Cognitive Structuring of Research Articles in Philippine English

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Using the models of cognitive structuring in writing research articles proposed by Swales (1990); Hopkins & Dudley-Evans (1988); genre analysis model of Bhatia (1993); and argumentative writing strategies of Ho (2004), the study analyzed research articles (RAs hereafter) written in Philippine English and published in the *Philippine Journal of Linguistics*, *Philippine Journal of Science*, and *Matimyas Matimatika*. The study determined the underlying cognitive structuring and the optional and obligatory steps found in the moves of the cognitive structures of the I-M-R-D sections of research articles in linguistics, mathematics, and science, written by Filipino professionals. The cognitive structuring of the RAs analyzed in this study is in conformity with the proposed models of cognitive structuring in terms of the moves and the linguistic exponents used in them. However, variations among the steps in each move were found across sections of RAs in linguistics, mathematics, and science written in Philippine English.

Key words: genre analysis, cognitive structuring, research article, Philippine English

1. Introduction

While studies on the cognitive structuring of research articles written in native-speaker (NS) Englishes (i.e. American English (AmE), British English (BrE), etc.) offer interesting insights into the genre of research article, this article argues primarily that the cognitive structuring of research articles written in Philippine English (a non-native speaker (NNS) English) – specifically, research articles in linguistics, mathematics, and science written by Filipinos – are also worth analyzing. This is because there are some distinct characteristics in the cognitive structuring of research articles written in non-native speaker (NNS) English. Similarly, there may be some peculiarities in the cognitive structuring of research articles in linguistics, mathematics and science, written by Filipinos due to the different communicative purposes addressed in each of these three discourse communities. Second, of greater interest is the need to conduct more studies on Filipino research articles. Rojo-Laurilla (2002) posited that much has been said about other 'Asian writing styles' but not much about the rhetorical styles of Filipino writers and that "to establish what is Filipino is to put it in a

position uniquely its own, rather than to have it stereotyped with others" (Rojo-Laurilla, 2002, p. 68). The third important reason for doing this study is the fact that not much has been studied on the cognitive structuring of research articles in linguistics, mathematics, and science written in Philippine English.

This article has a two-pronged objective: to examine distinct features of the cognitive structuring of research articles written in Philippine English, and to determine the obligatory and optional elements that are common in research articles in linguistics, mathematics, and science written in Philippine English.

Research articles used in this study are assumed to demonstrate organizational structures that reveal what Brylko (2002, p. 40) refers to as 'logical sequence of rhetorical moves- steps' that may characterize the cognitive structuring of research articles written in Philippine English. Furthermore, it is assumed that the cognitive structuring of research articles in linguistics, mathematics, and science written by Filipino professionals, differs from one another in some aspects.

2. Theoretical background

The present study used the Bhatia (1993) model of genre analysis called *structural interpretation* of the text-genre which highlights the cognitive aspects of language organization. Bhatia (1993) proposed that "specialist writers seem to be fairly consistent in the way they organize their overall message in a particular genre," and analysis of structural organization of the genre reveals preferred ways of communicating intention in specific areas of inquiry. Cognitive structuring is the "conventional and standardized organization" of a written text and is characterized by the "rhetorical moves the members of specialist community carry out as organizational patterns of their writings" (Bhatia, 1993, p. 26).

Swales' (1990) CARS (Create-A-Research-Space) Model also lends credence to this study. The model suggests a conventional structure of three-sequenced moves: Move 1 (Establishing a territory), Move 2 (Establishing a niche), and Move 3 (Occupying the niche). Similarly, Hopkins and Dudley-Evans (1988) have distinguished a ten-move structure in the results and discussion sections of research articles. They suggested that these "moves occur in cycle in which the writer chooses an appropriate sequence of moves" (p. 20). Ho's (2004) argumentative writing strategies draw on genre analysis in the tradition of Swales (1982, 1984, 1986, 1990). As a whole, these key concepts have buttressed the present study. Much of the interpretation done in this study depended on these theoretical and conceptual models.

3. Methodology

As an exploratory investigation, this study analyzed the cognitive structuring of research articles in linguistics, mathematics and science written in nonnative-speaker (NNS) English, specifically Philippine English. Data have been analyzed based on the frameworks of Swales (1990), Bhatia (1993), Hopkins & Dudley-Evans (1988), and Ho (2004). I-M-R-D (Introduction-Methods-Results-Discussion)

sections were identified as the discourse structure of RAs used in this study. Each of the I-M-R-D sections was divided into blocks divided into moves, and each move divided into steps. The present study has used moves and steps which were identified as pragmatic units and which correspond to speech acts as the unit of analysis.

This study used a corpus of thirty research articles, which were chosen purposively from the *Philippine Journal of Linguistics*, the official publication of the Linguistic Society of the Philippines (LSP); *Philippine Journal of Science*, a semi-annual scientific publication of the Science and Technology Information Institute - Department of Science and Technology (STII-DOST); and *Matimyas Matematika*, which is published four times a year jointly by the U.P. Institute for Science Education Center and the Ateneo-FAPE Graduate Center for Mathematics.

With the help of specialists from each discourse community (or discipline), the researcher chose ten research articles from each of the three disciplines – linguistics, mathematics and science. Specifically, a modified Step 4 (selecting corpus) of Bhatia's model of genre analysis (1993, p. 23) guided the researcher and the specialists in choosing the corpora of the study. The articles were chosen, based on the following steps:

Defining the genre that one is working with

In this study, a research article is defined as a written text (although often containing non-verbal elements), usually limited to a few thousand words, that reports on some investigation carried out by its author or authors. In addition, the RA will usually relate the findings within it to those of others, and may also examine issues of theory and/or methodology. It is to appear or has appeared in a research journal, or less typically in an edited book-length collection of papers (Swales, 1990, p. 93).

Stating criteria for deciding whether a text belongs to the genre of research article

The criteria are as follows:

1. The research article must be written or co-authored by Filipino writers.
2. The research article must reflect the expertise and experience of the author or writer. These are indicated or implied in the recurring or frequent publication of the author or writer.
3. The article must contain all of the I, M, R and D or at least the I and R sections.
4. The research article must be focused on the various areas of linguistics, mathematics and science.

Deciding on a criterion for an adequate selection of the corpus

Since this study was exploratory, ten (10) research articles from each of the three disciplines (or discourse communities) – linguistics, mathematics and science – were chosen from the various issues of the three journals identified as sources of language data. Four issues of the *Philippine Journal of Linguistics* (PJL), five issues of *Matimyas Matematika* (MM), and five issues of the *Philippine Journal of Science* (PJS), were used as sources of research articles analyzed in this study. The year of publication varied for purposes of comparability of text. The corpus of RAs in linguistics was published in 2002, 2003, and 2004; the corpora of RAs in science and RAs in mathematics were published in 2000, 2001, and 2002.

4. Results and discussion

For results and discussion, sample analysis of the cognitive structure, that is, move-steps found in the cognitive structuring of the genre analyzed in this study is presented. Here is a sample analysis of the moves and steps in the cognitive structuring of an introduction section of RA in mathematics that was used in this study.

