SYNTACTIC AND SEMANTIC ANALYSIS OF NOMINALIZATION IN ENGLISH ACADEMIC WRITING

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Abstrak. Salah satu ciri bahasa ilmiah adalah penggunaan "tatabahasa teknis" yang bentuknya ditandai dengan penominalan atau nominalisasi. Bahasa ilmiah yang mengandung banyak penominalisasian akan sulit dipahami karena makna kongruen situasi dinyatakan secara inkongruen atau pilihan linguistik lain (Eggins, 1994: 63; Thompson, 1996: 165), yang menyebabkan teks menjadi semakin padat. Ciri bahasa ilmiah ini memenuhi kebutuhan untuk "memperlebar domain intelektual" (Wilkins, dikutip dari Halliday and Martin, 1993: 6). Melalui proses ini, pengetahuan umum (folk knowledge)-yang menyatakan pengetahuan dari peristiwa atau proses dinamis diubah menjadi sintesa atau hasil dari kegiatan. Dengan demikian, pengemasan isi klausa ke dalam kelompok kata benda, atau penominalan cenderung menjadi "technicalized" (Halliday and Martin, 1993: 8). Nominalisasi memiliki tiga fungsi dalam bahasa ilmiah: (1) menawarkan keringkasan (conciseness), (2) menawarkan aliran informasi secara dinamis karena informasi lama dinyatakan dalam kelompok nominal yang langsung dapat diikuti oleh informasi baru, dan (3) menjadi sarana efektif bagi kategorisasi, pelabelan dan deskripsi fenomena (Eggins, 1994, Lock, 1996). Di sisi lain, nominalisasi memberi masalah dalam pemahaman bagi pelajar EFL karena mereka harus mengetahui bagaimana mengurai kelompok nomina yang padat dan menghindarkan makna ganda. Tujuan penelitian ini adalah membahas analisis nominalisasi secara sintaksis dan semantik. Data diambil dari 20 kalimat dalam artikel dari Jurnal Language Learning & Technology. Hasil penelitian menunjukkan empat (4) struktur nominalisasi dan variasi kombinasi klausal tertentu dalam penguraiannya. Penelitian ini menunjukkan bahwa nominalisasi meningkatkan makna tekstual, memaksimalkan potensi informasi, menghilangkan makna eksperiensial, abstraksi aktivitas dan perubahan dari aktivitas menjadi entitas.

Kata kunci: academic writing, penominalan, analisis sintaksis dan semantik

Introduction

Scientific language as a specific type of register within the academic world has shown at least two distinctive textual features: technical vocabulary and nominalized grammar or "technical grammar" (Halliday and Martin, 1993:6,8). As a specific register, namely, being used by a particular group of people, scientific language may be distinguished by "having a number of distinctive words, by using words or phrases in a particular way, and sometimes by specific grammatical construction" (Richard, *et al*, 1992: 313; cf. Yule, 1985:276). Scientific language is "an essential component in enlarging the intellectual domain" (Wilkins, quoted in Halliday and Martin, 1993: 6). Technical vocabulary is very essential in building technical taxonomies that distinguish a scientific description from the messy folk taxonomies which in many cases involve inconsistent, compromising, contradictory and even indeterminative criteria. Scientific description,

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on the other hand, cannot tolerate such inconsistencies and thus scientists need to design technical terms that build up "regular morphological patterns for representing a classificatory system in words" (*ibid*). Therefore, scientific knowledge needs "to be organized around system of technical concepts that are arranged in strict hierarchies of kinds and parts" (*ibid*).

Technical grammar has an important role in knowledge presentation, whereby experiences that match with the actual events, in which the activities are represented by verbs and the participants involved in the activities are represented by nouns, need to be presented as objects or entities and may thus be presented as objects for verification. Events or processes need to be changed from dynamic to synthesis or result of activities. This gives possibilities to rearrange clause relationship and represent processes by nouns. Packing the content of clauses into noun groups is known as *nominalization* (Lock, 1996: 59).

