors to minimise their linguistic and cognitive efforts in carrying out the task at hand thanks to their shared knowledge (Falzon, 1986). The use of natural language, on the other hand, would not be efficient enough to express this common knowledge and could easily lead to rough estimations, misunderstandings and incomprehensions (Vergely, 2008).

Air-ground communication, a unique conversational discourse via specific technological equipment engaged by pilot and Air Traffic Controllers, is “the eyes and the ears” of every pilot. It helps pilots and Air Traffic Controllers (ATC) operate the plane and maintain safe and expeditious flight.

In conducting the efficient air-ground communication, a special language called radiotelephony, is deliberately created and designed for aviation personnel to successfully conduct flight operations and to communicate through wireless technology. It is used by pilots and Air Traffic Controllers to conduct what is intended to be unambiguous and effective communications. Therefore, radiotelephony may be seen as a universal or ‘international language’ used by pilots and ATC around the world. It is generally in English – used as a *lingua franca* (Crystal, 2003; Seidlhofer, 2005) – that international flights are dealt with: it allows dialogue between a controller and a pilot who do not necessarily share the same first language. It is also a distinctive language used within a restricted environment by a specific profession.

Radiotelephony is a set of prescribed rules what to say, how to say, when to say something, and how to understand uttered. Radiotelephony is an organised system for transmission of information, advice, instructions, clearances and permissions from the sender to the receiver and vice versa. It is also important to acknowledge that radiotelephony represents a set of operational procedures.

It is carried out in English, but it differs a lot from general English. It is a restricted and coded sublanguage with reduced vocabulary in which each word has a precise meaning that is often exclusive to the aviation domain. Sentences are short, determiners (the, your, etc.), auxiliary verbs (can, could, may, etc.), link verbs (is, are), subject pronouns (I, we, you, they, etc.) and many prepositions are removed. Here are some examples of radiotelephony:

- Standby estimate, means that the pilot or co-pilot should wait for the estimate will be given by ATC later.

- Request high speed climb, is the sign for the pilot when he/she want to take the plane higher.
- Estimate arrival, is ATC asking the pilot for what time of the plane will be arrive.

Standard radiotelephony helps lessen the ambiguities of spoken language and facilitates a common understanding among speakers. Throughout the years, investigations of many accidents and incidents have found that lack of radiotelephony knowledge and discipline by pilots and ATC has been a major causal factor of accidents. That is why; the knowledge should be increased, to reduce the number of accident. Not only person who works in aviation field, common people also need to know about radiotelephony, so they will be aware about the safety of flights.

In this thesis, the researcher wants to know the context construed in radiotelephony based on its linguistic properties, especially through Systemic Functional Linguistic (SFL) approach. Previously, the analysis of conversation pilot and ATC has been done through English Phraseology which is analyzed in the field of semantic and syntax. At this time, the researcher wants to use Experiential Meaning. The reason for using transitivity to this data is to know how a pilot construes context of the message when they are doing conversation with ATC.

Based on the explanation above, the researcher is interested in analyzing the transitivity system in recorded conversation of radiotelephony at Ahmad Yani International Airport. Therefore, the researcher attempts to find out the processes, the participants and the circumstances involved in recording conversation on radiotelephony at Ahmad Yani International Airport.

## **RESEARCH METHOD**

### **Data and subject**

The data were taken from five selected recordings of the conversation between Pilot and Air Traffic Controllers (ATC) of Ahmad Yani International Airport. These was recorded on February 20th, 2014 between Pilot, Co Pilot, and Air Traffic Controllers (ATC) of Ahmad Yani International Airport. The special one is when the pilot asking for landing and arriving at Ahmad Yani International Airport.

### **Unit of Analysis**

In this research, the unit of analysis of this study is each clause in the conversation between Pilot and Air Traffic Controllers (ATC) of Ahmad Yani International Airport, and the minor clauses such as OK, thank you, and greetings are ignored.