Figure 1. A sample move-step analysis of Introduction section of RAs in mathematics

Para	Move-Step	S	Text
1	1-3	1	The use of ranked spaces as a new approach in the theory of general topology was proposed by K. Kunugi in 1954.
	2-1B	2	Unfortunately, this new method has not been well-known outside Japan.
	1-3	3	In [5] Nakanishi used a special ranked space called Hilbertian CN-space with nuclearity and defined the Henstock integral of a function with values in the said space.
		4	Also, she showed that the Henstock lemma, which does not always hold infinite dimensional spaces, holds in such a space.
	3-1A	5	In this paper, we give the structure of a ranked space and define some concepts related to it.
		6	We define r-limit and r-differentiability of functions with values in a ranked space.
		7	Relationship between r-differentiability and the ordinary concept of differentiability of functions in CN-space will be given.
		8	Also, we show that the primitive of a Henstock integrable function with values in a Hilbertian ranked CN-space that is endowed with nuclearity is r-differentiable.

Legend: Para- paragraph   S- sentence

This RA introduction is a paragraph consisting of eight sentences. The discourse opens with Move 1 *Establishing Territory*. The RA writer established territory by *reviewing items of previous research* (Step 3) and also gave reference to support his statement. In sentence 2, the author *established a niche* (Move 2) by *indicating a gap* (Step 1B). To Swales (2004), a *niche* is a "context where a particular piece of research makes particular good sense" (p. 244). The gap was signaled by two forms of lexical negation – the adverb *unfortunately* and the verb *has not been* – which serve as the linguistic exponents of Step 1B (*indicating a gap*) in Move 2 (establishing a niche).

The third sentence beginning: *'In [5] Nakanishi used...'* is a review of items of previous research, which goes right through the fourth sentence: *'Also, she showed....'* These two sentences (3rd and 4th) are Step 3 (*reviewing items of previous research*) of Move 1 in the CARS Model and should have occurred before any step in Move 2. But in the sample (and in many cases of the introduction section of RAs in Philippine English) Step 3 of

Move 1 comes after Move 2. This case is referred to by Swales (1990) as anomalous, and represents semi-cyclicity. Swales (1990, p. 157) explained this phenomenon by saying that "niche establishment does not necessarily occur only at the end of literature review, but many follow reviews of individual items," so that cycle of Move 1/Step 3 and Move 2 recur.

In the genre under study, it is Move 1 that was found to be occurring in cycle in the Introduction section of RAs analyzed. This finding implies that a number of cases involving cyclicity are most likely to be found in the genre under study. In the fifth down to the eighth sentence, the author *occupied the niche* (Move 3) by *outlining purposes* (Step 1A). As shown in the sample. Step 1A of Move 3 is signaled by the phrase *'In this paper.'* The main purposes of the RA are indicated through the following linguistic signals: *'we give the structure of... and define some concepts....'*; *'we define r-limit....'*; *'Relationship between... will be given.'*; *'Also, we show that the ...'*; and takes the reader to the end of the paragraph. There are other linguistic exponents of Step 1A of Move 3 found in the Introduction section of

RAs used in this study, for example: *In this paper, we shall focus on...; we discuss in this paper...; The main concern of this paper is to determine...This present paper will show that...* etc. With these linguistic signals, the niche established in Move 2 is turned into the research space that justifies the present article (Swales, 1990 159).

For the Introduction section of RAs in linguistics, a sample analysis of the moves and steps found in the cognitive structuring of the introduction section is provided in Figure 2. Note that some of the descriptions given by Swales (1990) have been adopted and modified to make it possible for the researcher to define and describe these moves and steps, as used in the genre of research article in linguistics prepared by Filipino writers.

Figure 2. A sample move-step analysis of Introduction section of RAs in linguistics

Para	Move-Step	S	Text
1	1-2	1	As a filed of inquiry, Contrastive Rhetoric (henceforth, CR) started with investigations of student writing in an attempt to describe differences in thinking patterns (Kaplan, 1966, and Connor, 1996).
		2	However, as the field grew, it also expanded to studying non-academic types of writing.
		3	Moreover, CR has continuously emphasized the role that culture plays in the development of writing (Kachru, 1997).
2	1-3	1	Noteworthy are several studies that relate to cultural differences in writing.
		2	Eggington (1987) studied Korean academic discourse.
		3	In his article, he cited Kaplan who characterized the Korean writing style as "marked by indirection...."
		4	There is a tendency to turn around the subject and show from the a variety of tangential views. Korean writing style is also characterized by the 'some people say' formula, especially when
		5	one is taking a somewhat controversial stand (p. 154). In addition, the Korean preferred rhetorical structure is the **ki-sung-chon-kyul** where the essay
		6	begins an argument, next few paragraphs develop that argument, the middle part states the main point, next few paragraphs state concepts indirectly connected, and the concluding paragraph ends or conclude the main theme (Eggington, 1987, p. 156).
3	1-3	1	Hinds (1983) had earlier studied Japanese writing style.
		2	He found that a common organizational framework for Japanese compositions is the **ki-shoo-ten-ketsu**, a pattern that originated in classic Chinese poetry.
		3	As defined by Takimata (1976, p. 26, as cited by Hinds, 1983), *ki* begins the argument, *shoo* develops the argument, *ten* is where an unexpected element is intruded into otherwise normal progression of ideas, or becomes the sub-theme which is not directly connected to the theme, while the *ketsu* attempts to bring together all previous elements to reach a conclusion.
		4	For their part, Mohamed and Omer (2000) attempted to relate texture of texts to culture, while Ostler (1987), who conducted a contrastive study of Arabic and English expository texts, highlighted the differences in terms of culture
4	1-3	1	Moving on to another aspect of contrastive rhetoric research, Reynolds' (1993) study focused on analyzing the editorial as a genre.
		2	Scollon (2000) studied the generic variability of texts in a Chinese newspaper and its English counterpart.
		3	Kamimura and OI (1998) attempted to study a single type of text (English argumentative essays) but written by two different types of writers, Americans and Japanese.
		4	These studies all point to a variety of ways by which to analyze written texts within the CR framework.
5	2-1B	1	While these studies offer interesting insights into cultural similarities and/or differences in writing across different languages, this paper argues primarily that writing within the bilingual context such as the Philippines is also of interest.
		2	This is because there may be some distinctions in writing styles in L1 (Filipino) and L2 (English).
		3	Second, of greater interest is the need to conduct more studies on the Filipino language to significantly contribute to the field of CR.
		4	Much has been said about other "Asian" writing styles, but not much of the Filipino rhetorical style.

		5	To establish what is "Filipino" is to put it in a position uniquely its own, rather than to have it stereotyped with the others.
		6	The third important reason for doing the study is the fact that not much has been done on advice columns.
		7	Advice columns are a common sight in Filipino magazines or tabloids, or even in some broadsheets, although most of them are published only occasionally.
		8	Because of this Filipino penchant for advice-seeking and advice-giving, it may be interesting to study such a phenomenon.
6	3-1A	1	The focus of the research is two-pronged.
		2	First, there is a need to discover the general characteristics of the genre of Philippine advice columns.
		3	Second, since the acts of advice- seeking and advice- giving ultimately have the elements of self-disclosure due to the act of revealing the problem and seeking solutions, and "alignment" of the advice-seeker, a person who needs help, and the advice-giver, one who is perceived to be credible on the problem at hand, the paper will then look at how self-disclosure appears in advice columns and how both present themselves – how advice-seekers present themselves in relation to the perceived experts and vice-versa.
7	3-4	1	This two-pronged approach leads to the following research questions:
		2	1. How is the genre of Philippine advice columns characterized?
		3	What are its features?
		4	What is the dominant organizational pattern?
		5	2. How is self-disclosure developed in the advice column?
		6	When does it occur?
		7	To what extent is self-disclosure evident in advice columns?
		8	3. How do advise seeker and advice giver present themselves?
		9	What framing devices are used?

