A Synopsis of the Graduate Students' Master Theses in Applied Linguistics (Teaching English for Science and Technology) Mahidol University : 1978-1979

Boosakorn Vijchulata
Mahidol University

This synopsis of graduate students' theses written between 1978 and 1979 has been prepared for readers interested in English for Science and Technology. The topics range from the analysis of the use of a single word in scientific texts through a grammatical analysis of a type of clause to the sentence types embodying certain specific rhetorical discourse functions in technical writing.

In addition to the particular types of analysis presented, these theses provide useful data which would be of some use to teachers preparing teaching materials for certain categories of students, particularly those science and technology.

A study of Reduced Relative Clause in Scientific Texts
(Duangporn Nupong : 1978)

The study mainly focuses on reduced relative clauses at phrase level. The 1,000 reduced relative clauses were analyzed, randomly drawn from every fourth page of the two scientific texts: Biology (Villee : 1967) and College Chemistry (Mahan : 1966), in order to see how the clauses are structurally reduced or which element had been shortened. The reduced clauses were also classified into several categories by means of structural differences, position in the noun phrase, and function. A reduction formula was given for each reduced relative clause category. Moreover, the occurrences of each type of reduced clause were counted to establish the relative frequency of the total.

The result of the study shows classification of two main categories of the reduced relative clauses.

I. Defining reduced relative clauses :

1. Nominal + Participial Phrase (active & passive)
2. (Det) + (Adj) + Participial Phrase + Nominal
3. $(\text{Det}) + \left\{\text{Adj} / \text{Num} / \text{N} - \text{N} \pm \text{ed}\right\} + \text{Nom}$

I. Defining reduced relative clauses :

1. Nominal + Participial Phrase (active and passive)
   an animal suffering from anthrax
   a person subjected to intense gamma rays
2. (Det) + (adj) + Participial Phrase + Nominal
   quickly moving particles
   well-controlled experiments
3. (Det) + Adj / Num / N - N ± ed + Nom
   thick-walls cells
   the rod-shaped becteria

II. Non-defining reduced relative clauses :

1. Nom, Pres. Participial Phr. (active)
   John and Pam, working in Rutherford's laboratory.
2. Nom., Past Participial Phr. (passive)
   organic material, known as humus.

The relative frequency of occurrence of each defining reduced relative clause category is 40.5 %, 41.4.%, 4.3 % and that of the non-defining clause is 13.8 %. The frequency of occurrence in the active form is 31.5 % whereas that in the passive form is 68.5 %. This reveals that type 3 of the defining clauses occurs least frequency and the reduction of the active form is less frequent than that of the passive form.

What is good in this thesis is that it also reveals the non-reduced forms of relative clauses. These are the forms beginning with a preposition, containing model verbs and when the WH-word is not the subject of the verb in the relative clause which is active in form.

A Study of Comparative Sentences in Biochemistry

(Suleporn Chuvessiriporn : 1978)

The comparative sentences in the first 200 pages of Lehninger's Biochemistry (1970) were drawn for the study in order to point out and demonstrate how the topic of comparison is expressed in scientific and technical English; to categorize the comparative sentences with respect to their semantic differences; and to investigate how for this syntactic structure reflects content (conceptual structure).

The study reveals that the comparative sentences occurring in the text can be divided into 5 topics :

1. Comparison for similarities
2. Comparison for differences
3. Comparison for contrast
4. Comparison for degree
5. Comparison for equality

Under each type, the element which mark the comparison are given and illustrated. In addition, this investigation results in several useful findings :

1. Things and characteristics being compared can be more than two.
2. Certain words and their derivatives signify comparison under certain aspects.
3. Apart from being confined in the same sentence, comparison can be extended beyond the boundary the of sentence.
4. Some comparative structurings might serve as an intensifier of the characteristics mentioned.
5. Some comparative statements need certain presuppositional information or background knowledge in the field.
6. Certain lexical items in different contexts carry meanings othes than comparison.