### **Technique of Data Collection and Analysis**

The data of this study were obtained by doing some steps. First, the researcher the researcher asked approval from ATC Department of Ahmad Yani International Airport to record the conversation between Pilot and Air Traffic

Controllers (ATC) of Ahmad Yani International Airport. Thus the researcher observed. Observing is important to deeply know about the conversation and understand about the context construed in the conversation. After that, there were several steps in making analysis of the utterances. First, the researcher the researcher must listen carefully to the recording before transcribing the data. Then, researcher transcribed and segmented the sentences of the conversation into clauses.

## FINDING AND DISCUSSION

### Finding

Table 4.1 is the finding of Transitivity in Radiotelephony at Ahmad Yani International Airport.

Table 4.1 The result of Transitivity in Radiotelephony at Ahmad Yani International Airport

No.	Transitivity Types	Total	%
1.	Process		
	a. Material	43	65.15
	b. Mental	3	4.54
	c. Verbal	8	12.12
	d. Relational	12	18.18
	$\Sigma$ Process	66	100
2.	Participant		
	a. Actor	22	25.88
	b. Goal	31	36.47
	c. Phenomenon	3	3.52
	d. Sayer	1	1.17
	e. Receiver	1	1.17
	f. Verbiage	5	5.88
	g. Carrier	9	10.58
	h. Attribute	11	12.94
	i. Token	1	1.17
	j. Value	1	1.17
$\Sigma$ Participant	85	100	
3.	Circumstance		
	a. Place	17	35.41
	b. Time	7	14.58
	c. Manner	9	18.75
	d. Cause	6	12.5
	e. Matter	9	18.75
$\Sigma$ Circumstance	48	100	

Based on the table above, the researcher found some processes, participants and circumstances that involved in that data. The processes found in the review are material process, mental process, verbal process and relational process. The dominant process found in the recording is material process. It means that there is an action to do. Moreover, the researcher also found participants involving in recording of Radiotelephony at Ahmad Yani International Airport.

The participant involved are actor, goal, senser, sayer, behavior, phenomenon, range, receiver, token, value, carrier, attribute, and verbiage. The dominant number of participant occurred in the data is goal and followed by actor. The table also shows the number of circumstances. The circumstances found in recording of Radiotelephony at Ahmad Yani International Airport are circumstance of place, time, matter, and accompaniment. The most occurrence of the circumstance found in recording of Radiotelephony at Ahmad Yani International Airport is circumstance of place.

### Discussion

The following table shows the number of processes found in recording of Transitivity Analysis in Radiotelephony at Ahmad Yani International Airport.

Table 4.2 The list of processes in recording of Radiotelephony at Ahmad Yani International Airport

No.	Process	Total	%
1.	Material	43	65.15
2.	Mental	3	4.54
3.	Verbal	8	12.12
4.	Relational	12	18.18
Σ Process		66	100

Table 4.2 displays that in recording of Radiotelephony at Ahmad Yani International Airport, the dominant process of the data is material process with 43 clauses.

It means that there are actions to do in the utterances. The second place is relational process with 12 clauses: 1 clause belongs to identify process and 11 clauses belong to attributive process. Next is verbal process with 8 clauses. After that, there is mental process with 3 clauses.

### Material processes

In recording of Radiotelephony at Ahmad Yani International Airport, there are 43 clauses which contains material processes. The analysis of material processes can be seen below:

**Excerpt 1**

2.	LNI 511	on the departure	leaving	three thousand
	Actor	Circumstance Place	Process: Material	Goal

This clause is categorized as a material process. It is indicated by verb “leaving”. It shows a process of doing because the participant makes an action to leave the current height.

**Excerpt 2**

4.	continue climb	flight level 280
	Process: Material	Circumstantial Manner

The clause above is categorized as material process. It is indicated by a verb “continue climb.” It is categorized as material process because the verb “continue climb” relates to process of increasing the height of flight.