Legend: Para- paragraph   S- sentence

Analysis reveals that Move 1 (Establishing Territory) in the Introduction section of RAs in linguistics utilizes only two step options, namely, Step 2 (Making topic generalizations) and Step 3 (Reviewing items of previous research). The Introduction section of RAs in linguistics characteristically opens with a topic generalization of Step 2 type. To Swales (1990), Introduction sections that open with Step 2 type generally do little to appeal to any but those with specialized interest in the research to be reported (p. 145). As such, the opening paragraph of the sample text makes a strong claim that the about-to-be-described findings would be of central interest only to those discourse community members who are particularly interested in contrastive rhetoric. As a whole, further analysis of the sample Introduction suggests that the use of Step 2 in the opening paragraph may be due to what Swales (1990) refers to as the author's desire to establish early that the research was based on a very extensive field work (p. 144).

Besides making a topic generalization, Step 2 of Move 1 also attempts to gain the attention of the readers by making statements either about *knowledge* or *practice* or about *phenomena* observable in a particular field of linguistics. Representative authentic examples of statements about knowledge or practice observable in a particular field in linguistics are presented below. In all cases, they are taken from the Introduction section of RAs in linguistics used in this study.

The usual practice of several English teachers doing the sole job editing their students' compositions is becoming passé most especially among college students who are taught the process approach to writing (Cusipag, 2004:99).

Thus patients' communication skills are just as important in helping facilitate clinical consultations (Adeva, 2004:41).

Moreover, CR has continuously emphasized the role that culture plays in the development of writing (Rojo-Laurilla, 2002:27).

Research on cross-cultural news writing is important because ESL students are news readers (Gustilo, 2002:54).

The interplay between language and culture has been one of the major concerns of contrastive rhetoric particularly after the publication of Kaplan's (1966) "Cultural Thought Patterns" which claimed that the rhetorical organization is a reflection of one's thought and cultural practices (Genuino, 2002:1).

Previous studies of the grammar of Philippine English have highlighted differences in verb usage from Standard American English (Bautista, 2002:1).

As can be seen from these excerpts, Step 2s characteristically express in general terms the current practices or state of knowledge, or technique or of current practice in contrastive rhetoric for further development. The other kind of Step 2 refers to phenomena, such as the following:

(a1) Recent work in contrastive rhetoric (Connor, 1996; Simpson, 2000; Lautamatti, 1987; Mohamed and Omer, 2000; Ostler, 1987; Thatcher, 2000) has recognized the relationship of language and culture in the development of writing conventions and rhetorical patterns within specific discourse communities (Gonzales, 2002:19).

(a2) The phenomenon of World Englishes is a reality in language development widely accepted all over the world (Rañosa-Madrunio, 2004:67).

(a3) An interesting phenomenon in multilingual contexts like the Philippines is the mixing of languages in almost every text produced or discursive practice conducted (Dayag, 2002:34).

As these examples indicate, *phenomena* topic generalizations particularly tend to establish territory by emphasizing the recency and complexity of the data. In the case of (a1) territory is established via current phenomenon taking place in contrastive rhetoric. In the contexts of (a2) and (a3) territory is established by stating that the phenomena under investigation are universal (i.e., the phenomenon is widely accepted all over the world (in (a2)) and interesting (as in (a4)) and thus, makes the RA writer advance knowledge claim that the about-to-be-reported result of an investigation is provisionally promising (Swales, 1990, p. 147).

The third step in establishing a territory has been labeled "reviewing items of previous research." Swales (1990) explained that Step 3 is where the RA writer relates "what has been found (or claimed)" with "who has found it (or claimed it)." Further, more precisely in Step 3, the RA writer needs to provide "specification" (in varying degrees of details) of previous findings, an "attribution" to the research workers who published those results, and a "stance" towards the findings themselves (p.148).

In the case of RAs in linguistics under study, Step 3 of Move 1 was used in eight out of the 10 Introduction sections analyzed. These findings led to the implication that "reviewing items of previous research" in establishing a territory is of overriding importance to the Filipino RA writers. This is due largely to the fact that, as shown in the genre under study, Step 3 ascertains that the about-to-be-reported

findings of a research are based on very extensive field work.

The analysis now turns to how Move 2 in the CARS model of Swales (1990) was employed in the genre under study. Move 2 of the CARS Model has been labeled *Establishing a Niche* which involves four optional steps. These steps are as follows: Step 1A *outlining purposes* or Step 1B *indicating a gap*; Step 2 *announcing present research*; and Step 3 *indicating structure of the article*. Of these steps, Step 1B *indicating a gap* is fairly common among RA introductions under study.

In the sample analysis of the Introduction section of RAs in linguistics, Step 1B establishes a niche for about-to-be-presented findings of a research study or an investigation. The niche was established via a gap. The gap is usually indicated after a review of previously researched items. The indicated gap helped establish a slot (a niche) for the present research in the field.

For this reason, the foregoing analysis suggests that Step 1B *indicating a gap* is typical of Move 2 employed by Filipino writers of RAs in linguistics in establishing a niche when creating a research space. The gap is specified via negative or quasi-negative quantifiers such as *not*, *no* and *little*. The gap, therefore, suggests scarcity of study on a particular genre or rhetoric. This finding is comparable with the findings of Swales (1983) in his survey of 100 Move 2 instances drawn from research articles from a range of fields including physics, geology, psychology, and even compositions.

In the light of these findings and analyses, it is now safe to say that Move 2 of the CARS model elaborates rhetorical work undertaken by Filipino writers of RAs in linguistics in creating a research space.

Move 3 has been labeled *Occupying the niche*. Swales (1990) explained that the role of Move 3 is to turn the niche established in Move 2 into the research space that justifies the present article. Further, Move 3 variously offers to fill the gap created, substantiate the particular counter-claim that has been made, answer the specific question, or continue the rhetorically-established tradition (p. 159).

Move 3 'occupying the niche' involves three steps. Step 1 (either 1A outlining purposes or 1B announcing present research) is obligatory. Steps 2 and 3 are optional. However, in the genre under study, RAs in linguistics reveal that both steps (1A and 1B) were employed in occupying the niche that has been established in Move 2. Both Step 1A and Step 1B were employed by Filipino writers of RAs in linguistics in occupying the niche when creating a research space. Judging from the number of instances of use, however, the findings reveal that Step 1A is more preferable than Step 1B as eight out of 10 RA introductions analyzed employed Step 1A.

Still on the CARS Model of Swales (1990) Step 1A or Step 1B in Move 3 may be optionally followed by Step 2 'announcing principal findings' or Step 3 'indicating structure of the research.' However, the Introduction sections of eight out of 10 RAs in linguistics used in this study revealed a different reality. In these eight RAs in linguistics, Move 3 typically ends with statements of research questions. Since Swales (1990) did not say anything about Move 3 ending with statements of research questions (though he mentioned question raising in Move 2), the researcher thus modified the CARS Model to include Step 4 'stating research questions' in Move 3, i.e., in occupying the niche in creating a research space.