This paper focuses on nominalization as one aspect of grammatical metaphor. Grammatical metaphor is "a substitution of one grammatical class, or one grammatical structure, by another" (Halliday, 1993: 79). The metaphorical expression of meaning is a different way of expressing the 'same' meaning which would be more congruent (Thompson, 1996: 165). In other words, the congruent meaning of situations that is typically realized by one type of language pattern is now realized less typically or incongruently into other linguistic choice (Eggins, 1994: 63). Such a construction of grammar, that is the words turned into nouns, "tend thereby to become technicalized" (Halliday and Martin, 1993: 8). Consider the following illustration of representation of experiences:

- (1a) You measure capacitors in microfarads.
- (2a) You can shoot the ball into the ring (Lock, 1996: 59).
- (1b) the <u>measurement</u> of capacitors in microfarads . . .
- (2b) the <u>shooting</u> of the ball into the ring ... (ibid: 60).

The processes represented by verbs to measure (1a) and to shoot (2a) are now represented by nouns measurement (1b) and shooting (2b) through nominalization. The syntactic relations of the clause elements are downranked as the rest of the material in the clauses is packed into the noun groups. The new noun group construction gives the benefit of effective writing for its lexical density. However, such a nominalization also reflects one of the possible difficulties in dealing with grammar of scientific English, i.e. syntactic ambiguity (See Halliday, 1993:71), due to the loss of real entities that participate in the experience.

Nominalization is "the single most powerful resource for creating grammatical metaphor" (Halliday, 1994: 352). By nominalization, processes represented by verbs, and quality represented by adjective turn metaphorically into nouns. Consider the change of an adjective into a noun in example (3):

- (3a) They were able to reach the computer.
- (3b) their access to the computer

Example (3) illustrates adjective phrase *able to reach* (3a) is turned into a (different) noun *access* (3b), which is much less congruent in comparison of nominalization of verbs *to measure* (1a) and *to shoot* (2a) into nouns *measurement* (1b) and *shooting* (2b). This adds to further difficulties in identifying the meaning relations of the original clause.

A noun group has a basic three-part functional structure: premodifier, head, postmodifier. Of the three slots, the head is the only obligatory slot. This is normally filled by a noun, and in some cases such as in an elliptical noun group the head may be a determiner or deictic such as *this* or *that*. The head of the noun group normally is "the thing that is being talked about" (*ibid*: 179). The head of the group functions to represent the thing, which covers both inanimate and animate – including human – entities. A noun group may include other groups, phrases, or even clauses inserted or embedded within it.

Nominalization has three functions in the scientific language (Lock 1996:61). First, nominalized language offers the potential advantage of conciseness. Packing information into a noun group leaves the rest of the clause available for adding new information. Nominalization "allows us to pack in more lexical content per sentence" (Eggins, 1994: 59). Second, it is much easier to begin a clause or a sentence with a noun group than with a verb group. One purpose is to provide a link between parts of the text. The third reason has to do with the nature of scientific language, which reflects science's concern with categorizing, labeling, and describing phenomena. In order to do this effectively, it is often necessary to treat processes as if they were things, and nominalization makes it possible to organize text rhetorically; i.e. nominalization allows one to avoid the dynamic and usually real world sequencing in spoken form, in which sequences of actions are related with actors. By nominalizing both actions and logical relations, the text can be organized "not in terms of actors, but in terms of ideas, reasons, causes, etc." (ibid: 59). Nominalization and passivization has also been employed by writers of university textbooks and university level students show their objectivity (Thompson, 1999).

The purpose of this paper is to discuss syntactic and semantic analyses of noun groups formed through the process of nominalization. Syntactically, it will look at how the noun groups are constructed, the changes that take place from their congruent structure. Semantically, this study will investigate meaning relations expressed in the noun groups' constructions, and how they may differ from the congruent ones. The discussion is expected to benefit both novice scientific journal writers in particular, and English language learners in general on some important characteristics of scientific English as used in English scientific journals.

Method

For the purpose of this study, 20 sentences containing noun groups are selected from one article by Jin Sook Lee (2006) entitled "Exploring the Relationship between Electronic Literacy and Heritage Language Maintenance", in *Language Learning & Technology*. Vol.10 No. 2, May 2006, pp. 93-113. This journal article is selected for several reasons. First, the journal is an international journal whose articles have undergone the process of selection, review and editing to meet the standard use of English in scientific writing. Second, the journal is freely available on the internet. Third, the limited sentences from only one article are selected as the data because this study aims for deep and comprehensive investigation. Each of the sentences are analyzed carefully to identify the noun group structure, the 'reconstructed' or paraclause structure, and semantic relations of the clause constituents.