**Excerpt 6**

16.	Highspeed below ten	approved
	Goal	Process: Material

The word “approved” is categorized as material process. It means that the speaker as an actor make an approval about the highspeed below ten based on the excerpt 6 above.

**Relational Processes**

In recording of Radiotelephony at Ahmad Yani International Airport, there are 12 clauses which contains relational processes which belongs to 1 identifying process and 11 attributive processes. The analysis of relational processes can be seen below:

**a. Attributive Process**

On the radiotelephony, attribute (is, am,are) is usually deleted of ellipsis, it is because of the standart of radiotelephony itself, which provide clear, concise, and unambiguous language to communicate messages of a routine nature among the pilot, co-pilot also Air Traffic Controller.

**Excerpt 13**

32.	Arrival (is)	01:30
	Carrier (Process: Attributive)	Circumstance: Time

This clause above is categorized as relational process. It is considered as relational process of attributive - intensive. It is realized by “is” as attributive. This clause is categorized as relational – attributive process because it is being used to assign the arrival of the plane.

**Excerpt 15**

42.	GIA 232,	runway in use (is)	31,
	Actor	Carrier (Attributive intensive)	Attribute

This clause above is categorized as relational process. It is considered as relational process of attributive - intensive. It is realized by “is” as attributive. This clause is categorized as relational – attributive process because it is being used to assign the runway use by the actor (GIA 232).

**b. Identifying Process****Excerpt 20**

72.	I	am	ready	for descend
	Token	Identifying	Value	Circ: cause

The clause above is categorized as relational process. It is considered as relational process of identifying - intensive. The process shown by “am”. It is being used to identify something.

**Verbal Process**

In recording of Radiotelephony at Ahmad Yani Airport, there are 8 clauses which verbal processes. The analysis of verbal processes can be seen below:

**Excerpt 21**

13.	report	passing nine thousand
	Verbal	Verbiage

It can be seen that the clause above is categorized as verbal process. It is indicated by a verb “report”. This clause is categorized as verbal process because a verb “report” is identified as process when the pilot reporting to ATC about plane heights.

**Mental Process**

In recording of Radiotelephony at Ahmad Yani International Airport, there are 3 clauses which mental processes. The analysis of mental processes can be seen below:

**Excerpt 23**

9.	and	estimate	arrival	Jakarta	00:06
		Mental	Phenomenon	Circ: Place	Circ: Time

From the clause above, it can be seen that there is a mental process upon it. It is realized from the word “estimate” which is meant to form an idea about the time arrival schedule based on the context above.

**Types of Participant and Circumstance**

**Types of Participant**

The following table shows the number of participants in recording of Radiotelephony at Ahmad Yani International Airport, there are many kinds of participants that involved in each process.

Table 4.3 the list of participants in recording of Radiotelephony at Ahmad Yani International Airport.

No	Participant	Total	%
1.	Actor	22	25.88
2.	Goal	31	36.47
3.	Phenomenon	3	3.52
4.	Sayer	1	1.17
5.	Receiver	1	1.17
6.	Verbiage	5	5.88
7.	Carrier	9	10.58
8.	Attribute	11	12.94
9.	Token	1	1.17
10.	Value	1	1.17
Σ Participant		85	100

Table 4.3 displays that the goal (36.47%) is the dominant one over the other participants. It can be said that the goal in this recording implies that there are a lot of something which is done by the actor. Then the actor (25.88%) in the second place, after that there are attribute (12.94%), carrier (10.58%), verbiage (5.88%), phenomenon (3.52%), token (1.17%), and sayer (1.17%). Here the researcher gives some example of participant.

- a. Participant that involve actor and goal

**Excerpt 26**

We	check	Kidet point	00:06
Actor	Process: Material	Goal	Circumstance: Time

The clause above has two participant roles. The first one is actor. Actor is the entity who or which does something. The actor in this clause is indicated by a word “We” which is the entity who does something. The second participant is the goal. The goal is the participant at whom the process is directed or to whom the action is extended. The goal in this clause is shown by “Kidet point”.