Analysis of the cognitive structuring of the Introduction section of RAs in science written by Filipino writers also reveals some interesting findings. Like the cognitive structuring of the Introduction sections of RAs in linguistics and RAs in mathematics, the 'I' section of RAs in science analyzed in this study also contains three moves.

Figure 3. A sample move-step analysis of Introduction section of RAs in science

Para	Move-Step	S	Text
1	1-2	1	The conversion of forests to other land uses particularly agriculture is a common problem in the humid topics.
		2	In the Philippines, it is believed to have contributed greatly to the widespread occurrence of soil degradation, a negative soil change which is one of the most serious ecological problems in the country today (Asio, 1997 and 1998).
		3	Degraded soils particularly in uplands contribute to siltation of rivers, lakes and seas aside from the fact that they have very low agricultural productivity.
2	2-1B	1	While the immediate effect of forest removal on the soil is generally well-known (Nye and Greenland, 1960; Lal, 1986), the long term effect ofs of the secondary land uses which replace the forest is not yet understood.
		2	It has been reported, for instance, that the clearing of tropical forest for agriculture does not necessarily lead to soil degradation (Blum, 1983) or that the extent and severity of soil degradation depends on the cultivation system and management (Theng, 1991).
3	1-2	1	Volcanic soils, particularly Andisols, comprise a relatively small extent of the world's land surface (124 million hectares) but they represent a very important land resource due to the disproportionately high human populations living in these regions (Shoji et al., 1993).
		2	Andisols are also a major soil in the Philippines (Briones, 1982; Otsuka et al., 1988) and, therefore, play a vital role in agriculture.
3	2-1B	3	Until now, very limited information have been published concerning the changes in soil properties particularly of an Andisol resulting from forest conversion in the Philippines.
3	3-1A	4	This study was therefore conducted to determine the changes in some chemical and physical properties of an Andisol as a result of forest conversion to secondary land uses in the island of Leyte.

Legend: Para- paragraph   S- sentence

In this research article introduction, territory was established via Step 2 'making topic generalizations.' The first three sentences in the opening paragraph established the research topic by generalizing that *'the conversion of forests to other land uses has contributed greatly to the widespread occurrence of soil degradation – a negative soil change (Asio, 1997 and 1998).'* This topic generalization is supported by a reference, which strengthens the claim made by the author as regards conversion of forests to other land uses. Also, in this RA introduction, the writer needed to establish a case for the subject of the research report (Bhatia, 1993) in order to create a research space and to justify the publication of his/her research report. Furthermore, Step 2 'making topic generalizations' typically marks the beginning of the Introduction section of RAs in science used in this study.

The generalized topics were invariably placed in the opening sentence of the first paragraph in the Introduction section of RAs in science analyzed in this study. These generalized topics served to introduce the about-to-be-reported findings of a research article by means of establishing territory. As used in the Introduction section of RAs in

science under study, Step 2 of Move 1 (in the CARS Model) appeared in the form of simple statement of the main topic of the research article.

The Introduction section of RAs in science also contains an attempt to establish a niche (Move 2) by indicating a gap (Step 1B). The author indicated a gap by saying that '*the long-term effects of the secondary land uses is (sic) not yet understood*'. The gap is included in the main clause in the first sentence of the second paragraph. Lexically, the gap was indicated by means of negation in the verb phrase '*is not yet understood.*'

However, an evidence of cyclicity has been found to have occurred after indicating the gap (Step 1B of Move 1). The succeeding sentences do not only explain the indicated gap but also make another particular generalization about Andisols, a major soil in the Philippines. Making generalizations, as has been mentioned

earlier, is a step found in Move 1. And then, the next sentence (i.e., the third sentence of the third paragraph) further describes the gap and justifies the claim made earlier – that changes in soil properties due to secondary land uses are not yet understood – and states, thus: '*Until now, very limited information have been published concerning the changes in soil properties particularly of Andisol resulting from forest conversion in the Philippines*'. Hence, the indicated gap '*long term effects...is not yet understood*' is justified by the '*very limited information that have been published....*'

Finally, in the last sentence of the third paragraph, the author was able to occupy the niche (Move 3) by outlining purpose of the research article (Step 1A). Still on the sample text, the RA writer indicated the main purpose of the research article when he said that

This study was therefore conducted to determine the changes in some chemical and physical properties of an Andisol as a result of forest   conversion   to secondary land uses in the island of Leyte (Asio, 1999, p.2).

Interestingly, Step 1A of Move 3 has been found to be typically employed in the Introduction section of RAs in science written by Filipino writers. As used in the genre of RAs in science analyzed in this study, it was found that in Move 3 the opening step is a kind of promissory statement, and its onset is typically marked by (a) the absence of references to previous research and (b) the use of deictic references to the present text (Swales, 1990, p. 159).

Move   3-Step   1A   turns   the   niche established in Move 2 into a research space that explains satisfactorily the present research. Similarly, Move 3 offers to fill the created gap

and to achieve the specific objective of the research article. This finding is backed up by Swales (1990), who found that many, perhaps most, RA introductions end with a Move 3-Step 1A (p. 161).

We now turn to the analysis of the methods section of RAs analyzed in this study. Analysis of the cognitive structuring of the Methods section of RAs in linguistics used in this study reveals the moves and steps undertaken by the RA writers in describing methodology. Here is a sample analysis of the cognitive structuring of the Methods section of RAs in linguistics in Philippine English.

Figure 4. A sample move-step analysis of Methods section of RAs in linguistics

Para	Move-Step	S	Text
1	1-1	1	Twenty samples from the health advice column *Salamat Po, Duktor* (in *Liwayway*, a wekly magazine) constituted the Filipino corpus, while twenty samples taken from the relationships advice column *A Touch of Magic* (in *Mirror Weekly*) comprised the English corpus.
	1-2	2	The columns included in the Filipino corpus were published from February 18, 2002 to August 19, 2002, while those in the English corpus appeared from August 20, 2001 to January 28, 2002.
2	2-1	1	The unit of analysis of the study was Ostler's (1987) notion of discourse bloc, the largest unit of thought in the advice letters.
		2	The discourse blocs were divided into the following segments or portions: (a) introduction, (b) body, and (c) conclusion, for ease in the analysis and interpretation of data.
		3	Much of the analysis was framed within the said discourse bloc.
	2-2	4	In this paper data are presented in simple frequency counts.

The Methods discourse presented above gives a good indication of the research design, including information on the data, procedure or method, and the statistical treatment of data presented in the research article being reported. Move 1 (Describing the data or methods used) was utilized basically to describe the samples used in the analysis. This is done via Step 1 (Describing samples used in the analysis).

As can be seen in the analyzed texts, the indicated samples used in the analysis are usually quantified, exact and specific such as: *The data used in this study were 30 articles...;Twenty samples form...;Forty complaint letters...; A total of 42 news leads were extracted...;Ten Philippine Supreme Court criminal appeal cases...; A content analysis was done of four popular sets of English textbooks...;Fifty students...were used...; 41 ads made up the corpus of the study...; A total of 45 letters to the editor...;A total of 28 medical interviews...;* etc.