Result

The article used as the data source is a research report on how two Korean-American girls speaking English, Lizzy and Jendy, improve their Korean through their participations in Cyworld. The research focuses on Korean electronic literacy practices in popular Korean weblog and the effects of such practices on the language maintenance efforts of two Korean-American heritage language speakers. The detailed situation for each of the data is presented as context of the data wherever necessary in the noun group unpacking processes.

The following analysis is presented to illustrate the complexity of each of the sentences employed in the article. The first illustration is taken from sentence 7 of the data. The context of sentence 7 is that in a study being referred to in the article (i.e. Au & Oh, 1996), the Internet provides many possibilities for learners to gain exposure to the language and maintain ties with Korean speakers. Such a context is likely to provide a fertile ground for language learning to happen.

The social constructivist paradigm, which places social interaction at the core of second language learning, provides a foundation for understanding how electronic literacy practices within online communities can contribute to language maintenance and development. (Sentence 7)

The above sentence can be unpacked into 10 sentences sequenced as follows:

- 1) Language learners interact socially.
- 2) They learn second language.
- 3) The constructivists place social interaction at the core of second language learning.
- 4) This is their paradigm.
- 5) Language learners often practice electronic literacy.
- 6) They maintain and develop language.
- 7) The electronic literacy practices within online community can contribute to language maintenance and development in such a way.
- 8) Language learners should understand this.
- 9) The constructivist paradigm found this understanding.
- 10) The constructivist paradigm provides this foundation.

The key words being nominalized include: to interact (V) in (1) turns into noun interaction, socially (Adverb) in (1) into Adjective social, 'to learn' (V) in (2) into noun 'learning', 'second language' (NP) in (2) into adjectival 'second language (learning)', 'to practice' (V) in (5) into noun 'practices', 'electronic literacy' (NP) in (5) into adjectival 'electronic literacy (practices)', 'maintain and develop' (V) in (6) into noun 'maintenance and development', 'within online community' (Adverbial) in (7) into prepositional phrase 'within online community', 'understand' (V) in (8) into noun 'understanding', 'found' (V) in (9) into noun 'foundation'. The information in 10 sentences containing 70 words is packed into one sentence containing 34 words. Another important impact of the nominalization is that the kind of constituent relations

in the clause, i.e. many material processes normally realized in full verbs are now filled with relational processes realized in BE or in many cases "empty" verbs such as have, come, and in the case of Sentence 7 above, the verb *provide*.

The second illustration is taken from sentence 13 of the data. The context of the above sentence is that Lizzy and Jendy admitted to having increased confusion about the correct and standard forms of Korean, because they often see variations in spelling of the same words or phrases. This means that they and language learners in general, may need additional support to help them distinguish between appropriate electronic text forms and standard forms of the Korean language.

Support can come in several forms, such as explicit explanations of the ways in which certain words are used or spelled by the native speakers in the community, or by enrolling in language courses where the grammatical, lexical, and pragmatic explanations of language use are a part of the curriculum. (Sentence 13)

This sentence may be unpacked into 9 individual sentences as follows.

1) Learners learn Korean language through Internet.

2) They do not know the appropriate language use.

3) Native speakers support these learners.

4) The support can be in several forms.

5) For example, the native speakers explain certain words explicitly.

6) They used or spelled certain words as they are used in the community.

7) Another example is that the learners enroll in language courses.

8) The language courses explain language use grammatically, lexically, and pragmatically.

9) This is a part of their curriculum.

Some key words from these sentences are taken to form a nominalization:

- a. support (V) in (3) turns into noun support;
- b. explain (V) in (5) turns into noun explanation;
- c. explicitly (adverb) in (5) turns into adjective explicit;
- d. they (the native speakers) used and spelled certain words in the community (sentence 6) turns into adjective clause but in passive form;
- e. explain (V) in (8) becomes noun explanations;
- f. language use (NP) becomes prepositional phrase of language use;
- g. grammatically, lexically, and pragmatically (Adverb) turn into Adjective grammatical, lexical, and pragmatic.

In total, the nominalization managed to reduce information in 83 words into a single 50word sentence. As the congruent verbs are nominalized into nouns, the relations of the sentence constituents are also affected. The material processes that are normally realized in full verbs (such as *support, explain*, etc) are now changed into relational processes realized by linking verbs (or BE in its relevant forms) and in many cases by "empty" verbs such as *come, become, have*, etc., and in case of Sentence 13, 'empty verb *come* and linking verb *are* are used:

Support <u>can come</u> in several forms (meaning, Support can BE in several forms)

inthe grammatical, ... explanations of language use <u>are</u> a part of the curriculum

The tendency of English scientific writing to use certain verb phrase types that fill the predicate slot in the clause is also another generic feature of scientific writing. This point may need further investigation.