- b. Participant that involve phenomenon

**Excerpt 27**

44.	Seven thousand	GIA 232	reviews	latest wind?
		Senser	Process: Mental Cognition	Phenomenon

It can be seen that the clause above has one participant role. It is called phenomenon. It is found in the word "latest wind".

- c. Participant that involve only sayer

**Excerpt 28**

79.	Alpha SJ 224 traffic	permit request run	in one later
	Sayer	Verbal	Circumstance: matter

It can be found that the clause above have one participant roles. The participant involved in the clause above is sayer. In this occasion, sayer is indicated by "Alpha SJ 224" that represented an initial of the plane.

- d. Participant that involves carrier and attribute as circumstance

**Excerpt 29**

64.	40 cent	(is)	on radial 277,711	from Alpha Yankee India Charlie
	Carrier	Attribute	Attributive as circumstance	Circumstance: Place

The clause above contains two participant roles. They are carrier and attribute. Carrier in this clause is realized by noun phrase "40 cent" and attribute as circumstance is realized by a word "on radial 277,711" that affected by carrier.

- e. Participant that involve token and value

**Excerpt 30**

72.	I	am	ready	for descend
	Token	Identifying	Value	Circ: cause

It is found that the clause above contains two participant roles. They are Token and value. Token in this clause is realized by a word “I”, that represented the pilot. “Ready” is value which affected by the process.

### Types of Circumstance

The following table shows the number of circumstances in the recording of Radiotelephony in Ahmad Yani International Airport.

Table 4.4 the list of circumstances in recording of *Radiotelephony in Ahmad Yani International Airport*

No	Circumstance	Total	%
1.	Place	17	35.41
2.	Time	7	14.58
3.	Manner	9	18.75
4.	Cause	6	12.5
5.	Matter	9	18.75
Σ Circumstance		48	100

From the table 4.4 about the list of circumstances in recording of Radiotelephony in Ahmad Yani International Airport can be seen that there are 48 circumstances. The most is taken by the circumstance of place. The frequency number is 17 or 35.41%. It reveals that in making a communication between pilot and ATC, there must be a destination place to identify the next destination or where the plane position is. The second position is placed by circumstance of manner. The frequency number is 9 or 18.75%. Then, it is followed by the frequency number of circumstance of matter as 9 or 18.75%, while circumstance of time is used 7 or 14.58%. Below are the examples of each circumstance.

a. Circumstance of place

**Excerpt 31**

2.	LNI 511	on the departure	leaving	three thousand
	Actor	Circumstance Place	Process: Material	Goal

There is a circumstance of place which is found in the clause above. It can be seen from the word “Semarang”. It is a name of place which is known as the capital city of Central Java. According to the context above, this circumstance of place has a purpose to greet the participant in that area since it is a radiotelephony communication.

b. Circumstance of manner

**Excerpt 34**

4.	continue climb	flight level two eight zero
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	Process: Material	Circumstantial Manner
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The finding above shows that there is a circumstantial of manner. It is realized by the words “flight level 280”. The purpose of circumstantial of manner is to tell the quality of the process is. In relation to this context, ATC wants pilot to go to the height based on ATC approval.

- c. Circumstance of matter

**Excerpt 36**

51.	Only 35	missing	level 40,
	Circumstance: Matter	Material	Goal

The table above shows that there is a circumstance of matter. It is realized by the word “only 35”. It means that the action which followed by goal is about only in that kind of matter.

- d. Circumstance of time

**Excerpt 37**

31.	we	check	Kidet point	00:56
	Actor	Process: Material	Goal	Circumstance: Time

It can be realized on the table above that there is a circumstance of time. It is shown by “00:06”. The purpose of this circumstance is to know when the plane will be reach the Kidet point.