Step 2 (Indicating sources of materials used) of Move 1 has been found to be used to indicate source of samples used in the analysis. In the sample analysis presented herein, the source of samples has already been mentioned in Step (sentence 1). But sentence 2 further and specifically indicates the source of data by saying that '*the columns included ... were*

published (in Liwayway) from February18, 2002 to August 19, 2002 while those in the English corpus appeared from August 20, 2001 to January 28, 2002 (in Mirror Weekly).' Hence, in this way, the RA writer is able to indicate and describe source of data used in the analysis.

In Move 2, the framework for analysis is described. Specifically, the method used in the analysis is explained in Step 1 (Explaining methods used) of Move 2 (Describing frameworks for analysis). As revealed by the texts analyzed, part of the explanation is labeling the framework (method) used or adopted for reporting the results of the study, as in: *by the study of Mahboob and Hartford (2000)...* and *has adopted the framework evolved by Poplack (1980).*

Finally, Move 2 ends with Step 2 (Indicating data treatment), as the following extracts show: *In this paper, data are presented in simple frequency counts*; *Frequency was converted into percentage and presented in tabular form.* Sometimes it ends with Step 3 (Indicating scope of the study), as in: *The focus of this study was on summary lead, the most commonly used lead in the two samples; ...to investigate which of the feedback patterns would work best in the peer-edited essays of freshmen students.*

As a whole, therefore, describing methods used in research or analysis being reported among RAs in linguistics is expressed in two moves and four steps. Through these moves and steps, the RA writer is able to present concise information on how s/he did the research or analysis in order to arrive at the results being reported.

Here is a sample analysis of different moves and steps in the cognitive structure of the Methods section of RAs in science prepared by Filipino writers.

Figure 5. A sample move-step cognitive structure of methods section of RAs in science

Para	Move-Step	S	Text
1	1-1	1	Sixteen adult *H. celebensis* were captured using a net trap in a commercial *Apis mellifera* apiary in Alfonso, Cavite in April and May 1994.
1	2-1	2	The birds were brought to the laboratory for gut analysis.
		3	Before dissection, the birds were killed by pressing the breast with the use of thumb and forefingers.
		4	The procedure in getting gut content was slightly modified from Deens (1973).
		5	The sex of the bird was distinguished by locating the ovary or testis. The weight of the bird was also taken.
		6	The gut contents were identified and weighed using an analytic balance.
		7	Identification of the species inside the gut was through examination of the head capsule.
		8	
2	2-1	1	In January and July, 1996, 17 and 19 adult *M.v. americanus* were captured respectively from the same apiary.
		2	The gut content, sex, and weight of the birds were determined following the procedure of *H. celebensis.* Some aspects on the flight behavior and habits of the birds were also noted.

Legend: Para- paragraph   S- sentence

The Methods sections of RAs in science used in this study typically opened with a Move1-Step 1 'Indicating Materials Used,' which states the materials used and the source of the materials. The statement is usually realized in a single sentence.

After the materials and source of the materials have been indicated, the next move is a Move 2 – Step 1, which is an indication of the experimentation procedure used in the RA. Move 2-Step 1 is a detailed explanation and concise indication of the experimentation procedure undertaken by the RA writer. Further, Figure 5 shows that the research or experimentation procedures were enumerated in such a way that the steps were clearly discussed. Somehow, this is done to ensure validity of results being reported. Also, it has been found that some of the Methods section of RAs in science used in this study ends with Move 2-Step 2 where treatment of data is likewise indicated.

Now, let us look at the cognitive structuring of the Results section of RAs analyzed in this study. The communicative purpose of the Results section of the genre under study is to principally present or report results of a research study. It is in this section of the RA where the RA writers tell what they discovered, usually by presenting a table or graph of the data. How the RA writers report results of the research is shown in the cognitive structuring of the Results section. The analysis which is based on the 'argumentative writing

strategies' of Ho (2004, p. 3) shows the moves-steps found to be occurring in the cognitive structuring of the Results sections of RAs in linguistics, mathematics and science prepared by Filipino writers. There are several features of the underlying cognitive structuring of the Results sections of RAs analyzed in this study that I would like to discuss briefly.

Figure 6. A sample move-step analysis of results section of RAs in linguistics

Move	Step	Text
Orienting	General Statement	The table above shows that maintenance of face is consistent in all three discourse blocks.
	Elaboration	This may be explained by the fact that the letter sender has to maintain the image of one who seeks the help of the expert, therefore, he/she must not appear to be more knowledgeable about the topic.
	Specific Statement	This maintenance of face is shown by the structures that have been revealed through the organizational pattern and the type of self-disclosure.
Focusing	Exemplification	For instance, the letter sender's profile was intended to provide a framework with regard to his identity.
	Specific Statement	The problem was stated in a very polite manner, through the use of *po* in the Filipino column most of the time and the use of *Tita* Anthea in the English column, which are markers that acknowledge authority of the advice giver.
Stating Claim	Problem	The concept of "out of face" was not applicable in the letter of the seekers in any part of the discourse bloc.
	Justification	This is because having maintained face, one cannot afford to be out of face.
	Problem	To "lose one's face" is not applicable in the introduction.
	Metastatement	However, it may be applicable in the body because this means revealing more of the problem...
	Definition	To "lose one's face" is the advice seeker's willingness to reveal his or her inadequacies in the elaboration of the problem or situation.
	Problem	The concept of losing one's face is also not applicable in the conclusion part because the goals for the conclusion are different.
	Justification	In fact, the said goals are parallel to the concept of "to give face" which is not applicable to the introduction and body.
	Elaboration	In the conclusion, the letter senders review their problems, thank the advice giver in advance for possible solution, thank him/her for responding to the problem even though no response has been made yet.
Rounding Off or Stating Final Stance or Summing Up	Evaluation	These markers indicate that the "glory" and "success" of the problem lies in the hands of the advice giver, and so the senders in effect "give face" to the givers.
	Conclusion	Both Filipino and English columns accord the same face work as far as the letter senders are concerned.

The Results section of RAs prepared by Filipino writers typically begins with *Orienting* move with three steps involved in the move, such as the following: *General Statement* states in broad, general terms the particular results being reported or the knowledge claim made by the RA writer; *Elaboration* provides details, particulars or other elaborations of the general statement, justification of the preceding statement; *Specific Statement* is where the RA

writer states a specific claim. This step has been found to occur at any point of the results section of RAs analyzed in this study. For instance, this step may also occur in the orienting move and in the subsequent moves.

The cognitive structure then proceeds to the next move known as *Focusing,* which enables the RA writers to focus their discussions on a specific area of results. This move usually involves two steps: (1) *Exemplification* illustrates an aspect of results expressed in the form of specific data or examples illustrated by the RA writer to support his claim; and (b) The next step that comes after exemplification in Move 2 is a specific statement. This step is similar to step 3 in Move 1.

The *Stating Claim* move is realized in seven steps, the most frequent of which are *problem, justification, definition, elaboration,* and *metastatement.* Ho (2004, p. 6) defines *Problem* as an aspect of a situation which requires a response. This step can be realized in the form of a statement or an explicit question. Used in the genre under study, the 'problem' step is mostly shown in some form of verbal negation. *Justification* is a step that provides details and particulars in support of a given statement. The next step is *Definition* which explains or interprets the meaning of a concept

or term, and *Metastatement* which is a step where the RA writer tells the readers explicitly that a stand is being taken. It helps the reader to "organize, classify, interpret, evaluate, and react" (Vande Kopple, 1985, p. 83) to the material or information about the subject of the text (Ho, 2004).