Of the 20 data, 17 data show the nominalized heads are of Process type and 3 data are of Quality type. From the syntactic and semantic analyses of the twenty data, four structures of nominalizations are found. By way of 'denominalizations'or paraclause, or unpacking, it is found that words in pre-modifiers and post-modifiers of the nominalized noun groups are originated from elements filling different slots in the clauses. The results may be presented briefly as follows.

- 1. In nominalization consisting of
 - a. *Head*, the denominalization is X + Verb derived from the head + Y. This phenomenon appears in sentence 13.
- 2. In nominalization consisting of *Premodifier* + *Head* with the arrangement of *Premodifier*:
 - a. Determiner + Head, the denominalization is X + Verb derived from the head + Y. This phenomenon appears in sentence 1.
 - b. Adjective (classifier) + Head, the nominalization is X + Verb + Adverbial derived from adjective. This phenomenon appears in sentence 1 nominalization 1. 2, sentence 7 nominalization 7. 1, and sentence 8.
 - c. Adjective (classifier) + Noun (classifier) + Head, the denominalization is X + Verb + Y filled by (adjective +noun). This phenomenon appears in sentence 7.
 - d. Adjective 1 (classifier) + adjective 2 (classifier) + Noun (classifier) + Head, the denominalization is X + Verb + Y filled by (adjective 2 + noun) + Adverbial derived from adjective 1. This phenomenon appears in sentence 2.
- 3. In nominalization consisting of *Head* + *Postmodifier* with the arrangement of

Postmodifier:

- a. *Head* + *Prepositional Phrase* (qualifier), the denominalization is X + Verb + Y filled by a noun group of prepositional phrase. This phenomenon appears in sentence 3, sentence 7 nominalization 7.3, sentence 11.
- b. *Head* + *Prepositional Phrase* (1) + *Prepositional Phrase* (2), the denominalization is X filled by a noun group of prepositional phrase (2) + *Verb* + Y filled by a noun group prepositional phrase (1). This phenomenon appears in sentence 5.
- c. *Head* + *Prepositional Phrase* (1) + *Prepositional Phrase* (2), the denominalization is X filled by a noun group of prepositional phrase (1) + *Verb* + Y filled by a noun group of prepositional phrase (2). This phenomenon appears in sentence 17.
- 4 In nominalization consisting of *Premodifier* + *Head* + *Postmodifier* with the arrangements of *Premodifier* and *Postmodifier*:
 - a. Adjective (describer) + Head + Prepositional Phrase, the denominalization is X + Verb + Adverbial filled by prepositional phrase + Adverbial derived from adjective. This phenomenon appears in sentence 4, sentence 6, and sentence 9.

- b. Adjective (classifier) + Noun (classifier) + Head + Prepositional Phrase, the denominalization is X filled by (adjective + noun) + Verb + Y filled by a noun group of prepositional phrase. This phenomenon appears in sentence 8.
- c. Adjective (classifier) + Head + Prepositional Phrase, the denominalization is X filled by a noun group of prepositional phrase + Verb + Y + adverbial derived from adjective. This phenomenon appears in sentence12 and sentence 14.
- d. Adjective (describer and classifier) + Head + Prepositional Phrase, the denominalization is X + Verb + Y filled by a noun group of prepositional phrase + Adverbial derived from adjective. This phenomenon appears in sentence 10, and sentence 13.
- e. Possessive adjective (referrer) + Head + Infinitive (qualifier), the denominalization is X filled by noun changed from possessive adjective + Verb + Infinitive. This phenomenon appears in sentence 14.
- f. Possessive adjective (referrer) + Head + Prepositional Phrase, the denominalization is X filled by pronoun changed from possessive adjective + Verb + Y filled by a noun group of prepositional phrase. This phenomenon appears in sentence 15.
- g. Adjective (classifier) + adjective (classifier) + Noun (classifier) + Head + *Prepositional Phrase*, the denominalization is X + Verb + Y filled by (adjective + adjective + noun) + Adverbial filled by prepositional phrase. This phenomenon appears in sentence 17.
- h. Noun (classifier) + Head + Prepositional Phrase + Infinitive, the denominalization is X + Verb + Y filled by noun in premodifier combined with a noun group in prepositional phrase + infinitive. This phenomenon appears in sentence 16.
- 5 In nominalization containing heads represented quality and consisting of *Head* + *Postmodifier*, and *Premodifier* + *Head* + *Postmodifier* with the arrangements of *Premodifier* and *Postmodifier*:
 - a. Determiner (referrer) + Head + Prepositional Phrase, the denominalization is X filled by a noun group of prepositional phrase + Verb (be) + Y filled by adjective derived from the head + infinitive. This phenomenon appears in sentence 18.
 - b. Determiner (referrer) + Head + Prepositional Phrase, the denominalization is X filled by a noun group of prepositional phrase + Verb (be) + Y filled by adjective derived from the head. This phenomenon appears in sentence 19.
 - c. Determiner (quantifier) + Head + Prepositional Phrase + Infinitive, the denominalization is X filled by infinitive + Verb (be) + Y filled by adjective derived from the head + Prepositional Phrase + Adverbial from the determiner. This phenomenon appears in sentence 20.