This thesis attempts to analyze only the structures of comparison in a broad range. The deeper study of the structural analysis in each topic of comparison should be pursued in order to gain more insight into the structural differences among verious types of comparison.

A Study of Definition Statements in Scientific Texts

(Piyanart Hemsuchi : 1979)

The purpose of this study is to

1. determine which of the verieties, if any, occur more frequently than other.
2. determine what conditions, if any, might account for such preferences as might occur.
3. categorize significant grammatical structures in which definition statements are written.

The investigation is limited to definitions expressed in not more than two consecutive sentences containing three essestial features :
1). the term being defined (X), 2). the set to which X belongs, and 3). the differentiation data which distinguishes X from all other members of the set. The study was based on 196 definition statements collected from 120 expository basic scientific texts involving 24 key terms used in biology, calculus, chemistry, geometry, linguistics, mathematics and physics. The data are analyzed in two different ways. The first analysis is based on the way in which a given X is expressed and the second is based on the different types of sentence structures used for the definition of a particular X.

The first analysis reveals that the veriables involved in the expression of a given X are 1) whether singular or plural is used for X, 2) what article is used with X and 3) what the position of X is relative to the noun naming the set to which X belongs.

The second analysis shows that there are at least 4 major types of sentence structures used for expressing definitions :

Type I : The set is the subject of the main clause.

Set	relative clause or reduced forms of relative clause	be	called known as referred to	X

Type II : X is the subject of the main verbs

X	be be defined as be defined to be mean refer to	relative clause or reduced forms of relative clause	set

Type III : Differentiation stated in Conditional Clause

III a : Conditional clause precedes main clause

Conditional clause stating defining feature (s)	set	be	said to be called	X

III b : Conditional clause follows main clause

Set	be called said to be	X	conditional clause stating defining feature (s)

Type IV : Active voice with 'personal' subject

We (can)	define X as	set relative clause
	call	set relative clause X

Moreover, a variety of different phrase structures was found for expressing the differentiation data, which differentiate X from all other members of the set:

1. The conditional defintions
2. Relative clauses in definition :

a)

Set	which (subj. of verb) .....
	Prep. + which (obj. of preposition) .....

b)

Set	which	Intransitive verb
		Linking verb
		Transitive verb
		Passive voice verb

c)

Set	that have	Noun
	with	
	of	

This study is considered to be a thorough investigation on "definition" which is an important type of discourse in scientific writing. The most significant part of this thesis is Part Three, which presents all the significant types of sentence structures containing the concept of "definition".

A Study of Various Uses of 'As' in Scientific English
(Naraporn Rochanachandra : 1979)

This thesis attempts to analyze various of 'as' in the sentences occurring in 600 pages of three basic scientific textbooks : Biology (Villee : 1967), Chemistry (Sienko and Plane : 1971) and Physica Part I (Resnick and Halliday : 1966). 200 pages of each book are studied, 100 from the first half of the book and another 100 from the second half. The total of sentences in which 'as' occurs are classified with respect to different functions. The findings of this study show that the occurrences of 'as' can be categorized into 7 main functions, each category including sentence structures, examples, comments and some suggestions. Uses of 'as' are found in :

1. Comparison
   a. of equality
   b. of similarity
   c. of difference or contrast
2. Description
   a. functional description
   b. physical description
   c. description of property
   d. description of characteristics
3. Condition
   a. general condition
   b. proportional condition
4. Time Order
   a. point of time
   b. period of time
5. Definition
6. Classification
7. Exemplification

The occurrences of 'as' in each function are shown from the highest frequency to the lowest. Based on the total occurrence of frequency the study also reviews that 'as' is mostly used in the function of comparison, especially comparison of equality, and of description.

What is considered to be very useful to teachers or those who are interested in the use of 'As' is that this study also attempts to analyze the implications of 'As' in the deep structure of each type and full meanings of 'As' in each type are given as well.