The last move undertaken by the RA writer in reporting results is called *Rounding off or Stating final stance or Summing up.* This move was typically used as a way of ending or concluding the Results section of RAs used in this study. The two steps that are most commonly used in this move are *Evaluation* and *Conclusion.* As explained by Ho (2004), *Evaluation* is a step where the RA writer discusses the 'worth of a statement, focusing further on its validity and degree of importance.' Another way of concluding the Summing up move is by way of *Conclusion.* It is a step where the RA writers summarize the points presented. This move also typically ends the Results section of the RAs used in this study.

Figure 7 is a sample analysis of the underlying cognitive structure of the Results section of RAs in mathematics analyzed in this study.

Fig. 7. A sample move-step analysis of results section of RAs in mathematics

Move	Step	Text
Orienting	General Statement Elaboration	Let us subject the graph in Figure 2 to a series of folding as shown in Figure 3. The graph was folded into the complete graph K_2.
Focusing	Specific Statement	Let us observe that each of the two vertices of K_2 was formed by putting together some vertices of the original graph.
Stating Claim	Specific Statement Elaboration	One of the vertices of K_2 was formed by the vertices 1, 3 and 5 while the other vertex was formed by the vertices 2, 4 and 6. Observe that the sets {1, 3, 5} and {2, 4, 6} are both independent sets.
Rounding Off/Stating Final Stance/ Summing Up	Evaluation Conclusion	This observation is easily to be true for all graphs. Thus, we state our first result without proof.

The Results section of the RAs in mathematics analyzed in this study has an underlying cognitive structure that is in conformity with the moves and steps suggested by Ho (2004). The *Orienting* move begins with a *General Statement* that introduces the claim to be presented by the author to the discourse community. The general statement was used to present background information to the facts or claims to be presented by the RA writer to the discourse community. This step is exemplified in the following excerpts:

In what follows, we will show that given the same functions f, g and h as in Proposition 1.7, any of the three properties is not necessary for the existence of the integral in Definition 2.1. From this point on, all integrals considered are, unless otherwise specified, Henstock-Stieltjes (Jamil, 2001, p. 4).

The *Elaboration* step in the orientation move is usually used to expand or to make a follow up to the previous statement. In this move, the elaboration step is usually accompanied by a figure that illustrates what is being elaborated, as in:
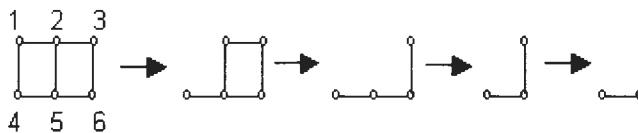
The graph was folded into complete graph K_2 (Gervacio, et al., 2001, p. 28). In some cases, the elaboration is followed by a proof that serves to support what is being elaborated:

Proof: Let $\epsilon > 0$ and be as in Definition 1.6. The function for all $\xi \in [a,b]$ is the desired function in Definition 1.8. (Canoy & Jamil, 2000, p.12).

The *Focusing* move utilized the *Specific statement* step where the RA writer focused on a specific area for discussion. The specific statement states in precise, explicit terms the offer (i.e., knowledge) or focus presented by the author to the discourse community. The following extract exemplifies this:

> *For any duality (,), the binary code C_1 associated with C with respect to this duality is self-orthogonal (Nocon, 2001, p. 33).*

The next move is called *Stating Claim.* The most commonly used steps in this move are specific statement and elaboration. *Specific statement* states a particular claim or specific proposition being offered by the RA writer to the discourse community as a result of the investigation or research undertaken by the RA writer. As used in the stating-claim move, *Elaboration* step generally provides details or particulars or other elaborations (Ho, 2004) that refer to the preceding statement, viz:

> *The sets {1, 3, 5} and {2, 4, 6} are independent sets (Gervacio et al., 2000, p. 28).*

In the following extract, *Elaboration* step is used to show the Cauchy Criterion and some elementary integral properties that help one determine the existence of an integral without knowing the value of the integral (Canoy, Jr. & Jamil, 2000, p. 12):

> *Theorem 2.2. (Cauchy Criterion). Let $A \in L(X, Y, Z)$, $f: [a,b] \to X$ and $g: [a, b] \to Y$. Then (HS) $A(f, dg)$ exists if and only if for every $\epsilon > 0$, there exists $(\xi) > 0$ on $[a,b]$ such that for any two -fine divisions D and D^* of $[a,b]$, we have*
> *(Jamil & Canoy, 2000, p. 13).*

The last and final move is *Rounding off* or *Stating final stance* or *Summing up* that involves two steps: Evaluation and Conclusion. The *Evaluation* step is generally used to express the worth or importance and validity of the claim offered or presented by the RA writer to the discourse community. The *Conclusion* step is generally used to recap the main points raised or claim presented by the RA writer to the discourse community. In some cases, this step is also used to restate the meaning of a mathematical solution stated in the report of results of proving a theorem. Below is an example:

> *Therefore, f is Henstock integrable to F(b) – F(a) = F (b) on [a,b] (Canoy, 2000, p. 8).*

Finally, the preceding analysis has revealed that the Results section of RAs in mathematics analyzed in this study conforms to established standards of cognitive structuring that highlight the moves and steps utilized by Filipino writers of RAs in mathematics in presenting the results of their research or claims to the discourse community.

Figure 8 is a sample analysis of the underlying cognitive structure of one of the Results sections of RAs in science analyzed in this study.

Fig. 8. Sample Move-Step Analysis of Results Section of RAs in Science

Move	Step	Text
Orienting	General Statement	Viability % that is obtained from the sum of all the number of cuttings that formed callus, fissures and roots was found highest in 7 out of the 11 treatments. These included the control treatment and all the treatments where IBA was added at different concentrations.
	Specific Statement	This viability rate ranged from 95 to 100%.
Focusing	General Statement	Cuttings which did not respond to rooting or either to formation of callus and fissures, but still with intact leaves were highest in treatments where NAA was applied at 500, 750, and 1000 ppm, and also in the control treatment.
	Specific Statement	In treatments with 500, 750 and 1000 ppm IBA, the rates on non-responding cuttings were very low and ranged from 0.00 to 7.00%.
Stating Claim	Metastatement	This was significantly different with the highest values that ranged from 15 to 30% in treatments where NAA was added at the same concentrations.
	Elaboration	With regard to callus formation, the lowest values were obtained in treatments where NAA was added in high concentrations at 500, 750, and 1000 ppm.
	Problem	However, with fissure formation, no definite trend was observed.
	Elaboration	Total % rooting which included data from cuttings which formed 1-3 main adventitious roots only and those which formed more than 3 main roots with laterals, was highest in treatment with 500 ppm NAA; and lowest in the control treatment and in treatments with NAA added at 100 and 1000 ppm.
Rounding Off/Stating Final Stance/ Summing Up	Evaluation	However, when looking for the best treatment(s) for rooting, it would equally be important to consider values both for viability and for absence of response in cuttings.
	Justification	When both of these were taken into consideration, better results were obtained in treatments where IBA was added at 500, 750 and 1000 ppm than in treatment where NAA was added at 500 ppm.
	Conclusion	In the latter viability rate was low and the rate of non-responding cuttings was high resulting to less number of cuttings that would root.