Discussion

The data analyses show how nominalizations minimize words by taking some important key words from some sentences and eliminating other words including the participants if necessary to be combined into one sentence. This means that the information in many sentences is packed to form conciseness which brings at least five effects to scientific articles.

Firstly, there is an increase in textual meaning. Nominalization relates parts of the text to other parts, and this creates cohesion as the relation shows repetition of the

previous information. The change of word classes such as verb and adjective into nouns still maintains the information content. When this information, represented by noun or noun phrase functions as a clause constituent, another constituent with new information can be introduced to complete the clause, and thus extends the information content.

Secondly, nominalizations maximize the information potential in one clause. In the first effect, nominalizations can fill parts of a clause where nominal can fill such as subject, object, adverbial object of a preposition.

Thirdly, there is a loss of experiential meaning. A clause may represent a pattern of experience which is represented by Process. The process obliges a participant(s) to complete a clause. The relation between a participant(s) and process is that a participant is an agent 'who does', and process is an activity 'what an agent does'. In nominalization, the process which represents an activity is changed into a 'thing', giving a possibility for the participant to disappear.

Fourthly, as the experience showing an activity is turned into a 'thing', the information becomes blurred. Information presented in a clause constructed as [X (participant) + V (process) + Y (participant)] is easier to process since the participants obliged by the process show 'who does' and 'to whom'. When the process showing an activity is changed into a noun with the consequence of the absence of the participants, the activity becomes abstract. As both the Subject and Object slots may be results of nominalization, it is therefore logical that the material process types in the congruent sentences may then be changed into relational processes in the nominalized sentence.

Fifthly, the consequence of information abstraction is that the information is not a process or an activity bound by time and place, but a 'thing' that exists. Information in a clause construction invites a question 'whether X + V + Y or not', and a negation 'X + not + V + Y. when the clause is turned into a noun, it can neither be questioned nor negated. The implication is that the information contained in the sentence with nominalization is unchallenged for it has no possibility for negotiation. This the author strengthen his or her position with regard to the (new) knowledge being proposed.

Conclusion

The analysis of the 20 data found four structures of nominalization. The structures are (Determiner) + Head, Premodifier + Head, Head + Postmodifier, and Premodifier + Head + Postmodifier. The denominalizations or unpacking process of these nominalizations provide distinctive variation of clauses due to the different fillers in both pre-modifiers and post-modifiers. The unpacking process also shows that sentences in academic writing, especially journal articles, are densely and concisely constructed to carry as much information within limited space and amount of words and sentences. Nominalizations are thus an effective way of information packaging. Nominalizations brings effects to the scientific article. Firstly, there is an increase in textual meaning as nominalizations pack much information in one clause and make compact cohesion. Secondly, the information packaging in a clause maximize the information potential due to the possibility of nominalizations to fill slots in which noun can fill. Thirdly, there is a loss of experiential. The turning of an activity represented by verb into noun brings a consequence that participants are elided. Fourthly, the information also becomes blurred because an activity is turned into noun which makes the activity abstract. Fifthly, the nominalization changes the experiential information to become something that exists, or an entity. As an entity cannot be negotiated through negation or question, the meaning it contains is thus unchallenged. The implication is that knowledge presented in the sentence has found more solid ground.

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