**Contextual Description in recording of Radiotelephony in Ahmad Yani International Airport on February 20, 2014**

**Field of Discourse**

This part is about the discussion of contextual description of field of discourse in recording of Radiotelephony in Ahmad Yani International Airport. There are two descriptions which consists of field of the discourse and the commentary. Field of the discourse is realized by experiential domain, short – term goal, and long – term goal. Experiential domain is what the text is all about the process, the participants, and circumstances. Short – term goal refers to the immediate purpose of the text’s production. Then, long - term goal is rather more abstract and refers to the text’s place in larger scheme of things. The field of discourse supports the context of situation of a text or discourse. This explains how the experiential or ideational meanings are realized through the transitivity pattern of the grammar, and thus explains the contextual configuration of the particular text.

The experiential domain recording of Radiotelephony in Ahmad Yani International Airport tells about a communication between Pilot, Controller, and Co-Pilot in a different time. Beside the experiential domain, in this review there is also

short – term goal. The short - term goal is informing about the recording of Radiotelephony at Ahmad Yani International Airport on February 20, 2014. Meanwhile, the long – term goal Radiotelephony in Ahmad Yani International Airport is to communicate between pilot and controller in Air Traffic Controller.

### **Commentary**

The field of the discourse is realized through the lexico-grammatical feature, which in turn by the processes, the participants and the circumstance. Based on the analysis, material process (65.15%) dominates over the other processes. Although the text is the command and information about the position of the plane in the air, the dominated process is material process because the participants in this data use a process of doing more than the others. In line with the domination of material processes, the participant – goal (36.47%) dominates over the others. And for the circumstance, circumstance of place (35.41%) dominates over the other circumstance. It means that the text explains many situations of place where the action happened. The examples are: 31 miles, Semarang, Surabaya, and so on.

### **A Particular Process is being Dominant**

In the recording of radiotelephony at Ahmad Yani International Airport on February 20, 2014 the researcher found material processes as the most dominant among the processes. In line with the domination of material processes, goal dominates over the participants. For the circumstance, circumstance of place is the most dominant among others.

Those being dominant because of radiotelephony has specific and very particular characteristics which written on the *phraseology*. The International Civil Aviation Organisation created this to cover most common and ordinary situations encountered in air aviation, also to optimize and ensure safety in radiotelephony.

### **CONCLUSION**

After analyzing the data in chapter 4, the researcher concludes that the data of this study were taken from five recordings of Radiotelephony between Pilot and ATC in Ahmad Yani International Airport in February 20, 2014. The aim of this study is to convey the field of the discourse in the conversation by using transitivity. Transitivity is concerned with construing one particular domain of our experience in the world, both external world of happenings and events, and our own internal world of thoughts and feelings. The dominant process found in recording of Radiotelephony at Ahmad Yani International Airport is Material Process. It means that there is an action to do. Moreover, the researcher also found participants involving in recording of Radiotelephony at Ahmad Yani Airport. The participant involved are actor, goal, sensor, sayer, behavior, phenomenon, range, receiver, token, value, carrier, attribute, and verbiage. The dominant number of participant occurred in recording of Radiotelephony at Ahmad Yani International Airport goal which is followed by actor. According to the analysis, material process

(65.15%) dominates over the others. It means pilot or co-pilot do a command given by Air Traffic Controllers. In line with the domination of material process in this study, the participant – goal (36.47%) dominates over the others. The circumstances found in recording of Radiotelephony at Ahmad Yani International Airport are circumstance of place, time, matter, and accompaniment. The most occurrences of the circumstance found in recording of Radiotelephony at Ahmad Yani International Airport is circumstance of place. Those processes are dominant among others because of the standart of radiotelephony which cover common and ordinary situations encountered in air aviation, also to optimize and ensure safety in radiotelephony.

The contextual description is realized through the lexico-grammatical features through the realization of experiential domain, the short term goal and long term goal. The experiential domain of the discourse is about a continuously communication between pilot, co-pilot, and both control and cockpit in the air ground communication or it is called as radiotelephony. While the short term goal of the discourse concludes that the speakers use mostly material and verbal process to share information during the journey in the air.

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