The *Orienting* move of the Results section of RAs in science used in this study typically begins with a *General statement* to present the claim made by the RA writer. The *Specific statement* step in the orientation move serves to express a specific statement usually in support of a general statement. The following excerpts illustrate the step *Specific statement* in support of a general statement:

As the anther primordiom became four lobed, a three cell wide hypodermal archesporium differentiated in each of the four lobes (Tolentino & Zamora, 2001, p.1).

The CO_2 effect was more pronounced at high temperatures and high N_1 resulting in significant interactions between CO_2 and N and between temperature and N (Baysa, et al., 2001, p.7).

The next move *Focusing* also utilized the steps *General Statement* and *Specific Statement*. In this move, the two steps are utilized to allow the RA writers to focus on a specific area for discussion. The following extracts exemplify these steps:

General Statement

Cuttings which did not respond to rooting or either to formation of callus and fissures, but still with intact leaves were highest in treatments where NAA was applied at 500, 750, and 1000 ppm, and also in the control treatment.

Specific.Statement

In treatments with 500, 750 and 1000 ppm IBA, the rates on non-responding cuttings were very low and ranged from 0.00 to 7.00%. (Follosco-Edmiston, 2002, p. 20).

The next move is called *Stating Claim*. The most commonly used steps in this move are glossed and exemplified by the extracts quoted in this part of the study. *Metastatement* is a step that is used by the RA writers to tell their readers explicitly that a stand is being taken (Ho, 2004, p. 6), as the following extracts show:

The species collected in July did not significantly vary with those sampled in January (Cervancia, et al., 1999, p. 17).

In this study, in spite of the observed increase in the number of panicles of CO_2–enriched plants at high temperature and N conditions, the number of grains per panicle, grain mass and harvest index significantly declined (Baysa, et al., 2001, p. 7).

Elaboration refers to the step where the RA writers expand a previous statement through details, particulars, specifications and other elaborations. This is exemplified by the excerpt below:

This may be attributed to spikelet sterility induced by high temperature as a result of disturbed pollen shedding and decreased viability of pollen grains. The reduction in grain mass of CO_2-enriched plants grown at high temperature may be due to the observed shorter grain filling period under high temperature, which was about seven days faster or shorter compared to plants grown at ambient temperature (Baysa, et al., 2001, p. 7).

Problem is a step expressed in the form of a statement that contains lexical negation. In some cases, this step is an aspect of a situation which requires a response (Ho, 2004, p. 6). This step is exemplified by the following extract:

> *However, with fissure formation, no definite trend was observed (Follosco-Edmiston, 2002, p.20).*

The last move is a *Rounding Off* or *Stating Final Stance* or *Summing Up* which is realized by any or all of the following steps: *Evaluation, Justification* and *Conclusion*. *Evaluation* qualifies the claim stated by the RA writers. It shows the worth of a claim as well as its validity and significance or importance (Ho, 2004). The following is an example:

> *However, when looking for the best treatment(s) for rooting, it would equally be important to consider values both for viability and for absence of response in cuttings (Follosco-Edmiston, 2002, p. 20).*

Justification is a step that provides reason in support of a claim. The following extract illustrates this step:

> *This is because larvae placed on squares spent 54% of their time feeding on squares while those placed on the bolls and flowers spent most of their time (98 and 74%) feeding on bolls (Pascua & Pascua, 2002, p. 94).*

Conclusion is where the RA writers reiterate and/or summarize main points or claim stated in the report of results of an investigation or experiment, as the following excerpt shows:

> *Hence, there is a need for breeding programs and/or genetic manipulations aimed at developing rice cultivars, which will be more productive in possible future environments (Baysa, et al., 2001, p. 4).*

The foregoing analysis highlights the moves and steps utilized by Filipino writers of RAs in science in communicating to the members of the discourse community the results of an investigation or experiment. Further, the various analyses have shown that the Results section of RAs in science are written or constructed following established convention insofar as cognitive structuring is concerned.

Lastly, in general, the analysis of the cognitive structure of the Results section of the genre under study has revealed the underlying moves and steps involved in achieving the communicative purpose of this particular rhetorical section of RAs in linguistics, mathematics and science written by Filipino writers. The analysis shows further that the Results sections of the genre under study have similar underlying cognitive structure with certain obligatory moves that characterize the genre analyzed in this study. The optional steps such as *Problem, Metastatement* and *Justification* found in the cognitive structure of

the Results section indicate contrast among RAs used in this study. For instance, RAs in linguistics and RAs in science have the step called *Problem*, while RAs in mathematics do not report this occurrence. Ho (2004) and this researcher, however, were not able to find an exact explanation for this phenomenon. In the meantime, let it be said that the step called *Problem* is optional and that the move where this step occurs is variable.

What the analysis in this part of the article tries to explain is the moves and steps involved in the cognitive structuring of the Results section of RAs written in Philippine English. Through these moves and steps, the RA writers indicate clearly the results of the analysis or investigation that they have undertaken. Hence, they are able to realize the communicative purpose of the Results section of the genre under study.

The Discussion section of RAs in linguistics, mathematics and science written in Philippine English revealed that, based on Hopkins and Dudley-Evans' (1988) model, there were five moves involved in the cognitive structuring of this particular section of the research articles analyzed in this study. Likewise, it was revealed that not all ten moves in the model are obligatory, as proven by the data that follow. The moves are utilized to achieve the communicative purpose of the Discussion section of the genre under study, i.e., to redescribe the result of the investigation. Not all moves found in the framework of Hopkins & Dudley-Evans (1988) are obligatory, and they sometimes appear in cycle. To illustrate these moves, a sample analysis is presented below.

Figure 9. A sample move-step analysis of discussion section of RAs in science

Moves	Text
2- Stating Results	Terminal buds and leaves were the only available plant parts for feeding at 30 and 37 DAE, and only a few small squares were available at 37 DAE. Thus, larvae concentrated at the upper-third part of the plant (Fig. 1). When squares were ready available at 44 to 65 DAE and bolls after 72 DAE, larvae were present on these fruiting bodies.
7- Stating Deduction and Hypothesis	Thus, the distribution of *H. amigera* larvae within the cotton plant is a function of the plant's phonological development.
2- Stating Results	Under the screen house condition, first instar larvae were restricted to plant parts where the larvae were placed.
4- Referring to previous research (comparison)	Mabbett et. al. (1979; 1980) found that first and second instar larvae move only short distances.
2- Stating Results	This is evident on the result under natural infestation that first and second instar larvae were mostly located on terminal buds and on small squares at the upper and middle portion of the cotton plant (Fig. 4-6).
7- Stating Deduction and Hypothesis	Therefore, it is likely that the location of the first and second instar larvae of *H. amigera* within the cotton plant is governed by the place of oviposition.
2- Stating Results	Older larvae showed extensive movements within the plant going to large squares and bolls at the middle and lower part of the plant (Table 1). This is evident under the natural infestation. Most of the older larvae were at the middle and lower portions where large squares and bolls were also present.
4- Referring to previous research (comparison)	This is also in accordance with the findings of Wilson and Gutierrez (1980), and Wilson and Waite (1982).
2- Stating Results	Larvae placed on terminal buds and squares moved downward with longer distances than those placed in flowers and bolls because resources of terminal buds and squares were quickly depleted. Those placed on flowers and bolls moved shorter distances than those placed on terminal buds and squares because more food sources were available.
7- Stating Deduction and Hypothesis	This indicates that as the larvae grow older, they move to the lower part of the canopy.

The sample text opens with the Move *Stating Results* which enables the RA writers to give more emphasis to the knowledge claim that they want to make in the Discussion section. In this view, particularly, results are redescribed, summarized or generalized. Move

7 (*Stating Deduction and Hypothesis*) typically follows move 2. In this move, the RA writer is able to make a claim about the "generizability of some or all of the reported results" (Swales, 1990, p. 172). In some cases, Move 6 (*Exemplifying*) comes after Move 7. To Hopkins and Dudley-Evans (1988, p. 23), examples are most often used to support an explanation and to support a deduction or hypothesis since examples sometimes appear after deduction and hypothesis or Move 7, which typically ends the results section of RAs in science.

To illustrate the moves that characterize the cognitive structure of the Discussion section of RAs in linguistics prepared by Filipino writers, a sample analysis is provided in Figure 10.

Figure 10. A sample move-step analysis of discussion section of RAs in linguistics

Moves	Text
1- Giving Background Information	The analysis of the Philippine and U.S. Supreme Courts' decisions has revealed the underlying structures of the criminal appeal cases in both Philippine and American English.
2- Stating Results	The contrastive analysis shows that both Philippine and U.S. Supreme Court decisions have similar underlying cognitive structure with certain obligatory moves that are characteristic of legal cases as a distinct genre of legal discourse.
7- Stating Deduction and Hypothesis	A criminal appeal case has three main obligatory parts: (1) the history of the case; (2) the appeal proper, and (3) the decision on the appeal. In decisions on criminal appeal cases handed down by both U.S. and Philippine Supreme Courts, the sequence of this three parts is fixed, although the move within each part may differ and may be realized in different ways.
6- Exemplifying	For example, the Philippine Supreme Court decisions contain a very detailed presentation of facts of the case, while the U.S. Supreme Court decisions briefly present the facts of the case.
2- Stating Results	The order of the moves within each part may also differ. Despite all the differences in moves within each part of a criminal appeal case in American and Philippine English, the underlying cognitive structure is basically the same, which makes the legal case a recognizable sample of the legal genre by the members of the legal discourse community. The analysis reveals that members of the legal discourse community share a certain set of communicative purposes and these purposes, in their own turn, dictate structure, style, content and intended audience.
7- Stating Deduction and Hypothesis	Legal genre determines structural conditions that different parts of an appeal criminal case follow. Particular structure of legal cases is determined by the communicative purposes they serve in the legal discourse community.
9- Recommending	Further research can look at the characteristics of the American and Philippine English used in the legal discourse at the intra-sentence level and investigate syntactic features of the legal language of the criminal appeal case.

The text in Figure 10 opens with a Move 1 *Giving Background Information*, which is typical of the Discussion section of RAs in linguistics used in this study. As the text shows, the background information is but a simple statement and does not have to be necessarily elaborate and lengthy. In this case, the background information is a recapitulation of the main point of the analysis. In almost all cases concerning the cognitive structure of the Discussion section of RAs in linguistics, Move 1 is employed by the authors to strengthen their discussion by recapitulating the main point or by highlighting theoretical information. This is usually followed by Move 2 *Stating Results*, which enables RA writers to give more emphasis to the knowledge claim that they want to make in the Discussion section. In this view, particularly, results are redescribed, summarized or generalized.

Move 7 *Stating Deduction and Hypothesis* typically follows move 2. In this move, the RA writer is able to make a claim about the generizability of some or all of the reported results (Swales, 1990, p. 172). In some cases, a Move 6 *Exemplifying* comes after Move 7. To Hopkins and Dudley-Evans (1988), examples are most often used to support an explanation. But in the Discussion section of RAs in linguistics exemplified by the above sample texts, examples are used to support a deduction or hypothesis, since examples appear after deduction and hypothesis or Move 7.

Further analysis of the cognitive structure of the Discussion section of RAs in linguistics written by Filipino writers reveals the cyclic nature of this particular section of the genre under study. It is revealed that Move 2 'Statement of Results' occurs not just once but twice or more in the Discussion section. Move 2 recurs after Move 7. The reappearance of Move 2 is a sample of cyclicity found in the Discussion of RAs in linguistics analyzed in this study. And because a Move 2 has been found to be typically followed by a Move 7, once a Move 2 recurs, a Move 7 also recurs. Hence, a Move 2-Move 7-Move 2-Move 7 cycle has been found to be the recurrent pattern of cyclicity involved in the Discussion section of RAs in linguistics used in this study. Here is an example of this type of cyclicity:

Moves	Texts
2 – Stating Results	In all 80 letters, no writer ever praised the newspaper in which the letter was published. No writer gave a description of the intended target of the complaint. No writer requested the editor of the newspaper to publish his/her letter.
7- Stating Deduction and Hypothesis	This may imply that Filipinos and Singaporeans prefer to employ the move *praise* for letters expressing commendations rather than in complaint letters. Perhaps, it may also be a cultural practice for Filipino and Singaporean writers when writing letters of complaint.
2 – Stating Results	As regards attention-getter, it is likely that the writers do not have considerable knowledge about the individual/s who should answer the complaint. With respect to appeal to the editor, this move was never employed at all...
7- Stating Deduction and Hypothesis	Moreover, not employing this move may also be another cultural practice among Filipino and Singaporean writers when writing complaint letters.

The last move that characterizes the cognitive structuring of the Discussion section of RAs in linguistics analyzed in this study is Move 9 *Recommending*. This move has been

found to be typically employed by Filipino writers of RAs in linguistics in concluding the Discussion section. In Move 9 (see Figure 10), the RA writer recommends needs for further research or suggests what Swales (1990) referred to as "possible lines for future investigation."

5. Conclusion

Based on the foregoing analysis, it can be concluded that the analysis of the cognitive structuring of the different rhetorical sections of RAs in linguistics, mathematics and science written in Philippine English usefully proved that the RAs analyzed in this study conform to the various models of cognitive structuring of research article particularly in terms of the linguistic exponents used to express moves and their associated steps. Furthermore, a look at the cognitive structuring of the sections of the genre analyzed in the study suggests that there is nothing contrasting in the way research articles in linguistics, mathematics, and science written in Philippine English are created, except in the manner in which steps were utilized in each move. The moves found in each part of the RAs may also differ in terms of the order or sequence of the moves. Despite the difference in the order of the moves within the I-M-R-D sections of RAs written in Philippine English, the underlying cognitive structure is parallel, which makes research articles written in Philippine English a recognizable sample of the genre of research article.

The different rhetorical sections of the genre examined had a specific organizational structure though the pattern differed depending on the style of the RA writer. The cognitive structuring of the Introduction section of RAs in linguistics, mathematics and science prepared by Filipino writers conform to Swales' (1990) CARS (Create A Research Space) Model. The organizational moves and steps found in the CARS Model were also found in and shared by the introduction sections of the genre under study. The moves were found to be obligatory; however, steps were optional. The methods section tends to manifest a two-move cognitive structuring. No evidence of cyclicity has been found in the methods section. It is presumed that the forgoing analysis of the methods section has shown why the methods section is important in most research articles. The results section achieves its communicative purpose of reporting the results of an investigation through four moves and variable steps. Lastly, the discussion section shows consistency with the moves articulated in Hopkins and Dudley-Evans (1988) framework. This indicates that the genre analyzed in this article is written according to established norms of writing.

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